



**19-20 August 2019 | Yayasan Pahang, Kuantan, Pahang, Malaysia**

# **PROCEEDINGS**

## **FGIC 2<sup>nd</sup> Conference on Governance & Integrity**

**“GOVERNANCE & INTEGRITY IN THE ERA OF  
DIGITAL INDUSTRIAL REVOLUTION”**

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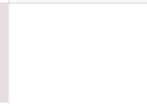
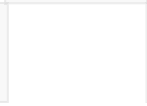
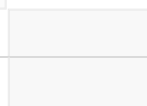
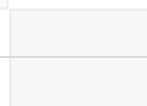
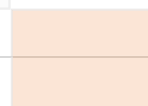
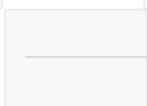
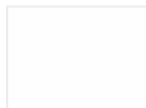
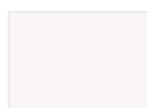
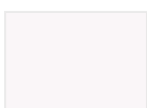
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## Conference Paper

# Determinants of Green Banking Adoption: A Theoretical Framework

Syed Asim Ali Bukhari, Fathyah Hashim, and Azlan Amran

Graduate School of Business, Universiti Sains Malaysia, 11800 USM Pulau Pinang, Malaysia

## Abstract

All around the world, Green Banking has gained a tremendous moment in the last few decades. The green movement in the banking sector was triggered due to the escalating global climate change being caused by environmental degradation. Mostly attributed to the manufacturing sector, it has now been realized that banks are one of the major causes of the global climate change both directly and indirectly. This has caused an increased focus and stakeholder pressure for Green Banking adoption at the global level. Based on the Institutional theory, this study proposes a framework for examining the relationship between organizational adoption determinants and the adoption of Green Banking. The proposed framework is based on Institutional theory and justified through the existing literature. The study proposes the hypothesis for examining the relationship between determinants and Green Banking adoption. External or institutional factors are proposed to play an essential role in influencing a bank's adoption of Green Banking practices. The proposed framework can be adopted by a country's regulatory authorities and the individual banks in order to identify the factors that can positively influence and facilitate the adoption of Green Banking.

**Keywords:** green banking, green banking adoption, stakeholder pressures, institutional theory, green banks.

Corresponding Author:

Fathyah Hashim  
fathashim@usm.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

The banking industry is one of the oldest industries of the world. The earliest evidence of banking activity can be traced back to 2000 BC (Goyal & Joshi, 2011). In the past, the banking industry was a major part of the capitalist system. Capitalism is an economic system which supports the generation and distribution of wealth in such a manner that the private banks control every aspect of the economy but the banks are accountable to no one except the shareholders. This school of thought advocated profit generation as the sole responsibility of banks (Kurtkaya, 2016).

In the 1980s, an opposing philosophy to the capitalist view in the form of the stakeholder approach started gaining academic attention. According to the stakeholder approach, an organization exists for the benefit of various stakeholders, not just shareholders (Clifton & Amran, 2011). The stakeholder theory proposed that an organization



produces externalities through its business activities that affect stakeholders. As a result of these externalities, stakeholders increase pressures on firms to reduce their negative and increase positive impacts. Similar to the stakeholder theory, the institutional theory also supports the stakeholder approach by arguing that creating stakeholder engagement has become necessary for organizations to establish social legitimacy (Sarkis et al., 2010).

In the 20th century, stakeholders started realizing that environmental degradation and natural resource degeneration are the greatest externalities being produced by organizations. This resulted in increasing stakeholder pressure on organizations towards reducing their adverse environmental impacts. Due to the formation of the 'Montreal Protocol on Substances that Deplete the Ozone Layer' in 1987 (UNIDO, 2014), the 'United Nations Environment Programme Finance Initiative' (UNEP- FI) in 1991, the 'United Nations Framework Convention on Climate Change' (UNFCCC) in 1992, the 'Kyoto Protocol' in 1995, the 'Equator Principles' in 2003 and the 'Paris Agreement' in 2016, stakeholder pressure was built on organization to adopt sustainable development policies and practices (SBP, 2015). Initially banks were not included in these organizations but the scenario has changed with time.

## 2. Literature Review

In the past decades, banks were perceived to be an environmentally neutral industry (Ahuja, 2015). Majority of the banks focused on various social initiatives during the incorporation of sustainability in their banking operations and paid less attention to environmental issues (Bowman, 2010; Goyal & Joshi, 2011). However, with time it was realized that banks are significantly impacting the natural environment both directly and indirectly (Meena, 2013). Due to this stakeholders have increased the pressure on banks to operate in an environmentally friendly manner (Sahoo & Prasad, 2007; Shakil et al., 2014). Globally, efforts for promoting environmentally friendly banking practices have gained momentum in the past years.

In 2012, the Sustainable Banking Network (SBN) was established by the International Finance Corporation (IFC). It is a community of banking regulators and associations from the developing countries. It is working for the adoption and development of Green Banking in the developing world in line with the international best practices (SBN, 2018; SBP, 2015). This led to the development of the concept of Green Banking. It is an emerging concept integrating the management of environmental issues with banking activities and aiming to reduce the bank's carbon footprints. It not only involves the

sustainable use of resources but also adopting green lending principles. Thus, the global banking industry shifted towards an environmentally focused strategy through the adoption of Green Banking (Ahuja, 2015). The adoption of this business ideology is highly significant in relation to the current environmental degradation, resource shortages and climate change plaguing this planet.

## 2.1. Green banking

Green Banking has gained significant momentum in the recent past (Choudhury et al., 2013). This banking ideology is targeted towards the elimination of bank's direct and indirect adverse environmental impacts (Ahmed, 2012; Singhal et al., 2014; Masukujjaman et al., 2016). It is a more focused term emphasizing environmental considerations and protection of earth and its ecosystems. Green Banking concept is an important subset of Sustainable Banking which involves promoting environmentally friendly practices that aid banks and customers in reducing their carbon footprint (SBP, 2015). As opposed to sustainable development, by its very definition, is not restricted to environmental concerns but also involves focusing on economic and social concerns (Hart & Dowell, 2011; Hart & Milstein, 2003).

The word "Green" in Green Banking directs banks' environmental accountability and performances in daily banking operations (Shaumya & Arulrajah, 2016). Merely stated, Green Banking has been defined as "banking business conducted in such areas and in such a manner that helps the overall reduction of external carbon emission and internal carbon footprint" (Bahl, 2012; Masud et al., 2018). It focuses on reducing a bank's direct and indirect adverse environmental impacts. Firstly, it focuses on the green transformation of a bank's internal operations. It involves efficient ways of utilizing renewable energy sources, automation and other pollution prevention measures to minimize the carbon footprint from banking operations. Secondly, banks focus on environmentally responsible financing through evaluating the environmental risks of the project before approving financing and fostering green initiatives and projects (Islam & Das, 2013).

Green Banking adoption is not just a change in the business operations of a bank instead it is a cultural shift within a bank and affects all aspects of the banking operations. It involves rethinking, redesigning and restructuring a bank's vision, strategic objectives, resource utilization and business



operations. Green Banking is a separate business ideology focusing solely on environmental concerns and opportunities. It requires specific policy-making and implementation guidelines since it impacts all the aspects of the banking operations. Green Banking requires the adoption, implementation and restructuring of several aspects of the banking operations (SBP, 2015).

Green Banking is a form of banking from which environmental benefits are gained. A conventional bank can adopt Green Banking by directing its core operations towards the betterment of the environment. It involves developing banking strategies that ensure the promotion of environment-friendly practices and economic development (Tu & Dung, 2016). A Green Bank focuses on environmental friendly banking practices (David & Shameem, 2017; Shaumya & Arulrajah, 2017). Green bank provides effective market-based solution for a number of environmental problems like climate change, deforestation, carbon dioxide emission and loss of biodiversity. It also identifies and creates various opportunities for the benefit of the customers and the environment. Green Banking requires prioritizing financing to the sectors that promote various environmental protection activities (Tara et al., 2015).

For a developing country, Green Banking adoption can be hindered by a number of barriers. The IFC conducted a survey in 25 developing countries regarding various dimensions of Green Banking adoption. The IFC (2015), revealed a number of barriers towards the adoption of Green Banking on the basis of the similarity in the majority of the surveyed countries including a lack of formal definition and measurement standards for Green Banking, specific to a country's individual scenario, lack of knowledge among the stakeholders regarding how to embed Green Banking into the existing banking practices and operations and the benefits of Green Banking adoption. Developing countries also suffer from insufficient government support, difficulty in attracting clients towards clean energy projects or emission reduction practices, difficulty in immediately stopping of lending to traditional high-pollution and emission sectors such as coal power stations or the oil sector, lack of practical examples or leaders in the Green Banking fields, inadequate knowledge of its business case, and higher adoption cost of certain green initiatives, such as green building and green information technology (IFC, 2012; Masukujjaman et al., 2016).

Given the increasing importance and realization of the role of the banking sector in a country's environmental well-being, currently a limited number of researches exist in the area of Green Banking (Ahmad et al., 2013; Ahuja, 2015; Bose et al., 2017; Chew et al., 2016). Limited academic research exists on Green Banking adoption from a theoretical perspective. Due to the limited theory-based research existing on Green Banking

adoption, a need has been identified in the literature to examine determinants of Green Banking adoption theoretically in the developing countries (Shaumya & Arulrajah, 2016; Shaumya & Arulrajah, 2017; Tu & Dung, 2016). A dearth of knowledge exists with respect to Green Banking, especially in the developing economies, leading to ineffective regulatory mechanism and capacity building within the banking industry.

Limited literature causes poor understanding, by industry and policymaker, of the role that banks can play in mitigating climate change and facilitating the transition towards a low-carbon economy (Bowman, 2010). Banks lack sufficient information and data for the facilitation of Green Banking adoption. This has led to an identification of a research gap and call for increased research on Green Banking adoption in the developing countries (Bose et al., 2017; IFC, 2015; Masud et al., 2018; Oyegunle & Weber, 2015; Shaumya & Arulrajah, 2017; Thi et al., 2017).

This study attempts to contribute to the area of Green Banking adoption by proposing a theoretical framework to examine the factors influencing Green Banking adoption. Importance of stakeholder involvement has been identified as a critical success factor in Green Banking adoption, especially in the developing countries (IFC, 2015). The next section will briefly discuss the theoretical background of the study.

### 3. Methodology

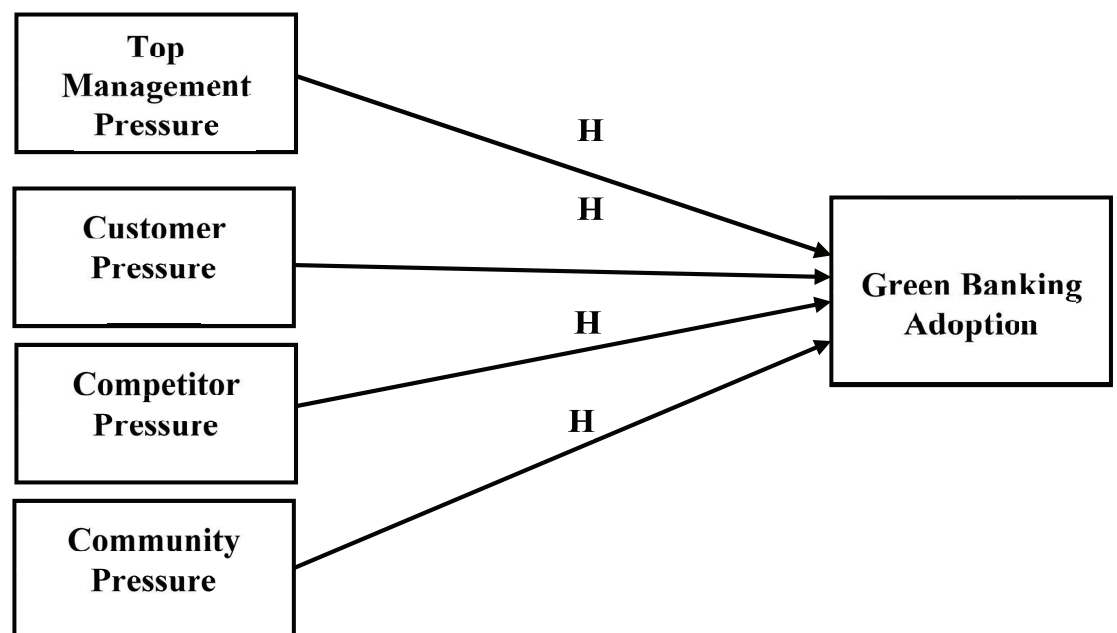
The theoretical framework proposed in this study is based on Institutional theory. Institutional theory is based on the external environmental pressures that an organization faces, which forces an organization to change its policies, procedures or structure. According to the theory an institution changes under external pressure in order to gain specific resources or to attain economic and social legitimacy. Institutions mean “a collective and regulatory complex consisting of political and social agencies that dominate other organizations through the enforcement of the law, rules and norms” (DiMaggio & Powell, 1983).

Institutional theory has been applied to various environmental management practices in various industries. Many researchers state that institutional theory is considered to play a significant role in analyzing a firm’s adoption of environmental practices since this area is impacted by a high level of uncertainty and external pressures (Hoejmose et al., 2014; Lee et al., 2013; Lin & Sheu, 2012; Pleasant et al., 2014). External or institutional factors could play an important role in influencing a firm’s decisions to implement green management practices (Hoejmose et al., 2014; Lin & Sheu, 2012). A great degree of isomorphism exists within the banking industry due to a high degree of regulations,

competition and customer expectations (Idroes, 2015). Globally, the banking industry is currently facing a high level of stakeholder pressure for adopting environmentally friendly practices (Pleasant et al., 2014). Stakeholders' pressure has an impact on a firm's environmental performance (Dimaggio & Powell, 1983). Massive penalties have been imposed on banks in some countries for disregarding environmental guidelines. For example, in the United States, many banks have been penalized by the courts for pollution of the environment by their clients, resulting in bearing huge remediation costs for banks (Bose et al., 2017).

### 3.1. Theoretical framework

The theoretical framework proposed in this study is shown in Figure 1. It consists of 4 independent variables which are derived from the institutional theory i.e. top management pressure, customer pressure, competitor pressure and community pressure. The framework proposes that these determinants influence Green Banking adoption.



**Figure 1:** Green Banking Adoption Theoretical Framework.

Stakeholder pressures are adopted from Institutional theory as the theory proposes stakeholder engagement to be an important element for the achievement of social legitimacy (Sarkis et al., 2010). A stakeholder is defined as “all individuals and groups who are able to affect the achievement of an organization’s goals or affected by the realizing process of an organization’s objectives” (Freeman, 1984, p. 46). Stakeholders

are widely acknowledged as powerful influences over, and able to direct, company decisions and performance (Amran et al., 2015).

Top management pressure and customer pressure are proposed as coercive pressures put on the bank towards the adoption of Green Banking. Coercive pressures are dependency-based and a firm's top management holds the power to direct and manage the firm (Tang et al., 2013). A firm is highly dependent on the top management's commitment to the adoption of green management practices. Increased environmental commitment from the top management will exert pressure on the firm to collaborate and indulge in environmentally friendly business practices (Yen & Yen, 2012). Customers are also one of the major stakeholders of any organization (Tang et al., 2013). Banks need to consider the interests of their customers, because if banks do not focus on green practices required by its customers, then the customers might limit their normal banking activities as well (Choudhury et al., 2013). They are a major source of pressure on firms with respect to environmental performance management (Nejati et al., 2014).

Major source of mimetic pressure is the firm's competitors. Competitor pressure is developed when a firm's competitors adopt new environmental management practices or technologies and the company must re-evaluate or improve its own environmental performance to match or excel the competitor (Weng et al., 2015). The banking industry faces great mimetic pressures (Barreto & Baden-Fuller, 2006). The last independent variable of community pressure has been proposed on the basis of Institutional theory's normative pressure. Organizations face pressures from inter-organizational networks that cross the boundaries of an organization (Pleasant et al., 2014). The banks face pressure from the local community to behave in an ethical and responsible manner causing banks to adopt social isomorphism (Bose et al., 2017). Based on the theory and existing literature the next section proposes the hypotheses derived from the proposed theoretical framework for examining the influence of stakeholder pressure on Green Banking adoption.

## 4. Hypotheses Development

The following hypotheses are proposed on the basis of the theoretical framework.

### 4.1. Top management pressure and green banking adoption

Top management pressure is a type of coercive pressure existing on the bank branch. Top management is the group with the most influential and powerful executives that

have overall responsibility for the organization (Yigitbasioglu, 2015). Green Banking adoption requires commitment from the top management which helps in the adoption of green practices in daily operations. In case of the insufficient focus of senior management, banks will find it difficult to build necessary momentum for Green Banking adoption (SBP, 2015, 2017). Top management's commitment to environmental practice adoption put pressure on sub-offices to adopt environmental management systems (Chan & Wong, 2006). Research shows that top management has high importance, threatening, influencing and cooperative ability towards Green Banking adoption (Choudhury et al., 2013; Tara et al., 2015). Based on the above arguments, it is hypothesized that:-

*H1: Top management pressure will have a positive influence on Green Banking adoption.*

## **4.2. Customer pressure and green banking adoption**

A firm's dependency on customers makes customer pressure an important type of coercive pressure. Customers have been identified as a major stakeholder influencing the green practice adoption of firms (Lin & Sheu, 2012). With the increasing consumer expectation regarding environmental policies and compliance requirements, the banking industry cannot escape this wave of environmental consciousness (Ahuja, 2015; Bowman, 2010). The customer has both direct and indirect influence and importance to accelerate the Green Banking adoption (Choudhury et al., 2013). The awareness and pressure from customers regarding environmental issues have a positive impact on Green Banking adoption (Bose et al., 2017; David & Shameem, 2017). Therefore, the following hypothesis is proposed:-

*H2: Customer pressure will have a positive influence on Green Banking adoption.*

## **4.3. Competitor pressure and green banking adoption**

Competitive pressures have been observed to be positively related to green practice adoption (Lee et al., 2013), such as in the case of attainment of green certifications (Lin & Sheu, 2012), environmental innovation (Yalabik & Fairchild, 2011) and green supply chain management (Hoejmose et al., 2014). Research shows the banking industry to be greatly impacted by mimetic pressures and hold a high degree of imitation resulting in isomorphism (Barreto & Baden-Fuller, 2006). Research has revealed a high degree of mimetic pressures existing in the banking sector because banks must follow similar regulatory policies and face a high degree of competitive pressures (Pleasant

et al., 2014). Research shows that the competitors have high importance, threatening, influencing and cooperative ability towards Green Banking adoption (Choudhury et al., 2013). Bangladeshi banks are facing mimetic pressures from the competitive market and Green Banking guidelines due to the adoption of Green Banking by all the banks (Masud et al., 2018). When banks adopt Green Banking, the mimetic forces motivate the banks to imitate the successful adoption route of the competitors. This helps them to capture the untapped market opportunities and gain market benefits (Prajogo et al., 2012). Consequently, the following hypothesis is posited:-

*H3: Competitor pressure will have a positive influence on Green Banking adoption.*

#### 4.4. Community pressure and green banking adoption

Normative isomorphism relates to a firm's willingness to respond to external pressures for greater environmental commitment, and is dependent on the extent to which a change in firm behavior results in greater levels of legitimacy (Hoejmose et al., 2014; Zhu et al., 2007). Community as stakeholders can have direct or indirect influence on firms' environment strategy. An organization's decision to adopt green management practices is impacted by the desire to improve or maintain relations with the community (Qi et al., 2011). Community pressure is stated to be a strong force which cannot be ignored by firms, because it is one of the main sources of social legitimacy. The banking industry is experiencing intense pressure from the community, who demand banks to implement green banking practices in their core internal business operations. As a result of this growing pressure, the banking industry needs to act as a champion of environmental reforms in its respective communities (Bose et al., 2017). Accordingly, it is hypothesized that:-

*H4: Community pressure will have a positive influence at Green Banking adoption.*

### 5. Conclusion

The global banking sector has started to realize its responsibility and accountability towards resource degradation and pollution generation (Kaeufer, 2010). Besides, the past few decades have also witnessed an increase in the stakeholders' pressure on banks to adopt environmentally friendly practices. As a result, a remedial and control strategy in the form of Green Banking was developed. The concept of Green Banking was developed as a paradigm shift for the banking industry (Julia et al., 2016; Masukujja-man et al., 2016). It requires a change in the underlying ideology of the banking industry.

According to the Institutional theory changes in firms and management practices do not necessarily occur only through a rational decision-making process but also occur as a result of external influences (Bose et al., 2017).

This study attempts to contribute to Green Banking literature through the application of institutional theory in the development of a theoretical framework for Green Banking adoption. The role of stakeholder is imperative in influencing and facilitating the adoption of Green Banking and should be focused upon in order to ensure Green Banking adoption. Based on existing literature the research proposes that different stakeholder pressures can have a positive influence on Green Banking adoption. This study fills the gap in the current Green Banking research by proposing a theoretical framework for gauging the determinants of Green Banking adoption. In the presence of the conceptual significance of the current study, it is acknowledged that the study has some limitations.

## 6. Limitation and Future Research

First, the study does not empirically test the proposed model. The model can be empirically tested in the banking industry of different countries in order to identify the specific stakeholder pressures that can influence Green Banking adoption. Secondly, the study proposes a limited number of stakeholder pressures. The research model can be extended by incorporating additional stakeholder pressures based on an individual country's banking sector scenario. Lastly, the study is based on only one theoretical underpinning, i.e. the institutional theory. The theoretical insights could be expanded in further research by incorporating additional theoretical lenses theories which are relevant to this topic.

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## Conference Paper

# Flood-Related Disaster Communication and Humanitarian Logistics

**Puteri Fadzline Tamyez, Natalie Christiane Isabella Gerth, and Khairul Firdaus bin Anuar**

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

### Abstract

During the annual monsoon season, Malaysia is often affected severely by floods as a result of heavy rainfall and poor irrigation. Every year, thousands of people have to be relocated and be evacuated from their homes. Thus, this research is aimed to look at two central aspects of disaster management in the context of flood disaster management in Kuantan, Pahang. Using a mixed-method approach, first, the effectiveness of communication mechanisms in the case of floods is investigated with quantitative analysis using descriptive design. Secondly, this research takes a closer look at the underlying logistical framework found in flood disaster contexts and identifies its critical success factors. For this, a qualitative research approach is taken. Using thematic analysis, in-depth semi-structured interviews are analyzed to arrive at conclusions regarding the critical success factors. Investigating in the effectiveness of disaster communication, it has become apparent that communication between authorities, agencies, non-government organizations or NGOs and flood victims are still in need of improvement, as the suggestions made by participants of the study suggests, both in regard to emergency updates as well as to heightening community awareness on the right actions to take in preparation of upcoming floods. The critical success factors for humanitarian response in the case of flood management include coordination, communication, knowledge, and preparedness. In it crucial to safeguard communities, thus, the unambiguous and clear standard of procedures or SOPs need to be in place at the integrated agencies for them to be understood and known by the individuals who execute them.

**Keywords:** flood, disaster, flood management, disaster communication, humanitarian logistics.

Corresponding Author:  
Puteri Fadzline Tamyez  
fadzline@ump.edu.my

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Flash floods are most prominently affect small but densely populated and urbanized areas in Malaysia. However, the effects are different in the state of Pahang. There, the affected areas are usually rural, and floods cover vast stretches of land so that the damage suffered can still be high even though the value of properties is lower (Zakaria et al., 2017). The steady growth of industries such as transportation has led



to the comparably rapid growth of urbanization. Especially the petrochemical industry has become a major industry in the area (Shakir et al., 2015). This urban development with the building of roads and buildings consequently led to fewer stretches of land covered by vegetation, which is an important factor causing rapid river flow (Chan, 1997; Gupta, 2010). During the most recent monsoon at the beginning of 2018, 9,000 residents had to be evacuated in the state of Pahang alone (Malay Mail Online, 2018). Looking at the history of Kuantan with floods, its location in the Kuantan River Basin and its low laying nature are important factors (Zaidi, Akbari, & Ishak, 2014). During the North-East monsoon season, massive precipitation between November and March is to be expected in the area. The Kuantan River starts from Sungai Lembing, passing through Kuantan City and is then drained into the South China Sea, covering an area of approximately 1630 km<sup>2</sup> (Shakir et al., 2015; Zaidi et al., 2014). Due to the tropical climate, torrential rains have regularly led to spilling over of the river surface in the past decades. Runoffs also inundate low laying areas, always affecting the social and economic life of the societies residing there. In 2001, three decades after the latest large-scale flood incident in Pahang floods as a result of over spilling rivers affected 18,000 residents and 22,940 km<sup>2</sup> of land. (Zaidi et al., 2014). The floods of 2011/2012 affected nearly 6,000 residents in Kuantan after continuous rainfall caused sudden flooding of residential areas. Roads and vehicles were left in bad condition, reportedly due to the lacking drainage system in place during that time (Zaidi et al., 2014).

The worst flood to date, however, was experienced by Pahang in 2013, following heavy rainfall and the shift in land-use that took place around that time (Zaidi et al., 2014). Kuantan in particular, with its low laying nature, was in severe distress: more citizens than in the previous years had to evacuate their homes, and the city suffered major damages to roads, buildings and other structures (Jamaludin, Jaafar & Abdullah, 2013). Throughout the state of Pahang, where approximately 38,000 Malaysians in Pahang were evacuated from their homes to shelters. Thirty-two thousand of these evacuees sought refuge at the shelters set up in Kuantan (Malay Mail, 2013).

## 1.1. Research problem

According to the Department of Irrigation and Drainage (DID), the estimated area vulnerable to the flood disaster in Malaysia is approximately 29,800 km<sup>2</sup> or an equivalent of 9 percent of the country's total area. Affecting almost 4.82 million people, this amount is equivalent to around 21 percent of the country's total population. Losses and damages per year accumulate to approximately RM 915 million (Department of Irrigation and

Drainage (DID) Malaysia, 2009). The fact is that floods are unavoidable and occur annually. Future cases of flooding in the region will be even more monumental, both in terms of dimension and impact (Chan, 2012). A reconsideration of the current strategy is therefore essential to improve the preparedness, mitigation, response, and recovery for Malaysia and its citizens in the face of a natural disaster.

Current literature identifies several critical areas related to the management of natural disasters and in particular flood events (Chan, 2012; Khalid & Shafiai, 2015; Saifulsyahira, Edre, Ahmad Farhan, & Muhamad Hanafiah, 2016; Shafiai, 2016). Due to the decentralized nature of flood management in Malaysia, lack of coordination is a prevailing issue (Saifulsyahira et al., 2016). Furthermore, the large number of government agencies and other organizations involved in evacuation and aid distribution contributes to this coordination issue (Shafiai, 2016). In addition to this, the approach is taken towards disaster and flood management in Malaysia as of now is still a highly reactive one and not one that is centered around proactive action (Chan, 2012; Khalid & Shafiai, 2015). The government agency in charge of coordinating flood management, the engineering-based DID, focuses on structural measures and not on non-structural, interdisciplinary solutions (Chan, 2012).

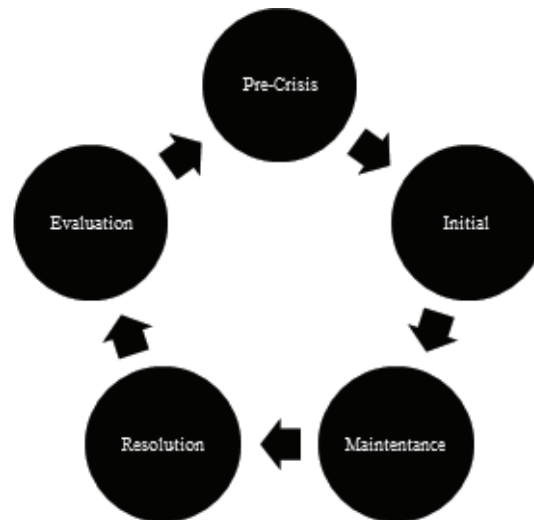
The realization of this research is aimed at improving the situation for the residents and providing solutions and ideas for a prevailing and pressing issue. Thus, the objectives of this research are to evaluate the satisfaction of the communication mechanism among flood victims and to determine the critical success factors in managing humanitarian logistics in the case of flood events.

## 2. Literature Review

### 2.1. Disaster communication

Disaster communication can be categorized under crisis and risk emergency communication (CERC) and describes what takes place once an event has taken place, in its immediate aftermath, and sometimes as preventive action when it is about to happen (Manuel, 2014). Figure 1 shows the CERC lifecycle, adapted from the Centre of Disease Control and Prevention (CDC), of the U.S. Department of Health and Human Services, which is a tool utilized to break down the different stages of a disaster event regarding the communication that relates to it (CDC, 2014).

Taking the disaster event into the pictured phases assists those responsible for communicating with the public, media, other agencies, and organizations. It helps



**Figure 1:** Communication Lifecycle. (Adapted from CDC (2014))

anticipate the information needs that will arise, identifying both the source as well as the time frame of its appearance. Each phase requires specific information (CDC, 2014; Reynolds & Shenhar, 2009). The pre-crisis phase takes on the task of preparing the general public for potential disaster events and similarly provides information to educate the public about the risks. In the initial phase, it is important to recognize that communication should reduce any uncertainties and help the public understand the various organizations involved in handling the disaster, including the specific responsibilities each has. Most importantly, in this phase, official communication channels and methods should be established for future interaction between the information providing organization and the public (CDC, 2014). While the initial phase is centered around rapid initial communication, the maintenance phase seeks to keep the general public updated about current developments, ongoing risks, and possible tools for mitigation, and also to correct any circulating information that is incorrect or unclear (CDC, 2014) and to prevent issues with mixed messages provided to the public (Reynolds, 2004). Following the immediate disaster events, during the resolution phase in the CER lifecycle communication should be centered on providing information about the ongoing reconstruction and rebuilding activities to keep the communities informed. At the same time, this leaves room for the promotion of risk mitigation and risk avoidance tools, and personal preparedness for residents (CDC, 2014). Concluding the communication lifecycle, the evaluation phase serves as a time stretch during which lessons learned can be collected, categorized, and documented for future reference. The lessons learned can then serve as a base for improvements in the current crisis communication strategy and help in evaluating the performance of the crisis communication plan. Elements of successful communication, as identified in the CDC-publication, relate to the credibility

of the information provided and the trust the recipient feels towards the source of information, as shown in Table 1.

TABLE 1: Factors of Successful Crisis Communication.

| Credibility                     | Trust    |
|---------------------------------|----------|
| Accuracy of information         | Empathy  |
| Speed of release                | Openness |
| Source: Adapted from CDC (2014) |          |

Accuracy of information is crucial, especially because of the unstable circumstances that prevail (Reynolds, 2004). The general public will depend on the information handed to them and in order to provide reliable information, information management should ensure that information is factually correct; that communication uses simple, non-technical terms; that the information is repeated frequently and in different media contexts; and that all communication outlets share the same source (CDC, 2014). Speed of information release is of equal importance in moments of crisis and can indicate that the source of information has disaster handling plans in place (CDC, 2014). However, it is important to notice that first information leave a lasting impression on the recipients – delivering wrong or conflicting narratives in times of crisis can affect the credibility of the information provider.

Empathy and caring should also be included in the message (Reynolds, 2004), if appropriate, as this leads to better responsiveness towards the message from recipients. Similarly, it is important not to convey insincerity, or put on a show as this discredits the source (CDC, 2014). Openness about the information available helps to establish trust. Trustworthiness is achieved by an honest and open attitude. Honesty entails that the realities of the situation are faced and responded to in a quick and appropriate manner. It should not lead to the premature release of information. For a flood disaster, as is the focus of this research, the CERC lifecycle with its embedded activities applies to the communication needs that arise from such an event. Similarly, the elements of successful communication identified can be used for improving communication in a disaster, where evacuations are necessary. In the scope of this study, the communication among victims in case of floods focuses primarily on the immediate response phase. Relatively little research has been conducted to address specifically the communication needs during flood disasters. However, a list of five common key characteristics of effective communication has been collected by Steelman and McCaffrey (2013), in their study centered around natural hazards risk and crisis communication. Engaging in interactive processes is the first key communication characteristic, enabling the dialogue and



providing clarification of questions, tightly connected to the action of needs assessment (Burton & Ovadiya, 2014); the result can be better support for prevention and interventions (Steelman & McCaffrey, 2013). Furthermore, the local context has to be considered, the prevailing condition of the situation and environment from the point of view of those affected and involved, especially since “relating explanations of action to why they are needed and how they will make a difference given local conditions[,] can facilitate understanding and action” (Steelman & McCaffrey, 2013, p. 688). Another key characteristic they identified is the provision of information which is timely, accurate, and useful, and done so in a reliable and honest manner. The messenger who conveys the message to the recipient is also of importance: their credibility, in particular, can affect how information is received and whether or not it is accepted. The final common characteristic of effective crisis communication is to establish a working relationship by providing regular communication (Nour et al., 2017; Steelman & McCaffrey, 2013).

## **2.2. Humanitarian logistics**

### **2.2.1. Concept of humanitarian logistics**

Humanitarian relief is the act of providing humanitarian aid in the face of a, most often, natural disaster, to the affected community. This is realized in the form of emergency supplies provision to those in need (Shafiai & Khalid, 2016). Humanitarian logistics is, therefore, a mix of different kinds of operations that are involved in disaster relief and continuous support for developing regions. Generally, a distinction can thus be made between continuous aid work and disaster relief, which usually entails a limited time scope. Humanitarian logistics operations can be placed in the disaster management cycle between disaster preparedness and disaster response. Historically, logistics has always been a central element in humanitarian aid, seeing that efforts linked to transportation and other logistics services or operations make up a majority of activities involved in disaster relief (Kovács & Spens, 2007).

### **2.2.2. Success factors of humanitarian logistics**

In their study, Scarpin and De Oliveira Silva (2014) extract information from various publications and research articles to establish the critical factors that assist logistics processes related to the occurrence of natural disasters. These success factors are related to the various parties involved in the humanitarian logistics processes, based on a model by Balcik, Beamon, Krejci, Muramatsu, and Ramirez (2010). The humanitarian

supply chain model in Figure 2 includes suppliers, donors, distribution centers, and beneficiaries and takes into consideration both pre-disaster and post-disaster flows of supply (Scarpin & De Oliveira Silva, 2014).

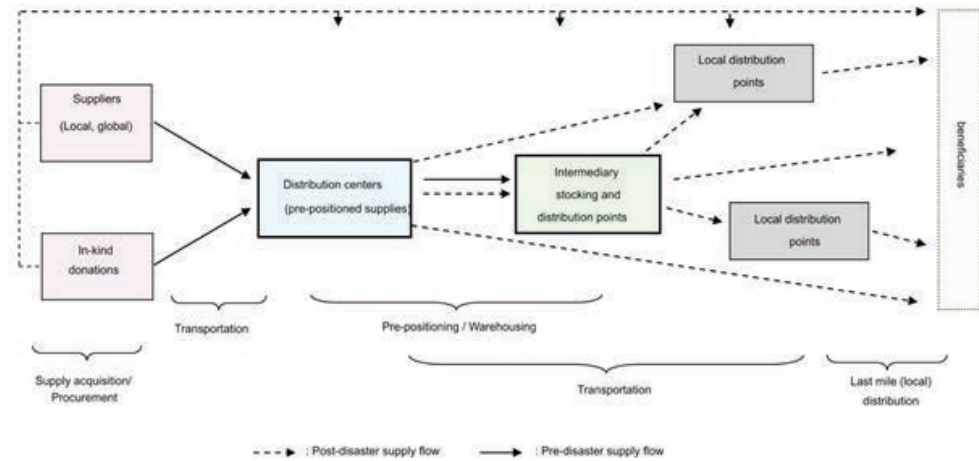


Figure 2: Humanitarian Supply Chain Model. (Source: (Balcik et al., 2010))

To represent the individual needs of the parties involved, a differentiation is made between three different types of activities related to distribution centers: resources, transportation, and warehousing. The supply chain stakeholders and their respective success factors that as Scarpin and De Oliveira Silva (2014) gathered them from literature and further confirmed with expert interviews are shown in Table 2. However, the category of beneficiaries was not considered, as the critical success factors found to relate more to the activities of the other parties involved.

TABLE 2: Success Factors in Humanitarian Logistics.

| Stakeholder                          | Critical Success Factors          |
|--------------------------------------|-----------------------------------|
| Suppliers                            | Reliability Relationship          |
| Donors                               | Communication Consideration       |
| Distribution Centre – Resources      | Preparedness                      |
| Distribution Centre – Transportation | Agility Safety                    |
| Distribution Centre – Warehousing    | Location Organization Information |

Source: Adapted from Scarpin & De Oliveira Silva (2014)

The critical success factors demanded of suppliers include reliability in emergencies so that in a situation of crisis, it can be guaranteed that the needs of the affected community are met. This factor is closely related to the aspect of the relationship, as a network of trusted suppliers needs to be in place when disaster strikes. While donations can come from donors that are not close to the affected area, more crucial than location

or proximity is the communication in terms of the far reach of information and sufficient media coverage, as this helps generate large amounts of donations. Consideration means that donors bear in mind that donation contributions ought to help the affected citizens in the first place and should thus be in an acceptable condition.

Preparedness as a critical success factor for resources refers to initial disaster kits with basic needs being made readily available before the first stages of a disaster event (Scarpin & De Oliveira Silva, 2014). While emergency shelters are set up for the affected, the resources must be stored appropriately and ready for distribution to the shelters (Van Wassenhove & Pedraza Martinez, 2012). When it comes to transportation, nearly everyone who has the means and appropriate vehicles and time can aid with transportation, which is often realized by civilians during disasters as Scarpin and De Oliveira Silva found in their interviews (2014). To ensure safety, however, usually, government bodies will be in control and oversee these activities. Important factors for warehousing of the donations and other supplies needed are a well-organized system of storing of goods and accurate information at all times. The location of a warehouse (centralized or decentralized) needs to be chosen based on the local context and needs (Balcik et al., 2010; Scarpin & De Oliveira Silva, 2014).

### 3. Methodology

To satisfy the first research objective, descriptive design was utilized to identify communication effectiveness in disaster management through an online survey. Based on the data collected, descriptive design can present the findings to provide an overall picture of the impressions participants had regarding current operations (Creswell, 2014). This study used a purposive sampling design. The criteria on which participants were selected were their being affected by the most recent floods in Kuantan, Pahang. The advantage of purposive sampling lies in the comparatively easy way in which generalizations can be made about the sample since participants have undergone a pre-selection (Punch, 2005).

The information to be obtained from the participants was mostly centered on the aspects of logistics and distribution of aid to satisfy the second research objective. However, since the units of analysis were associated with different organizations and held very different positions, a semi-structured interview approach was chosen so that the areas of expertise of the participants could be highlighted during the interviews, while at the same time ensuring that the general flow of interview questions was followed. Target respondents were identified as individuals representing a government

agency, an NGO, or another organization which is involved in flood management activities in Kuantan.

Target respondents were selected by researching the government agencies identified in Directive No. 20 and NGOs actively involved in flood relief operations in the Kuantan area. The organizations were then approached via telephone to try and reach a person in charge that could provide information regarding flood management. Initial contact with the interview participants was usually either established via a phone call or WhatsApp message. Before the interview sessions, the respondents were informed about the approximate time frame needed to conduct the interview, which was about one hour. The interviews were then conducted in person, usually one-to-one, at the organization the respondent represented. The questions for the interviews were divided into eight sections: flood events, process flow, information and communication, aid distribution, evacuation, flood handling, preparedness, and expertise, as depicted in Table 3.

TABLE 3: Interview Question Categories.

| Section | Category                      |
|---------|-------------------------------|
| A       | Flood events                  |
| B       | Process flow                  |
| C       | Information and communication |
| D       | Aid distribution              |
| E       | Evacuation                    |
| F       | Flood handling                |
| G       | Preparedness                  |
| H       | Expertise                     |

In formulating the questions, the wording was chosen carefully so that the questions were open and not closed, to encourage lengthy answers from the participants. Each section held 1-5 questions.

## 4. Results

### 4.1. Preliminary study results

In a preliminary study conducted at the beginning of the research with the coordinator for the Universiti Malaysia Pahang (UMP) Alumni volunteers, information was gathered

regarding the structure of organizations found locally that are involved in the humanitarian response following a flood. By the findings from the literature review, three stages of emergency response were identified: pre-disaster, during disaster, and post-disaster. The organizations of relevance are shown in Table 4.

TABLE 4: Results from Preliminary Study.

| Pre-Disaster                              | During Disaster       | Post-Disaster |
|---|-----------------------|---------------|
| National                                  | Department of Welfare | Volunteers    |
| Firefighters                              | NGOs*                 |               |
| Police                                    | i-Bantu               |               |
| Soldiers                                  | UMP                   |               |
| National Defence<br>Department of Welfare |                       |               |
| *NGOs: Non-Government Organization        |                       |               |

The activities that are at the core of the pre-disaster phase mainly include preparations which are carried out in terms of humanitarian logistics and organization. On the national level, starting 2016, one central government agency is entrusted with the coordinating activities leading the preparations and serves as the central coordinator for other government agencies as well as organizations. The primary actions relate to the setting up and stocking of the flood shelters and the planning, organization, and actual carrying out of the transfer of flood victims during a flood event. During this preparation stage, as indicated during the preliminary meeting, those parties involved are firefighters, police, soldiers, and national defense, as well as the Department of Social Welfare. While the latter is mainly concerned with organizational aspects of managing the shelter sites, the previous four forces are involved in transferring residents from high-risk areas before a flood event. The main participating parties during a flood occurrence particularly in Kuantan include the Department of Welfare, the NGO I-Bantu, higher education institutions, such as UMP and the NGO collective BBNGO, as stated by the respondent. The main involvement of the NGOs and higher education institutions is connected to sending goods of humanitarian aid relief once the flood has occurred and providing help in taking care of flood victims at the shelters.

In the post-disaster stage of a flood, the remaining activities center on cleaning up the areas that were affected by the flood. This includes repairing, and reconstruction of public means and infrastructure such as streets and buildings works also need to be carried out at the shelters provided. As these are mostly public buildings such as schools or mosques and also city halls and assembly halls, efforts will have to be rut

into restoring these locations to a state that they are ready to be used for their primary purposes again. With the Department of Social Welfare being in charge of the flood victim shelters, it is its responsibility to oversee their cleaning in the post-disaster phase. Only after the waters have completely retracted can the cleaning activities begin for the private properties of those citizens whose residential areas were affected by floods. These cleaning activities are carried out by volunteers. Although not specified during the preliminary meeting, these volunteers are sent from a wide range of organizations and institutions, such as higher education institutions, schools, or NGOs. They will usually also provide initial care kits containing essential foodstuffs and staple foods such as rice, noodles, and sugar.

**4.1.1. Results for research objective 1: To identify the effectiveness of the communication mechanism among flood victims**

Starting with the questions from section A relating to the flood events, participants described their experience and emotional state as anxious and worrisome (21.4 percent), normal or accepting and calm (39.3 percent), shocked (32.1 percent), or happy (7.1 percent), as shown in Table 5.

TABLE 5: Experience and Emotional State.

| Experience and Emotional State | Percentage (%) |
|--------------------------------|----------------|
| Worrisome                      | 22             |
| Normal/Accepting & Calm        | 39             |
| Shocked                        | 32             |
| Happy                          | 7              |

The majority of participants stated that they received the information about the flood via WhatsApp (86.4 percent). The second most selected answer was television (36.4 percent), followed by Facebook (22 percent), radio (13.6 percent), SMS and personal interaction with neighbors and friends (both 9.1 percent) and finally Twitter (4.5 percent). Another participant was only made aware of the flood through observation of rising water levels in front of their house (4.5 percent), as shown in Table 6.

When asked about suggestions on improving communication between flood victims, NGOs, and the government, 14.3 percent asked for more regular communication either via phone, WhatsApp or SMS and for more honest, clearer and accurate information, respectively. 10.7 percent state that they would like to have meetings in flood-affected area between victims and agencies and parties involved. The remaining suggestions

TABLE 6: Source of Information.

| Source of Information | Percentage (%) |
|-----------------------|----------------|
| Whatsapp              | 82             |
| Television            | 29             |
| Facebook              | 21             |
| Radio                 | 14             |
| SMS                   | 4              |
| Personal Interaction  | 4              |
| Twitter               | 2              |
| Eye Witness           | 2              |

were backed by 3.6 percent each, including the request for an official flood website; information flow through *Rukun Tetangga* (Malaysian neighbourhood watch); information flow via *JKKK Kampung*; request for more volunteers and equipment during the flood; better coordination; increasing awareness; and more comfortable relief centres, as referred to Table 7.

TABLE 7: Suggested Improvements.

| Suggested Improvements              | Percentage (%) |
|-------------------------------------|----------------|
| Regular communication               | 13             |
| Honest, clear, accurate information | 13             |
| In-person meetings                  | 11             |
| Official flood website              | 3              |
| Information via neighborhood watch  | 3              |
| Information via JKKK                | 3              |
| More volunteers and equipment       | 3              |

Aid supplies received by participants include food and beverages, bedding, transportation, toiletries, money, and medication. From 28 respondents, only 22 had received aid in any one of the forms mentioned above. 13.6 percent of these respondents stated that the aid supplies were not sufficient to fulfill their needs, 18.2 percent were unsure whether this was the case and the rest (68.2 percent) felt that the supplies met their needs and were sufficient. The goods were supplied by JKM or Social Welfare Department (30.8 percent), the government (15.4 percent), an NGO (15.4 percent), *Rukun Tetangga* (6.7 percent), a political party (6.7 percent), SRS or *Skim Rondaan Sukarela* (6.7

percent), villagers (6.7 percent) and JKKK or *Jawatankuasa Kemajuan dan Keselamatan Kampung* (6.7 percent). When asked how aid supplies are given to the community of the participants, 33.3 percent identified the emergency shelters, another 18.5 percent stated that no aid was received at all, and 7.4 percent were unsure. Another 7.4 percent said that the village chief distributed the aid, while 7.4 percent more stated that aid was received in the village and another 7.4 percent said that aid reached their community vial land aid. Other sources of aid identified include NGOs, political parties, patrols, volunteers, representatives, and JKKK (all 3.7 percent). These are shown in Table 8.

TABLE 8: Received Aid Supplies.

| Received Aid Supplies | Percentage (%) |
|-----------------------|----------------|
| Insufficient          | 13.6           |
| Sufficient            | 68.2           |
| Unsure                | 18             |

76.2 percent of participants felt that the relocation of flood victims was handled right on time. 14.3 percent disagree with this, and 9.5 percent of the respondents were not sure about this. 66.6 percent had the impression that the relocation of victims was smooth and orderly. While 9.5 percent remain unsure about this, 23.3 percent of respondents disagree and were not satisfied with the proceeding. Finally, regarding the efficiency of relocation activities, 66.6 percent felt that these were efficiently handled. 14.3 percent remain unsure about the efficiency, and 19.1 percent felt that the process was not handled efficiently, as shown in Table 9.

TABLE 9: Timeliness of Relocation.

| Timeliness of Relocation | Percentage (%) |
|--------------------------|----------------|
| Timely                   | 8.2            |
| Untimely                 | 3.2            |
| Unsure                   | 1.4            |

Respondents were asked to name the agencies or organizations that are usually active in disaster management activities of their residential area. Most participants identified the fire department, police department and ATM or *Angkatan Tentera Malaysia* (28.6 percent), followed by RELA or *Jabatan Sukarelawan Malaysia* (17.9 percent), JKM or *Jabatan Kebajikan Masyarakat* (14.3 percent), MPK or *Majlis Perbandaran Kuantan* (10.7 percent). NGOs, residents, and local schools were each named by 7.1 percent. APM or Malaysia Civil Defence Department, SRS or *Skim Rondaan Sukarela*, volunteers and



JKKK were each named by 3.6 percent of respondents. Another 3.6 percent stated that they knew no agency, as illustrated in Figure 8., 67.9 percent of the respondents felt satisfied or highly satisfied with the government’s actions in the process of flood disaster management. 14.3 percent remained undecided, and 17.8 percent expressed that they were not satisfied with the processes of the government’s flood management, as shown in Table 10.

TABLE 10: Organizations Active in Local Disaster Relief.

| Organizations Active in Local Disaster Relief | Percentage (%) |
|---|----------------|
| Police, Fire Department                       | 28             |
| Jabatan Kebajikan Masyarakat                  | 14             |
| NGOs  | 6              |
| Schools                                       | 6              |
| SRS   | 4              |
| JKKK  | 4              |
| RELA  | 19             |
| MPK   | 11             |
| Local Residents                               | 6              |
| APM   | 3              |
| Volunteers                                    | 3              |
| None  | 3              |

Asked about the improvements, if any, they had experienced over recent years, 14.3 percent of the respondents commented on the more systematic nature of flood management. 17.9 percent responded that they were not sure whether improvements had taken place or not. Twenty-five percent had the impression that the handling was unchanged and had remained the same over the past years, while 10.7 percent expressed that they felt general improvement overall. 7.1 percent of respondents commented that shelters and aid distribution were better now. 3.6 percent stated that drainage and river management had improved and another 3.6 percent found that help was employed in a faster way, as illustrated in Table 11.

Asked, whether they had the feeling that their residential area was well-prepared in a comprehensive manner for future flood incidents, 60.7 percent of respondents agreed. 17.9 percent were unsure about the issue, and 21.5 percent felt that their communities were not entirely prepared for upcoming floods in the future, as stated in Table 12.

TABLE 11: Areas of Improvement.

| Areas of Improvement             | Percentage (%) |
|----------------------------------|----------------|
| More systematic                  | 14             |
| Better drainage/river management | 4              |
| General improvement              | 11             |
| Unsure                           | 18             |
| Better shelters and aid          | 7              |
| Faster help                      | 4              |
| No improvement                   | 25             |

TABLE 12: Local Preparedness for Future Floods.

| Local Preparedness for Future Floods | Percentage (%) |
|--------------------------------------|----------------|
| Well-prepared                        | 60.7           |
| Not prepared                         | 21.5           |
| Unsure                               | 17.9           |

Regarding steps to take which participants were notified about before and during the flood, 21.4 percent named being careful or taking care of themselves as one. Related to this, 17.9 percent stated they were told to stay alert on updates and developments, and 10.7 percent said they were informed to pack or be ready to move. 7.1 percent remembered they were told to keep off electrical goods and to save their valuables respectively. Steps identified by 3.6 percent of participants include keeping enough food supplies, providing assistance to others who are in need, instructions to move, remaining in the safe area during floods, saving family first, moving things in the house to a higher level, going to the emergency shelters, and following instructions from authorities and the government, as illustrated in Table 13.

#### 4.1.2. Results for research objective 2: To determine the critical success factors in managing humanitarian logistics in the case of flood events

Categories that arose in the interviews and were used as codes for content analysis:

The most common codes from the transcribed interviews as can be seen in the table above include communication, shelters, supplies, coordination, and transportation.

TABLE 13: Steps for Flood Preparation and Event.

| Steps for Flood Preparation and Event   | Percentage (%) |
|---|----------------|
| Being careful/taking care of themselves | 22             |
| Being ready for evacuation              | 11             |
| Safekeeping of valuables                | 6              |
| Providing assistance                    | 3              |
| Remaining in safe areas                 | 3              |
| Moving things to the upper level        | 3              |
| Following authorities' instructions     | 3              |
| Staying alert                           | 18             |
| Switching off electrical goods          | 6              |
| Keeping off sufficient food supplies    | 3              |
| Keeping of moving instructions          | 3              |
| Saving family first                     | 3              |
| Seeking emergency shelters              | 3              |

None of the codes were identified in all interactions. Figure 3 shows the abstract distribution of the codes.

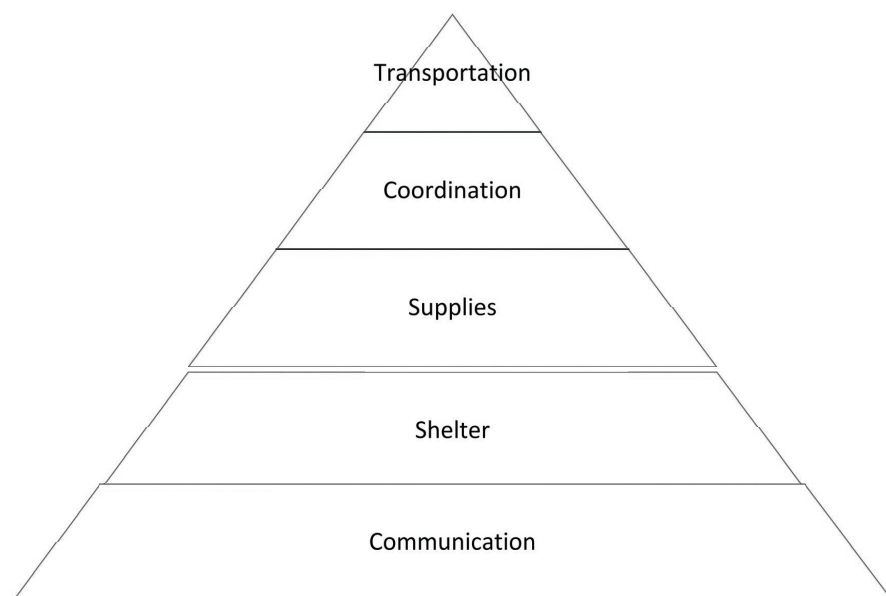


Figure 3: Distribution of Codes.

TABLE 14: Codes Identified In Content Analysis.

| Section | Code           |
|---------|----------------|
| A       | Coordination   |
| B       | Transportation |
| C       | Expenses       |
| D       | Warning        |
| E       | Communication  |
| F       | Shelter        |
| G       | Rescue         |
| H       | Delays         |
| I       | Post-Disaster  |
| J       | Preparedness   |
| K       | Awareness      |
| L       | Improvements   |
| M       | Mindset        |
| N       | Supplies       |
| O       | Technology     |
| P       | Manpower       |
| Q       | Knowledge      |

## 5. Discussion

### 5.1. Discussion on the effectiveness of the communication mechanism among flood victims (Research objective 1)

It is interesting to see the development of communication channels in recent years. The majority of participants expressed that they received information about the flood incidents and updates about its development via WhatsApp Messenger. This indicates that official channels of communication authorized by local authorities or the government, such as broadcasts on the radio or television are not the primary source of information for residents anymore, even, or perhaps especially, in emergencies. Messenger apps convey the most information to residents, even though it should be kept in mind that television as a source of information came in second behind WhatsApp and before Facebook.

TABLE 15: Occurrence of Codes Per Interview.

|   | 1  | 2  | 3  | 4  | 5  | 6 | 7  | SUM |
|---|----|----|----|----|----|---|----|-----|
| A | 14 | 9  | 10 | -  | 5  | - | 2  | 40  |
| B | 6  | 12 | 13 | -  | 1  | 2 | -  | 34  |
| C | 1  | -  | -  | -  | -  | - | 1  | 2   |
| D | 5  | -  | -  | -  | -  | - | -  | 5   |
| E | 7  | 26 | 24 | 5  | 14 | - | 15 | 91  |
| F | 4  | 6  | 12 | 15 | 4  | 7 | 4  | 52  |
| G | 5  | -  | 3  | -  | 2  | 1 | 2  | 13  |
| H | 5  | 1  | -  | -  | 1  | - | 1  | 8   |
| I | 5  | 3  | -  | -  | 1  | 2 | 1  | 12  |
| J | 1  | 2  | 1  | 4  | 1  | 2 | -  | 11  |
| K | 1  | 2  | -  | 2  | 2  | - | -  | 7   |
| L | 1  | 5  | 1  | 2  | 2  | - | 2  | 13  |
| M | 1  | 3  | 3  | 6  | 1  | - | 4  | 18  |
| N | -  | 26 | 2  | 3  | 6  | 2 | 2  | 41  |
| O | -  | 1  | -  | -  | 4  | - | -  | 5   |
| P | -  | -  | 2  | 1  | 3  | - | -  | 6   |
| Q | -  | -  | 1  | 1  | 7  | 1 | 3  | 13  |

Thirteen percent of participants also use the radio as a source for updates also indicate that it still is a relevant medium. While a few participants refrained from suggesting improvements for the communication across the stakeholders related to a disaster event, many respondents do have ideas on how to make the interaction better. The desire for more regular communication implies that currently, information is handed out in irregular intervals, or at least appears this way to the affected flood victims. It is important to notice that the channel of communication-related to this suggestion is always tied to a mobile device (phone, WhatsApp, or SMS). This strongly correlates with the findings of Reynolds (2009), that crisis communication has to be clear to avoid mixed messages, but also controlled and fast.

Especially during times of crisis, mobile devices provide access to information instantaneously, so the responsible agencies should pursue to present accurate updates

to the public and to be the first to give out information. Furthermore, participants expressed that they wished for more honest, clearer, and accurate information. In these cases, the source of information needs to be investigated further, however. Whether the inaccurate, unclear information originated from official sources remains unclear. Nevertheless, the expressed wish for clearer communication is an indicator of the still unsorted communication field that has yet to receive clean-cut instructions and a direction. One participant called for an official website for information on the flood updates as a central place of refuge. This either means that the respondent is unaware of the existence of such a site, or that the information provided is not of use to them, are not updated fast enough, or are in some other way faulty or unreliable.

The effectiveness of the underlying disaster communication mechanisms in place is, therefore, questionable. An aspect that stands out in the results of the survey regarding disaster communication is that in a range of suggestions, participants sought after personal connection and interaction for their suggestions, when clustering together those who wish to meet in person with responsible agencies in the affected area, and those who wish for information to reach them via *Rukun Tetangga*, or JKKK. In advancing the communication mechanisms, the factor of personal interaction should be considered, perhaps realizing such meetings, so that especially in disaster or emergency contexts the residents and flood victims feel safe and taken care of. As pointed out in the literature review, empathy, as well as honesty, are considered important factors in disaster communication (CDC, 2014); taking the time to meet residents would show them a sincere interest in their lives and situation.

As a result, the public feel respected and heard and can then, in turn, listen to instructions and new information. The express wishes from the participants reflect Reynolds' (2004) states that an audience can take away from such an interaction, whether or not the speaker can truly understand what they are going through; in a sense, this will give the public a chance to know for certain. Personal interaction can also be achieved by meeting another suggestion, which is the raising of awareness. Even though the resources may exist for residents, if nobody is aware of them, they remain useless, as it perhaps holds for the *infobanjir* website – as stated before, either it is not updated as it should be, or perhaps residents in affected areas have not been made aware of its existence yet. Similarly, flood preparedness information and risk awareness should be communicated and even promoted in affected areas. This way, information can be shared in communities more easily, and official channels can make sure that truthful and honest information is passed on to the people.

When asked about the steps they should take as residents in a flood-prone area, many answers were given that reflect the content of the guidelines issued by DID for flood preparedness of the community. It is worth noticing that many of these measures were named only once by participants in the survey. This indicates on one hand that the guiding principles of DID flood preparedness are accessible in some way to residents in flood-affected areas, as they still remembered some aspects of flood preparedness, disregarding its origination. Communication between authorities, agencies, NGOs and flood victims is still in need of improvements, as the suggestions made by participants of the study suggests, both regarding emergency updates as well as to heightening community awareness on the right actions to take in preparation of upcoming floods. The lack of the public's satisfaction with current disaster communication reflects the need to create platforms and dialogue to increase its effectiveness in the face of flood events.

## 5.2. Discussion for the critical success factors in managing humanitarian logistics in the case of flood events (Research objective 2)

The respondents participating in the interview commonly agreed that overall, disaster management has improved in Malaysia in the years following the 2014 flood. One participant concerns were expressed particularly on vehicles. Four of the respondents commented on the lack of vehicles that are available to their organization or in general, for executing rescue activities. Due to flood incident which makes evacuation necessary, a participant from interview 1 pointed out that *"4x4 vehicles, big lorries are necessary to enter flooded areas, but [are] not available to NGOs"*. Many government agencies, respondent one remarks, do not possess their 4x4 or 6x6 transportation. In the case of the welfare department, this means dependency on rental vehicles, other organizations, or private volunteers who lend their vehicles to the agency.

In the past, this has resulted in the department not being able to meet delivery schedules, since several shelters need to be serviced by them. Delays in receiving supplies at the shelters are the result. Through the course of the interviews, the information provided by the respondents has been similar and not contradictory regarding the agencies involved in the processes of flood management, and the responsibilities held by each institution and organization. In terms of improvements from the past years, the term coordination has been brought up with relative frequency. All respondents that were met reported that the establishment of the organization NADMA last year has

contributed to an improvement of coordination matters. As respondent 2 shared during the interview, previously, aid organizations worked by themselves in general and served their own assigned areas in times of need.

As this provision of aid was not controlled centrally, however, representatives of more than one aid organization would turn up at the same place and at more or less the same time, leading to chaos and confusion of both the volunteering staff as well as the flood victims in need. With NADMA, these unnecessary hurdles are overcome, and resources can be maximized, as respondent 1 pointed out. Respondent 2 is happy about this development since now there are *“meetings and exchange of ideas for the next floods with NGOs that have all different specializations, all different knowledge in flood.”* Communication now takes place centrally, via WhatsApp and organizations can post their need, e.g., a 4x4 to pick up donations in the group, and the network of people responding to this request is now bigger due to the central connectedness of the government agencies and NGOs under the control of NADMA.

Looking at the codes identified in the interview transcripts and the information offered during these interviews, critical success factors relating to humanitarian logistics can be established. The two central aspects the interviews initially aimed to investigate in detail were evacuation activities and transport of aid supplies. However, the participants of the study who responded to the interview request were only remotely connected to these activities. While evacuation and distribution of aid supplies were still relevant and pursued as a topic during the interviews, other areas were sometimes discussed at greater length, to gain a better understanding of the topic of disaster and flood management in general. Very closely related to one another are the first two success factors, communication, and coordination. Especially due to the time constraint related to humanitarian relief operations, proper coordination of resources forms the core of good humanitarian logistics.

However, without communication, even the most elaborate coordination plan will not be successful, and therefore also needs to be a priority in managing and structuring the disaster management activities. Knowledge comprises not only having experts on critical topics on board but also to implement this knowledge effectively, as respondent 5 pointed out: Application of knowledge thus also belongs to the success factors of relief operations. Preparedness of the agencies and also individuals working on the scene is the last crucial factor in humanitarian relief operations. As with the unpredictable aspect of their nature, disasters can occur without warning and prior planning for it. To safeguard communities, unambiguous and clear SOPs need to be in place at the



integrated agencies, and they need to be understood and known by the individuals who execute them.

## 6. Conclusion and Implications

Fulfilling the research objective, this research has succeeded in highlighting and identifying the critical success factors for humanitarian response in the case of flood management in Kuantan. The core factors include coordination, communication, knowledge, and preparedness. Because a large number of government agencies, NGOs, and other stakeholders are involved in the disaster management activities in Malaysia, it is not surprising that the coordination in such an environment is more crucial. Communication additionally provides support and gives its voice to coordination, since clear, reliable, fast, and accurate information needs to be conveyed when dealing with any disaster incident. Knowledge comprises not only having experts on critical topics on board but also to implement this knowledge effectively. Preparedness of the agencies and also individuals working on the scene is the last crucial factor in humanitarian relief operations. As with the unpredictable aspect of their nature, disasters can occur without warning and prior planning for it. To safeguard communities, unambiguous and clear SOPs need to be in place at the integrated agencies, and they need to be understood and known by the individuals who execute them. To further develop NADMA or National Disaster Management Agency, which was established as coordinating control for disaster management only in 2016, an expansion of the staff seems a feasible idea. By establishing local NADMA officers and permanent staff, communication on the ground is simplified. A dialogue is then possible, where lessons learned can be reflected on common ground and feedback can be expressed from both sides regarding what went well and what did not during the latest disaster incident. Furthermore, three specialized teams could be integrated into the team of NADMA in the future; one is focussing on the technical and technological advancement of drainage and irrigation development; another comprising expert in the field of disaster management; and a third team that is focussed around community outreach.

## Acknowledgment

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

## Funding

This work is supported by the Ministry of Higher Education, under the Fundamental Research Grant Scheme (FRGS) of RDU150107.

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## Conference Paper

# The Link between Relational Benefit to Relationship Quality in Priority Banking Services in Indonesia

Syafrizal<sup>1</sup>, Nabsiah Abdul Wahid<sup>2</sup>, and Ishak Ismail<sup>3</sup><sup>1</sup>Economics Faculty, Kampus Unand Limau Manis, Andalas University, Indonesia<sup>2</sup>Graduate School of Business, Universiti Sains Malaysia, 11800 USM Pulau Pinang, Malaysia<sup>3</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

Relational benefit has an important role in improving relationship quality in a consumer services company, particularly in credence service. However, there are only a few research on the link between relational benefit and relationship quality, especially in credence service like priority banking services. The objective of this study is to fulfill this gap by investigating the links of relational benefit on satisfaction and trust. A survey questionnaire was run to 338 priority banking customers in Jakarta. This study found that functional benefit has a significant influence on relationship satisfaction and trust, while social benefit also has a significant influence on satisfaction and trust. The findings imply that service providers like bankers need to consider the functional benefit and social benefit as it directly affects their customer's relationship satisfaction and trust. The result of this research is crucial when the intended customer is an important segment like the priority customers who have large deposits and investment products in the banks.

Corresponding Author:

Syafrizal

ajosyafrizal@gmail.com

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Fierce competition has increased the importance of customer retention for the business organization. In other words, the firm should establish, enhance, and maintain a relationship with its clients in order to maintain the company's growth. Literature has revealed that the cost to maintain a current customer is much cheaper than to seek the new one. Also, developing long term relationship can increase customer lifetime value and other related results like repeat buying, positive word of mouth, resistance to switching, etc. The success of the firm in developing a relationship with its customer is determined by the degree of relationship quality between the client and the firm. In other words, to what extent relationship outcome that can be gained by the firm is influenced by the strength of relationship quality. Hence, the better relationship quality, the more relationship outcome gained by the firm.

## OPEN ACCESS

Relationship quality has a crucial role in determining relationship outcome. Currently, scholars have spent some efforts to investigate the relational benefit as a driver of relationship quality. Customer evaluation to benefit they received from the service relationship will contribute to their perceived relationship quality to the service firm. Literature in relationship marketing has revealed that relationship benefit has strong predictive power to relationship quality. Therefore, to improve the quality of a relationship, the service provider has strived to deliver any benefit to their customer. In consumer service relationship, company not only race to deliver functional benefit (i.e. economic benefit, special treatment benefit and performance of products or services) but also develop a bundle of social benefit (customer recognition, customer-service provider rapport or friendship and family gathering) by delivering personalize or customize service through customer-service provider interaction (service encounter).

Even though literature has reported the crucial role of relational benefit to improve relationship quality, however, there is still a few of study examine the influence of relational benefit on relationship quality, particularly in priority banking services (mass affluent banking services). Also, the finding of previous research is still inconclusive to determine which kind of relational benefit that have the most influence on relationship quality in the financial service industry. Therefore, the objective of this research is to address the links of relational benefit to relationship quality in priority banking services. In this research, the relational benefit is conceptualized as a construct that comprises of functional benefit and social benefit.

## 2. Literature Review

### 2.1. Relationship quality

In the previous study, a relationship refers to specific types of relationships, such as parent-children relationships, marriages, friendships, or dating. According to Berscheid (1994), relationships should be based on continuous interactions and psychological connections.

A good or strong relationship must have two properties: continuous interactions and emotional attachment (Berscheid, 1994). Based on the interaction approach, Berscheid, Snyder, and Omato (1989) and Hinde (1979) noted that a relationship is a continuous interaction between two parties. In essence, this definition implies that there is interconnection between the past, current, and future interaction. Past and current interaction in part helped in predicting future interactions. Based on this perspective, the strength

of a relationship (relationship quality) can be assessed from the daily interaction; and can be observed within the nature of interactions such as the number of interaction, diversity of interaction and period of this interaction (Berscheid *et al.*, 1989).

The definition of a relationship in the research of buyer-seller relationships gives emphasize on the interaction perspective. Also, many researchers defining relationships as a continuous interaction between buyer and seller (Guttek *et al.*, 1999; Bendapudi and Berry, 1997; Iacobucci and Ostrom, 1996; Czepiel, 1990). Besides having continuous interactions as the core of relationship characteristics, an emotional attachment is another core characteristic indicating the strength of the relationship (Berscheid, 1994). From the psychological perspectives, Wish *et al.* (1976) noted that a relationship refers to emotional attachment or bond that a party perceives to have with another party, object, or symbol.

In service research, emotional attachment has been conceptualized by the researcher in various way. Based on the literature, mostly emotional attachment in service research refers to commercial friendships (Price and Arnould, 1999), trusts (Doney and Canon, 1997) and commitments (Morgan and Hunt, 1994). Mostly, researchers used a combination of these type of emotional attachment to conceptualize relationship quality. For example, some scholars conceptualize relationship quality as construct consist of satisfaction and trust (Liu, Guo, & Lee 2011; Jang *et al.* 2013; Lin, 2013; Al-Alak and Alnawas, 2010) while other scholars conceptualize it as a construct consist of trust and commitment (Park and Lee, 2014; Morgan and Hunt, 1994). Other scholars conceptualize relationship quality as construct consist of satisfaction, trust, and commitment Chung and Shin, 2010; Ou and Shih, 2011; Moliner, Tena and Gracia, 2013). Trust in service relationship refer to customer-perceived credibility and ability of service provider to deliver service as they promise. This trust very crucial to decrease risk and uncertainty in service consumption. Past time satisfaction with a service firm will allow the customer to feel confident in its future performance (Lin, 2013; Al-Alak and Alnawas, 2010; Crosby, 1990). In other words, past time satisfaction to a service firm will influence customer repeat purchase intention.

## 2.2. Relationship benefit

Longer time periods of the relationship between customer and service firm can be established through developing strong bonding instrument trough improving relationship benefit, which can increase the value of a relationship. A number of marketing scholars have explored many types of relationship benefit that can be delivered to the

customer. Previous research found that social benefit is very helpful in strengthening a relationship by developing solidarity, empathy, familiarity, friendship and rapport (Barnes, 2003; Price and Arnould, 1999). Furthermore, Liang and Wang (2006) in their research found that financial and social benefit has a significant influence on relationship satisfaction through relationship investment. Whereas Smith (1999) introduces three kinds of relationship benefit, they are a functional, social, and structural benefit. Liang and Wang (2006) also study three kinds of relationship benefit, and they are a financial, social, and structural benefit. A financial benefit in Liang and Wang (2006) similar to functional bonding in Smith (1999) which specifically refers to the economic benefit derived by parties in the relational exchange. Based on the aforementioned literature previously, this research conceptualizes relational benefit as an independent variable consisting of two dimensions: functional and social benefit.

### 2.2.1. Functional benefit

The functional benefit can come from economic, performance, or instrumental linkage that can enhance continuity of relationship (Smith 1999). It is in-line with Tuner (1970) who argues that functional benefit is comprised of economic, strategy, technology, and instrumental (product and services) benefit derived by exchange parties. Refer to Tuner (1970) a group of researchers operationalizes this variable with other names like special treatment (Hennig-Thurau 2004) and financial benefit (Liang and Wang 2006). Special treatment benefit refers to the value of strategy or offering delivered by service firm to customer. While the financial benefit is should be referred to as the economic value received by the customer from the service provider. Reynold and Beaty (1999) describe functional benefit as a series of utilitarian benefits such as less time cost, convenience, personal advice, and proper purchase decision.

Literatur revealed that relational benefit is important predictor of relationship quality. For instance, Meng and Elliot (2008) proven that relational benefit has important role to determine the quality of relationship in the restaurant business. Many empirical studies also have proven the crucial role of functional benefit on relationship satisfaction (Reynold & Beaty, 1999; Smith 1998). Jang et al. (2013) also proven the important influence of economic benefit on satisfaction and trust. Instead of investigating the effect of relationship benefit to the quality of the relationship directly, some scholars investigate the influence of relational benefit to satisfaction indirectly. For example, Liang and Wang (2006) found that social and structural benefit are important predictor of relationship investment, while the financial benefit is not. Hence they found that



relationship investment is important predictor of satisfaction. Therefore, regarding the previous discussion, then next hypothesizes are proposed:

H1. Functional benefits have a positive and significant effect on relationship satisfaction.

H2. Functional benefits have a positive and significant effect on relationship trust

### 2.2.2. Social benefit

Social benefit is defined as the degree of liking and friendship the parties have in the interpersonal relationship. This liking and friendship associate personal identity between employee and customer through disclosure, rapport, identification, and experience sharing (Turner 1970). It is in-line with Reynold and Beaty (1999) who describe social benefit as customer enjoyment to make a friend and spent more time with firm salespeople (employee). Social benefit is not a substitution of financial benefit, but it is the complement of financial benefit that can provide a number of positive effects such as deliver customize service, fulfill customer expectation and preferences appropriately and enhance customer trust and satisfaction. Previous studies have proven that relational benefit is important predictor of relationship quality. For example, Ibrahim and Najjar (2008) found the important role of relational benefit on satisfaction in the retail store. Then, the previous study also found that social benefit is important predictor of customer trust (Jang et al., 2013; Smith 1998). Literature also revealed the important role of social benefit to relationship satisfaction (Yen et al., 2014;).

H3. Social benefits have a significant influence on relationship satisfaction.

H4. Social benefits have a significant influence on relationship trust.

## 3. Method

In this study, data was collected from priority banking customers in Jakarta, Indonesia, in 2014. With permission from the banks, self-administrated questionnaires were distributed to priority banking customers who were available within the bank's priority outlet (priority lounge). As much as 330 completed and usable questionnaires were analyzed for this research. All item questionnaires used in this study were adapted from various studies. For example, functional benefit (FB) and social benefit (SB) was operationalized with 4 items by each construct adapted from Hennig-Thurau (2002). For relationship quality constructs, the measure of satisfaction (sts) consists of four indicators were borrowed from Al Alak and Alnawas's (2010). Also, the measure for trust

(tst) consist of five indicators were borrowed from Moliner (2007), Al Alak and Alnawas (2010). All items of the questionnaire in this research were operationalized using 7 points Likert scale. The data of this study were analyzed using SEM with Smart PLS.

## 4. Result

### 4.1. Profile of respondents

Total respondent for this study is 338 bank priority customer. Based on gender, the respondents of this research are almost equal between a number of male 171 people (50.6%) and female 167 people (49.4%). In term of ages, as much as 295 respondents (87.3%) of this study are between 25-64 years old. The majority of respondents are married (81.4%). As much as 182 respondents (53.8%) of this study have a bachelor degree.

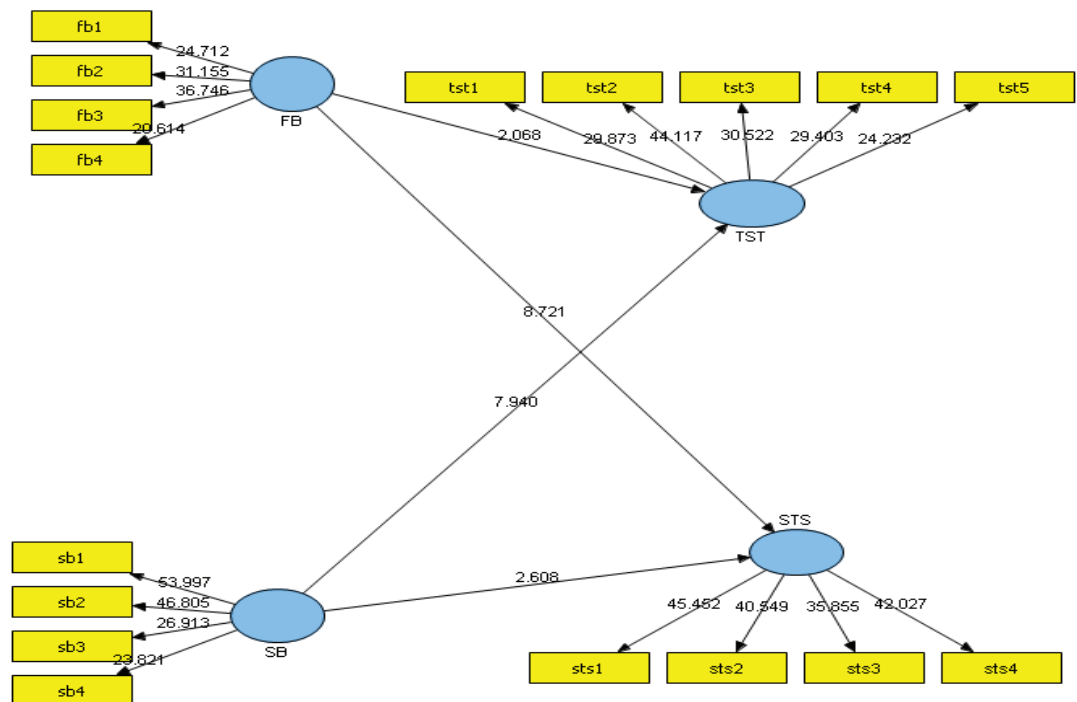


Figure 1: Structural Model.

## 4.2. Measurement model

Analysis of the measurement model in this research aims to check the reliability and validity of the research instrument. The assessment of Cronbach alpha and composite reliability are conducted to check the reliability of the research instrument. Then, the assessment of loading factor, convergent validity, and discriminant validity were conducted to check to construct validity. According to Hair's et al. (2016), a research instrument has good reliability when the score of Cronbach Alpha and Composite Reliability are 0.7 or higher. Table 1 shows that both of Cronbach Alpha and Composite Reliability have scored more than 0.7. Therefore, it implies that this research instrument has good reliability. A research construct is said high validity when it has factor loading, average variance extracted (AVE) score 0.5 or above (Hair et al. 2016). Table 1 shows that the score of loading factor for all item questionnaire is higher than 0.5 which is between 0.7676 (fb4) and 0.8688 (sb2), while the score of AVE also higher than 0.5 which is between (0.645 to 0.721). Therefore, it indicates that this research instrument has good construct validity. Loading factor score can be seen Table 1.

TABLE 1: Summary of Measurement Model.

| Research Variable | Measurement Item | Cronbach Alpha | Factor Loading | CR    | AVE   | R <sup>2</sup> |
|-------------------|------------------|----------------|----------------|-------|-------|----------------|
| sts               | sts1             | 0.871          | 0.857          | 0.912 | 0.721 | 0.422          |
|                   | sts2             |                | 0.8499         |       |       |                |
|                   | sts3             |                | 0.8441         |       |       |                |
|                   | sts4             |                | 0.8455         |       |       |                |
| tst               | tst1             | 0.869          | 0.8055         | 0.905 | 0.656 | 0.299          |
|                   | tst2             |                | 0.8427         |       |       |                |
|                   | tst3             |                | 0.8069         |       |       |                |
|                   | tst4             |                | 0.8066         |       |       |                |
|                   | tst5             |                | 0.7856         |       |       |                |
| fb                | fb1              | 0.816          | 0.7722         | 0.879 | 0.645 |                |
|                   | fb2              |                | 0.825          |       |       |                |
|                   | fb3              |                | 0.8445         |       |       |                |
|                   | fb4              |                | 0.7676         |       |       |                |
| sb                | sb1              | 0.861          | 0.8552         | 0.905 | 0.705 |                |
|                   | sb2              |                | 0.8688         |       |       |                |
|                   | sb3              |                | 0.8302         |       |       |                |
|                   | sb4              |                | 0.8033         |       |       |                |

Note: fb=functional benefit; sb=social benefit; sts=satisfaction; tst=trust; AVE=average variance extracted; CR=composite reliability

Discriminant validity of the research constructs was assessed by using Fornier and Larcker’s criterion was used in this study. A research construct has good discriminant validity when the square root score of AVE exceed the correlation of all the other constructs in the correlation matrix (Hair et al., 2016). Table 2 shows that square roots of AVE were higher than other correlation among constructs. The Fornier and Larcker result indicates that the discriminant validity of the construct was good.

TABLE 2: Correlation Matrix of Constructs.

|     | FB           | SB           | STS          | TST          |
|-----|--------------|--------------|--------------|--------------|
| FB  | <b>0.803</b> |              |              |              |
| SB  | 0.471        | <b>0.840</b> |              |              |
| STS | 0.6331       | 0.4261       | <b>0.849</b> |              |
| TST | 0.3531       | 0.5341       | 0.3909       | <b>0.810</b> |

Note: fb=functional benefit; sb=social benefit; sts=satisfaction; tst=trust

### 4.3. Structural model, hypothesis testing and results

Table 2 shows that the coefficient determinant ( $R^2$ ) of satisfaction is 0.422. It means that as much as 42.2% variance in satisfaction is explained by functional benefit and social benefit (refer to Table 1). Further investigation on regression coefficient of FB-STS finds  $\beta=0.5556$  ( $t=8.7208$ ;  $p\text{-value}<0.001$ ) and regression coefficient of SB-STS finds  $\beta=0.1644$  ( $t=2.6075$ ;  $p\text{-value}<0.001$ ) (refer Table 3). From these  $R^2$  and  $\beta$  values, It is concluded that both hypothesis H1 (functional benefit has a significant effect to relationship satisfaction) and hypothesis H3 (social benefit has a significant effect to relationship satisfaction) are supported.

TABLE 3: Summary of Structural Model.

| Path Coefficient and Hypothesis Testing |              |                              |         |           |
|---|--------------|------------------------------|---------|-----------|
| Hypothesis                              | Relationship | Path Coefficient ( $\beta$ ) | t-value | Supported |
| H1                                      | FB-STS       | 0.5556                       | 8.7208  | Yes       |
| H2                                      | FB-TST       | 0.1304                       | 2.068   | Yes       |
| H3                                      | SB-STS       | 0.1644                       | 2.6075  | Yes       |
| H4                                      | SB-TST       | 0.4726                       | 7.9405  | Yes       |

Also, Table 2 shows that the coefficient determinant ( $R^2$ ) of trust is 0.299. It means that as much as 29.9% variance in the trust is explained by functional benefit and social benefit (refer to Table 1). Further investigation on regression coefficient of FB-TST finds  $\beta=0.1304$  ( $t=2.068$ ;  $p\text{-value}<0.01$ ) and on regression coefficient of SB-TST finds

$\beta=0.4726$  ( $t=7.9405$ ;  $p\text{-value}<0.01$ ) (refer Table 3). From these  $R^2$  and  $\beta$  values, it can be concluded that both hypothesis H2 (functional benefit has a significant effect to relationship satisfaction) and hypothesis H4 (social benefit has a significant effect to relationship trust) are supported

## 5. Discussion

### 5.1. Functional benefit and satisfaction

This study found that functional benefit has a significant influence on relationship satisfaction. It conforms with previous studies (Reynold & Beaty, 1999; Jang et al. 2013; Gao & Liu, 2014; Prayoga, Yasa & Wardana, 2015) that revealed the important role of economic benefit to enhance relationship satisfaction. In addition, Ibrahim and Najjar (2008) also proven the important role of relational benefit to improve customer satisfaction in the retail store. Functional benefit refers to an economic and utilitarian value. In a bank, economic benefit refers to interest rate and bank fees. Utilitarian value refers to products and services value provided by the bank. In other words, functional benefit refers to core products or services offered by the bank. Customer buys and purchases bank's offering to meet or exceed their expectation. When the bank's offering can fulfill customer expectation, they will satisfy and vice versa. It implies that enhance functional benefit will improve customer satisfaction.

In priority banking services, the bank's priority customers expected that the bank will offer various saving and investment products and will receive special treatment, exclusive and personal service from the bank. As a consequence, received high functional benefit from the bank will improve customer satisfaction. The primary objective of the client in joining priority services is to get many privileges, personalize service, and various bank offering. Priority Customers invest in a package of financial instrument in order to gain an outstanding yield. Instead of outstanding payoff, priority client also wants to obtain customize and personal services. In addition, the customer also expects to gain various privilege as a reward from their money in the bank. The higher functional benefit obtained by priority client can contribute to the strengthening of relationship satisfaction.

## 5.2. Social benefit and satisfaction

This research-proven the important role of social benefit to improve relationship satisfaction. It conforms with previous studies that found that social benefit is important predictor of relationship satisfaction (Jang et al. 2013; Prayoga, Yasa, Wardana, 2015; Gao and Liu 2014; and Yen et al. 2014). Besides, Ibrahim and Najjar (2008) also found that relational benefit has important role to improve relationship satisfaction. Social benefit refers to a personal relationship that can establish personal recognition, closeness, friendship, and rapport between the firm's employees and their customer. Sometimes firm's employee's contact or interacts with their customer not only for business purpose but also for a personal purpose such as perform hobbies, sports and family ceremonials (i.e., wedding, condolence, birthday celebration). Developing strong personal relationship will make a customer happy since they feel received special and personal treatment that is beyond their expectation. This special personal treatment will induce customer satisfaction to the relationship.

In the priority banking services, the bank provides priority banking officer (relationship manager) for priority customer. This relationship manager will provide personal and exclusive service for priority customer. In addition, the relationship manager also will entertain and provide personal assistant to priority customer. The personal and exclusive service will facilitate rapport and develop friendship between relationship manager and priority customer. Sometimes the bank treats priority customer as a family member of the company. For example, the bank will invite the customer to attend a family gathering event. Besides, relationship manager not only interacts with a customer for business purpose but they also perform hobbies and sport together such as go to karaoke, fishing, cycling, golfing, jogging, traveling, and diving. Sharing hobbies and sports activities will facilitate rapport and relationship development between the relationship manager of the bank and priority banking customer. Strong rapport and friendship that are beyond customer expectation will induce high relationship satisfaction.

## 5.3. Social Benefit and Trust

This research revealed the important role of social benefit to improve trust in the relationship. This conforms with previous research that proves that social benefit is an important predictor of relationship trust (Jang et al. 2013). Also, Smith (1998), in his research, also revealed the important role of social benefit to improve relationship

quality. Social benefit refers to personal recognition, rapport, and friendship between company personnel and their customer. The effort of employees to know the personal background of the customer, to get close with the customer, to make relation and friendship with customer reflect that service firms have a concern to the welfare of the customer. The perceived interest of service firm to the customer welfare will induce customer trust.

In priority banking services, personal, premium and exclusive service from priority banking officer have an opportunity to recognize, to develop a connection, closeness, and friendship with priority customer that reflect the interest of bank employee to the customer welfare. Personal and exclusive services from priority banking officer have opportunities to develop closeness, rapport, and friendship. It reflects that priority banking officer has an interest to best suit customer wants and needs that finally induce customer trust.

#### **5.4. Functional Benefit and Trust**

This research has proven the important role of functional benefit to improve relationship trust. This study conforms with previous research that revealed that functional benefit is a strong predictor of relationship trust (Jang et al. 2013; Gao & Liu, 2014). In addition, Smith (1998), in his research, also argue that functional benefit has important role to improve relationship quality. A functional benefit is related to customer evaluation, whether core products or services provided by the firm can meet or exceed their need or not. Beside core product or services, to overcome the competition of the firm, the firm also offers another economic benefit such as financial reward and special treatment benefit to enhance customer bonding. The effort of the company to provide core and other additional benefit reflects that it has interest in customer needs and preferences that, in turn, induce customer trust.

In priority banking services, the bank provides a various traditional and advanced financial product to meet or exceed customer needs. Beside core financial product, priority banking services also provide other privilege and special treatment benefit such as executive lounge in an airport, bank priority outlet, customer gathering, traveling advisory, medical advisory, free certain magazine, education advisory and pick up service. The effort of the bank to provide various financial product and other privileges to priority customer indicates that the bank has an interest to best suit customer needs and preference that in turn, will induce customer trust.

## 6. Conclusion and Recommendation

This research has proven the important role of functional benefit to improve relationship satisfaction and trust. Also, this research also has revealed that social benefit is a strong predictor of relationship satisfaction and trust. The effect of functional benefit to customer satisfaction is stronger than that of social benefit. It means that core product or services are more important to develop customer satisfaction than social benefit. On the other hand, the effect of social benefit to customer trust is stronger than that of functional benefit. It means that personal relationship such as personal recognition, rapport, and friendship are more relevant to develop customer trust than functional benefit. As of implication, the bank can give priority to enhancing the functional benefit to improve relationship satisfaction. Whereas, the bank can give priority to enhancing the social benefit to improve relationship trust.

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## Conference Paper

# A Systematic Review: Factors Affecting Employees' Adoption of E-government Using an Integration of UTAUT & TTF Theories

Khaled I. A. Amrouni<sup>1</sup>, Ruzaini A. Arshah<sup>1</sup>, and Alaa J. Kadi<sup>2</sup><sup>1</sup>Faculty of Computer Systems and Software Engineering, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia<sup>2</sup>Faculty of Housing and Building Planning, Universiti Sains Malaysia, 11800 Gelugor, Penang, Malaysia

## Abstract

Information and communication technologies (ICT) have been implemented mainly in government organizations, where e-government has become prevalent. The previous research focuses mostly on e-government adoption from the perspective of citizens. However, there is a scarcity of research conducted from the viewpoint of the employee. This study tried to identify and predict the factors that influence an employee to adopt technology implemented at the workplace by focusing on acceptance technology theories. The unified theory of acceptance and usage of technology (UTAUT) and Task-technology fit (TTF) using relevant findings in this review. The attempt to conduct a comprehensive explanation and analysis of the existing literature up to 2018, to understand the current situation of e-government implementation. Reviewing procedures were done by reviewing articles on e-government and related work by using indexing databases "web of science & Scopus. Finally, the results of this paper are the factors that make employees directly or indirectly adopt e-government.

**Keywords:** e-government adoption, UTAUT, TTF, G2E, employee.

Corresponding Author:

Khaled I. A. Amrouni  
amroni558@gmail.com

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

The world today lives in the era of information after a lengthy industrial era, and the information and communication technology (ICT) is considering one of the benefits of this information age. In recent years, e-government has been one of the most critical technologies in ICT. Using of IT tools for some people is ordinary in their daily lives, while others still choose traditional ways to use (Greenland, 2019; Xing, 2018). There is no particular e-government definition, and most definitions emphasize on better delivery of government services to beneficiaries by using technology. According to (World Bank, 2015), e-government refers to the use of IT technologies by government agencies. These technologies can serve a variety of different ends such as citizens, customers,



clients and employees (Al-nidawi, Al-wassiti, Maan, & Othman, 2018; El-dosuky & El-adl, 2019; Joshi & Islam, 2018). (Al-nidawi et al., 2018; Alkhatib, 2013) categorised e-government into four classes: (a) Government to Citizen “G2C”: which refers to the interaction between government and its citizens to access information and government services effectively, efficiently, and quickly; (b) Government to Employee “G2E”: which indicates the interaction between government and its employees to improve productivity by using all effective ways available; (c) Government to Government “G2G”: which is the interaction between government agencies functional at local levels; (d) Government to business “G2B”: the interaction between government and businesses by using the Internet to help businesses activities.

Due to the growing application of IT technology, the determinants of technological acceptance have been explained and predicted in several theoretical frameworks. To unify the eight existing frameworks as shown in Table 1, the Unified Theory of Acceptance and Use of Technology (UTAUT) model was developed by (Venkatesh, Morris, Davis, & Davis, 2003). It has been tested empirically over time, examining the acceptability of technology between various areas. A commonly used model represents only about 56% variation in the intention of users to accept and use technology. Consequently, UTAUT2 was developed to improve the original framework and explanation for more variance. Though, there is a little study on UTAUT2 (Venkatesh, Thong, & Xu, 2012).

Task-technology fit (TTF), the theory says that if the IT capacities suit the duties that an employee has to do, the IT may have a beneficial effect on employee performance. (Goodhue & Thompson, 1995) Suggested (TTF) model for understanding the linkage between information systems and individuals. About this model, technological features relate to the technology used to perform their tasks by employees. Task characteristics refer to the actions performed by users who turn inputs into products. TTF is the extent to which technology helps a user to complete tasks. Hence, the technology will be adopted by employees in case the tasks of the technology correspond with the services to perform.

This survey conducted on e-government adoption, it reveals a gap in previous studies on the integration of UTAUT & TTF theories in technology adoption from the employees perspective. This review provides evidence on e-government adoption by integrating UTAUT and TTF. By recognizing these factors, senior managers can build essential strategies that will help in dealing with different subgroups of employees and the varying degrees of acceptance of using the technology more efficiently and effectively.

TABLE 1: Constructs of eight theories & their relation with UTAUT I.

| Theory/ Framework   | Constructs  | UTAUT Constructs   |
|---|---|--|
| Theory of Reasoned Action (TRA) by (Ajzen & Fishbein, 1975)           | Attitude.<br>Subjective Norm.   | Social Influence.  |
| Theory of Planned Behaviour (TPB) by (Ajzen, 1985)                    | Attitude.<br>Subjective Norm.<br>Perceived behavioural control.   | Social Influence.<br>Facilitating Conditions.  |
| Technology Acceptance Model(TAM) by (Davis, 1986)                     | Perceived Usefulness.<br>Perceived Ease of Use.   | Performance Expectancy.<br>Effort Expectancy.  |
| Technology Acceptance Model2 (TAM2) by (Venkatesh & Davis, 2000)      | Perceived Usefulness.<br>Perceived Ease of Use.<br>Subjective Norm.<br>Image.<br>Job Relevance.<br>Output Quality.<br>Result Demonstrability. | Performance Expectancy.<br>Effort Expectancy.<br>Social Influence.                             |
| Innovation Diffusion Theory (IDT) by (Rogers, 1995)                   | Relative Advantage.<br>Complexity.<br>Image.<br>Compatibility.<br>Voluntariness Use.  | Performance Expectancy.<br>Effort Expectancy.<br>Social Influence.<br>Facilitating Conditions. |
| Social Cognitive Theory (SCT) by (Bandura, 1986)                      | Outcome Expectations.<br>Encouragement by Others.<br>Others Use.<br>Support.<br>Self-Efficacy.<br>Performance Outcome.<br>Affect.<br>Anxiety. | Performance Expectancy.  |
| Motivational Model (MM) by (Vallerand, 2000)                          | Extrinsic Motivation.<br>Intrinsic Motivation.  | Performance Expectancy.  |
| Model of PC Utilization (MPCU) by (Thompson, Higgins, & Howell, 1991) | Job-fit.<br>Complexity.<br>Social Factors.<br>Facilitating Conditions.<br>Affect.<br>Long-Term Consequences                                   | Performance Expectancy.<br>Effort Expectancy.<br>Social Influence.<br>Facilitating Conditions. |
| Combined TAM-TPB (C-TMA-TPB) by (Taylor & Todd, 1995)                 | Perceived Usefulness.<br>Subjective Norm.<br>I have perceived behavioural control.<br>Attitude.   | Performance Expectancy.<br>Social Influence.<br>Facilitating Conditions.                       |

## 2. Theoretical Background and Research Model

The challenges for e-government projects are less pronounced in technologically developed countries than in developing countries. At a basic level, there is likely to be limited access for many citizens to technological resources such as computers and the internet. Also, there could be lower skills in using the technology, lower literacy and education levels as well as the most advanced technologies related to industry 4.0 like clouding,

blockchain and other related technologies and innovations (El-dosuky & El-adl, 2019; Nanos, Manthou, & Androutsou, 2019).

According to a many studies conducted on e-government (Al-Mutairi, Naser, & Fayez, 2018; Almarabeh & Abuali, 2010; Dewa, Zlotnikova, & Science, 2014; Yadav & Tiwari, 2014), they determine the challenges and obstacles in developing countries like cultural and social matters, content accessibility, insufficient infrastructure, insufficient service delivery and lack of confidentiality and trust as well as digital divide where employees' resistance towards adopting digital technology.

UTAUT focuses on individual behaviour to using a specific technology, that developed based on ease of use and usefulness of the IT technology. TTF Theory emphasizes the connection between the user job requirements and the IT capabilities available. While each model provides considerable clarification, a model that includes buildings from both models can provide a significant enhancement over each model alone (Lai, 2017).

According to (Mosweu & Bwalya, 2018), UTAUT alone is not enough to explain the factors that impact the adoption of technology. So, by integrating the (TTF) model and (UTAUT), this research proposes an e-government user adoption model to explain the relationship between software use and user performance. The link between the IS and user performance was the main issue in IS research. (Bakker, 2018; Goodhue & Thompson, 1995).

### 3. Methodology

This research divided into three main stages, which are:

#### 3.1. A bibliometric study

This phase which conducted with proceeding papers and journal articles published up to Dec. 2018 by using indexing databases (web of science & Scopus), so the publication period restricted from the first article published up to December 2018. This review conducted in three searching levels. The first search was under the topic ("UTAUT" or "UTAUT2" or "unified theory of acceptance and use of technology" and "e-government" or "electronic government"). The second search was on ("TTF" or "task-technology fit" and "e-government" or "electronic government"). Finally, the combination of all the previous searches done (UTAUT, TTF, and e-government).

The following criteria that used for exclusion or inclusion of all journal articles and proceeding papers:

1. The topic was e-government adoption through UTAUT and TTF theories,
2. The full article obtained from different digital databases,

### **3.2. The systematic review for retrieved articles.**

A systematic review was done to ensure that most of the relevant research included, in this phase, all abstracts of these articles read and analyzed, and an article not related to the study domain removed. Few of them were relevant and considered to be investigated for the bibliometric and systematic aspects. Finally, in-depth analysis of these articles that were conducted to extract the factors affecting employee to adopt the technology.

### **3.3. Reporting data process**

The included articles were organized into three groups: UTAUT & e-government, TTF & e-government and UTAUT & TTF & e-government. Once the first category achieved, go to the next one that is finer distinctions based on their research focus, which is employee perspective. All articles were then summarised, and their data entered into tables and figures.

## **4. Results and Findings**

The bibliometric survey carried out, and the results obtained by the analysis of the 145 articles that getting from the indexing databases. Although both theories emerged in 1995 and 2003, respectively, the first e-government study by using these theories was in 2006. Also, the first integration of the two theories in the same field was in 2016. Table 2 shows details about the articles published in this domain.

Although, both theories TTF and UATUT that used in this study have applied for a long time, however, few reviews were found used these theories in the e-government domain. After getting the bibliometric results, there is an apparent gap in utilizing an integration of UTAUT and TTF in e-government studies, where only one article found and this article not related to the employee. As seen in Figure 1.

### **4.1. E-government and UTAUT**

After a bibliometric study, was done to cover the first domain. One hundred thirty articles were found and analyzed to determine the factors affecting this phenomenon

TABLE 2: Overall Research Results.

| Indexing Database               | e-government & UTAUT |                      | e-government & TTF |                     | e-government, UTAUT & TTF |                    |
|---------------------------------|----------------------|----------------------|--------------------|---------------------|---------------------------|--------------------|
|                                 | Count                | Percent % Out of 130 | Count              | Percent % Out of 14 | Count                     | Percent % Out of 1 |
| Web of Science                  | 73                   | 56.15                | 8                  | 57.14               | 1                         | 100                |
| Scopus                          | 99                   | 76.15                | 9                  | 64.28               | 0                         | 0                  |
| Total                           | 172                  |                      | 17                 |                     | 1                         |                    |
| Duplication                     | 42                   |                      | 3                  |                     | 0                         |                    |
| Total without duplications      | 130                  |                      | 14                 |                     | 1                         |                    |
| Related to employee perspective | 11                   | 8.46                 | 2                  | 14.28               | 0                         | 0                  |

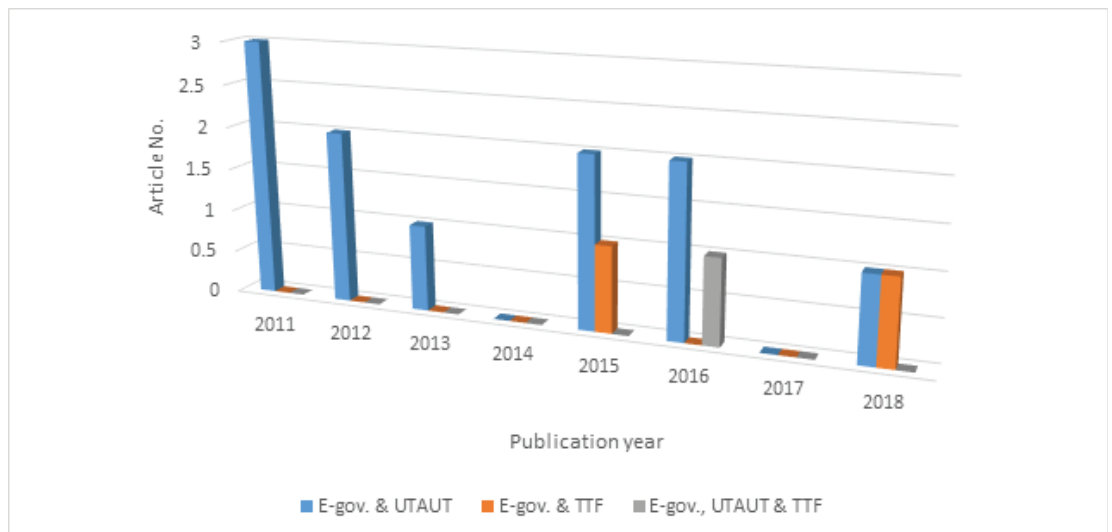


Figure 1: Sum of Article Related to Employee and Articles Published Per Year.

of research based on UTAUT. Only 11 articles were related to the employee perspective. Table 3 shows these factors from 11 articles.

According to (Venkatesh et al., 2003, 2012) The definition of Performance expectancy, effort expectancy, social influence and facilitating conditions are the combinations of past findings termed such as Relative advantage, the image and complexity, and compatibility respectively (Moore & Benbasat, 1991). So, to avoid duplication, the UTAUT construct only used in this review, and dropped other factors.



TABLE 3: Factors Used in Previous E-Government Studies through UTAUT Theory.

| Factor                       |                  | Count | Percent % | Dependent Variable |       |          | Moderator |        |            |               |
|------------------------------|------------------|-------|-----------|--------------------|-------|----------|-----------|--------|------------|---------------|
|                              |                  |       |           | Intention          | Usage | Adoption | Age       | Gender | Experience | Voluntariness |
| Performance Expectancy (PE)  | UTAUT Factors    | 10    | 90.9      | 9                  | 7     | 2        | 6         | 6      | 4          | 2             |
| Effort Expectancy (EE)       |                  | 10    | 90.9      | 9                  | 7     | 2        | 6         | 6      | 4          | 2             |
| Social Influence (SI)        |                  | 10    | 90.9      | 9                  | 7     | 2        | 6         | 6      | 4          | 2             |
| Facilitating Conditions (FC) |                  | 7     | 63.6      | 7                  | 6     | 0        | 4         | 4      | 3          | 2             |
| Self-efficacy (SE)           |                  | 2     | 18.1      | 2                  | 2     | 0        | 1         | 1      | 0          | 0             |
| Attitude toward              |                  | 1     | 9         | 1                  | 1     | 0        | 1         | 1      | 0          | 0             |
| Anxiety                      |                  | 1     | 9         | 1                  | 1     | 0        | 1         | 1      | 0          | 0             |
| Website quality              | External Factors | 1     | 9         | 1                  | 1     | 0        | 0         | 0      | 0          | 0             |
| Awareness                    |                  | 1     | 9         | 1                  | 1     | 0        | 0         | 0      | 0          | 0             |
| IT workforce capability      |                  | 1     | 9         | 1                  | 1     | 0        | 0         | 0      | 0          | 0             |
| Training                     |                  | 1     | 9         | 1                  | 1     | 0        | 0         | 0      | 0          | 0             |
| Personal Value               |                  | 1     | 9         | 1                  | 0     | 0        | 1         | 1      | 1          | 0             |
| Trust of Internet            |                  | 1     | 9         | 0                  | 0     | 1        | 0         | 0      | 0          | 0             |
| Trust of Government          |                  | 1     | 9         | 0                  | 0     | 1        | 0         | 0      | 0          | 0             |
| Image= IS                    |                  | 1     | 9         | 0                  | 0     | 1        | 0         | 0      | 0          | 0             |
| Output Quality               |                  | 1     | 9         | 0                  | 0     | 1        | 0         | 0      | 0          | 0             |
| Job Relevant                 |                  | 1     | 9         | 0                  | 0     | 1        | 0         | 0      | 0          | 0             |
| Compatibility= FC            |                  | 1     | 9         | 0                  | 0     | 1        | 0         | 0      | 0          | 0             |
| Total                        |                  | 11    | 100       | 10                 | 7     | 2        | 6         | 6      | 4          | 2             |

## 4.2. E-government and TTF

From the results of the bibliometric survey which carried out on the second domain, "E-government & TTF." Only fourteen articles were found and analyzed to determine the factors affecting this phenomenon of study based on TTF. Only two articles were related to the employee perspective. Table 4 shows these factors from the two articles.

TABLE 4: Factors Used in Previous E-Government Studies through TTF Theory.

| Factor                     | Count | Percent % | Dependent Variable |
|----------------------------|-------|-----------|--------------------|
| Task characteristics       | 2     | 100       | TTF                |
| Technology characteristics | 2     | 100       | TTF                |
| total                      | 2     | 2         | 2                  |

### 4.3. E-government, UTAUT & TTF

Finally, after the searching conducted on e-government, UTAUT, and TTF, only one article was found in this category, and it is not related to the employee perspective (Tarhini, El-Masri, Ali, & Serrano, 2016).

## 5. Discussion

According to the results of this study review, many factors are influencing an employee to adopt technology in the workplace environment that extracted from UATUT, TTF, and other previous studies. Then a model can be structured to reflect the influence factors of employee adoption of technology, as shown in Table5.

TABLE 5: Operational definitions of factors that extracted from this review.

| Factors                   | Operational Definitions  |
|---------------------------|--|
| Performance Expectancy    | To what extent an employee perceives using the system will help him to achieve employment efficiency benefits.                                       |
| Effort expectancy         | The level of ease with using the system.   |
| Social influence          | To what extent an employee recognizes that other people think he or she had better use the system.   |
| Facilitating conditions   | To what extent an employee perceives that an organizational and infrastructure occurs to support using the system.                                   |
| Technology Attitude       | The overall effective reaction of an individual to using a system.   |
| Self-Efficacy             | One believes that in particular circumstances, one can achieve success.  |
| Anxiety                   | The extent to which a user experiences fear temporarily when considering using the system.   |
| Awareness                 | To what extent the employees are aware that e-government technology is introduced.   |
| Website quality           | High-quality, affordable, easy-to-use website that meets the e-government services requirements of stakeholders.                                     |
| Trust in government       | Citizens are encouraged to use e-government when they consider that the government can manage its online transactions confidentially and faithfully. |
| Personal Value            | A reliable source of conduct when a user can determine his or her behaviour autonomously.  |
| Task Characteristic       | Actions by the user that turn inputs into outputs to meet their requirements.  |
| Technology Characteristic | The tool that users use to perform their duties.   |
| Task-Technology Fit       | To what extent the technology helps users to carry out their duties.   |

In the integration model, the UTAUT model is used to analyze the influence of different factors on behaviour to make an adoption decision. Moreover, the TTF model

is applied to explain to what extent the matching degree between computing tasks and technology.

## 6. Conclusion and Implications

The target of this review is to identify and understand the main factors affecting the employees to adopt e-government technology. This literature review links two IT theories (Goodhue & Thompson, 1995; Venkatesh et al., 2012) to develop a sound analysis which takes past results into account as a review of the previous studies. In the current research, try to give more information regarding the factors influencing an employee to adopt e-government applications. E-government is supposed to offer useful services and information to both citizens and employee to create online services instead of online services.

This study has determined the key factors that are vital to enhancing technology adoption by those who work in a workplace environment. The previous studies on e-government adoption were reviewed with related subjects, and the survey conducted in this study discovered the set of factors that must be considered to design a successful application. Based on this review, this paper identifies the critical factors for the development of a successful model for adopting technology.

Finally, although UTAUT has existed for some time and was even improved since 2003, it still needs to be verified in more environments and perspective. The low number of technology acceptance research studies in the area of G2E shows that more effort can be made in the future.

## Acknowledgement

The authors wish to thank Dr. Abdelsalam Busalim and Mr. Fadhl Hujainah, who provided technical assistance and a helpful discussion to accomplish this paper.

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## Conference Paper

# Relationship between Corporate Governance and Risk Disclosure Practice from Malaysia Perspective

Ag Kaifah Riyard Bin Kiflee<sup>1,2</sup> and Mohd Noor Azli Bin Ali Khan<sup>3</sup>

<sup>1</sup>Ph.D Scholar, Azman Hashim International Business School, Block T08, Universiti Teknologi, 81310, Johor Bahru, Johor, Malaysia

<sup>2</sup>Faculty of Business, Economics and Accountancy, Universiti Malaysia Sabah, 88400, Kota Kinabalu, Sabah, Malaysia

<sup>3</sup>Lecturer, Azman Hashim International Business School, Block T08, Universiti Teknologi, 81310, Johor Bahru, Johor, Malaysia

## Abstract

Past accounting scandals (Transmile and Megan Media) and recent 2007/2008 global financial crisis have triggered the need for vibrant risk management and high quality of risk reporting through sound corporate governance. This study will measure risk management through the disclosure in the annual reports. It wishes to determine the presence of risk information within the annual report of non-financial companies in Malaysia. The objective of the study is to examine the relationship between corporate governance characteristics and risk disclosure practice. The corporate governance characteristics examined include board independence, the board size, board gender, auditor independence and auditor tenure. A total of 721 companies are expected to be analyzed based on the Bursa Malaysia list from 2008 to 2017. To determine the level of risk disclosure, this study will employ content analysis. Descriptive statistics and multiple regression will be used in this study to examine this relationship.

**Keywords:** risk disclosure, corporate governance, content analysis, multiple regression.

Corresponding Author:  
 Ag Kaifah Riyard Bin Kiflee  
 agkaifahriyard@gmail.com

Received: 5 August 2019  
 Accepted: 14 August 2019  
 Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

In general, the annual report is seen as a platform to convey beneficial information to the stakeholder and potential investor as it comprises both monetary and non-monetary information (Azlan et al., 2009). However, due to internal and external factors, the business environment is progressively volatile. Studies conducted by Ernst and Young (2014) and Gjerald and Lyngstad, (2015) found that, the main contributors to the volatility and uncertainties experienced by today business environments are instead because of non-financial risk than financial risk. Abdullah et al. (2015) also stated that many of the unexpected downfalls happened in business environments is not due to financial issues but rather cause by non-financial factors. Natural disasters, political unrest, changes in

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government policy, a conflict among countries, inconsistent in global consumer demand was argued to influence the survivability of companies (Abdullah et al., 2015).

Despite the importance of disclosing non-monetary information, it was documented that management is giving less focus on the disclosure of non-monetary information and rather focus on disclosing monetary risk management information (Lajili & Zéghal, 2005). The study also argued that by disclosing less non-financial risk information, it may misguide investors in making an informative decision. Cabedo & Tirado (2004) argued that, investors or potential investor usually make their investment or disinvestment decision by assessing the return of an investment project and the risk level associated with the company itself. It was highlighted in a situation whereby the investors could not identify the risk factor of the company, a proper judgment into the risk associated could not be made and this may lead the investor to make uninformed decision and cause severe loss to their investment (Abdullah et al., 2015).

Therefore, academicians and standard setters agreed that, to achieve high-quality corporate reporting, the management should not only emphasis on monetary information, but also the non-monetary risk information (ICAEW, 1999; CICA, 2009). Previous studies by (Solomon et al., 2000, 2011) agreed that the existence of extra risk management information will assist the investor in their portfolio investment decisions and indirectly reduce investor concern about the risk associated with companies (Orens & Lybaert, 2007). Therefore, in order to improve their decision making, investors have requested the management to voluntarily disclose risk management information especially related to non-monetary information as in some countries, the disclosure practice is still optional (Financial Reporting Council (FRC), 2011). The past result also showed that companies still reluctant to increase their risk management information disclosure (Ali, 2013). One of the arguments by the companies is, some of the information may commercially sensitive and can not be freely disclosed to the public as it may put the company in disadvantages situations (FRC, 2011). However, debates whether the company should continue to undisclosed such information is still ongoing as some of the opinion are opposed the idea.

Following the accounting dilemma faced by the companies, one of the solutions is to impose greater disclosure, as this will improve transparency and assist the user to come with an informed decision about the company performance (Linsley & Shrives, 2005). One of the significant and ongoing debates is whether the companies should enhance their transparency in their annual report as it was stated that shareholders and potential investors are receiving too little information about the company risk and the mitigation tools employed (Linsley & Shrives, 2005). It also suggested that a company



with good corporate governance tends to require their management to practice at the best interest of their shareholders by improving company risk mitigation tool and enhance understanding the company risk profile.

In response to upturn demand for better risk information disclosure has motivated past studies to further investigate factors who might affect the company risk disclosure (Saggar & Singh, 2017). However, these studies arguably experience some limitations who may open for further research. Firstly, most of the prior literature in this field tend to study the effect of company-specific characteristics with company risk disclosure (Azlan et al., 2009; Baroma, 2014; Oliveira et al., 2011; Madrigal et al., 2015) and less between corporate governance and disclosure. Therefore, this study intends to investigate the effect of corporate governance characteristics with risk disclosure as the study between these two variables is scarce (Abraham & Cox, 2007; Elshandidy et al., 2015; Oliveira, Rodrigues, et al., 2011) especially in emerging countries (Ntim et al., 2013; Saggar & Singh, 2017; Said Mokhtar & Mellett, 2013). The study on these variables will enrich the understanding of the effect of corporate governance on the risk disclosure by the company as it was argued that most of the corporate disclosure decision was decided by the board of the company (Beretta & Bozzolan, 2004).

The main objective of this study is to explore the amount of risk disclosure report by Malaysian listed companies in the financial and non-financial section of their annual reports. To achieve the research aim, this study will perform content analysis on both sections of the annual report to investigate the availability of risk disclosure and types of risk being disclosed by Malaysian listed companies. Besides, this study also aims to test the effect of corporate governance characteristics (board independence, the board size, board gender, auditor independence and auditor tenure) on company disclosure and at the same time to measure the level of risk associated with the companies according to the disclosure made.

This paper will be organised as follows. The first section of the study will deal with the introduction and background of corporate governance in Malaysia, followed by theoretical development and reviews of the literature on the second part of the study. In the third section of this study, the researcher will discuss the applied methodology and followed by a summary of the final section of this study.

## 1.1. Corporate governance and risk reporting environment in Malaysia

Famous accounting scandals such as Enron, Parmalat and WorldCom in the past have triggered the concern on the function of companies annual report as medium and source of information (Linsley & Shrides, 2000). However, on the bright side, these famous accounting scandals have given positive feedback on the development of risk disclosure as most of the company tends to consider to disclose extra information to the public. In Malaysia, the finest example of the failure of corporate governance can be portrayed through Transmile case back in 2006. It was stated that creative accounting is the root which leads to this accounting scandal where the revenue and profit of the company are purposely manipulated for the best interest of the company (Norwani et al., 2011). Transmile was accused to purposely overstated their revenue for three years in a row (2004, 2005 and 2006) and at the same time, they also being accused to purposely fabricated the amount of their property, plant and equipment as there is less evidence to support all the transaction (Abdullah Zaimee, 2007). To conclude, Transmile scandal was caused by lower board monitoring on business and managerial activities, unreliable information in the annual report and the failure of the regulatory body to enforce sufficient regulation to listed companies in Malaysia (Norwani et al., 2011).

This crisis has raised awareness for the need better corporate governance systems in the company which sometimes only can be achieved through regulation implementation. Better corporate governance is crucial to secure shareholder interests and ensure the management objective is aligned with the interest of shareholders (Ghazali, 2004; Zadeh, 2015). Therefore, clear roles and responsibilities of the board of directors and managers are essential to assuring everyone is working at the best capacity of the company.

Akhtaruddin et al. (2009) argued that corporate governance could become a tool for internal control to reduce agency problems. It was stated, under comprehensive governance monitoring, the manager tendency to withhold information may be reduced which will lessen the manager opportunistic behavior and improve the information asymmetry which results in enhancing corporate disclosure (Ho & Shun Wong, 2001).

In Malaysia, the Malaysian Code on Corporate Governance (MCCG) was first introduced in March 2000 and had undergone through a series of the amendment to fulfill the need of current corporate governance issues (Akhtaruddin et al., 2009; MCCG, 2017). Also, Bursa Malaysia, who formerly known as Kuala Lumpur Stock Exchange

(KLSE), in January 2001, has instigated their own version of the listing rule code for listed companies in Malaysia. These codes rather focused on the need for transparency, accountability, internal control, board proportional, and directors' reimbursement among listed companies in Malaysia. Akhtaruddin et al. (2009) also stated that, corporate governance indeed is an important mechanism used by the management to achieve corporate objectives while the disclosure is argued acting as a tool used by management to channel company performance to the public.

Besides, it was suggested that Companies Act of 1965 and Malaysian Accounting Standard Board (MASB) are the main standards who embody the corporate disclosure and reporting style of listed companies in Malaysia (Akhtaruddin et al., 2009). The Ninth Schedule of the companies Act 1965 mandated that all listed companies under Bursa Malaysia to prepare and submit all the related documents upon the annual general meeting. This is to ensure that all related information including the respective value of certain items is clearly included in the annual report align with the requirement of the standard. Companies Act 1965 also stated that the preparation of the annual report must be solely conducted by company directors. Besides, before the annual report being presented to the public, it is crucial for the annual report to be audited by qualified auditors to align with the requirement of the Act. Bursa Malaysia also adheres all the listed companies in Malaysia to comply with their listing rules of disclosure and reporting (Akhtaruddin et al., 2009).

To enhance the quality of reporting and disclosure among listed companies in Malaysia, the government of Malaysia has implemented several measures such as the introduction of the Financial Reporting Act back in 1997. Under this Act, MASB was promulgated with the main objective to govern and issue accounting standard related to disclosure. Before the MASB establishment, all the accounting standards in Malaysia were governed by two accounting professional bodies, namely the Malaysian Institute of Accountant (MIA) and the Malaysian Institute of Certified Public Accountants (MICPA). MIA is responsible to govern the accounting profession in Malaysia while MICPA is private accounting body who recognizes accounting profession professionally to all accountants in Malaysia (Susela, 1999). Nowadays, MASB is solely responsible to establish and present accounting standard according to the need and requirement of international standard. To ensure MASB working effectively and efficiently, Financial Reporting Foundation (FRF) was introduced under the capacity of the Financial Reporting Act 1997 to assist MASB in producing complete and functional standards for listed companies in Malaysia (Akhtaruddin et al., 2009). One of the FRF objectives is to oversee MASB performance and also act as a reviewer for the accounting standard

govern and issued by MASB. However, FRF has no privilege to develop and issue accounting standard.

Prior literature has suggested that disclosure from the company is the mean way to create assurance among present and potential investor (Azlan et al., 2009). It also noted that company disclosure is associated with corporate governance whereby a company with sturdy governance have a higher tendency to disclose more information to attract investors. It is to note that previous studies have examined the relationship between governance and company value, however, only a few of the study to focus on the relationship between governance variables and company disclosure (Akhtaruddin et al., 2009; Chen & Jaggi, 2000). Therefore, this study will focus on examining the relationship between corporate governance mechanism and its effect on company disclosure.

## 1.2. Theoretical development

### 1.2.1. Agency theory

Throughout the years, various researchers have continued to further refine the meaning of agency theory to explain the current business environments. Among conducted studies, a study conducted by Fama & Jensen (1983) and Jensen & Meckling (1976) might probably offer the best explanation of the theory. Mallin (2007) suggested that agency theory is a relationship between the principal (markets) and agents (management) whereby the principal delegates the work to agents with expectations that the agents will work for the interest of principals. This is aligning with a study conducted by An et al. (2011) who also agreed that agency theory relationship could be portrayed through the relationship of company shareholders who acting as principals and management who acting as an agent. A study conducted by Jensen & Meckling (1976) revealed that the agency cost tends to rise due to a separate entity between shareholders and management. In addition, it also suggested that, the probability of conflict of interest to occur between agents is higher as there is a higher possibility of separation between ownership and management of the company.

It also explained that in a situation whereby the monitoring mechanism of shareholders and creditor is missing, the manager has the higher tendency to act in their own best interest by withholding or manipulating the relevant information by purposely disclosing misleading information to the market (Latham and Jacobs, 2000). Moreover, agency cost also occurred due to information asymmetry enjoy by the manager who capable to access extra information than shareholders (Jensen & Meckling, 1976). Therefore, to

minimize agency cost between shareholders and managers, an optimal contract may be proposed as a means of aligning the objective between the two parties (Healy & Palepu, 2001). It also suggested, voluntary disclosure is another meaningful way to improve agency cost (Barako et al., 2006) as it tells the market that the company is performing well (Watson et al., 2002).

The finding of past studies has shown mix result of disclosure due to different determinants employed in the studies which this could be explained through the agency theory relationship (Azlan et al., 2009; Craven & Marston, 1999; Rajab & Schachler, 2009). It was argued that agency theory could assist an investor in planning proper mitigation tools as the theory is able to explain the relationship between the uncertainty and disclosure practice of the company (Zadeh, 2015). In a surveyed study conducted by Solomon et al. (2000) documented that one-third of the institutional investors agreed that the return on their investment is higher when the company is practicing higher disclosure. Moreover, it also stated that to improve agency cost, the company may employ effective corporate governance as monitoring mechanisms to overview managerial self-interest behavior. Therefore, by mean of improving risk disclosure practice, agency cost should be reduced by improving the relationship between shareholders and management.

### 1.2.2. Signalling theory

The phrase 'signal' was first introduced by Robert Jarvis in 1970 and further refined by Spence (1973) in order to explain market reactions. It was discussed that the company with positive performance has a higher tendency to disclose their future strategy to the market by disclosing their current company activities (Eccles et al. 2001). Spence (2002) defined signal as a form of information conveys by agents to the market who usually conveys the information of the company. In addition, the signal also is formed of multiple understanding signs which usually conveys by the agents to the principals (Aryani, 2016). It was found that, in higher information asymmetry market, it is typical to observe manager signaling activities to the market (Morris, 1987). The theory posits that due to the responsibility of the manager to disclose beneficial information to the market, the managers uniform to disclose extra risk information in the presented annual report (Haniffa & Cooke, 2002). Therefore, to have a high quality of the annual report, managers are then encouraged to disclose credible information to the market (Hughes, 1986).

Signal theory postulated that through disclosure practice of information by the company, the company able to signal its positive performance to the market (Zadeh, 2015).

Zadeh (2015) also stated that information disclosed by the company is a mean way of signaling the market on the company performance especially in today volatile business environment. In addition, it also documented that the share price of the company could increase due to information disclosure by the company as it directly associated with the capital market (Zadeh, 2015). In addition, the study also found that management remuneration is also reflected through disclosure practice by the company as higher disclosure of information indicated the positive performance of the company (Singhvi & Desai, 1971). Moreover, it also noted that a profitable company has greater motivation to signal to the market as a meaning of acquiring market share (Wallace et al. 1994; Wallace & Naser, 1995).

However, in a real business situation, the managers have the option either to disclose or withhold information (Ali, 2013). In some situation, the manager may be reluctant or purposely send wrong information to the market which is totally opposite to the actual situation (Aryani, 2016). Estrada (2011) argued that vague signal can be categorized as non-verifiable statements whereby this kind of information can be existing in the form of neutral attributes (neither positive nor negative or good or bad) within the annual report. Aryani (2016) also revealed that the company may purpose to disclose vague information to the market to mask their low performance. Besides, past studies also argued that it is challenging to attain the manager true attention based on the information discloses in the annual report. Therefore, this study will employ signal theory as a meaningful way to explain the nature of risk information disclosed by Malaysian listed companies in Malaysia.

## 2. Hypothesis Development

The main objective of this study is to examine the effect of corporate governance on risk disclosure practice among Malaysian listed companies. This study identified five corporate governance determinants who potentially influenced risk disclosure practice. Therefore, the hypothesis developments in relation to independent variables are stated as follows:

### 2.1. Board independence

The presence of independent directors on the board arguably improved the agency problem faced by the companies as it will act as the connecting party who fills the information gap between the managers and the management. It was argued that the

role of independent directors and the structure of the board play an essential role in improving owner-manager conflicts (Weisbach & Hermalin, 2000). However, the effectiveness of independent directors to encourage disclosure practice could only be achieved if they are able to execute their role properly (Fama & Jensen, 1983).

A study conducted by Akhtaruddin et al. (2009) suggested that the composition of the board is playing a vital role in determining the effectiveness of corporate governance of the company as a mean of reducing agency conflict. While, Elshandidy et al. (2013) also documented that company voluntary and mandatory disclosure is heavily influenced through the proportion of independent director. A study conducted in the UK found that, the presence of independent directors on the board has enhanced the disclosure motivation and at the same time reduce the agency cost (Abraham & Cox, 2007). In addition, managerial opportunistic behavior is argued could be reduced through effective monitoring from independent directors (Florackis & Ozkan, 2008; Kiel & Nicholson, 2003; Williams et al., 2006). While, it also argued the company transparency could be improved with the presence of a higher degree of independent directors (Sheila et al., 2011).

Despite the positive impact of independent directors to company disclosure practice, a study conducted by Gul & Leung (2004) documented that a higher proportion of independent director also contributed to lower disclosure practice by the company due to complex board hierarchy. It was argued that, this is caused by dissimilar objective sharing between independent director and manager who cause the decision making to become complicated (Demb & Neubauer, 1992). In addition, it also might contribute by other issues, such as the failure of the board to monitor the manager efficiently who finally contributed to increasing information asymmetry (Lin, Pope, & Young, 2003). It also noted that, in the presence of higher directorship ownership, the power of an independent director to influence company disclosure practice may lower (Leung & Horwitz, 2004).

It is documented that with the involvement of a higher percentage of independent directors on the board, the shareholder could anticipate higher voluntary disclosure practice by the companies (Leftwich, Watts and Zimmerman, 1981). It is also expected that the quality of disclosure will enhance the involvement of external directors on the board (Akhtaruddin et al., 2009; Chen & Jaggi, 2000). It was suggested that the presence of external auditor and director plays a vital role in corporate governance as it will encourage the company to disclose sufficient and quality information to the market. A company may experience a higher level of disclosure in the presence of an

extra external director. Therefore, following the arguments, the following hypothesis is formulated:

H<sub>1</sub>: There is a positive relationship between a higher proportion of independent director on board and risk disclosure practice in Malaysian listed companies.

## 2.2. Board size

It was revealed that the company level of disclosure is a strategic decision made by the board of the company. As the higher level of management in the company, the board of directors is responsible to establish policies and effective strategies for the best interest of the company which later was executed by the managers (Akhtaruddin et al., 2009). It was documented that, a higher number of directors present on the board would improve the information asymmetry (Chen & Jaggi, 2000). It was stated companies with large board size are having more agent to oversee managerial behavior to improve internal control issues and promote disclosure. It also realized that directors in larger board size usually present with a different background of expertise which makes it beneficial for the company (Sheila et al., 2011). However, it is to note that a larger board size does not necessarily come with positive impact. For example, companies in the UK prefer to have a smaller board rather due to a larger board complex hierarchical which lead to diminishing communication between the two parties (Guest, 2008). Meanwhile, Zaluki and Wan Hussin (2009) revealed that the size of the board was not affected the quality of financial disclosure among Malaysian public companies. In addition, it also mentioned that a complex board structure and large board tend to associate with ineffective communication and coordination who lead to poor decision making (Akhtaruddin et al., 2009).

Agency theory argued corporate governance mechanisms play a vital role in the effort to improve the agency conflict where this can be implemented through extra monitoring from directors to the management of the company (Ntim et al., 2013). It was suggested the board must consist of at least 7-8 members for it works effectively (Florackis & Ozkan, 2008; Jensen, 1993). Besides, it was documented that a larger board is rather experienced in handling various situations and capable to improve transparency due to the various background of their directors (Nuhu & Hussani, 2017; Xie et al., 2003). Therefore, this study expected that:

H<sub>2</sub>: There is a negative relationship between larger board size and risk disclosure practice in Malaysian listed companies.



### 2.3. Board gender

A study conducted by Al-Shaer & Zaman (2016) in sustainability disclosure documented that multi-gender board is affecting the quality of the sustainability report. It was argued that female director, either independent or non-independent, due to their respective personality, communications skills and expertise tend to demand transparent sustainability report (Al-Shaer & Zaman, 2016; Liao et al., 2015). In addition, problem-solving skill among multi-gender board is rather efficient due to the richness of directors' experience. Despite the possibility of a positive impact of multi-gender board and reporting quality, it was argued that, the size of the board is playing an important role in determining the company corporate disclosure practice (Michelon & Parbonetti, 2012).

It has been posited that the presence of multi-gender director on board plays an essential role in influencing company transparency. One of the positive impacts of multi-gender board especially in a large company is, they will encourage for quality disclosure while in small companies, this type of board will encourage the collection of internal information among users (Gul et al., 2011). It is also documented that, the presence of female directors on board will enhance the quality of a board meeting which will affect the disclosure decision by the company (Al-Shaer & Zaman, 2016). Besides, it also revealed that an issue which not discussed among all-male directors were openly discussed in the multi-gender board (Clarke, 2005; Huse & Solberg, 2006). Joy (2008) also studied that, in the multi-gender board, the communication between boards and users is rather effective, allowing for greater information exchange between the two parties.

However, despite the advantages of multi-gender board, it was studied that multi-gender board also contributed to increasing conflict among directors due to their different roles and backgrounds (Boone & Hendriks, 2009; Mannix & Neale, 2005). This is aligned with the study conducted by Ray (2005) who found that one of the factors who contributed to conflict among multi-gender directors is due to varied ideology and background. The same study also found that, there is a higher possibility for the multi-gender board to choose safe harbor decision to reduce conflict among them. Thus, this study posited that, the multi-gender board will be likely to contribute to higher disclosure by the company.

H<sub>3</sub>: There is a positive relationship between multi-gender board and risk disclosure practice in Malaysian listed companies.

## 2.4. Auditor independence

To ensure a credible report is issued, a qualified opinion present by the auditor must be free from internal and external intimidation. This as a mean of ensuring the annual report presentation to the public is truthful and capable in explaining the situation associated by the company to find an effective solution for the risk associated (Barizah Abu Bakar et al., 2005). It was found that most of the auditor independence studies were conducted in the financial restatement and financial reporting quality and the result found that the independent auditor does lower the financial restatement which improves the quality of information (Wahab et al., 2014). Tepalagul & Lin (2015) agreed that Big 4 auditors are generally more independent than non-Big 4 auditors as they underwent professional training which makes them more adept with variety company situation (Carcello & Nagy, 2004). It also argued that Big 4 auditors have a higher tendency to influence the company disclosure due to their degree of independence, experience and skill degree of influence on company disclosure due to their degree of independence, experience and skill (Krishnan, 2003).

It was found that the auditor 'independence' is closely related to the audit fee imposed by the audit firms (Stanley & Todd DeZoort, 2007). Previous studies found that, in an effort to attain a new client, the auditor may purposely engage in low balling tactics whereby they charge the audit service fee rather below the market price (Sankaraguruswamy & Whisenant, 2003). It is expected that, by engaging in such tactics, auditor independence may be impaired which later will affect the company disclosure practice. It was noted that Big 4 audit firms usually imposed higher audit fees than non-Big 4 audit firms due to their facilities and auditors background (Tang et al., 2016). It was argued that the differences employed in term of quality between auditors in Big 4 audit firms and non-Big 4 audit firms may determine the quality of disclosure. Therefore, it was posited that auditor independence may affect the company risk disclosure practice among listed companies in Malaysia.

H<sub>4</sub>: There is a positive relationship between auditor independence the level of risk disclosure practice in Malaysian listed companies.

## 2.5. Auditor tenure

Based on the case study in tea factories in Kenya, it was revealed that duration of auditor stay is significantly influenced company disclosure practice (Chepkorir, 2013). It was found that long auditor tenure will lower the probability for the auditor independence

to be impaired (Chepkorir, 2013). A study conducted by Barizah Abu Bakar et al. (2005) argued that longer auditor tenure is rather familiar with the risk associated with the company which later will assist in producing a comprehensive annual report to aid market in making an informative decision. In contrast, it is noted that short auditor tenure has a higher probability to impair their own independence which affects the audit quality and quality of information embedded (Chepkorir, 2013). However, it was found that unsystematic audit procedure often incurred by long audit tenure which this is arguable will affect the company risk report (Mautz & Sharaf, 1961). While Carcello & Nagy, (2004) and Ghosh & Moon (2005) in another context found that financial reporting fraudulent is positively caused by short tenure auditor.

Based on the AAERS (Accounting and Auditing Enforcement Release) report issues by SEC, it was found that, in the first three years of auditors tenure, the possibility of financial fraud in the companies is higher which indicated the importance of the period of auditor stay (Carcello & Nagy, 2004). A similar study also did not find any evidence who stated that longer auditor period may contribute to company misconduct. However, Stanley & Todd DeZoort (2007) studied that throughout the period of auditors stay, the quality of financial report and audit practices will increase. Moreover, it also suggested that company market performance such as stock rankings and return may be influenced through the relationship between auditor tenure and company misconduct. Therefore, this study expected that longer auditor period stay will influence the company disclosure.

H<sub>3</sub>: There is a positive relationship between longer auditor tenure and risk disclosure practice in Malaysian listed companies.

### 3. Methodology

In particular, this study intends to choose the quantitative method as the main approach in the effort to explain the disclosure trend and the relationship between corporate governance and risk disclosure practice among listed companies in Malaysia. To assess the level of risk disclosure practice among listed companies in Malaysia, this study will employ content analysis. Krippendorff (2004) stated that content analysis is a method of answering the research question and objectives formulated by the study through replicable and acceptable deduction from the information extract. Mohammadi (2017) and Smith & Taffler (2000) highlighted that content analysis can be segregated into two, 'form oriented' and 'meaning oriented'. However, this study will employ 'meaning oriented' whereby potential themes are identified through the set of the keyword in

sentences (Bamber & McMeeking, 2010). In addition, this approach also includes the analysis of negative and positive phrases identifies from the sentences. This method of sentence analysis is arguably aligned with the study conducted by (Azlan et al., 2009; Linsley et al., 2006; Farahnaz Orojali Zadeh et al., 2016) as it was agreed that the extract data is rather precise, reliable and competence (Milne & Adler, 1999).

The samples intend to be investigated in this study including all the non-financial companies listed in Bursa Malaysia from 2008 to 2017 (10 years). However, this study will exclude companies who listed in the financial, open and close fund and insurance industries. It was stated that financial industries have their own set of rule and regulation who govern and issued by Central Bank of Malaysia which abide with institutional Bank and finance Act 1989 (Rahmat & Mohd Iskandar, 2004; Abd Aziz, Mohd Iskandar & Mohd Saleh, 2006). While, for financial and insurance companies, it was stated this two type of industries are having their format of the annual report and set of users (Mohd Isa, 2006). There are about 940 companies listed in Bursa Malaysia in 2017. However, this study only analyses the company with a complete set of the annual report which aligns with the study conducted by (Zadeh et al., 2016). This study allowed the researcher to have a clear picture of the level of risk disclosure by listed companies in Malaysia. Therefore, samples of 721 companies listed in Bursa Malaysia are expected to be analyzed (after excluding financial institutions and insurance companies) in order to determine the level of risk disclosure among listed companies in Malaysia.

### 3.1. Measuring the independent variables

**Board independence (BID):** Board independence is the magnitude of the independent directors on the board (Yunos, 2011). For the purpose of this study, the proportion of independent directors will be manually calculated and collected from the respective annual reports. This method is consistent with a study conducted by Macchioni, Allini and Rossi (2014), and Allini, Manes Rossi and Hussainey (2016).

**Board size (BSize):** Board size can be defined as the total number of directors who sits on the board (Ronnie Lo, 2010). Studies conducted by Ahmed and Duellman (2007), Krishnan and Visvanathan (2008) and Lam and Lee (2008) also employed a similar method in computing the board size, whereby the data were manually collected from annual reports.

**Board Gender (BGdr):** Board gender diversity arguably capable to improve the company disclosure quality and enhance the company performance by enclosing rich information to users (Boone & Hendriks, 2009; Ray, 2005). Therefore, to measure

board gender diversity, this study will employ two alternatives: (1) the number of female directors on the board and (2) the number of independent female directors on the board. This is in alignment with studies conducted by Gul, Srinidhi and Ng, (2011) and Al-Shaer and Zaman (2016) that employed the same method in measuring board gender.

**Auditor Independence (AUIND):** To measure auditors' independence, this study will employ the audit fee as studied by Stanley and Todd DeZoort (2007) and Tang, Chen and Lin (2016) to determine the effect of auditor independence to risk disclosure practices. Therefore, auditor independence will be measured by dividing the audit fees with total assets (Tang et al., 2016).

**Audit tenure (AUTNR):** Audit firm-client relationship is measured through the number of years the audit firms have been working with clients in performing the audit task. This method is aligned with the study conducted by Ball et al. (2015).

## 4. Conclusions

This study intends to investigate the determinants of corporate governance mechanisms who may affect the company risk disclosure practice. It is arguably stated that most of earlier disclosures studies tend to disclose qualitative information and rather focus on the past news. This has motivated the current study to further investigate the level of risk disclosure practice by Malaysian listed companies and extend the current literature by determining the determinants who may affect risk disclosure practice by focusing the narrative section of the annual report in an effort of explaining the disclosure phenomena.

It was argued that most of the company tend to disclose their risk information on the non-financial section of the annual report such as chairman statement. However, in some study, it was found that some of the companies may conduct extra effort by providing separate sections such as Management, Discussion, and Analysis and Operation Review to disclose risk information. The outcome of this study is expected to be beneficial to researchers who especially interested in corporate disclosure area, the professional bodies and standard setters to keep updating on the factors who might affect risk disclosure in Malaysia. Risk is arguably will continue to exist in a volatile business environment and an effective mitigation tool may come handy to improve transparency and reduce information asymmetry.

## Acknowledgement

The authors would like to express our appreciation to the committee and the anonymous reviewers for their constructive comments and suggestion. We also appreciated all the comments received from participants during the 2<sup>nd</sup> FGIC conference held in Yayasan Pahang, 19-20 August 2019.

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## Conference Paper

# The Challenges and Role Played among Workers of Department Human Resources Management towards Industry 4.0 in SMEs

Fadillah Ismail, Adibah Abdul Kadir, Muhammad Asad Khan, Yuen Pei Yih, and Adnan Ali Hassen Humeed Al Hosaini

Faculty of Technology Management and Business Universiti Tun Hussein Onn Malaysia

## Abstract

From smartphones to shrewd refrigerators, innovation has assumed a huge job in progressing most regions of our regular daily existences, yet it is additionally changing the universe of industry. Industry 4.0 is the imprint given to the moderate mix of conventional assembling and modern practices with the non-yielding mechanical world around us. Industry 4.0 is certainly not another development, nor is it a business discipline, anyway another approach to manage to achieve results that were not possible ten years back gratitude to the headways in innovation. To do so, first thing first, it is essential to determine the challenges are faced, and roles are played among workers of Human Resources Management (HRM) towards industry 4.0 in manufacturing SMEs. The study is intended to identify workers of HRM perform the challenges and tasks by randomly select 100 respondents from 50 manufacturing SMEs listed on SME Corp. State Office Perak within Menglembu, Perak. The present study provides a contribution to the area of industry 4.0, among the manufacturing sector of SMEs. The findings of this study show that the adoption of sector 4.0 influences all of the challenges which are lack of skilled workforce training and aging society later retirement. Besides that, all of the roles should play by HRM that SMEs can gain when they start to embrace industry 4.0, which is useful for workers.

**Keywords:** industry 4.0, human resources management (HRM), challenges, roles

Corresponding Author:

Fadillah Ismail

fadillah@uthm.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

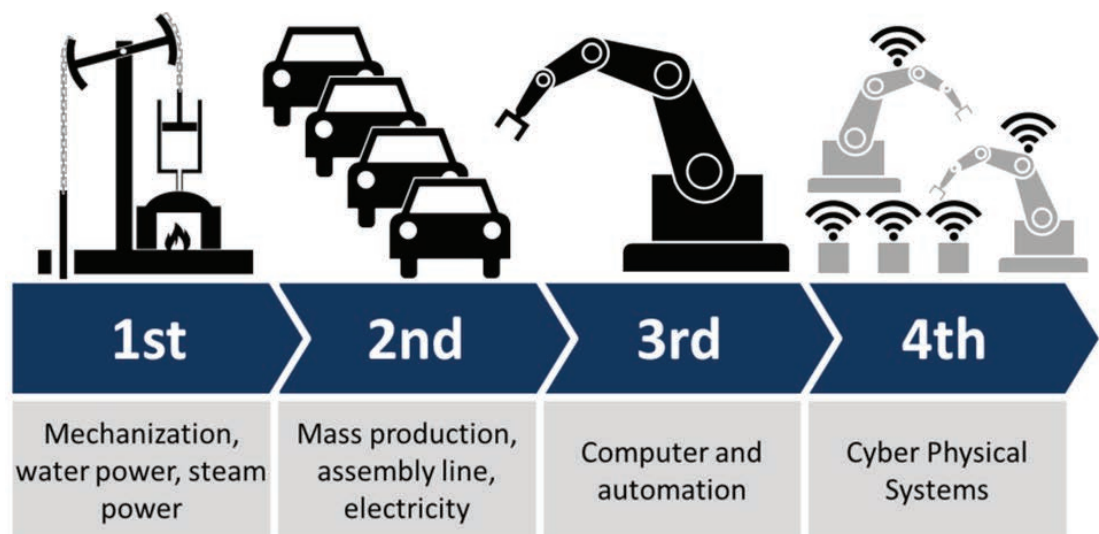
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## 1. Introduction

Everything began with the Industrial Revolution when the world was first acquainted with steam power, motorization, and production lines that marked the new period of modernization (Rubaneswaran, 2017). Rubaneswaran (2017) expressed that the empowering agents were no other than the world's ground-breaking settlers, the British that developed their developing enthusiasm for logical examination and innovation. They are making unlimited chances and employments for their kin. As time advanced, the quick development of innovation started the Second Industrial Revolution, taking humankind to the period of power. As interest developed, numerous new items were created,

and huge improvements were made in the structure of large scale manufacturing. He likewise refers to that the third time of the Industrial Revolution is otherwise called the Digital Revolution when started a very long time after World War II, respecting the approach of PCs and the underlying phases of mechanization unpretentiously substituting HR in mechanical production systems with robots and hardware.

The wave of the Fourth Industrial Revolution or industry 4.0 is rapidly changing different aspects of our lives (Ghaz, 2017). According to Ghaz (2017) stated that Government German was coined in 2012, industry 4.0 is defined as the next phase in the digitization of the manufacturing sector. Therefore, industry 4.0 will be to replace industry 3.0 after four-decade and so on.



**Figure 1:** The Industrial Revolution in SMEs (Ahmad, 2016).

The term "Business 4.0" represents the fourth modern unrest. Other related terms incorporate the "Modern Internet" or the "Computerized Factory, although neither takes as complete a view (Reinhard, Jesper, and Stefan, 2015). As indicated by Reinhard et al. (2015) expressed that While Industry 3.0 concentrated on the mechanization of single machines and procedures, Industry 4.0 spotlights on the start to finish digitization of every physical resource and mix into advanced biological systems with worth chain accomplices.

Industry 4.0 will become a sensor. This means smarter and more connective (Alex, 2017). Besides that, industry 4.0 also connectivity, big data, user interfaces simplifying technology use (and increasing worker mobility), smarter more dexterous robots able to work "hand-in-hand" with employees, and additive manufacturing (Alex, 2017).



Ghaz (2017) additionally notice that it includes the robotization of assembling procedures to another dimension by presenting modified and adaptable large scale manufacturing using high technologies. Industry 4.0 would turn into the new ordinary to have among us, people. In addition to the fact that they would affect how we live, work and play, yet they may likewise even manage how we ought to carry on and adjust to the better approach of life (Ahmad, 2016). Also, Ibrahim (2016) said that it is high among the developed and advanced economies that are either technologically ready or fully equipped to take advantage of the new revolution or to be the potential beneficiaries.

## 1.1. Problem statement

Nowadays, most manufacturers are aware of the Industry 4.0 concept, but so far, only 30 percent have just started to adopt modern technology under Industry 3.0 (Ghaz, 2017). One of the challenges is the practice problem caused by many companies take modern technology under industry 3.0. This is because of a lack of skilled workforce training and aging society later retirement (Saqib, Shuang Cang, Hongnian Yu & Yun Li, 2017). While Ghaz (2017) stated that workers should acquire a different set of skills. However, SMEs have no choice to embrace creative production and include more Industry 4.0 elements into their operations. Therefore, SMEs have to ensure that their workers have the necessary skills and competencies to advance the country's economic transformation agenda in embracing Industry 4.0 (Ghaz, 2017).

Besides that, embracing Industry 4.0 rightly promises an exponential increase in productivity and efficiency. Malaysian SMEs must be aware that they need to adapt to changes brought about by the Fourth Industrial Revolution (Nee, 2017). Below are some roles of HRM that SMEs can gain when they start to embrace Industry 4.0, which is effective for workers.

The objectives of the research are:

1. To explore the challenges faced by SMEs toward industry 4.0.
2. To identify the roles of department Human Resource Management (HRM) in SMEs to adopts Industry 4.0.

## 1.2. Research scope

The scope of this study is to investigate the challenges faced by SMEs and the role of HRM towards 4.0 industries. The research will be conducted and focus solely on SMEs

in “Perindustrian Rima” which located at Lahat, Ipoh, and Perak. The study used a survey based on the questionnaire. The respondent will participate in this survey from workers of department HRM from companies. The data are collected using a questionnaire, and then the data analyzed quantitatively.

## 2. Literature Review

The industry is part of the economy and produces highly mechanized and automated material products. Since the beginning of industrialization, the technological leap has led to a paradigm shift. Today, this transition is called the “industrial revolution.” There are four evolutionary stages in the industrial revolution (Lasi, Fettke, Kemper, Feld, & Hoffmann, 2014). The concept of industrial development is to identify the three full and unique organizational environments, namely emerging, growing and mature industries, and to demonstrate how each environment presents different SME challenges (Murray & Eric, 1997). The industry is not defined as a group of companies that produce close substitutes but is described as a group of companies with the same organizational form. Therefore, the evolution of the industry is understood as the proliferation of organizational structures, accompanied by the creation, development, and erosion of the emerging, growth, and maturity stages of competitive advantage.

### 2.1. The history behind industry

The following diagram shows a timeline of the evolution of manufacturing and the industrial sector in general.

At the end of the 18th century (1760- 1840), the British industrial revolution began to introduce machines into production. This includes everything from manual production to the use of steam-powered engines and water as a source of power. This has dramatically helped agriculture, and the word “factory” has become a bit prevalent. One of the industries that have significantly benefited from this change is the textile industry and is the first industry to adopt this method. It was also an essential part of the British economy at the time (Martin, 2017).

The second date was between 1870 and 1914 (although some of its features date back to 1850) and the introduction of pre-existing systems such as telegraphs and railways into the industry. Perhaps the crucial element of this period is to use large-scale production as the primary means of the overall output. The electrification of the factory contributes tremendously to productivity. The mass production of steel

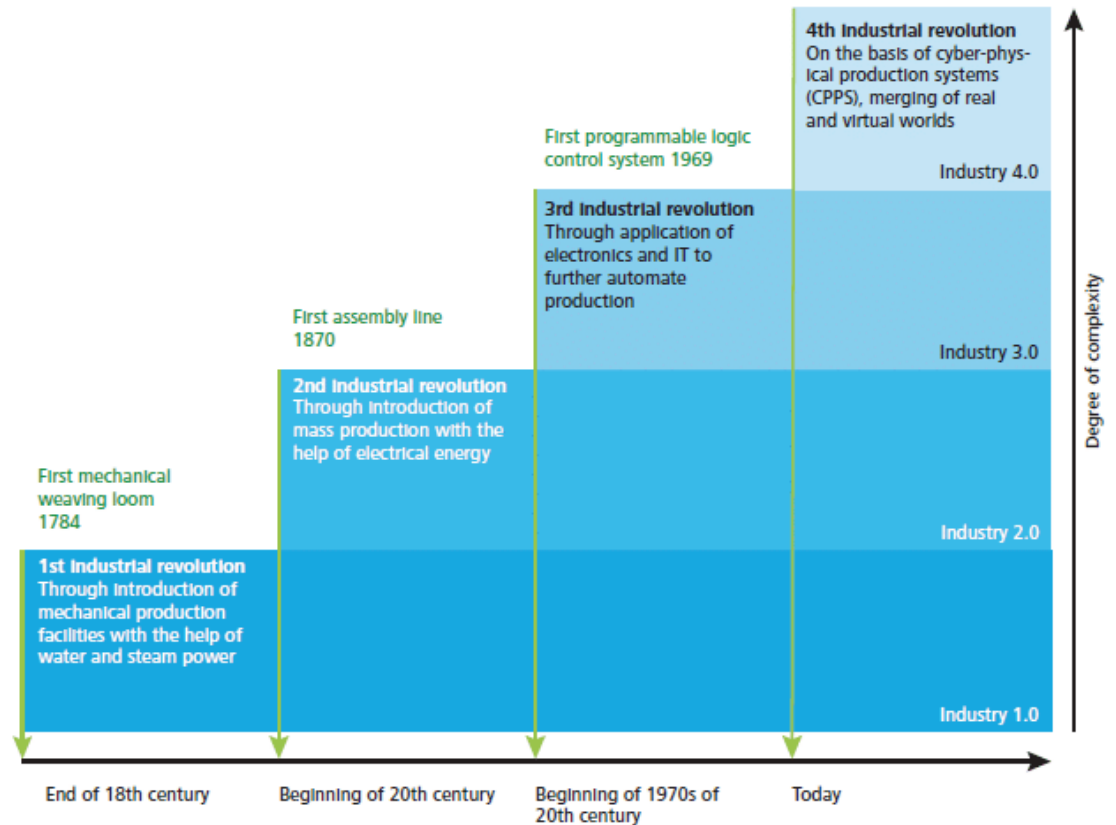


Figure 2: Histories of Industries.

helps to introduce railways into the system, which facilitates large-scale production. Chemical innovations, such as the invention of synthetic dyes, also marked the time when chemistry was in a relatively primitive state. However, with the beginning of the First World War, this revolutionary industrial approach was over. Mass production is indeed not over yet, but only under the same background has made progress, and no one can be called the industrial revolution.

Maybe the third individual is more acquainted with us than others in light of the fact that a great many people are presently acquainted with businesses that depend on computerized innovation for creation. In any case, the historical backdrop of the third mechanical transformation goes back to 1950 to 1970. It is regularly alluded to as the advanced transformation and includes the change from simple and mechanical frameworks to the computerized upheaval. Others consider it the data age. The third unrest was an immediate aftereffect of the enormous advancement of PCs and data and correspondence advances.

The fourth industrial revolution accomplished another degree of computerization in the assembling procedure by presenting tweaked and adaptable large scale manufacturing advancements. This implies the machine will work freely or in collaboration

with people to build up a client situated generation region, continually attempting to look after itself. The gadget is comparable to being a free element, fit for gathering information, investigating information, and giving guidance. This is made conceivable by presenting self-advancement, mindfulness, and customization in the business. Producers will most likely speak with PCs as opposed to working them.

## 2.2. The concept of Industry 4.0

In the last ten years, we have been a testimony of an inner transformation in our daily life through the emergence of Information and Communication Technologies (ICT). The computer has become so small that almost all technical equipment has disappeared. Also, things are communicated on the Internet's global network. This trend will, of course, also enter industrial production, which will benefit more and more from the progress of information and communication technologies and computer science (Stephan, 2015).

Cyber-Physical Systems (CPS) is characterized as a transformative innovation for managing interconnected frameworks between physical resources and registering power (Jay, Behrad, and Hung A, 2015). With ongoing improvements prompting higher accessibility and reasonableness of sensors, information procurement frameworks, and PC arranges, the intensity of the present business has constrained more industrial facilities to execute cutting edge strategies. That is a system in an Internet of Things (IoT), are crucial components to conquer the right now unbendable arranging and creation forms (Edward, 2012). The test and key to the achievement of very measured manufacturing plant structures is multi-seller interoperability of robotization innovation, which must be acknowledged through-composed institutionalization activities between the important innovation suppliers, integrators and end-clients.

The Smart Factory configuration makes ready for this specific interdisciplinary joint effort between different industrial companies and the research community (Shiyong, 2016). With the purpose of to help the advancement, application, and assessment of imaginative mechanical plant innovations, the Smart Factory can be perceived as the main European merchant free plant lab for the mechanical utilization of current ICT. The brilliant plant is a basic component of Industry 4.0 that tends to the vertical incorporation and organized assembling frameworks for a unique creation. For the shrewd manufacturing plant to be executed, it should join brilliant articles with enormous information scientific. The keen items can progressively reconfigure to accomplish high adaptability, though the vast information systematics can give worldwide input and

coordination to accomplish high productivity. In this way, the keen processing plant may almost certainly produce redid and small parcel items productively and beneficially.

### **2.3. Definition of Cyber-Physical Systems (CPS)**

A cyber-physical system goes for the coordination of calculation and physical procedures. This implies that PCs and systems can screen the physical procedure of assembling at a particular procedure. Inserted PCs and systems screen and control the physical procedures, with criticism circles where physical procedures influence calculations and the other way around. The monetary and societal capability of such frameworks is boundlessly higher than what has been acknowledged, and huge speculations are being made worldwide to build up the innovation. The innovation expands on the more seasoned (yet at the same time exceptionally youthful) order of implanted frameworks, PCs and programming installed in gadgets whose primary mission is not calculation, for example, autos, toys, medicinal gadgets, and logical instruments. CPS incorporates the elements of the physical procedures with those of the product and systems administration, giving deliberations and displaying structure, and investigation methods for the coordinated entire (Jay, Behrad and Hung, 2014).

### **2.4. Definition of the internet of things**

A cyber-physical system still sounds natural to us today. Machines can trade information and, in a ton of uses, can detect the adjustments in the earth around them. Alarms are an astounding case of that. The Internet of Things, nonetheless, is believed to be what in reality has started Industry 4.0 (IBM Think Academy, 2015).

The Internet of Things is the thing that empowers articles and machines, for example, cell phones and sensors to "impart" with one another just as people to work out arrangements. The combination of such innovation enables items to work and take care of issues freely. This is not valid as people are additionally permitted to intercede ("Understanding the Internet of Things (IoT)," 2014).

### **2.5. The role of HRM in Industry 4.0**

With the digital transformation, traditional roles and career paths are falling away. However, new ones are also being created. This is precisely where the topic of talent management comes into play. Today officially, as indicated by an examination from

fall 2015, 41 percent of Swiss organizations are grumbling of ability deficiencies, eight percent more than in the earlier year (Domingo, 2017). What is more, the quantity of individuals who are of an age fit to work is going to diminish in the coming a very long time because of the statistic change quickly. Joined with the continually declining devotion to organizations, especially among youthful workers, the circumstance is getting to be essential for organizations attempting to win new abilities. Particularly in a worldwide setting with a developing and progressively endless ability pool, it is necessary to recognize and prevail upon the correct hopefuls rapidly. This is the reasonability the executives needs to turn out to be considerably more adaptable. To accomplish this, HR the board must take part in talks about Industry 4.0, ceaselessly looking at the speed of their responses, their readiness, and their degree of digitization (Laura, 2016).

### 2.6. Challenges in adoption of Industry 4.0

There are many critical problems for Industry 4.0 including lack of skilled workforce and aging society. All these factors need specialized management to cope up with challenges.

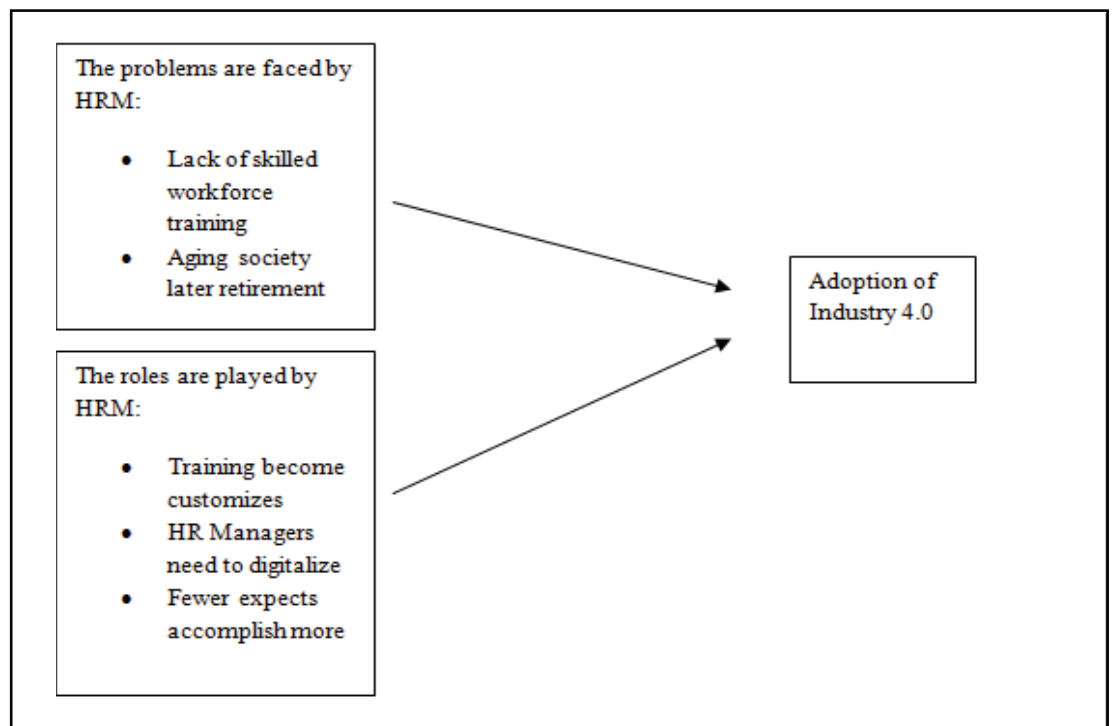


Figure 3: The Framework of this Study.

## 2.7. Lack of skilled workforce training

Enough skilled workforce can be characterized as information, abilities, propensities, experience or expert skills that mean human capital; businesses require that for activities of specific callings at a particular time (Lenka, 2012). In their voyage to embrace Industry 4.0, every nation is relied upon to experience a few provokes identified with the expertise level of their workforce. The aptitudes which are fundamental today will stop to be so later on, and the workforce will be required to have new abilities in the area of data innovation and information investigation. A higher level of the employment will offer significance to subjective capacities and framework aptitudes over physical capacities while characterizing center business-related ranges of abilities (BRICS Skill Development Working Group, 2016).

## 2.8. Aging society later retirement

As the populace becomes more established, expanding portions of the workforce explicitly at 60 years old. More established specialists have frequently been viewed as less gainful than more youthful ones, raising the issue of whether a maturing workforce will likewise be a less profitable one. This paper uses proof from the month to month current population survey records to reveal insight into the issue. It reports the quickly developing job of more established specialists in the work showcase and the enduring improvement in their relative income.

Utilizing a standard proportion of laborer profitability, that is time-based compensations and specialists somewhere in the range of 60 and 74 are more beneficial than normal specialists who are more youthful. Contrasted and specialists somewhere in the range of 25 and 59, the compensation premium for more seasoned laborers are as of now between 10 percent and 20 percent of the average pay earned by the more youthful specialists. That compensation premium has been expanding for 10 years. There is little proof that the maturing workforce has harmed profitability (Gary Burtless, 2013).

## 2.9. The roles of HRM in Industry 4.0

With more choosing to work remotely, more grounded cooperation between HR, administrator, and representatives are required to guarantee elevated amounts of efficiency and innovativeness, keeping everybody drew in and associated (Geoffrey, 2016).

Developing innovation achievements are presently happening like never before, and the Fourth Industrial Revolution will carry with it mechanical headways that enable robots to perform numerous assignments quicker and more proficiently than people right now do day by day. HR needs to build their representative's specialized capacities, train your human workforce, so they grow their range of abilities - just as their administration, inventiveness and enthusiastic astuteness which robots will not most likely impersonate.

## **2.10. HR managers need to digitalized**

In many nations, lawful consistency is so intricate and consistently changing that chief still records for the vast majority of the HR capacity's day by day work. Subsequently, HR procedures were among the first to be digitized and re-appropriated (Mazour, 2018). In a similar tune, Venonika (2018) expressed that In North America and Western Europe today, in any event, 30% of organizations as of now redistribute their finance the executives and the pattern is developing. HR supervisors are enabling the framework to waste no time and begin delivering astonishing work with their groups (Logan Mayville, 2018). Logan Mayville (2018) expressed that some innovation behind every one of those frameworks, and they may be housed inside various applications. These applications run things like time and participation, all-inclusive objectives, enrollment, health programs, and significantly more.

## **2.11. Training become customized**

In today's world, industries are changing every day. Because of this, it is essential to ensure that employees are ready for whatever challenges your company may face. Customized training can enhance job skills and help employees develop further in their professional careers (Stephanie, 2017). Stephanie (2017) also stated that customized programs could focus directly on a particular skill-based need for a business or organization. Once managers decide what your company needs, a training program can be personalized, so it becomes a perfect match for the company. Paula Nurrenbern, who is a resource development specialist, said that customized training provides the participant with individual tools and techniques necessary to be successful.



## 2.12. Fewer expect to accomplish more

Taking part in any of these propensities can be crippling, driving us to accomplish more and achieve less. They are regularly related or interwoven, making examples of foolish conduct that add to misery and disappointment (Lasser, 2009). In the event that laborers are feeling exhausted, overpowered or out and out over it, the accompanying, time-the board tips can enable specialists to boost their efficiency, so specialists achieve more and return home prior. As a matter of first importance, is discrete work from home. Dana Bilbao, a maker for a Los Angeles-based diversion organization, said that between reacting to individual messages, texting and handling cellphone calls from my children, it could get extreme to remain concentrated on the jobs needing to be done (Beverly, 2018)

## 3. Research Methodology

### 3.1. Research design

Along with the completion of this study, a quantitative approach was used in the data collections. A quantitative survey was used to quantify the problem and evaluate the results in some contents. The questionnaire for this study aimed to determine workers of department HRM play the challenges and roles. The survey is then structured into three parts, which are; Section A (Respondents Profile), Section B (problems faced) and Section C (roles played by workers of HRM). The questionnaires were distributed among the workers of department HRM in Perindustrian Rima, Lahat. A total amount of 100 respondents are obtained to complete the survey. The questionnaire was used in this study, which functions to determine HRM plays the problems and roles. Hence the framework had been developed. The data collected are analyzing quantitatively using SPSS.

### 3.2. Population and sample

In this study, 50 manufacturing SMEs are selected from all manufacturing SMEs listed in SME Corp. State Office Perak within Menglembu, Perak. Manufacturing SMEs mentioned above are referred SMEs are defined as firms with sales turnover not exceeding RM50 million OR many full- time employees not exceeding 200 (SME Corp Malaysia, 2017). However, we have 100 of the respondent from 44 companies of sample size had responded. Hence, the research is based on data from 100 respondents.

### 3.3. Data Collection and Analysis Techniques

A sample is a limited piece of a measurable populace whose properties are concentrated to pick up data about the entire (Webster, 1985). When managing individuals, it tends to be characterized as many respondents (individuals) chose from a bigger populace for an overview. A populace is a gathering of person's people, articles, or things from which tests are taken for estimation, for instance, a populace of presidents or educators, books or understudies. The data collected are checking using Statistical Package for Social Science (SPSS) is used for descriptive analysis. Descriptive statistics can summarize up the samples and measures easily by demonstrating the average number, standard deviation, percentage, and ranking, including graphical reports in the form of charts, graphs, and tables, and the analysis can show workers of HRM for the enterprises play the significance of the problems and roles.

## 4. Data Analysis and Result

Illustrative measurements are the term given to the examination of information that portrays, appear, or condensed information in a meaningful manner. The information is portrayed through mean and standard deviation. Mean is the normal of things and is figured as the aggregate of all the watched results from the example partitioned by the absolute number of occasions. The standard deviation is a measurement that depicts the measure of variety in a deliberate procedure trademark, and it registers how much an individual estimation ought to be required to go amiss from the mean by and large. Low standard deviation demonstrates that the information focuses are near the method for the set.

Table 1 shows N, percentage and mean of the respondent, age, gender, industry, number of employee, terms of industry, and future of the industry.

### 4.1. Descriptive analysis: The challenges faced by Human Resources Management

Table 2 shows N, percentage and mean of lack of skilled workforce training. The highest mean is 4.24 which means that most of the rate of production is low when employees misunderstand enough to perform their jobs confidently while the lowest mean is 4.03 which indicates that employees may never develop the skills necessary to take on supervisory positions, executive roles or highly technical tasks.

TABLE 1: Descriptive analysis of Demographics.

|          |                   | N  | %  |
|----------|-------------------|----|----|
| Gender   | Male              | 4  | 4  |
|          | Female            | 96 | 96 |
| Age      | 18 – 20 years old | 10 | 10 |
|          | 21 – 30 years old | 64 | 64 |
|          | 31 – 40 years old | 25 | 25 |
|          | 41 – 50 years old | 1  | 1  |
| Industry | Automotive        | 28 | 28 |
|          | Chemical          | 11 | 11 |
|          | Consulting        | 20 | 20 |
|          | Electronic        | 3  | 3  |
|          | Oil & Gas         | 13 | 13 |
|          | Industries        | 25 | 25 |

TABLE 2: Descriptive analysis – Lack of skilled workforce training.

|   | Mean |
|---|------|
| Employees do not understand how to do their jobs and none of these goals are possible when no training.                       | 4.12 |
| The rate of production is low when employees misunderstand enough to perform their jobs confidently.                          | 4.24 |
| Employees who don't receive adequate training may have difficulty meeting performance standards.                              | 4.09 |
| Employees may never develop the skills necessary to take on supervisory positions, executive roles or highly technical tasks. | 4.03 |

TABLE 3: Descriptive analysis – Aging Society Later Retirement.

|   | Mean |
|---|------|
| Employees less productive than younger, raising the issue of whether an aging workforce will also be a less productive one. | 4.06 |
| Employees don't have knowledge about industry 4.0.  | 4.18 |
| Employees don't give all hard to learn the knowledge.   | 4.17 |
| Employees' disability to learn knowledge about industry 4.0.  | 4.17 |

Table 3 shows N, percentage, and mean of the aging society later retirement. The highest mean is 4.18 which means that most of the employees do not know the industry 4.0 while the lowest mean is 4.06 which indicates that employees less productive than younger, raising the issue of whether an aging workforce will also be a less productive one.

TABLE 4: Descriptive analysis – HR Manager need to digitalize.

|  | Mean |
|--|------|
| Manager should always update the information of industry4.0.               | 4.07 |
| Manager should always search information about industry 4.0 from Internet. | 4.04 |
| Manager should participate the seminar about industry 4.0.                 | 4.10 |
| Manager should learn the knowledge of industry 4.0and teach the employees  | 4.09 |

## 4.2. Descriptive analysis: Human Resources Management plays the Role

Table 4 shows N, percentage, and mean of HR manager need to digitalize. The highest mean is 4.10 which means that most of the manager should participate in the seminar about industry 4.0 while the lowest mean is 4.04 which indicates that manager should always search information about industry 4.0 from the internet.

TABLE 5: Descriptive analysis – Training Become Customized.

|   | Mean |
|---|------|
| Manager should emphasize the real world benefits of your training program.                                | 3.96 |
| Give them control of the online training experience.  | 3.99 |
| Videos, online presentations, cartoon graphics, and eLearning scenarios are also great ways for training. | 4.01 |
| Integrate relatable stories and serious games.  | 4.03 |

Table 5 shows N; percentage and mean of training become customized. The highest mean is 4.03, which means that most of the integrate relatable stories and serious games while the lowest mean is 3.96, which indicates that the manager should emphasize the real-world benefits of your training program.

TABLE 6: Descriptive analysis – Fewer Expects Accomplish More.

|   | Mean |
|---|------|
| Create a workplace that truly values a balanced relationship between intense work and real renewal                                  | 3.99 |
| Separating your work duties from home- related will allow you to keep your mind on work, feel less overwhelmed and accomplish more. | 4.04 |
| Establish boundaries and stick to them.   | 4.01 |

Table 6 shows N, percentage, and mean of fewer expect to accomplish more. The highest mean is 4.04 which says that most of the separating your work duties from home-related will allow you to keep your mind on work, feel less overwhelmed and accomplish more while the lowest mean is 3.99 which indicates that create a workplace that truly values a balanced relationship between intense action and real renewal

## 5. Discussion and Conclusion

In this section, the consequence of the ebb and flow research is condensed and examined. The examination was led to investigate the difficulties looked by SMEs towards industry 4.0. As a matter of first importance, selection of Industry 4.0 will result at the end of lower talented occupations through computerization, and the expansion in profitability could result in a general decrease in the number of employment accessible (BRICS ability improvement working gathering, 2016). All the BRICS countries have understood the significance of ability advancement in accomplishing financial development later on and have taken different measures to connect the expertise hole. From expanding instruction use to a growing system of professional mentors by propelling across the nation programs, activities have been propelled to make the work power industry-prepared. In any case, BRICs still face numerous difficulties in the ability advancement of its workforce. Other than that, maturing society later retirement additionally is a serious issue in the selection business 4.0. Malaysia will be a maturing country by 2035 when 15 percent (5.6 million) of the populace is named senior natives. The maturing populace gives not just an effect on the structure plan and structure yet, in addition, the development (Eeydzah, 2017).

Additionally, HR supervisors are relied upon to increase further learning past their HR fill in as to have the option to address the association's issues effectively and desires. This can be viewed as another case of how the desires and requests of HR experts are expanded and have created towards an increasingly vital viewpoint (Camilla and Moa, 2017). Knowing which skills the association will require later on, just as inquiries concerning how and where they will be found and enlisted from, are exceptionally applicable to the present HR supervisors at Digital Solutions. The tweaked preparing projects are intended to advance worker viability, manufacture solid groups and increment organization gainfulness and focused on consumer loyalty and since 1981 have been putting forth programs that exceed expectations in the improvement of individuals (Dalia, 2017).

Advanced change ought not exclusively to be overseen inside the structure of the everyday business except ought to be efficiently incorporated into the organization's methodology. The pioneers among the organizations are as of now doing this, yet most of the Austrian organizations have seen Industry 4.0 fundamentally as an operational theme – additionally dependent on the abbreviated view that advanced change is an absolutely transformative procedure without problematic computerized change into the organization methodology, then again, decreases the danger of operational strides off

course, encourages clear and straightforward correspondence with the representatives, and clarifies that the top administration is tied down.

### 5.1. Limitation of the study

The study based poll utilized in this exploration was involved 100 things which were dispersed among the specialists of the HRM division. The area picked for my exploration paper is "Perindustrian Rima" which situated at Lahat, Ipoh, and Perak. Furthermore, that spot simply just 50 SMEs. Additionally, laborers of SMEs just a couple of specialists worked in office HRM. In this way, quantitative techniques utilized in this examination where precisely 100 polls to be conveyed among the proper laborers

## 6. Conclusion

Industry 4.0 is a progressive way to deal with assembling procedures. The idea will push worldwide makers to another degree of streamlining and profitability. That, however, clients will likewise appreciate another degree of by and by modified items that may have never been accessible. As referenced over, the monetary prizes are colossal. In any case, there are as yet numerous moves that should be handled efficiently to guarantee a smooth change. This should be the focal point of huge partnerships and governments alike. Pushing examination and experimentation in such fields are basic. While hypotheses concerning protection, security, and work need more examination, the general picture is promising. Such a way to deal with assembling ventures is genuinely progressive.

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## Conference Paper

# Factors Affecting Employees' Turnover Intention in Construction Companies in Klang, Selangor

Suhaidah Hussain and See Huei Xian

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

This research is about factors affecting employees' turnover intention in construction companies. Employees' turnover intention is known as the organization's workers' intent or plan to leave their current working place's position. Malaysia has scored third highest voluntary turnover rate, which is 9.5% in Southeast Asia year 2015. Most of the construction projects are difficult and complex to manage it. High employees' turnover rate may influence the construction companies' productivity and performances. There are many factors that will affect employees' turnover intention, such as colleague relations, organizational commitment, organizational justice, organizational reputation, communication, and organizational politics. In order to address the issues above, this research was aims to identify the factors affecting employees' turnover intention and to determine the relationship between the factors and employees' turnover intention. Therefore, in order to achieve these objectives, a questionnaire survey involving 160 employees conducted to Grade 7 construction company in Klang, Selangor. There was 73 companies' worker who responded to the survey. The data analysis conducted using SPSS and SmartPLS, and the results showed that organizational politics were mostly caused employees' turnover intention in construction companies. The findings also showed that communication and organizational politics had a negative relationship with employees' turnover intention. Results from this research can provide the evidence and bring convince for the construction companies in Malaysia to reduce employees turnover rate. In the future, the scope of the study can be expanded to other states of Malaysia to improve the reliability of this study.

**Keywords:** Employees, turnover intention, construction company

Corresponding Author:

Suhaidah Hussain

suhaidahhussain@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Based on Jayaram (2015), Malaysia scored third highest voluntary turnover rate at 9.5% in Southeast Asia year 2015. Automatic Data Processing (ADP) Workforce Vitality Index 2017 has reported that there are high employees' turnover problems, which affect construction companies and contractors but unnoticed by them (Palaganas, 2018). In

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the previous studies such as Thomas (2015), Seong (2015) and Nkomo et al. (2009) showed that salary and fringe benefits are the key factors for employees' turnover intention in construction companies. Although previous studies focused on factors employees' turnover intention, there is a lack of investigation of factors affecting employees' turnover intention in construction companies in Malaysia. Therefore, in this research, it will identify the factors affecting employees' turnover intention and determine the relationship between the factors and employees' turnover intention in construction companies in Klang, Selangor.

Factors such as colleague relations, organizational commitment, organizational justice, organizational reputation, communication, and organizational politics play an important role in employees' turnover intention in construction companies in Klang, Selangor. By knowing the factors causing employees' turnover can help human resource manager in the company to look for better solutions to reduce employees' turnover rate and thus can increase productivity in construction companies in Klang, Selangor. Therefore, it is very important to find out what factors will cause employees' turnover intention in construction companies in Klang, Selangor.

## 2. Literature Review

### 2.1. Background of the construction industry

The construction industry is the field where those companies are responsible for the buildings or engineering projects of the construction. It actually consisted of three types of construction projects which are residential projects, non-residential projects, and engineering projects. Besides that, the construction industry plays a very important role in the socio-economic growth of each country (Rahman, Memon, & Abd. Karim, 2013). Economically, it contributes to major improvement in the overall Gross Domestic Product (GDP) of a country.

### 2.2. Construction company in Malaysia

The construction company is is sector in the Malaysian economy because it contributed 3% to 5% of the aggregate economy GDP over the last 20 years (Khan, Liew, & Ghazali, 2014). Malaysian construction company nowadays is more high-ranking, modernized, and well equipped. As a developing nation, Malaysia has understood the vital role of the construction company not only help in economic growth but also improving the living

standards and life's quality of citizen in Malaysia. For Malaysia's construction company, all contractors must register with the Construction Industry Development Board (CIDB). In year 1994, Malaysian Government was setting up the CIDB to educate those construction company, to adjust and register the construction companies in seven grades by following the standard given (M.N.A, Majid, Ahamad, & Hanafi, 2012).

## **2.3. Factors affecting employees' turnover intention**

### **2.3.1. Colleague relations**

Colleague relations means the relationship with the co-worker in the organization. The connection with colleagues can also be defined as the social and working undertaken with other people in the workplace. Relationship with the colleague in the workplace can be observed through its attributes such as trust, cooperation, and so on (Buljubasic, 2008). The relationship between the colleagues may influence the working environment. This is because employees will spend a longer time with their colleague during working hours. If employees have a good relationship with their colleague may make a pleasure of the work environment.

### **2.3.2. Organizational commitment**

The organizational commitment may interfere with the social and personal functions of employee and the effective operation of the organization. It is also an expression of employees' feeling of psychological attachment towards the organization. It can measure the employees' willingness to stay in an organization in the future. There are three components of commitment that can be defined as an organization which is identification, organization, and honesty (Raisiene & Vilke, 2014). The organizational commitment is rising from the organization's principled attitude toward an employee. It also can be described as the involvement of employees in the organization.

### **2.3.3. Organizational justice**

According to Greenberg (1987), organizational justice defined as the fairness of resource allocation in an organization based on employee's perception. This is also referring to decision by management and its action, whether it is according to the moral right with ethical standards, religion, or the law. The fairness can describe in term of employees'

salary, performance evaluation, opportunities for promotion, and others. This perception, in turn, can influence employees' attitude towards management (Fee Yean & Yusof, 2016). If fairness is applied in an organization, employees will also feel satisfied and give a high commitment to the organization.

#### **2.3.4. Organizational reputation**

Organizational reputation is same meaning as an organizational image which shows the overall attractiveness of the organization. The reputation of an organization will represent its ability to create value, and it passes actions. The good pass actions of an organization will have a good reputation or image in the country, which will make those employees feel proud to work in the organization. Organizational reputation also can be considered as the stakeholder's opinion or judgment. Organizational reputation demonstrates the ability of the organization to create value. The reputation of the organization is also based on the past behavior of the organization and gives the outlook for the future (Hendriks, 2016).

#### **2.3.5. Communication**

Communication means the willingness to share non-personal or personal information to others (Eisenberg & Witten, 1987). It also can be defined as the sharing of information between one and others through face-to-face interaction or social media. Communication is an important aspect that helps to improve the decision-making process. Through the exchange of information between manager and employees can choose the best decision to solve any of the problems faced by the organization. At the same time, employees will feel their contributions are being respected and it may reduce the dissatisfaction of employees toward their job.

#### **2.3.6. Organizational politics**

Organizational politics can be defined as the work behavior of employees in the organization. It is a difficult element to deal with within the organization. Even though it will bring some negative effect on the organization, but it may also bring a positive impact to the organization. The negative impact that organizational politics will cause is ethical concerns such as conflicts over resources. Ferris et al. (1996) view organizational politics as an attitude that is not formally authorized by the organization, dispute, and

frictions arise in the work environment by opposing individuals or groups against each other or peer-to-peer organizations. On the other hand, those employees with political skills are managed job stress and help the organization meet the strategic goals.

## **2.4. Employees' turnover intention**

Employees' turnover intention means the employees have thought or plan to voluntarily leave their current organization. Voluntary employee turnover explains that employees' perception can lead to turnover. Employees' turnover intention also closely related to the employees' turnover because the actual employees' turnover behavior is depending on their intention of leaving the organization (Yang and Wittenberg, 2016). Thus, the employees' turnover intention is the most immediate determinant of real turnover behavior. Employees' turnover intention must be taken seriously because it will influence the organizational performance and lower down the efficiency of productivity.

## **2.5. Relationship between factors and employees' turnover**

### **2.5.1. Colleague relation & employees' turnover intention**

Colleague relationships have a direct negative impact on job stress and realism, while executive support has a direct negative impact on job stress but not realism (Yang et al., 2015). The results of the previous study show that the pressure on employees in the workplace has become increasingly important because it will influence the employees' turnover intention. Consolidated colleagues and executive support can effectively reduce work stress and improve the status of the aging workforce. At the same time, the employee's willingness to turnover can be reduced. According to Bateman (2009), it also is shown that there is a significant negative correlation between colleagues' support and withdrawal intention. Retail organizations should be aware of this relationship and commit to creating a supportive work environment. Thus, it can be hypothesized that colleague relations have a negative relationship with employees' turnover intention.

### **2.5.2. Organizational commitment & employees' turnover intention**

Organizational support can boost the morale of the employee; as a result, will lead to high organizational commitment and low employees' turnover intention (Ahmed and Nawaz, 2015). This previous research approves the significant positive relationship

between job autonomy and organizational commitment which the greater job autonomy leads to more commitment to the current organization needs to provide more autonomy to employees so that employees could decide about their goals and pursue plans to achieve them. Through Jehanzeb, Rasheed, and Rasheed (2013) research on organizational commitment and employee turnover intentions also confirms a strong reverse relationship. Therefore, it can be hypothesized that organizational commitment has a negative relationship with employees' turnover intention.

### **2.5.3. Organizational justice & employees' turnover intention**

In the previous scholar by Ali and Jan (2012), there was a significant relationship between employee's turnover intention towards distributive justice perception as well as procedural justice perception. The degree of organizational justice and job satisfaction in the workplace has an effect on employees' attitude and performance (Letchumanan, Apadore, & Ramasamy, 2017). If the organization can recognize and implement organizational justice, the employee's performance and productivity can be increased if they been treated fairly. Thus, employee turnover also can be reduced. In other words, this can be hypothesized that organizational justice has a negative relationship with employees' turnover intention.

### **2.5.4. Organizational reputation & employees' turnover intention**

Findings in the Allahyary and Beheshtifar (2013) and Alniacik, Cigerim, Akcin, and Bayram (2011) show that there is a reverse relationship between organizational reputation and employees' turnover intention. Focusing on organizational identification and images can reduce employee turnover intentions in the organization. Previous research in South Korea conducted by Kwon & Rupp (2013) also presented a negative correlation between corporate reputation and turnover intentions, especially in high-performing companies in the organization. A high degree of recognition of the company's reputation will reduce the willingness to leave, and vice versa. So, it can be hypothesized that the organizational reputation has a negative relationship with employees' turnover intention.

### **2.5.5. Communication & employees' turnover intention**

According to Olcer and Ozenir (2017), their research found out that organizational communication has a negative effect on the intention to leave of employees. The research

did by Al-Tokjais (2016) also results that good communication can forecast turnover intention behavior of employees in an organization. It is proven that communication from manager to employee (downward communication), communication employee to their leader (upward communication) and communication between departments (side-ward communication) in an organization will influence for the turnover intention. It is expected that a high perception of communication will reduce the turnover intention occurs in the organization (Yang & Wittenberg, 2016). Thus, it can be hypothesized that communication has a negative relationship with employees' turnover intention.

### **2.5.6. Organizational politics & employees' turnover intention**

The results from Abubakar and Abdullahi (2017) study also shows that there would be a reciprocal effect of perceived organizational politics on turnover intention. These results underline our postulation that the relationship between perceived organizational politics and turnover intention is complex and reciprocal. This suggests that there is no simple one-directional effect of perceived organizational politics on turnover intention. Whereas perceived organizational politics influence turnover intention, employee turnover can also influence the perception of organizational politics in the work environment. Therefore, it can be hypothesized that organizational politics has a negative relationship with employees' turnover intention.

## **3. Methodology**

### **3.1. Research design**

The quantitative research design was used in this study. Descriptive and correlational design were some of the types of quantitative research design which would be used to solve the research questions. The descriptive design includes the sample population which may be nearly hundreds or thousands of subjects to achieve the validity estimate, and the Correlational design will be used to determine and test for the relationship between independent and dependent variables of this research. The data collection method that would be used in this study was questionnaires method. Both paper-pencil-questionnaires and web-based questionnaires would be applied in this research. Hence, the questionnaires would be prepared and given to the respondents through email or walk-in to the Grade 7 construction companies in Klang, Selangor.

### 3.2. Conceptual framework

The following Figure 1 is the conceptual framework of the research.

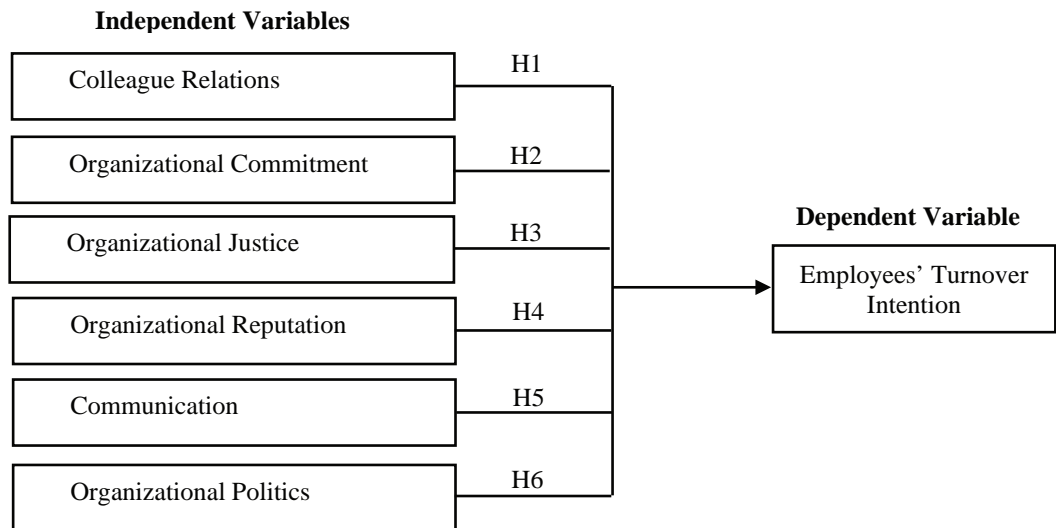


Figure 1: Conceptual Framework (Source: Authors' own work).

### 3.3. Research hypothesis

Based on the Figure 1, the hypotheses for this research as follows:

H1: The colleague relations have a negative relationship with employees' turnover intention.

H2: The organizational commitment has a negative relationship with employees' turnover intention.

H3: The organizational justice has a negative relationship with employees' turnover intention.

H4: The organizational reputation has a negative relationship with employees' turnover intention.

H5: The communication has a negative relationship with employees' turnover intention.

H6: The organizational politics has a negative relationship with employees' turnover intention.



### 3.4. Data collection

In this study, all the data and information will be collected through the articles and journals which were using secondary data collection method and questionnaire survey forms that were distributed which were using the primary data collection method. The main data collection techniques used in this study was a questionnaire from the target respondents through email and walk-in. Questionnaire format such as close-ended questions, length of the questions, and the choices of the questions had been set to make sure the data can easily gather from the respondents. In this questionnaire design process, the questionnaire separated into three sections, which were Section A: Demographic, Section B: Factors affecting employees' turnover intention, and Section C: Employees' turnover intention. Objective questions, subjective questions, and Five Point Likert scale were used in the questionnaire. The levels of measurement used for the variables in this research was ordinal scale because the Five Point Likert scale that uses in the questionnaire such as strongly disagree, disagree, neutral, agree and strongly agree were an ordinal scale of measurement.

### 3.5. Population and sample size

The respondents in this study will focus on the upper or lower level of employees who were working in Grade 7 construction companies in Klang, Selangor. There had a total population of 160 Grade 7 construction companies in Klang, Selangor found from the Centralized Information Management System (CIMS) that had registered for Construction Industry Development Board (CIDB). Based on Krejcie and Morgan (1970), the sample size for the population of 160 Grade 7 construction companies in Klang, Selangor were 113 of respondents. Those respondents for this research will involve all different gender and age. Besides that, probability sampling was used in this research because the respondents are chosen through random sampling. Each of the respondents has the same probability of being chosen, and they will be randomly chosen from the population.

### 3.6. Data analysis

The Pearson Correlation and Multiple Regression Analysis have been conducted to identify the factors affecting employees' turnover intention and determine the relationship between factors and employees' turnover intention in construction companies. Before conducting the Correlation and Regression Analysis, reliability and validity test

have done in order to make sure whether the Five Point Likert scale questions in the research questionnaire are reliable and the data collection in this research are valid. Moreover, the normality test also has done in order to confirm the data collected are normally distributed and achieved the underlying assumption for most of the statistical analysis. Descriptive analysis has been conducted to summarize and describe the data collected by measure the mean and standard deviation to make the results of the research easier to understand.

### **3.7. Survey procedure**

#### **3.7.1. Pre-test**

The pre-test will be conducted to get some advice from the experts to improve the questionnaire. In this research, the questionnaire was given to three experts who have the related field or background toward construction or human resources to undergo this pre-test. Those experts have identified the questionnaire's problems such as unclear sentences or the questionnaire taking too long to administer. The comments from the experts had been recorded down, and correction is done at the same time before proceeding to the pilot test.

#### **3.7.2. Pilot test**

The pilot test is a rehearsal of the research study which allows testing the study approach with a small number of test respondents before the main study being conducted and ensuring all the respondents understands the questions from the questionnaire in the same way. Based on Connelly (2008) and Hertzog (2008), 12 questionnaires were given to the workers who work in construction companies in Malaysia other than Klang areas to conduct the pilot test. The start and end time have been recorded, so the duration to complete each survey can be estimated. During collecting the questionnaires, feedback about the problems of the questionnaires also collected from the respondents too. After that, the questionnaires that need to be given to the real respondents for this research have been adjusted and improved. Other than that, the pilot test also being used to measure the reliability and consistency of the questionnaire by seeing the Cronbach's Alpha coefficient generated from SPSS software. The results of Cronbach's Alpha coefficient value shown in Table 1 for all variables were more significant than 0.7, which means acceptable with the internal consistency and reliability. Hence, there

was no item from each variable need to be deleted, and it can proceed to the primary respondents' distribution for this research.

TABLE 1: Pilot Test for Variables.

| Variables                     | No. of Items | Cronbach's Alpha |
|-------------------------------|--------------|------------------|
| Colleague Relations           | 5            | 0.769            |
| Organizational Commitment     | 5            | 0.778            |
| Organizational Justice        | 5            | 0.726            |
| Organizational Reputation     | 5            | 0.830            |
| Communication                 | 5            | 0.774            |
| Organizational Politics       | 5            | 0.865            |
| Employees' Turnover Intention | 5            | 0.781            |

### 3.7.3. Main survey

The corrected and improved questionnaire would be distributed to the workers who were working in the Grade 7 construction companies in Klang, Selangor which had been registered for the CIDB. There are 160 sets of the questionnaire had been given to the construction companies through email and walk-in. Each Grade 7 construction companies would only be given one set of questionnaire which means each of the respondents will be represented by different construction companies. However, there was only received 73 respondents out of 160 populations. The response rate was 45.63%, which considered good and acceptable (Keller, 2014). The total respondents collected was 64.60% of the sample size (113 respondents) needed for this research.

## 4. Results

### 4.1. Respondent demographics

Table 2 shows that most of the respondent's gender that participated in this research are female, which has 75.3% from a total of 73 respondents. Besides that, there were only 18 males, which also represented 24.7% of the total respondents involved in this research. Most of the respondents' age was in between 21 – 25 year's old, which was 31.5% of the total respondents. There were only 2 respondents who were 2.7% of the total respondents were from the age of 20 years old and below. For education level, Bachelor's Degree level has the most number of respondents, which is 39.7% while Doctorate level has the fewer respondents which only one person out of a total of 73 respondents in this research. Most of the respondent's race was build up from

Chinese, which has 56.2% of the respondents. However, Indian respondents had the lowest amount, which is 6.8% of the total population. Moreover, most of the respondents (47.9%) had 2 years and below working experience in their current working construction companies. There are only 8 respondents who have working experience of 11 years and above with a percentage of 11.0% of total respondents. Other than that, most of the respondents who participated in this research are holding admin position in their current working construction companies, which are 47.9% of the total research respondents. The others 17.8% of the respondents' position in their current working place was such as senior executive, financial admin, electrical engineer, purchasing executive, senior contract executive, chemist, sales coordinator, receptionist, and quality control admin.

## 4.2. Descriptive analysis

Based on Table 3, organizational politics had the highest mean of 3.1425, which showed that the employees' turnover intention in respondents' construction companies are mostly affected by organizational politics factor. Organizational reputation had the lowest mean of 3.0137, which implied that the employees' turnover intention in construction companies were low influence by organizational reputation. Since all the mean value for each variable are more than 3 (Neutral), which means most of the respondents are neutral or agree toward those factors can affect the employees' turnover intention in construction companies.

## 4.3. Normality test

According to Curran et al. (1996), a samples are normally distributed if the absolute value of Skewness not more than 2 (within -2 to 2) and the absolute value of Kurtosis not greater than 7 (within -7 to 7). Based on the SPSS output in Table 4, it was shown that the highest absolute value of Skewness is 0.771 which less than 2 and the highest absolute value of Kurtosis is 1.068 which does not more than 7. Since all the statistic value of Skewness for each item are within -2 to 2 and all the statistic value of Kurtosis for each item are within -7 to 7, it can be confirmed that the samples are normally distributed. Besides that, the outlier has existed if there have any z-score value is less than -3.29 or more than 3.29 (Tabachnick & Fidell, 2007). After running the z-score in SPSS software, all the z-score values had been check, and all values are in the range of -3.29 to 3.29. Thus, there does not have any outlier exist.

TABLE 2: Demographic Analysis.

| Demographic     | Components               | Number Respondents | Percentage (%) |
|-----------------|--------------------------|--------------------|----------------|
| Gender          | Male                     | 18                 | 24.7           |
|                 | Female                   | 55                 | 75.3           |
| Age             | 20 years old and below   | 2                  | 2.7            |
|                 | 21-25 years old          | 23                 | 31.5           |
|                 | 26-30 years old          | 20                 | 27.4           |
|                 | 31-35 years old          | 17                 | 23.3           |
|                 | 36-40 years old          | 7                  | 9.6            |
|                 | 41-45 years old          | 4                  | 5.5            |
|                 | 46-50 years old          | -                  | -              |
|                 | 51 years old and above   | -                  | -              |
| Education Level | SPM                      | 11                 | 15.1           |
|                 | STPM                     | 3                  | 4.1            |
|                 | Diploma                  | 20                 | 27.4           |
|                 | Bachelor's Degree        | 29                 | 39.7           |
|                 | Master's Degree          | 9                  | 12.3           |
|                 | Doctorate                | 1                  | 1.4            |
|                 | Others                   | -                  | -              |
| Race            | Malay                    | 27                 | 37.0           |
|                 | Chinese                  | 41                 | 56.2           |
|                 | Indian                   | 5                  | 6.8            |
|                 | Others                   | -                  | -              |
| Work Experience | 2 years and below        | 35                 | 47.9           |
|                 | 3-6 years                | 20                 | 27.4           |
|                 | 7-10 years               | 10                 | 13.7           |
|                 | 11 years and above       | 8                  | 11.0           |
| Position        | Accountant               | 7                  | 9.6            |
|                 | Site Supervisor          | 4                  | 5.5            |
|                 | Project Executive        | 6                  | 8.2            |
|                 | Admin                    | 35                 | 47.9           |
|                 | Human Resource Executive | 8                  | 11.0           |
|                 | Others                   | 13                 | 17.8           |

## 4.4. Reliability analysis

### 4.4.1. Validity analysis

SmartPLS software had been used to obtain the validity analysis. In SmartPLS, there is two validity that needs to be done, which are convergent validity and discriminant validity. To evaluate the convergent validity of the research data, the outer loadings

TABLE 3: Descriptive Analysis.

| Variables                     | N  | Mean   | Standard Deviation | Variance |
|-------------------------------|----|--------|--------------------|----------|
| Colleague Relations           | 73 | 3.0164 | 0.75554            | 0.571    |
| Organizational Commitment     | 73 | 3.0521 | 0.78459            | 0.616    |
| Organizational Justice        | 73 | 3.0521 | 0.67250            | 0.452    |
| Organizational Reputation     | 73 | 3.0137 | 0.64406            | 0.415    |
| Communication                 | 73 | 3.0219 | 0.74428            | 0.554    |
| Organizational Politics       | 73 | 3.1425 | 0.75754            | 0.574    |
| Employees' Turnover Intention | 73 | 3.0466 | 0.82564            | 0.682    |

TABLE 4: Skewness and Kurtosis of Each Item.

| Item |          | CR     | OC     | OJ     | OR     | C      | OP     | ETI    |
|------|----------|--------|--------|--------|--------|--------|--------|--------|
| 1    | Skewness | 0.066  | 0.771  | 0.196  | -0.149 | 0.402  | 0.302  | 0.342  |
|      | Kurtosis | -0.949 | 0.492  | -0.345 | -0.938 | -0.629 | -0.304 | -0.317 |
| 2    | Skewness | 0.320  | 0.452  | 0.247  | -0.218 | 0.361  | -0.056 | 0.056  |
|      | Kurtosis | -0.640 | -0.039 | -0.166 | -0.955 | -0.664 | 0.219  | -0.637 |
| 3    | Skewness | 0.678  | 0.144  | 0.058  | 0.290  | -0.220 | -0.169 | -0.383 |
|      | Kurtosis | 0.153  | -0.360 | -0.392 | -0.157 | -0.489 | -0.262 | -0.271 |
| 4    | Skewness | 0.233  | -0.053 | 0.179  | 0.074  | 0.177  | -0.400 | 0.004  |
|      | Kurtosis | -0.717 | -0.857 | -0.047 | -0.772 | 0.442  | -0.405 | -0.895 |
| 5    | Skewness | -0.065 | -0.145 | 0.345  | 0.235  | 0.108  | 0.084  | -0.115 |
|      | Kurtosis | -0.689 | -1.068 | -0.658 | -0.835 | -0.901 | -1.018 | -0.209 |

**Note:** CR = Colleague Relations; OC = Organizational Commitment; OJ = Organizational Justice; OR = Organizational Reputation; C = Communication; OP = Organizational Politics; ETI = Employees' Turnover Intention

of each variables' questions, and the Average Variance Extracted (AVE) need to be measured. The outer loadings should be 0.708 or higher, and the AVE value must be 0.50 or higher, so it reflects a good convergent validity of research data (Hair Jr et al., 2017). Those items that have outer loadings less than 0.708 will be deleted one by one until the variables do not contain any items that less than 0.708. Those items deleted (11 items) and remained (24 items) have shown in Table 6. Table 6 shows that all the outer loadings of each item remained are more than 0.708, which means that the latent variable should be able to explain at least 50% of each item's variance. Not only that, AVE values for all variables are more significant than 0.5, which also can be said that all items for the variables have high levels of convergent validity. Since all-composite reliability for each variable are more than 0.7 after deleted items process, which means all the variables in this research are still acceptable with high internal consistency and reliability. Figure 2 shows that the PLS path model after item deleted process.

TABLE 5: Convergent Validity.

| Item                  | CR      | OC      | OJ      | OR      | C       | OP      | ETI     |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|
| 1                     | 0.815   | Deleted | 0.889   | Deleted | 0.908   | 0.816   | 0.784   |
| 2                     | 0.789   | 0.716   | 0.916   | Deleted | 0.910   | 0.779   | 0.888   |
| 3                     | 0.874   | 0.851   | Deleted | 0.728   | 0.869   | 0.870   | Deleted |
| 4                     | 0.780   | 0.916   | Deleted | 0.890   | Deleted | 0.800   | 0.856   |
| 5                     | Deleted | 0.772   | Deleted | 0.883   | Deleted | Deleted | 0.919   |
| AVE                   | 0.665   | 0.668   | 0.815   | 0.700   | 0.803   | 0.667   | 0.745   |
| Composite Reliability | 0.888   | 0.889   | 0.898   | 0.874   | 0.924   | 0.889   | 0.921   |

**Note:** CR = Colleague Relations; OC = Organizational Commitment; OJ = Organizational Justice; OR = Organizational Reputation; C = Communication; OP = Organizational Politics; ETI = Employees' Turnover Intention

To assess the discriminant validity of the items, the latest main approach needs to be measured the Heterotrait-Monotrait ratio (HTMT). All the HTMT values should not more than the appropriate threshold level which is 0.85, and the HTMT confidence interval should not include the value 1 for all combinations of variables (Hair Jr et al., 2017). Table 6 shows that the highest HTMT value is 0.815 which means all the HTMT values are lower than the relevant threshold value of 0.85 and there are neither of the HTMT confidence intervals was including the value 1. Since the conservative HTMT threshold of 0.85 already supported the discriminant validity. The result of bootstrap confidence interval HTMT also clearly agreed toward the discriminant validity of the research variables. Seem all the model evaluation criteria have been met, it providing support for the measures' validity.

TABLE 6: Discriminant Validity.

|   | CR    | OC    | OJ    | OR    | C     | OP    | ETI |
|---|-------|-------|-------|-------|-------|-------|-----|
| Colleague Relations                         |       |       |       |       |       |       |     |
| Communication                               | 0.588 |       |       |       |       |       |     |
| Employees' Turnover Intention               | 0.418 | 0.758 |       |       |       |       |     |
| Organizational Commitment                   | 0.610 | 0.613 | 0.667 |       |       |       |     |
| Organizational Justice                      | 0.546 | 0.538 | 0.615 | 0.786 |       |       |     |
| Organizational Politics                     | 0.203 | 0.510 | 0.798 | 0.493 | 0.414 |       |     |
| Organizational Reputation                   | 0.622 | 0.815 | 0.708 | 0.755 | 0.613 | 0.573 |     |
| HTMT confidence interval does not include 1 | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes |

**Note:** CR = Colleague Relations; OC = Organizational Commitment; OJ = Organizational Justice; OR = Organizational Reputation; C = Communication; OP = Organizational Politics; ETI = Employees' Turnover Intention

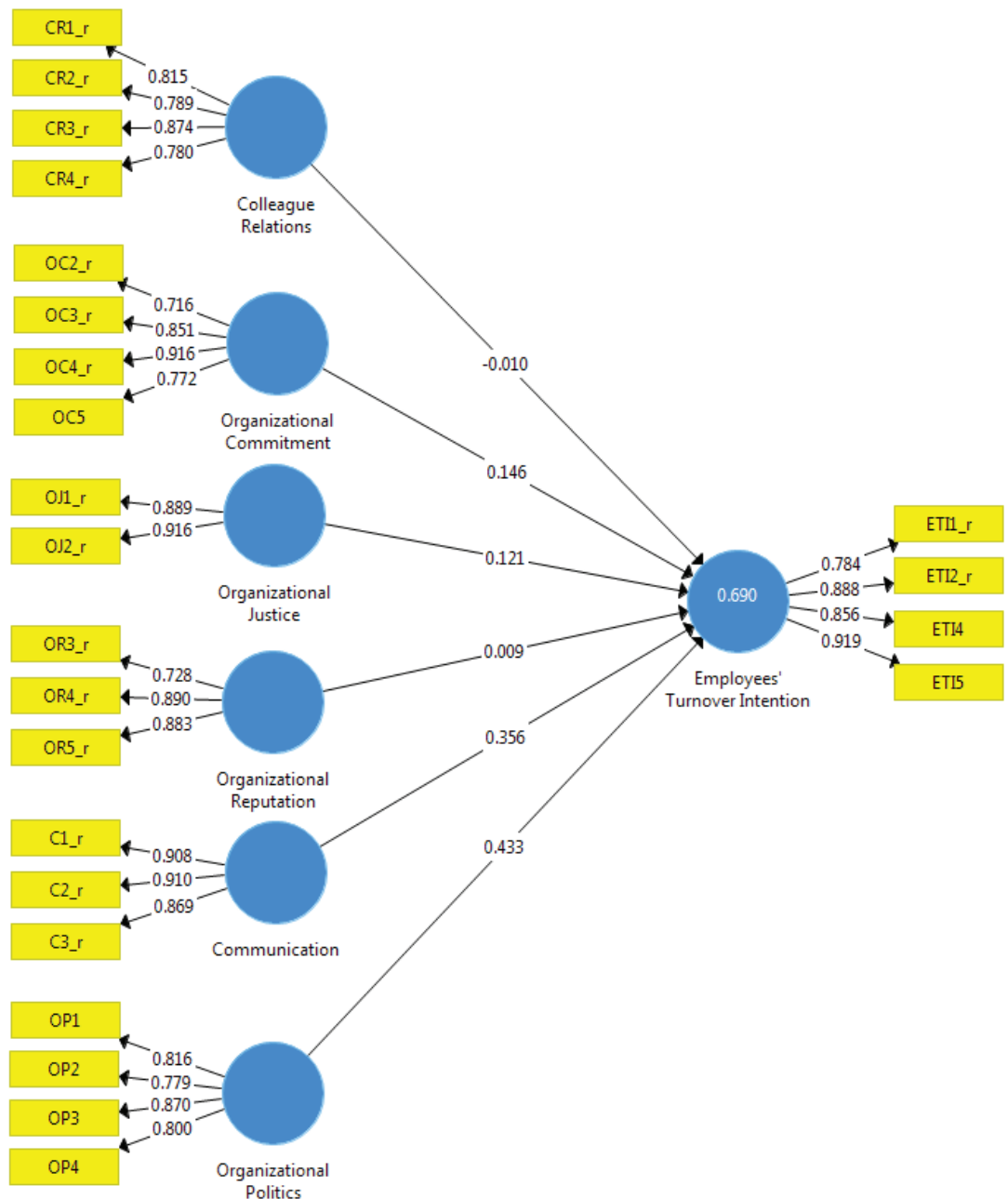


Figure 2: PLS Path Model After Items Deleted (Source: Authors' own work).

#### 4.4.2. Pearson correlation analysis

If the significance value is less than 0.05, that means the relationship between independent variable and dependent variable are significant. Table 7 shows that all the independent variables had a significance value less than 0.05, which prove that the relations between the independent variables and employees' turnover intention are significant.



Therefore, all the independent variables (colleague relations, organizational commitment, organizational justice, organizational reputation, communication, and organizational politics) are considered as the factors that affect employees' turnover intention. The Pearson Correlation value in Table 7 also explained that all the independent variables are negatively significant relationship toward employees' turnover intention. Since all the questions in the questionnaire were changed to the negative statement in the early stage of the data analysis, thus, the positive value of Pearson Correlation represent a negative relationship between the independent variable and dependent variable.

TABLE 7: Pearson Correlation Analysis.

|                               |                     | CR    | OC    | OJ    | OR    | C     | OP    |
|-------------------------------|---------------------|-------|-------|-------|-------|-------|-------|
| Employees' Turnover Intention | Pearson Correlation | 0.354 | 0.576 | 0.511 | 0.582 | 0.678 | 0.691 |
|                               | Sig. (1-tailed)     | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                               | N                   | 73    | 73    | 73    | 73    | 73    | 73    |

**Note:** CR = Colleague Relations; OC = Organizational Commitment; OJ = Organizational Justice; OR = Organizational Reputation; C = Communication; OP = Organizational Politics

### 4.4.3. Multiple regression analysis

Standardized beta coefficient ( $\beta$ ) is very similar to the correlation coefficient, which ranges is between 0 to 1 or 0 to -1 (Morgan et al., 2013). The closer the value toward 1 or -1, it reflects the stronger the relationship between the independent variable and dependent variable. In order for the independent variables to be significant, the p-value must be less than 0.05 (Frost, 2013). Table 8 shown only two hypotheses (H5 and H6) are supported due to the variables' beta coefficient are positive and have a significant level of p-values less than 0.05. While, there are four hypotheses (H1, H2, H3, and H4) not being supported because of the significant level of p-values are greater than 0.05.

## 5. Discussion

The purpose of the finding is to identify the factors affecting employees' turnover intention in construction companies in Klang, Selangor and to determine the relationship between the factors and employees' turnover intention in construction companies in Klang, Selangor. There are six factors affecting employees' turnover intention being

TABLE 8: Summary of Hypotheses Testing.

| Hypotheses | Relationship | Unstandardized Coefficient |            | Standardized Coefficient<br>Beta | t      | Sig.  | Decision      |
|------------|--------------|----------------------------|------------|----------------------------------|--------|-------|---------------|
|            |              | B                          | Std. error |                                  |        |       |               |
| H1         | CR → ETI     | -0.017                     | 0.093      | -0.016                           | -0.178 | 0.859 | Not supported |
| H2         | OC → ETI     | 0.135                      | 0.103      | 0.135                            | 1.306  | 0.196 | Not supported |
| H3         | OJ → ETI     | 0.126                      | 0.091      | 0.126                            | 1.381  | 0.172 | Not supported |
| H4         | OR → ETI     | -0.001                     | 0.112      | -0.001                           | -0.005 | 0.996 | Not supported |
| H5         | C → ETI      | 0.375                      | 0.101      | 0.371                            | 3.716* | 0.000 | Supported     |
| H6         | OP → ETI     | 0.462                      | 0.088      | 0.433                            | 5.261* | 0.000 | Supported     |

**Note:** \*p < 0.05

**Source:** Authors' own work

selected from previous research, which are colleague relations, organizational commitment, organizational justice, organizational reputation, communication, and organizational politics.

Based on the results from reliability analysis, it shows that all the independent and dependent variables in this research are acceptable with high internal consistency and reliability. Validity analysis results also proved the accuracy of an assessment of the research and providing support for the measures' validity. This is because all the model evaluation criteria for the convergent validity and discriminant validity have been met. Thus, the research data can be said reliable and valid.

Before proceeding to the Pearson Correlation analysis and Multiple Regression analysis, the normality test had been conducted to make sure the sample size distribution was normally distributed. It is because normal distribution is an underlying assumption for most of the statistical analysis (Hair Jr et al., 2010). From the normality test's result, it was proven that the samples of this research are normally distributed. At the same time, the Pearson Correlation analysis and Multiple Regression analysis can proceed.

Pearson Correlation Analysis was being applied to examine the correlation between the independent and dependent variables. According to the results of the Pearson Correlation analysis, all the independent variables are significant and strong negatively correlated to the employees' turnover intention. Hence, the results proved that colleague relations, organizational commitment, organizational justice, organizational reputation, communication, and organizational politics are the factors which will affect employees' turnover intention. At the same time, Research Objective 1 had been met.

There are six hypotheses that had been developed and tested through Multiple Regression analysis to determine the relationship between the factors and employees' turnover intention. The results of Multiple Regression analysis shown that there are only two out of six hypotheses were supported. H5 and H6 have been supported because from the multiple regression analysis shown that the p-value for H5 and H6 (communication and organizational politics) are less than 0.05 which means communication and organizational politics are significant negative relationship toward employee' turnover intention. This result was same as the finding from previous researches such as Al-Tokjais (2016), Olcer & Ozenir (2017), Latif & Saraih (2016), and Abubakar & Abdullahi (2017) which proved that communication and organizational politics was negatively related to employees' turnover intention.

While, H1, H2, H3, and H4 have not been supported because their p-value from the multiple regression analysis was higher than 0.05. The reason causes the finding of this research turn out differently from the expected is maybe due to the different respondents' background and characteristics of the population in this research. Different respondents' background may have different expectation toward the factors employees' turnover intention, which will influence the finding of the research. Thus, the results from this research are reasonable, and Research Objective 2 also had been achieved.

## 6. Conclusion and Implications

This research is about the factors affecting employees' turnover intention in construction companies in Klang, Selangor. The purpose of this study is to find out the factors that may influence the employees' turnover intention in construction companies through identify the factors and determine the relationship between the factors with the employees' turnover intention. The results from this research help the human resource department in construction companies to focus on those relevant and useful factors to reduce the employee's turnover rate in the construction companies. The descriptive analysis results from this study showed that organizational politics had the highest mean compared to other factors from this research which also shown that employees' turnover intention in construction companies are mostly affected by organizational politics factor. Besides that, the Pearson Correlation analysis results show that all six factors (colleague relations, organizational commitment, organizational justice, organizational reputation, communication, and organizational politics) were highly correlated to the employees' turnover intention.

Therefore, those six factors were considered as the factors that will affect employees' turnover intention. Throughout multiple regression analysis results, only two hypotheses (H5 and H6) had been supported which are the communication factor, and organizational politics factor have a significant negative relationship with employees' turnover intention in construction companies in Klang, Selangor. Hence, the construction companies in Malaysia should take more attention toward the communication and organizational politics factors to control or reduce the employees' turnover rate in the construction companies. Results from this research provided the evidence and brought convince for the construction companies in Malaysia to reduce the employees turnover rate. This research finding had filled up the previous research gap which lack of investigation in construction companies in Malaysia.

Since the scope of the study is focused on workers that work in the Grade 7 construction companies in Klang, Selangor, the findings of this research can only indicate the perspectives of construction companies in Klang, Selangor. The results from this study might not be so useful or applicable to other districts or states of Malaysia. The employees' turnover intention is only measured in six aspects, which are colleague relations, organizational commitment, organizational justice, organizational reputation, communication, and organizational politics. The employees' turnover intention may include many other aspects and factors as well, which do not being measured in this research.

The main limitation of this study is the actual population size of Grade 7 construction companies in Klang, Selangor. CIMS does not update the current status of each construction companies, and those companies that already close down or move to other places does not being removed from the CIMS list. This might be the difficulty in getting the accurate total number of the population size for the research and cause the inaccuracy of the population size for the Grade 7 construction companies in Klang, Selangor. At the same time, it may cause the number of respondents who do not achieve the sample size of this research. Another limitation of this study is the rejection of filling the questionnaire from the respondents. There are some respondents do not respond to the questionnaire form that had been sent to them through email, and some of the respondents give an excuse to refuse to fill up the questionnaire form being given to them.

In order to improve the reliability of this study, the scope of the study can be expanded to other states of Malaysia. In this study, the employees' turnover intention is only measured by six factors. If there are more factors being measured toward the employees' turnover intention, it may make the result of the study more accurate. In-depth

research can also further investigation about how to solve the employees' turnover intention problem in construction companies based on the factors. This investigation can make the study more precise and informative. Other than that, the data analysis can be described more depth by classified two different groups toward the analysis such as investigate the view from different gender (male and female) toward the factors affecting employees' turnover intention by using one-sample mean T-test. Furthermore, the target respondents in the future study can be narrow down to specific level such as management level because those measurement variables may only influence toward employees who work in the management level or top management level. Moreover, qualitative research design can be added into the future study. When both the qualitative and quantitative research design involved in the study, it can improve and enhance the results from the finding.

## Acknowledgement

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

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**Conference Paper**

# The Value of Trust in the Drama *Tersasar Di Jalan-Mu*

Juwairiah Osman, Mardhiyyah Zamani, Rosjuliana Hidayu Rosli, Mohamad Baihaqi Hasni, Nur Afza Syarfa Rosli, Mohd Iszuani Mohd Hassan, and Syahrina Ahmad

Centre of Modern Language and Human Sciences, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

The value of trust is one of nature that is highly emphasized in social life. The value of trust is one's identity and the level of his faith in religion. This value is seen in the drama storyline drama *Tersasar di Jalan-Mu*. In this regard, the study aims to identify the value of the trusts contained in the drama *Tersasar di Jalan-Mu* by discussing it based on the Honorable Type Concept Framework (*Kerangka Konsep Jenis Kehormatan*). A total of 9 scenes have been identified as the dominant scenario with the value of Malay trust. It is further categorized according to the kind of honor on 7 values, namely blood, property, dignity, tyranny, disunity, women and trust. In this paper, only the value of the trust will be elaborated because this value is synonymous with the problems of today's society which is less aware of the value of trust in family and community life. The result of the study explains the value of trust is a highly emphasized value in the lives of Malay Muslims.

**Keywords:** honorable type, trust value, drama *tersasar di jalan-mu* and conceptual framework ali jarishah.

Corresponding Author:

Juwairiah Osman  
 juwairiah@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

The value of nobility is a benchmark for a country's progress. Although material value is not denied its importance, but good and values must be emphasized in all aspects of life, especially the Malay community. The Malay community emphasizes the value of "tatasusila" through speech and behavior that is polite and subtle. This is in line with the meaning of the term civilization itself, as stated by Syed Naguib al-Attas, the 'madana' which means to define, purify and produce polite (Mohd Koharuddin Mohd Balwi, 2005: 49). Human treatment is a key factor in looking at how far the height of civilization and the country itself. The higher the noble values and the better, the greater the level of achievement of the civilization of a nation. In this regard, the value of trust is a dominant value in Malay society. This is because the Malays are firmly entrenched with the trust


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or responsibility given because they are closely related to the level of faith in Allah SWT. Trust is the responsibility set by Allah SWT on every servant. Human beings as khalifah or leaders must be aware of its responsibility in this world whether it is a leader in a family, society or an organization. Trust is a great thing that is closely related to the faith or the religion of Islam.

”Not religious to people who do not trust”

In the verse shows that trust is a benchmark of one’s faith in God. Today, the value of the trust is increasingly neglected due to the busyness of today’s society in their respective careers and personal affairs. The value of trust can be defined as the responsibility and task that someone needs to take care of either in the family, in society or in an organization. Every religion commits adherents to trust in honesty and sincerity. In Islam, the implementation of trust indicates the faith of one’s servant. Implementation of this trust requires very high faith and integrity. Individuals who are high in faith, are sure to carry out the trust seriously regardless of human or human beings. This is because he is convinced that Allah SWT sees and judges every conduct he has done. Unfortunately, those who are weak in faith will always ignore and relent on the task they are given. In the drama studied, the value of the trust was often overlooked by Husband and Mami himself who let the children to be involved with drugs and free association because of the inherent nature of trust that was lost due to a living environment that was abusive. The value of trust can be seen in real-time Malay drama genres especially in television. This is because the reality of the lives of the Malays is shown to the public through the storyline of a drama. According to Indirawati Zahid (2006: 429), although not all of this happening in the real world can be displayed on the silver screen, the slightest part of what is shown is what really happens in human life. Hence, the concept of the honor of the Malays is expected to produce dignified, self-esteemed and self-respecting individuals in line with the will of Islam. Indeed, the custom of the Malays itself emphasizes the importance of honor in defending the dignity of the contaminated, such as the proverb ”from the life of a deadly mirror, better to be dead.” Finally, the value of the trust that combines aspects of language, culture, art and religion is expected to be an interesting and awareness-raising study of the society thus raising the dignity of the Malay. The value of this trust is fundamental in the harmony and well-being of the state. A country with a very trustworthy and integrity community is sure that all aspects of life can be implemented smoothly, harmoniously and thriving. However, the value of the trust displayed in the *Tersasar di Jalan-Mu* is a neglected trust in a family institution like the character of Ghani who prostitutes his wife, and Abang Harun who let his wife earn a living. This is what causes disillusionment in the life of the community, thus generating

troubled and disturbing families around the world. The value of the neglected trust or responsibility has caused the people in Lorong Haji Taib to be lame and tough so that the wives, children, women and the underprivileged groups are arbitrarily deprived.

### 1.1. Statement of Problem

Every human being certainly has the trust they bear. However, as of today some individuals do not hold the trust properly. This is because of the weakness of faith in sin and reward. Furthermore, those who do not trust this feeling that a trust does not need to be done seriously as long as it does not seem to be the result. In the life of the Malay community, the nature of trust is highly emphasized in many matters, especially in families and communities. This is in line with the will of Islam that demands the ummah to keep the trust as best as it will be questioned in the hereafter. Through this study, the nature of the trust being discussed is the nature of trust in the responsibilities of parents, children and members of society who have abandoned the value of trust in the family institution itself so as to cause their lives unsettled and always overwhelmed. In the study of an Islamic scholar, Ali Jarishah (1990: 26) has stated that one of the major honors is trust, besides six other things within the scope of the life of Muslims. The six things are blood, dignity, property, tyranny, disunity and women. It has been examined in the contents of the Last Sermon of the Holy Prophet (al-Wida') who was also named the First Charter of Human Honor (Ali Jarishah, 1990: 26). In this connection, some societies today are also often encouraged to evaluate a person based on external factors such as rank, property, appearance and so on. While in Islam, honor is assessed on the nature of sincere trust that is based on faith in Allah SWT. This is in line with Paskalis Belawan's view which states that in general a person who does not hold full faith in religion often relates the level of a person's height to the following meaning:

*Honor is often associated with wealth, because with the wealth it possesses somebody is at a higher level than other people and thus his good name is also a predicate that must be maintained.*

(Paskalis Belawan, 2009:2)

This means that people think riches are the main symbols of respect for a person not seen in the height of the identity of the trusted person. The rich man is honored to be able to master various things until he is empowered to do anything even if he does not believe. However, Islam does not forbid its people to seek honor with wealth, but it must be based on His will. The community is also expected to preserve the respectfulness of

every act, and thus continue the culture of the Malay community that is highly regarded by high courtesy to create a dignified, believing and selfish Malay identity. The high value and dignity of the Malays are directly manifesting the privilege of the Malays which are different from the rest of the world. Research on values is more geared towards the writing of printed works. Therefore, this study is about to approach the reader by taking data from the form of video, which is television drama. Drama strikes on His Way is seen as the data that is relevant to this study as it contains the value of trust that has been betrayed by family members and the community. What's more, Lorong Haji Taib is still a dilemma with social problems ever since. People's interest in television drama is getting higher. As a result, it is arguable that drama is the "closest educator" indirectly to society well in childhood until the elderly. All will watch television drama no matter what the theme and the drama is. Obviously, this study will encourage the community to think and review values and lessons while watching television drama.

## 1.2. Objectives

This study has 2 main objectives in solving the problems of trust value in the life of society, especially the Malays, namely:

1. To identify the scenes that contain the value of the trust in drama *Tersasar Di Jalan-Mu*, and
2. To discuss the value of Malay trusts based on the drama *Tersasar Di Jalan-Mu* with using the Concept Framework by Ali Jarishah (1990).

## 2. Literature Review

Studies on social issues are many, but the main reason is that parents' disobedience as family leaders in caring for children is rarely discussed. Amla Salleh et. al. (2010) has conducted a study on the main causes of academic and social problems of children is attributed to the attitude of the father who does not play a role well and more to give up the nursing and educating mother. Among the negative traits are the less communicative father with children, especially with boys, less concerned with self-concept in children, religious and academic aspects of children. The study of social problems among adolescents has never stopped being discussed, especially teenagers who have dropped out of the lesson. There are various factors that cause teenagers to engage in various social problems such as truancy, smoking, free social and drug

trafficking, but the main cause is still to educate parents and the environment that parents give to children since childhood (Azyyati Mohd Nazim et al, 2013). The study of language in reality drama is not much to be studied in comparison with literature studies such as poetry, *gurindam*, printed drama scripts and so forth. While the drama is the medium most popular by the local community (Mana Sikana 2006: 58). Therefore, as a researcher we have to take this opportunity to provide useful and effective knowledge to readers by producing a study of drama. For example, Mana Sikana (1995: 126) has written about dialogue style in stage drama but has never studied dialogue or acting in television drama. Jusang Bolong (1998) has studied the cognitive change and the level of audience interaction with the Malay drama on television through the drama titled *Millionaire* immediately. In the study, Jusang tried to identify the level of audience interaction with the Malay drama on television and the cognitive change that took place. The results show that the level of audience interaction at the watching stage, reading / interpreting and using is high. However, there is no significant difference in cognitive change (the change in the accuracy of Malay image accuracy) before and after watching the *Millionaire* drama immediately. In addition, Ummi Hani Hassan (2010) in his study entitled "Dakwah Drama in Malaysia: A Study on Scriptwriting Process", found a good drama da'wah from a good and quality dakwah script. It starts with a knowledgeable writer, embraces Islam, has extensive experience in the scripting world, is responsible and careful when the writing process takes place. The effect of these criteria is that writers can produce a script of good drama da'wah and gain a place in the hearts of the community. Paskalis Belawan has produced a journal about 'Honorary Values and Human Rights' in June 2009. Honor is a very close value to the will of Islam. According to Paskalis Belawan (2009: 1) honor is a very sensitive question because it relates to human dignity itself. Anyone never wants his pride to be trampled down and dignified his dignity. Even humans are always working in various ways to defend dignity, goodwill, facial and self-esteem. In the course of this life, everything that humans do is usually they want the rewards to feel valued and respected. This is in line with the opinion of Paskalis (2009) which states that every human life activity is in respect of honor and every action has the purpose of honoring. But if one does things contrary to the values and norms of society to get the honor, then at that moment man has actually lost his true honor. According to Paskalis again, 'honor' is a value and attitude in humanity. In the competition for the highest honors amongst human beings, they will feel higher and powerful than others when endowed with rank, title, gift, grace and so on. While it is merely a tribute and it is a responsibility to be humbled.

### 3. Methodology

This study uses a qualitative study method, which is a discussion using the conceptual framework of Ali Jarishah (1990). Ali Jarishah has highlighted the kind of honor in Islam and one of the most important honorable values in life is the value of trust. This study uses Erma Fatima (2009) drama *Tersasar Di Jalan-Mu*'s data as the study material. This drama has a chronological story that is structured, easy to understand and the value of teaching is full of trust values. The drama has won the Best Drama Award in the Screen Awards Ceremony organized by TV3 in 2009. Discussion of the study was conducted on oral (verbal) and nonverbal (body languages) communication through the characters in the drama, Mami, Abang Harun, Yasir, Aliya, Ayuni, Jamilah, Ghani, Maimun, Iman, Milda and the side characters. Every acting dialogue and act has been transcribed in the form of writing so it is clearer and easier to study. Overall, the duration of the drama *Tersasar Di Jalan-Mu* is 1 hour 30 minutes. A total of 9 scenes will be analyzed containing the value of trust in society.

#### 3.1. Ali Jarishah's Concept Framework (1990)

The study of Ali Jarishah in his book, *Honorable Types, Islamic Rights*, 1990 has compared the honor of conventional and Islamic perspectives. It discusses human rights through Islamic and non-Islamic legislation. In general, the question of human rights has been discussed since ancient times, as early as 1215 AD until now. Among the conventional laws of human rights are the Magna Carta, the Charter of Rights or the Bills of Rights, the Declaration of Independence of the United States Territories, the European Covenant to Watch for Human Rights, and the International Covenant on Civil and Political Rights. However, according to Ali Jarishah in his study, besides following the Islamic legislation in writing like the conventional legislation, Muslims need to place human rights through the guidance of the Quran and hadiths in full. In this regard, human rights are defined as the attitude of preserving the honor of individuals and communities to ensure a better life through deeds and speech. Thus, Ali Jarishah's study has outlined and discussed the importance of humanity, especially Muslims to understand the true meaning of honor and rights. In the study of this honor, Ali Jarishah has conceptualized the honor of seven types of honor (1990: 18), namely, blood, property, dignity, tyranny, disunity, women and trust. This kind of honor by Ali Jarishah is seen as a science that is less understood by the public as it often relates more honor to the terms and context of 'dignity' solely. Hence, it is a proper finding to be used as a new knowledge to

the society especially Muslims to raise awareness about the importance of practicing values of honor in life. However, in this study, the researcher will focus on the value of trust because this value is seen as synonymous with the problem of increasingly less conscious society about the importance of carrying out the trust. Honesty in the context of this mandate is a common thing to the nature of trust in the duties and responsibilities given and prohibited from the betrayal of the obligations. The trustworthy person not only gets glory in God's sight but also respected and respected by others. Thus, the nature of the trust in a person is the symbol of his faith in the Almighty God. According to the hadith:

"No religion for unbelieving people..."

(Hadith History of Imam Ahmad in Ali Jarishah, 1990: 36)

In the discussion of this kind of honor, it can be seen that honor is divided into seven categories which are generally evaluated in word and behavior. Hence, it shows that Islam is a fair and just religion to all people for giving 'honor' to anyone as long as the individual runs the command of Allah SWT and abandons His prohibitions. It is not located on the exterior, appearance, property, rank and so on. Although many have been aware of it, the definition of this honor should be further emphasized such as the study of the concept of honor in order to give emphasis to society. The kind of honor given by Ali Jarishah is based on Islam, the study of the last sermon of the Prophet SAW. Researchers see that it is desirable to be raised and exposed to society in Malaysia. In fact, it will be a more interesting study when Islamic-based views are peeled into the culture of the local community. This is because in the life of a society, religion becomes the main guide and culture plays an important role in practicing religion in accordance with the situation and the way of life of a society, especially the culture of the Malays. This is in line with the definition of "Malay" which states that the Malays are very synonymous as Muslims, Malay and Malay-speaking. Therefore, the researcher expects the study of the concept of honor to fulfill this desire and produce a new study that is interesting and relevant to the culture of society, especially the Malays and generally Muslims.

#### 4. Analysis and Outcome Discussion

The findings show that there are 9 scenes containing the value of the trust in the entire Dramatic of drama *Tersasar di Jalan-Mu* as shown in Appendix 1. The value of this trust has been identified and analyzed in Table 1. While the topics contained in the ninth round are about the trust and responsibilities in family institutions, namely parents, spouses

TABLE 1: Analysis of the Value of Trust.

| No. | Analysis Round | Minute            | Trust Value Question  |
|-----|----------------|-------------------|---|
| 1.  | 16             | 14:07-15:04       | <b>Mother demonstrated demonstration</b><br>The mother (Maimun) who is not ashamed to earn a living in a way that is not kosher in front of the child.  |
| 2.  | 17             | 15:05-15:59       | <b>Not responsible's husband</b><br>Husband (Abang Harun) is not responsible for earning a living.  |
| 3.  | 25             | 23:53-25:06       | <b>The children who betray the parents' trust</b><br>The girl (Aliya) who trips school and betrays the trust of parents who trust her to school.  |
| 4.  | 35             | 37:36-39:24       | <b>Father of darkness of religious science</b><br>The father (Abang Harun) who has no sense of guilty when he sees his son being dismissed.   |
| 5.  | 36             | 39:25-42:13       | <b>Sister Still Trust Properties</b><br>A sister (Aliya) who advises her sister not to repeat her mistakes involved with truancy problems.  |
| 6.  | 40             | 46:33 – 47:24     | <b>Uneducated family by husband/ parent with religious science</b><br>The mother (Mami) who was happy to entertain the customers of the stall until she noticed that her daughter came out late at night.                                   |
| 7.  | 53             | 01:07:07-01:10:45 | <b>Unproper husband</b><br>Husband (Abang Harun) is not responsible for the family because he is busy playing gambling and does not even know about children who have drunk with drugs. In fact, teach your wife to get rich with gambling. |
| 8.  | 56             | 01:15:15-01:16:17 | <b>Disrespect son</b><br>Son (Yasir) who speaks rude and does not respect his mother.   |
| 9.  | 60             | 01:22:20-01:25:48 | <b>Impressions when confirming trust</b><br>Parents (Mami and Abang Harun) who regret their chanting attitude towards children have caused one of their children to die for drug abuse.   |

and children. The value of this trust will be discussed based on the Ali Jarishah Concept Framework (1990). The concept of honor is a study which refers to Ali Jarishah's view of the values of honor in behavior, speech, manner of life, culture, belief and as a whole based on Islam. Hence, in achieving this goal, the researchers will conduct analysis and discussion based on the methodology already developed. On the whole, the discussion is given descriptively according to the chosen conceptual framework.

#### 4.1. First discussion: scene 16

This episode took place at Maimun's house located at Lorong Haji Taib. Maimun is a neighbor to Mami. This story tells of Maimun, the mother of Iman who has been accustomed to earning money in a way that is not lawfully open to her son. Maimun as a mother should be aware of the trust to seek a lucrative living, though income is low



but a good source. The saying goes: "*jangan memangku ayam jantan, baik memangku ayam betina.*" The attitude of betraying this trust coincided with Bukhari's hadith from Abu Hurairah RA states "*The coming of humanity, they no longer care about how to get wealth, halal or in a way that is illegal.*" For him, he was only able to carry out such a mandate though he realized he was wrong in both religious and cultural communities. Despite being in his early 50s, Maimun is still working as a sex worker to support their child's life. His son, Iman, a teenager aged about 13 years old and never attended school due to their narrowing of their lives. He works as a fruit hawker. In this drama, it was not revealed about the Iman's father, possibly an orphan, or possibly an illegitimate child. However, he has a close friend, namely Ayu who is the third child of Mami but he is schooled and wise in the lesson. In this episode, Maimun walks in a state of helplessness and goes into her home because she is too tired after serving a man like her. From there, it can be seen that the culture of living in a big city makes women aged like Iman's mother find income sources in disgusting ways even though she's helpless as in dialogue "(while holding a man's hand) Tomorrow comes again... (the man did not serve the question.)" That's why Iman was not surprised to see his mother hugging an unknown man and going out of his house, because he seemed to accept the nature and culture of his mother's job. In the life of the Malay community, prostitutes are criticized, humiliated and not accepted at all. On the other hand, children who are raised with a live culture in Lorong Haji Taib where their mothers work as prostitutes are familiar with the viciousness of the eye. It is said that prostitution has become a living culture in the area. This is at the financial and environmental urgency of the big city, Kuala Lumpur. Without a shame, Maimun held his hand and stroked the male customer's body in front of his son, Iman. The act of adultery is not only disgusting and irritating, but also shows Maimun downgrading his own honor and honor. The influence of the environment often associated with prostitution is not a prerequisite for a mother, like Maimun to pawn her dignity openly. At least, Maimun must have a shame and disgrace to show such conduct to the Faith.

Iman seems to be unlucky with his mother's work as prostitution culture as well as the out-of-wed child is not an odd thing compared to the real-life culture of the Malays which is such a humiliating thing. When viewed from a mother's point of view of the child, Maimun's actions are very disappointing as it is possible to let the still young child see his sundress. Although we can say that such a situation is normal, as a mother, she should have a sense of shame and responsibility for her child's education. A still and unconscious faith in this life, of course, accepts her mother's job because she does not know what to interpret. For Iman, his mother only finds a living to support their lives,

so there is nothing he needs to question. The child given is a very big trust from Allah SWT to parents. Whatever the child's status, whether orphaned, unlawful, raised in a divorced parent situation, or whatever, a child is entitled to love, education and a good environment. Iman can also be said to emotional conflicts and stress in understanding his mother's work as the situation was observed at the beginning of the 16th round, namely, "Iman climbs up the stairs to her home carrying two packets of mixed rice to give to her mother, Maimun who has just finished prostitution is holding hands a man who subscribed to him. Iman looks at it and seems to have understood his mother's life. "Teenagers like Iman are feared to be trapped in crimes when adults are due to the upbringing and environment that is so contrary to the norms of ordinary life and religious values. According to Mahmood Nazar Muhammad (1993), deviant behavior (immoral behavior) among adolescents is caused by conflict and psychological stress. Adolescents involved in doing these devious and delinquent behaviors are also in conflict with their own families. They fail to see the family is a healthy environment and can give them happiness and fun.

The value of the trust outlined in the Ali Jarishah Concept Framework, emphasizes the responsibility of a mother and the importance of maintaining aurat. As a mother, Maimun is obliged to realize that the child is a gift from Allah SWT who is obligated to be properly educated, regardless of whether or not he or she is. As a woman, Maimun is obliged to maintain dignity and self-purity. Immature faith, of course, disagrees with her mother's treatment. By doing bad things before the eyes of Iman, Maimun is not only guilty, but also has given a lesson and a bad example of example. In this case, a mother's mother's love should override everything. This means, Maimun should be aware of the trust to love the growing child. The prostitution work is not an excuse and a solution. In fact, prostitution will definitely bring harm to health like HIV and AIDS positive disease. Unfortunately, Maimun has denied the trust and failed to educate his children about the value of self-respect when he himself sold his honor. If seen in this drama, Maimun's physical body shows he is still healthy and able to work and find a fortune in a better way, but Maimun has no such awareness. Sadly, Maimun asks her son to buy food after he finishes work as can be observed "Mak, no fish. Iman bought chicken with shrimp (pointed out food wrap), "Ah... (complain about not buying fish). You eat dululah. Mak tired. Sleeping on the bed "; (Nodding and seeing his mother walk tired). "Those who betrayed the trust are said in the Hadith History of Imam Ahmad that" there is no religion for an unbeliever."

## 4.2. Second discussion: scene 17

The trust to be discussed in this 17th scene is in connection with the attitude of a husband who does not understand his responsibilities as a husband to make his wife and children live hard and tossed. This coincides with Mohammad Ramzi's opinion (2015: 41) saying that most cases of carelessness and neglect in children occur on certain factors unnoticed. The main cause or factor that often occurs is due to a lack of knowledge in the soul.

This 17th scene takes place in the morning where Mami together with her husband, child and worker is busy opening their stalls. Although Abang Harun helped his wife, Mamilah, who was more enthusiastic about running the stall to support their family. It is the culture of some among the people who are more lenient and trustworthy to earn a living on the shoulders of the wife, though it should be taken by the husband. What's more, Abang Harun is willing to cheat against Mami without feeling sorry for his wife working. Mimi communicates silently to her husband by crushing a drink and silence. It is a sign of jealousy and anger with Abang Harun's unshakable attitude of tearing their workman, Tuti in front of him. It also seems to disrespect Mami as a wife. The anger was also directed towards Tuti for giving a positive response to her husband's temptation by saying "Ala, my father..." with a voice in her voice. This shows that the culture of sexual harassment to employees is a normal thing for unruly fathers and husbands like Abang Harun.

In the context of trust as a worker, Tuti needs to realize that his relationship with the employer is limited. Employees must follow the instructions of the employer in the context of the assignment only. So, Tuti who according to the wishes and temptations of his employer is considered to be beyond boundaries and no self-esteem. The act of Harun's brother also shows himself irresponsible and humiliating his own right name as an employer, husband and father. He did not want to open the stalls which were the primary source of their livelihood, but without embarrassment they also stumbled on a stallion worker in front of his wife who was struggling to work. While Mami asks him to help open the stall but the other will be. The saying goes "to the back of the machete" and "to shake the ring". From the point of view of the worker's dignity, Tuti should guard and defend his honor as a woman instead of entertaining Abang Harun's temptation. Although he is only an employee, in Islam, everyone's dignity and self-esteem are the same and must be maintained everywhere regardless of the background. As an employer, Abang Harun should also respect the rights and honor of his worker, Tuti.

Life in Lorong Haji Taib is often associated with prostitution and drug addiction so some call the lane as 'back to death', a place full of sin. Haryati Hasan (2006: 73) stated that in Lorong Haji Taib, prostitution or drug addiction and drug addiction was a crime that was synonymous since the 1960s. In this connection, it is not surprising that Mami explicitly rents out a room for the prostitute to commit prostitution. This is because values of honor, dignity and self-esteem are no longer an obstacle to doing business. Even so, in this episode Mami should not have her son, Ayu showroom to the customer who wants to commit a damned act. We need to realize that children are trustworthy from Allah SWT. Mami herself was aware of this trust as she was striving to shop for a stall and a rental room for her Ayu schooling. Unfortunately, he let Ayu show the room to the prostitute. It is very sad because letting a little boy to be confused about the purpose of what a boy and a man who rented a room during the day as he said "(speak to the booth) Hi, kak. Day and night to sleep too? Not to sleep, to be lukewarm..." Abang Harun and Mami have betrayed the trust given by Allah for sending children to show the rented rooms to customers who want to commit immoral activities. Here, it can be seen that the value of the honor of the community in Lorong Haji Taib is possible in the reality of society out there. The issue here is the fate of Ayu who is still a child and does not quite understand the respect of honor but has been stuck with the collapse of moral values. When a customer says "Not sleeping, you'll be lucky", Ayu seems to be confused with what he is saying. This is what happened to Ayu's friend, Faith in the previous round of 16. In fact, as seen in this 17th round, Aliya, who is their second child, just returned from school but was ignored because she managed to manage the business. Abang Harun and Mami should be ashamed and ashamed of their children when they show their sinful activities without guilt. While the parents' trust is very heavy on the word of Allah SWT which means:

"O ye who believe! Guard your souls and your families from the fire of fire: men and stones, the Fire is guarded and guarded by hard-working angels; they have not disobeyed Allah in that which He commanded them., and they still do all that is commanded."

(Surah at-Tahrim, verse 6)

The morality of this mother is nothing but a parent, Abang Harun who does not understand her role and is unaware of what will happen. The height of a husband's dignity lies in his responsibility to educate his wife and children. Sadly, in this drama Abang Harun has let his wife and son run the business of a rented room for prostitution, while he is lazy to work, and even feels incestuous with their employees, Tuti. Abang

Harun has failed to play a role to educate his wife and children about the value of self-respect, even he himself does not care for his honor. She is not only grateful to have a wife like Mami who is willing to take on the job of a husband by making a living, but does not respect the feelings of a wife. Although Mami looks like a wife who is independent and rude at work, she must be jealous and heartbroken. So because of that, Mami lost his respect for her husband by crushing the drink as a sign of anger. Abang Harun should be aware of the trust given to him as a husband and father. It should also respect the feelings of a wife because in Islam each spouse has the right to be respected, appreciated his emotions and his circumstances in the context of love and affection.

At that time, parents are obliged to make halal food for children. The sanctity and honor of the property lie in the way and the source of it. Really disappointing, Mami is working on a food stall and a rental room for the public at Lorong Haji Taib. The food stall business is halal, while the business of the rental room used to trade self-esteem is illegal. In Islam, something illegal when mixed with halal, then something is illegal. Mami is a good mother because she strives to earn money with the hope that her children become useful people. However, this unpleasant provision, of course, gives birth to a problem boy. The proof is that only Ayu is good, the other Mami children, Yasir are involved with silent drug trafficking, while Aliya becomes a schoolteacher and smokes as well as Mami and Abang Harun's knowledge. That is what is said by the impact that happens if the property is cultivated in a way that is insulting.

### 4.3. Third discussion: scene 25

The honor of the type of trust explains that every responsibility given must be done honestly. In the context of this round of 25, the 'trustworthiness' that could be attributed to the attitude of children who betrayed parents' beliefs. Aliya and her colleagues jogged at the First Complex entrance, Kuala Lumpur. They just sit on the stairs and do not feel shy about the crowds who are there. Teens who are born of a family who does not emphasize the attitude of trust and gives freedom without limitation will make the teenager also insecure like this scene that shows Aliya cheating her mother that she is in school while she hangs out at the mall. Aliya and her colleagues talk about their problems that have been dismissed due to disciplinary problems. They plan to find their own jobs if they are driven from home when their parents know it. They do not feel guilty about saying things that would embarrass the parents because they have become a teen culture as they do not worry about the future of those who have been dropped

out of school. In the general view and Malay culture, the girls are not polite to hang out in the sidewalks of public places. What's more, Aliya and her colleagues sit in the complex with a somewhat disrespectful style and dress. This reflects their honor and parents' education. The passersby would have assumed they were troubled teenagers for doing so.

Aliya and her colleagues have been described as unruly children for betraying the beliefs of their parents who believe they are in school. In fact, Aliya and her colleagues are still confident about throwing a school out of fear of being beaten like the dialogue "I'm lazy to think. My father wants to kill me, I'm sorry.. I'm so sad, I run away from home. As far as KL's work is concerned, it is not hard for me to find anything. "So the three of them are aware of the trust that has been denied so be prepared to find work if evicted from the home. Their actions have shown their own image as a Malay girl who has lost her identity, courtesy and defames the family. Adolescents like Aliya and her colleagues became teenagers who collapsed moral values because of the overly liberal environment of nature, which is in Lorong Haji Taib as well as the attitudes of parents who are less concerned about their daily activities. According to Cohen (1987), moral impairment is a state of affairs and episodes that appear and are regarded as threatening the values and interests of society. Sadly, Aliya dared to serve and rode a motorcycle with her newly discovered man without any sense of silence because of her captivating charm. Aliya and her two friends have been drifting in desperate ways to learn and are not responsible for repaying the sacrifice of parents who have struggled to find a living for their schooling.

Islam not only prohibits a person from committing adultery, but also forbids both men and women to commit adultery. This is to protect the dignity of every individual. Dignity is the trust of every good man or woman in order to honor their own dignity. However, Aliya, her friends and the men did not understand this dignity, then mingled freely without shame and guilt. It also relates to parental responsibility to educate children about dignity. Both Umair and Abang Harun never take the geri and the background of her daughter's friends. So, because of that, Aliya and her friends did not care to serve the young men she met at the foot of the shopping mall. Things are visible in the conversation below:

Aliya: hey! It was a day (pointing towards the young men).

Friend 2: That's it (excited).

Friend 1: Look at that, this might bring this big bike. I'm not supposed to.

Friend 2: He's not carrying a motorcycle, he just bring it your helmet!

Friend 1: Stupid, if you bring a helmet like that, you should not have loaded it.

Friend 2: Either way, take it RC's motorcycle only.

Friend 1: But he's look handsome...

Based on these conversations, Aliya and her colleagues value a person more easily by means of vehicle and appearance without thinking about the risk of their pride and pride that the motorcyclist can play. They realize that the boys will not bring any benefit to their lives, but because they are depressed by the problem of being thrown out of school, they serve it just to love or relieve their stress. This act will certainly defame the honor and may embezzle their own future. This is like Wyn and White (1997), emphasis on age by indirectly waiving the significant role of social institutions and changes in economic and political aspects and their impact on adolescents.

#### 4.4. Fourth discussion: scene 35

The question raised in this chapter is the feelings of a mother and wife who are disappointed with the attitude of her son and husband who does not want to change their lives to be better and dignified. Mami scolds and hits Aliya for betraying her beliefs by hiding that she was dismissed from school. Abang Harun just sits out and does not care about the children. While he was trying hard to give a perfect lesson to the children so they become useful people and out of the dark passageway. Husband like Abang Harun who is accustomed to the culture of life is irresponsible and is expecting only the wife of all things, often to take easy even if the child himself has been dismissed from school. He did not feel guilty about his sin over neglecting the family's trust, and even scolding his depressed wife.

In the life of the Malay community, the children's personalities are the symbols of parents' upbringing. So, when children do shame, parents will feel angry because their dignity is tainted. That's why Mami hit Aliya with her heart in front of the crowd because she could not help but keep up with Aliya's very unsuspecting attitude, which was a secret of herself being dismissed. Aliya's actions have "deflated charcoal" in the face of Mami. Furthermore, Mami is a respected person in their area of residence. In the context of parents' trust, this conflict is a mistake of Mami and Abang Harun itself as it allows children to see immoral activities by running a rented room business to prostitutes and familiarize themselves with the use of taboo language as their life. This is to be observed when Mami issued the words "If you want to be a woman on the street, here you can. Do not go all the way (pointing towards a prostitute's room)!"

However, from the other point it can be praised the integrity of Mami's character. As a mother, Mami intends and struggles to send her children to school so that they will not be affected by the prostitution and drug addiction that often happens in their homes. This is noted in the dialogue "I'm looking for money, day and night to raise those boys. Let him become a useful human being. Ni tak. Trying to look at Yasir, who is big, whatever is in need, sits in the room (agitated). "This Mami sacrifice symbolizes her as a mother who still has a sense of responsibility, cares about her children and dreamed they become useful people in religion and society. As for himself running a rented business room for prostitution besides opening a stall, he still hopes that the livelihood of the children can support the schooling. His purity was destroyed by Aliya and Yasir because he had a lazy husband, did not want to work, exploited his wife and did not guide his wife and children into the way he approached.

Although Islam praises the sacrifice of the mother who struggles to find a living for the children until it is likened to "heaven under the feet of the mother", but the source of the sustenance must use the right path. In other words, a goal will not allow the realization of the goal. So, one of the effects when parents do not trust to find good living and halal, so that's because of her son, Aliya loves schooling and smokes until she leaves school and disappoints Mami's wishes. This is because bad luck will make children stubborn, disrespectful to parents and betray trust and trust of parents.

Mami is a respected citizen in Lorong Haji Taib because he has two businesses there. Even the people also respect Mami for Mami's hard work and intentions to make their daughters dignified and respected and unaffected by prostitution in their hometown. Because of that, Mami grew angry and sad when Aliya destroyed her expectations as the dialogue "I'm so sorry for the street girl, yeah! You want me to be shy! I'm your school so you're going to be a person, not a street woman. "In Malay culture, a child behaving like Aliya has humiliated the dignity and shame of the family. As a result, their family was laughed at by a well-known band, Milda and friends who witnessed the incident. Mami gets sad when her husband behaves indifferent and ignores her responsibility to children and wives. This can be observed in the following communication events:

Mami: What darling know! People have children, know how to care for kids! You do not know how to care for your child, you do not care about your children! (Ayu came to help her sister and they left there). Where are you now?

Harun: Ha, chase, chase.

Mami: Do not know how to go to that kid!

Harun: I'm working

Mami: Eat the "*nombor ekor*"!



The main cause of this conflict is Abang Harun's non-trust attitude as husband and father. Abang Harun only allowed Mami to manage the problem of Aliya who had been dismissed. While the case of student dismissal is a major problem as this may affect the future of the child. In this case, Aliya's moral disillusionment and his wife Aliya's embarrassment to the crowd stems from the failure of Abang Harun who did not show a good example. According to Abdullah Nashih Ulwan (1995: 178) quoting At-Tirmidhi's hadith that the Prophet (peace and blessings of Allaah be upon him) said: "There is no gift given by a father to his son who is more important than giving good character." against Abang Harun who ignored her aggravated feelings by removing the school from her child. In fact, Abang Harun told Mami to hit Aliya at home only because she did not want to be disturbed to write a guess at the lottery numbers at Mami's own stall. This makes Mami continue to scold Abang Harun in front of the crowd for being so as shown in the communication events below.

Mami: I got a letter from school. I'm looking for money, day and night to raise the boys. Let him become a useful human being. Ni tak. Try to see Yasir, who is big, no matter how bad, sits in the room (agitated).

Harun: Tuti, make water, ti...

Mami: Always asked the drinking! (shed water to the floor).

Harun: What's going on here....!

Mami: Hehe... Like... (sarcastically Mami and her husband).

As you know, abusive husbands like Abang Harun will make the family institution extinct. Husbands do not seem to be affectionate and dreaded by the command of Allah SWT about the mandate to bear as a family leader. In fact, it is better to say it does not understand what love affects a family. Maybe it's just that marriage is just for fun. So, here's how important the role of a man in the family is. If women want to take on this big responsibility, then the woman can not afford such a man because of the lack of physical strength, sometimes proven emotions, health that is deteriorating after childbirth and easy security of women. Nevertheless, women are the best assistants in the husband because of their mental strength, high spirits and gentle instincts. After all, the spouses need to work together and work together in educating and seeking sustenance for the development of the family, then the children will progress and their love grows and thus bring about the well-being of the nation.

#### 4.5. Firth discussion: scene 36

The event in round 36 is a conversation between brother and sister. Aliya and Ayu are close friends and advising each other. Although Aliya was beaten by her mother in the audience, Ayu still respected and listened to her sister's advice. Hitting children in front of people is a culture and a common problem for families who do not live up to religious values. Aliya is the second child of Mami and Abang Harun who is 17 years old and will sit for the *Sijil Pelajaran Malaysia's* examination. But unfortunately, she was not trustworthy with her parents for engaging in smoking discipline and school trips to school. Aliya kept that secret for fear of her mother who was so firm and hopeful about the performance of her children's education. However, when Mami learned the secret, Aliya was beaten and scolded for humiliation so embarrassingly. Mami did not realize that Aliya's moral collapse was due to the educational outcomes and the influence her and her husband gave to their children. The study by Loeber (1986) and Rowe (1992) in Badruzaman Baharom (2006: 28) states that most teenagers involved in deviant behavior since childhood have family members or parents who have done so. Parents, as managers and administrators in a family, are the main models that children follow. Whatever behavior parents do before children are both verbal and verbal will be observed by the children and it is not impossible for the children to be involved with the behavior. If the behavior is good and positive, then the children will become such. On the contrary, if parental behavior is more in the way of the poor and the negative, then teenagers in particular will also be educated with negative and inferior traits. This will negatively affect the development of the personality of the children.

Therefore, Aliya has fled to the roof of the shophouse because her emotions are so depressing. The younger sister of Aliya, Ayu continues to pursue her because she wants to calm her. In a conversation between them, Aliya was a sister who had a trustworthy nature and loved her sister. The situation is in the communication event below.

Aliya: (holds both his sister's shoulder) Ayu... Akak believes Ayu must be a minister one day. I'm going to save all those places here, everyone here. Ayu, Ayu dear, right?

Ayu: (nod).

Aliya: If Ayu loves me, Ayu will promise one thing.

Ayu: What's it?

Aliya: Make a promise, do not be like that. Promise?

Ayu: (holding his brother's hand) Promise. (they embrace).

Aliya: Ayu.. Akak want to be mom and dad's hope.

Aliya cried, holding her shoulder and hugging her, advising her not to follow the trail that ruined the future. It also raises awareness of the expectations of children who grew up in areas facing moral collapse such as Lorong Haji Taib. Aliya is influenced by a free lifestyle while Ayu aspires to be a minister who can change the fate of his residence is the children who face conflict and confusion about the values of human dignity. Although still in elementary school, Ayu wants to lift the honor and dignity of the family and society as a more respected group. At the end of the drama, he succeeded in achieving the ideals. It can therefore be attributed that parents who are not trustworthy in providing education and a right environment will certainly produce children who are also dishonest and shame the family as Aliya is depressed in "why, I do not want to be like me. I'm lazy, like skipping school, stupid..."

#### 4.6. Sixth discussion: scene 40

This episode shows the nature of parents who let kids practice indecent communication in daily interactions. Abang Harun who left Mami alone holding the trust in caring for the children. So, as a woman, she only sought money and did not know to emphasize language education and politeness in children. Mami and his son, Yasir did not know to claim their rights. They do not express their feelings and communication in the family is not harmonious. According to Asiah Ali et. al. (2008: 86) states open attitude communication requires that individuals in the family be responsible for what we think and feel. Which means that each individual must confess what is in the head is what results in the mind of others. Similarly, what is in the heart is the result of what we ourselves perceive is not the will of others. Therefore, thoughts and feelings are our responsibility, not the responsibility of others. Otherwise, communication in the family becomes bad. This can be observed in a conversation between Mami and his eldest son, Yasir. Yasir scolds her mother, Mami as she plays with Milda so she does not notice Aliya quietly out late at night. Mami, Yasir and Milda use coarse language discourse in their fellow interpersonal communication. This can be noted in the following dialog:

Mami: Where do I see it? When?

Yasir: Well, that's it. Sit down under the hut, pet pot pots pet. That's it, treat the crazy for it (to Milda).

Mami: You're just busy.

Based on the scene above, Yasir looks familiar with the culture of speaking in a rather loud tone with his own mother as if communicating with his friends. Well, he's talking to his own mother. In fact, a child speaks a gentle and friendly language to the mother. However, Yasir speaks to his mother in such a way that the environment and society are accustomed to abusive, persuasive and frank speech. From the point of "dignity," the attitude of Yasir, who always saluteth his mother as if he was communicating with his friends, in the dialogue "Ha, it is, man. Sit down below is a chat, a pet pot, a pet pot. That's it, treating the crazy for what (to Milda). "For Mami and Yasir, this is a habit to interact. However, in terms of manners, Yasir is still regarded as a child who disrespects the mother and drops her mother's dignity in front of others.

Mami and Abang Harun are unaware of and understand their responsibilities towards the behavior and activities of children. This is evidenced in the dialogue "Ha, that's it, ma. Sit down below is a chat, a pet pot, a pet pot. Yes, it is the crazy thing to do (to Milda). "Therefore, Yasir did not respect his mother because he dared to reproach Mami in a loud tone. Aliya is also said to be disrespectful to her mother as she dared to go out of the night in secret. Mami did not even notice that Aliya was in the state of the drug addicts behind her because Mami was busy entertaining Milda, a passionate chanter about the 'self-investing' heritage. So it can be said that it does not become a weird thing if children do not respect parents because the parents themselves are not trustworthy for teaching them about the degradation of dignity, dignity and honor. Parents' dignity lies in their responsibility, ie giving birth, feeding, nurturing, raising and educating children. Mother's sacrifice has been raised by the religion and the way of life of the Malays so God instructs the children to do good to their parents in whatever situation because of His reducing parents. The famous Malay proverb once said "heaven is under the soles of the mother." However, how do children want to respect their parents if they are not given proper educational rights to be good people?

Religion tells us to care about the difficulties of the locals. It is considered trust as a member of society. But in this 40th chapter, Mami helped in matters that were prohibited in religion, the act of adultery or prostitution work done by Milda, a Mami friend who also lived in Lorong Haji Taib. This is as it is in the dialogue "Another time to look for a man, look like a mak, Nyah. Success. Ha... (while "posing" with her new suit). "This act is also supported by Mami who is the source of Milda's reference when she wants to tell her love. If observed in the conversation between Mami and Milda, it can be concluded that prostitutes are a source of livelihood which is a choice among the societies due to socio-cultural factors, the culture of trading the body as a human work since the 1960s. Mami also praised Milda's beauty, a fox that bought her new shirt. Mami can be seen to

be so friendly and supportive to Milda's work, even though they both know the act of trading the body is wrong. However, this work continues in their residential areas due to certain factors. Among them, socio-cultural life, financial insistence, the influence of association in the area of Lorong Haji Taib, lack of enforcement and anxieties about reward and sin. Milda is a fan that often shares grief with Mami. This is because Mami is a very friendly businessman at Lorong Haji Taib with prostitutes and bails there. So, it's no surprise that Milda is without a shame to show off in front of Mami about the clothes she's just bought. Mami also encouraged the matter. Even if they appear to be members of society who are empathy and mutual respect, but what is being said is a matter of adultery. This can be observed in the following scenes:

Milda is talking about his wealth.

Milda: Another time to look for a man, look like a mak, Nyah. Success. Ha...  
(while posing with her new shirt).

Mami: Hehe... Hey, Milda. Mama's fashion dress is wearing, Milda. But Mami praise, Milda is beautiful...

Milda: Ha... (ripple)

In Islam, Allah loves those who love each other because it can strengthen unity. Nevertheless, if love is based on the bad or zina-like scenes like this scene, then it still does not get the pleasure of God and will surely bring harm.

#### **4.7. Seventh discussion: scene 53**

The habits of children living in Lorong Haji Taib are idle, not given the trust to respect the honor and lack of attention to parents. Therefore, they dare to commit immoral activities as well as a crime because they have been exposed since childhood with a free culture of living and do not appreciate religious values. In this episode of 53, it explains the importance of husband and father's responsibilities to wife and children. Unfortunately, Abang Harun as husband and father did not know his responsibility to earn a living in a lawful way. Unfortunately, he is looking for a livelihood for the family in the wrong way, playing 'the tail number'. This game is a gamble of fate against the number of horses competing in horse races run on the racecourse. This game in terms of Islamic law is a big sin because it belongs to the category of shirk because it believes in something other than Allah SWT, ie hoping for sustenance on the prediction of horse numbers. Abang Harun has ruined their family's livelihoods so that children can dare to commit crime easily.

In this episode also featured Abang Harun and his wife, Mami talked about the prediction numbers. At that time, Yasir was back in the back of his parents to get out of the drug while Aliya, who was addicted to drugs, also went out to find a drug supply. In addition to dumping their own dignity, Abang Harun and Mami had not been able to endorse their finances but did not realize they had betrayed the trust of educating the children given by God. They are busy with world affairs, without thinking about religious activities or education to children. Even worse is Abang Harun who has no consciousness by feeding and drinking to his wife and children only with a source of lucrative gambling numbers. Abang Harun, who did not notice the condition of the children, wished to be rich with gambling numbers of the horse race lottery. When the head of the family does not work then the family institution will be destroyed and disbanded

Thoughtful human thinking of religious knowledge like Abang Harun does not understand the meaning of 'sustenance' that in fact gambling is regarded as a kosher act. This can be seen through the words of Abang Harun, "It is an illogical thing! Illegal go shoot. Do not use the brain. Calculate. Mathematics.. You are selling, I think, it is normal. "Mami has a bit of awareness about halal haram and the blessings of livelihood. This can be noted in the dialogue "There is no meaning. Rezeki tu usaha, bukan main nomor macam ni ni. Haram ". More embarrassingly, Abang Harun often takes money from his stall to stab the tail number. This shows Abang Harun a selfish husband. Due to this lack of blessings, their children become wild and not ashamed of doing sinful things as adultery, drug trafficking, cheating and truancy. The fortune acquired in a way that is not dignified, certainly affects the child's personal or meat blood in a bad way too.

#### **4.8. Eight discussion: scene 56**

In the last 40 years it has shown Yasir's banniness towards his mother. Round 56 is the same thing, but it is far beyond the limits. Yasir suddenly rose blood, screaming with a heart and blaming Mami when he did not find Aliya who had stolen his drug supply. Nevertheless, the quarrels of Mami and Yasir can be said to be quite common because polite manners are no longer embraced by most communities. Living cultures speak roughly even involving mothers and children into an interactive practice. This is due to the influence of the environment and the way of life that does not conform to moral values. Yasir had scolded Mami, "Next time, sit down below to look at it. Neither of his children did not know "because his unpredictable drug supply was stolen by his own brother, Aliya. From the point of manners and tolerance of the Malays, indeed Yasir was

barbaric for dropping the face of the mother in the audience without any direct guilt. Even worse, she screamed in a very strong tone in the words "hey, is!" When Mami asks what she's looking for until she becomes like a bum woman. In this case, Mami does not seem to be so hearted that the education he gave to Yasir is such. This can be seen in the way Mami communicates with the public is rude and disrespectful. In this phase, the results of nursery values are given by parents to children.

While Mami is busy treating Milda's wounds, she did not notice that Aliya has left the house quietly as Yasir told her *"Mummy, next time, while sitting here, have a look at her. Even your daughter lost and you didnt know"* as if he described that her mother was careless and did not know how to bring her children well whilst he is also one of her children. In this case, Mummy and Abang Harun is the main cause of their children's disabilities. They both did not educate their children to respect them. The kids did not respect their parents because their own view models is not good, the parents hire rooms for prostitution. Islam lifting the glory and sacrifice of a mother. In this scene, even though Mami didn't take what her son said seriously, but deep inside, as a mother who gives birth and raises him, will certainly hurt. Yasir should realize that whomever his mummy is, he is obliged to honor her. This can be cited from Surah al-Israa ' in verse 23, that is, *"And your Lord has decreed that you not worship except Him, and to parents, good treatment. Whether one or both of them reach old age [while] with you, say not to them [so much as], "uff," and do not repel them but speak to them a noble word. And just have a look at how he screamed at her. Thus, the parents should be the one who educates their children politeness and good manners and behaviors since they were young. When they were already have grown up like Yassir, it's difficult to advise him on manners any more as wisdom says, "melentur buluh biarlah dari rebungnya "*

#### 4.9. Ninth discussion: scene 56

This round is in the form of conflict and anxious mood. In this round of 60, the highlights have shown clearly about the outcome when trust values by uneducated parents have made the future of the children dark. Aliya sent by her two friends was in unconsciousness and a mouth-watering mouthful of drug addicts. Mami and Abang Harun questioned about the cause of their child's death, Aliya. The question was raised to two Aliya schoolmates who suddenly sent Aliya home by taxi in unconsciousness and her mouth bubbling. In this episode Mami and Abang Harun only knew their eldest son, Yasir had been working for drug trafficking because Aliya's friends told Aliya that she was overdoses of drugs taken from drug supplies belonging to Yasir. This incident

took place on the shoulder near the Mami stall. Although the crowd witnessed the incident, it was ignored by Mami and his family as Aliya was nazak. There was a silent communication, the Mami who was silent and sat in the middle of the road brought a message that she was shocked and could not say anything else after her husband told Aliya that she had died. Looks like the sad face of Abang Harun, gluing and embracing his wife is portraying her regret that neglected the trust and responsibility of the children so far that they became trapped by drug addiction and distribution. If it was scanned in the last 2 rounds, Mami told her stall customers not to care about the dying addicts on the sidewalk. In this episode, Mami's own child died on the sidewalk due to drug dose. Hence, it can be argued that the culture of selfishness will turn to self as it has become commonplace in life.

All humans, especially Muslims, expect their lives to end in respectable ways. But Aliya, who died of high doses of drugs, was a very sad family termination. This is because Aliya, who had been drug trafficked after being dismissed, had kept the matter from her parents. Furthermore, this heartbreaking death took place in public areas, of course, it is a disgrace to the honorable Mami family of the people of Lorong Haji Taib. This made Mami and Abang Harun very sorry and sad that they did not care about their children's activities thus failing to carry out the trust as parents. Yasir is said to have paved the way for others to take drugs. Yasir bills and distributes drugs quietly. However, when Aliya was trapped by drug addiction, she had stolen Yasir's drug supply. This has caused Aliya to die because of drug addiction. Thus, Yasir is not only a contributor to self-inflicted by drug trafficking, but he has also caused his own addictive sister to steal the drug until Aliya meets death. If it was linked in chapter 4, Mami had been disrespectful and ignored by a dying drug addict, while she was able to help. On the contrary, he also influenced the public to let the drug addicts not know him until he died on the sidewalk. At the end of the drama, Mami was seen facing the same situation where Mami's son, Aliya, died on the pitch, also due to the excess dose of drugs. So, here it is clear to the audience that every act must have a reward from the All-Mighty God.

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Mami: I beg you to beg. Tell me that... (crying and sorrowful because I do not know where Aliya gets the supply to buy drugs so once).

Friend 2: He said he was stolen that Yasir's brother had.

Friend 1: Yasir brother... (pointing fingers to Yasir)

Mami: (continues to hit Yasir non-stop).

Yasir: What, ma. Mak, mak...

Mami: You got stuff. That's what you said you lost yesterday. You work, sit in the room... sell things (keep hitting).

Yasir: Patience, mak... Patience...

Brother Harun: Hey, hey, hey, hey...! (calling his wife who smacked Yasir), Liya had not been there.

Mami: (stops smacking Yasir, gushing out and sitting in the middle of the street for being surprised by Aliya's death).

In view of this, it is concluded that parents who violate the trust of Allah, which does not give religion and inculcate values of honor in children since childhood, is sure to be the result of this. At the beginning of the scene, Abang Harun's eyes helped bind Maimun's arrest for the mistake of prostitution. Mimi looks very happy to help release Maimun because of the fact that Mami's attitude is helpful to the poor neighbors. In addition, Maimun's son is close friends with his youngest son. Mami's family also did not insult Maimun's acts as they understood Maimun's situation. On the other hand, Maimun also cares about the condition of Mami's son, Aliya who is drug dose. Hence, this is to say that some people in Lorong Haji Taib are still strong in values of cooperation and respect despite living in a region full of disobedience and disunity.

Children are the mandate given to parents by Allah SWT. Their parents are responsible for educating them into useful people. In the context of the above scenario, Abang Harun and Mami should be watching their children's geriatrics from childhood. Sadly, Abang

Harun does not function as a father, but instead gives up all responsibility to a woman like Mama. Mami was seen to be more affectionate to the children by meeting the needs of the ringgit. This has caused his two children to be involved with crimes and moral collapse. This can be observed in Yasir who is considered unemployed, apparently becoming a rigid drug dealer. Aliya was also thrown out of school, then trapped in free association and drug addiction. Well, Abang Harun and Mami pay more attention to their children's problems. This means that education is not just by giving material requirements only, but more importantly is the need to educate on moral values based on Islam. The illegitimate provision, of course, will result in no blessings, especially the effects of the children's personalities. In this regard, there is no denying that every human being likes treasures such as ringgit, luxury vehicles and so on. But the property must come from a lawful source and used for good. The Dramatic Drama in Your Way highlights Mami and Abang Harun's actions deviating from the religious foundation in the ease of acquiring property in a simple way. From the perspective of sustenance proves that Mami has been feeding and drinking non-halal to children for the business of rented rooms to prostitutes, as well as running a food stall. Abang Harun has never forbidden this, but he's even worse for playing gambling. As a result, the resulting blood, their two children, became stubborn, disrespectful of parents and corrupted personal values. Only, they were given a good and wise youngest in the lesson, namely Ayu. However, Ayu is also less appreciated and appreciated. Therefore, Aliya's death can be attributed to the blessings of being sustained by her parents. Although Mami and Abang Harun feel very sorry it is too late. The saying goes "*sesal dahulu pendapatan, sesal kemudian tidak berguna.*"

## 5. Conclusions and Implications

Based on the discussions in the ninth round of the Dramatic Drama on Your Way this proves that the value of trust is a very dominant and major attitude in the life of society. In the context of this drama, the value of a trust that starts from the responsibility of a father when neglected, then the harmony and well-being of a mother's life is the wife and children. The consequences of this family life failure have had a significant impact on the lives of neighbors and surrounding communities. In this drama, the issue being discussed is a very sensitive issue and is a major problem in the society, the issue of self-esteem, abetting the issue of selling self-esteem and even more unfortunate when it is considered a habit and accepted by society as a job. It is very sad and damages the nation's children. Although Lorong Haji Taib has been synonymous with such activities,

the results of the study show that this phenomenon is continuing to date because of the value of trust in family institutions, especially the trust and responsibility of a neglected father who is the main cause of social phenomena in the area. Trust is a responsibility of Allah SWT to all mankind so that human life itself is harmonious, preserved in honor and adab and prosper world and hereafter. In the framework of the conceptual framework of Ali Jarishah used in the discussion has shown that the value of trust is one of the key values in ensuring the honor of individuals and communities. Every human being has to carry out the responsibility to ensure the well-being of all and the people. In the context of the study, the value of a father's immediate disregard of the obligation, not understanding the trust, the knowledge and not allowing the family members to be protected has caused his family to perish and live in various social problems including being involved in prostitution, children engaged in intangible social problems and the drug addiction and family life atmosphere became chaotic. Thus, the results of this study have outlined the issue of the value of this trust in detail that the value of trust should be emphasized in all respects of life. Although the area of the phenomenon is considered to have been mismanaged and can not be repaired such as the eviction of trust in Lorong Haji Taib which is full of prostitution and drug addiction, it can be overcome if every individual and members of society are aware of the importance of carrying out the trust that has been set as either father, husband, mother, wife, child, student, neighbor and so on.

## Appendix 1

### **Script Transcript of Drama Tersasar Di Jalan-Mu**

**Original Work: Erma Fatima**

**Duration: 1 hours 28 Minutes**

*Transcribed by Juwairiah Binti Osman*

| Bil. | Actor/ Actress   | Character   |
|------|------------------|-------------|
| 1)   | Rosnah Mat Aris  | Mami        |
| 2)   | Elly Suraity     | Jamilah     |
| 3)   | Azri Iskandar    | Ghani       |
| 4)   | Norish Ismail    | Aliya       |
| 5)   | Sarah Shamira    | Ayu         |
| 6)   | Eric Fuzi        | Iman        |
| 7)   | Rosdeen Suboh    | Yasir       |
| 8)   | Eds Edrina       | Milda       |
| 9)   | Hushairi Husain  | Ayong       |
| 10)  | Adlin Aman Ramli | Abang Harun |

**Table: Analysis Background, Minute and Types of Honors in Drama Tersasar Di Jalan-Mu**

| Bil. | Babak   | Minit                             |
|------|---|-----------------------------------|
| 1.   | <p><b>Background: Maimun House</b></p> <p>Iman walking up his stairs house while bringing two packets of rice mix to give to his mother, Maimun who was finished slavegirls into themselves are held the hands of a man who subscribe to. Iman keep an eye on the matter and seems to already understand the life of the mother.</p> <p>Maimun: (while holding the hand of a man) Tomorrow come back soon ya bang... (the man does not attend to the queries).</p> <p>Iman: (while holding the hand of a man) Tomorrow come back soon ya bang... (the man does not attend to the queries).</p> <p>Maimun: Ah... (complain for not buying fish). You're eating first. Mak was tired. Later, used to sleep.</p> <p>Iman: (Nod and look at his mother running with tired).</p> | <p>14:07-15:04<br/>(Scene 16)</p> |

| Bil. | Babak   | Minit                     |
|------|---|---------------------------|
| 2.   | <p><b>Background: Mummy Warung</b></p> <p>Brother Harun: Dah terhegeh-hegeh lagi apa benda!<br/> Mummy: After finish, please help put aside this umbrella..<br/> Brother Harun: Alaa.. later, i will lift it lah<br/> Mummy: Juvenile work darling, from above again (Brother Aaron meraba their employees, Tuti. Mummy don't notice that).<br/> Brother Harun: Gas, do you have a gas?<br/> Mummy: There is. I already cook a while ago. Don't disturb.<br/> Suddenly, a transvestite comes together with a man towards Mummy to rent a room.</p> <p>Transvestite: Mummy...?<br/> Mummy: Ah!(replied with scorn)<br/> Transvestite: (sweet of voice while holding a man) Ermm... more lock here?<br/> Mummy: Ayu...? (call her daughter who is arranging chairs).<br/> Ayu: Yes mak...<br/> Mummy: Here (extended his room key to Ayu). Well, 03.<br/> Ayu: (speaking to the transvestite) Hi, kak. Even in early morning want to sleep?<br/> Transvestite: Not want to sleep, just want to warming uo the body..<br/> Brother Aaron continues to tease Tuti. Suddenly, his wife, Mummy realize such indecent acts.</p> <p>Tuti: Ala, bapak ni..<br/> Brother Aaron: (suspens with jelingan from his wife) What happen with this gas? Sorts of depleted gas (last watch gas last-).<br/> Mummy: (chuck the drinks aloud as a sign of anger).<br/> Brother Aaron: What is this? Style in...</p> <p>Tuti continue work and angry fear face of Mummy.</p> | 15:05-15:59<br>(Scene 17) |
| 3.   | <p><b>Background: Shopping Complex; Pertama Complex</b></p> <p>Friend 1: I already tired want to think. My father want to beat, go on. Very difficult. I'd run away to the house. As far as i got this job here, search and hard to took part at all.<br/> Friend 2: Uh, right in... Just now I watch a lot of giler at the shops, like to salesgirl. I remember we try to watch son?<br/> Friend 1: Emm... like with us hanging out at here right, what we try? At least, if it's right our parents can and get rid of them soon, we were there work on what. Says "set up umbrella corporation rain".<br/> Friend 2: That's is correct, right. I support you by a hundred. We try to watch son?<br/> Friend 1: Its nothing.. Excellent students (proud to be accepted). All youth is approaching them.</p> <p>Youth 1: Eh, this is too early day<br/> Aliya: nothing,<br/> Youth 1: Oo a... come ar.. (invite to told us)<br/> Youth 2: Want to follow us?<br/> Friend 1: Ah, where are we going?<br/> Youth 3: Come with us, turn around (tempting to follow them).<br/> Friend 3: Ride motor? (excited by the request).<br/> Youth 3: Come with a bike...<br/> Youth 1: Lets go...<br/> Aliya: Where?</p>   | 23:53-25:06<br>(Scene 25) |

| Bil. | Babak   | Minit                             |
|------|---|-----------------------------------|
| 4.   | <p><b>Background: Mummy Warung</b><br/> Mami scolding and hit Aliya in front public because she keep secret about action of discard school.</p> <p>Mummy: Hey, Aliya! Come here, come here, you, ha! (keep the lid of his son). What I have so with you huh? You have to throw away the school ye!</p> <p>Aliya: What is this, mak... (crying)</p> <p>Mummy: I got a letter, you're smoking right! (slap and Aliya falling).</p> <p>Aliya: Argh...</p> <p>Mummy: What is this? Want to be street female, huh! You want me to shame! I send you to the school, to you be a somebody, not to be street women.</p> <p>Brother Aaron: Woi ls... (tail number was playing and don't like his wife keep nagging).</p> <p>Mummy: Silent! (her husband's). If you want to be female-street, here also can. Why you need to go far away!</p> <p>Aliya: Argh... pain, mak... forgive me, mak</p> <p>Milda: He's sick, Mami... Enough Mami...</p> <p>Mummy: If you select to so female street, you have to spend money on me!</p> <p>Brother Aaron: Enough, and too noisy! Go up on it.</p> <p>Mummy: Darling what know! People have children, know wakes son! You not know wakes son, directly not care about children! (Ayu come help her sister and they decamped from there). Nak to where else?</p> <p>Brother Aaron: Ha, chase it, chase it.</p> <p>Mummy: Not know going boy wakes tu!</p> <p>Brother Aaron: crowd of work lah.</p> <p>Mummy: Eat the tail number!</p> <p>Milda: Mummy was beating Aliya too severe, why?</p> <p>Mummy: I can a letter from school. I am looking for money, day night want to enlarge tu boys. Let they be a useful human being. Try watch to Yasir.</p> <p>I have a great length, anything not use, sitting in room (too sad and disappointed).</p> <p>Brother Aaron: Tuti, make water, Ti...</p> <p>Mummy: A timeless water! (shed water to the floor).</p> <p>Brother Aaron: what's wrong..!</p> <p>Milda: Hehe... Suitable for... (satirical Mami and her husband).</p> | <p>37:36-39:24<br/>(Scene 35)</p> |

| Bil. | Babak  | Minit                              |
|------|--|------------------------------------|
| 5.   | <p><b>Background: On Hot Deal Shop House At Lorong Haji Taib</b><br/> Ayu was trying to, Aliya who the only one was beaten by her mother.</p> <p>Ayu: Sister, why are you fighting with mak? You are of, and Ayu sad.<br/> Aliya: My fault...<br/> Ayu: You're hungry?<br/> Aliya: I'm not hungry<br/> Ayu: I have an extra classes, until night?<br/> Aliya: (membentak) Hey, Ayu! Do not many ask, can not?<br/> Ayu: (offended).<br/> Aliya: (guilt) Ayu in... Ayu Ayu, A... Sorry, Yu.,... Akak not intentionally want to high voice kat Ayu. But... Akak bengang right in... Fibre right to brain akak ni. In fact, akak... Akak dah wrong remove school.<br/> Ayu: Why?<br/> Aliya: Reason And... Reason for...<br/> Ayu: Akak said we have to... (remembered the advice of his sister).<br/> Aliya: reason, akak tu tak nak Ayu so kinds akak. Akak lazy, like truancy, stupid... (crying).<br/> Ayu: No. You're clever. You are the one who teach Ayu math.<br/> Aliya: Akak not good sister, Ayu. Ayu cant make akak example. Ayu Ayu's ambition to be there yourself. Ayu would be Minister one day, Yu. Ayu wrong please mak, wrong please Kak Milda, brother Yasir, all people and places of ni, Ayu and... Ayu cant so kinds akak.<br/> Ayu: Tak... More Akak, sister Ayu. Ayu must so kinds akak.<br/> Aliya: (hold both shoulder his brother) Ayu in... Akak believe Ayu must so Minister one day. Ayu be saved all of kat here, everyone kat here.<br/> Ayu, Ayu sayang akak, right?<br/> Ayu: (nod)<br/> Aliya: If Ayu love akak, Ayu be promise one thing.<br/> Ayu: what is he?<br/> Aliya: Ayu promises, don't be like akak. Broken promises?<br/> Ayu: (holding the hand of his sister) promise. (their berpelukan).<br/> Aliya: Ayu's... Akak nak Ayu so hope and Dad at mak ya...</p> | <p>39:25-42:13<br/> (Scene 36)</p> |
| 6.   | <p><b>Background: Mummy Warung</b><br/> Milda is a narration about the wealth of his lover.<br/> Milda: next time nak search male, search of mak, Disable. Paid off.<br/> Haa... (while posing with his new shirt).<br/> Mummy: Hehe ... Hey, Milda. Mummy wear shirt this shirt firstlah,<br/> Milda. But Mummy praise, Milda is indeed pretty.<br/> Milda: Ha...</p> <p>Mummy which kept to catch up, unaware her daughter, Aliya with quietly out of the house.<br/> Mami: Ha, round this area.. (asking for posing).<br/> Of Milda: Bigoted minded of Muslims...<br/> Milda: Hey, sorry eh. MAK tak minded bigoted Muslims.<br/> Yasir: (calling from the top of the House). MAK, mak, mak... more!<br/> Mummy: what it is!<br/> Yasir: Min.liya tu Kenapalah mak let out night-night blind of ni?<br/> Mummy: where I saw. When?<br/> Yasir: Ha, tu lah, mak. Sit down to catch up, kat tu pet pet pot pot. Tu tu, treat si crazy tu do what (mengaju to Milda).<br/> Mummy: Busy only kau ni.</p>  | <p>46:33-47:24<br/> (Scene 40)</p> |

| Bil. | Babak   | Minit                           |
|------|---|---------------------------------|
| 7.   | <p><b>Background: Mummy House</b><br/>Aliya woken from sleep due ketagihannya increasingly heightened.</p> <p>Aliya: Ah... More Ah... (Shivering and holding feel hooked on drugs).</p> <p><b>Background: Mummy Warung</b><br/>Brother Aaron and his wife, Mummy is discussing the numbers tail. Yasir ignore his parents that and continue at the mosque to go out get a new supply of the drug.</p> <p>Brother Aaron: try watch ni. 3788. If you for RM2 how I want to turn.<br/>Mummy: You son, tak nak. If tak nak, cut again, just I for RM1.<br/>Brother Aaron: RM1 how nak rich.<br/>Mummy: Since you married with I, and can do brick houses with money gambling you ni.<br/>Brother Aaron: Investment. If there is a sustenance, there lah.<br/>Mummy: nobody does it mean. Sustenance tu effort, not the play number of ni. Is illegal.<br/>Brother Aaron: Illegal what kebendanya! Haram tu go shooting. NI wear brain. Calculating. Math.. You meniaga, I calculate, the usual.</p> <p><b>Background: Mummy and Yasir House</b><br/>Aliya: (vomiting in the bathroom. He remembered that he never saw his brother, Yasir and friends smoke drugs in the House. Thus Aliya up over her brother's House to try to obtain the drug supply).</p> <p>Karim: (currently smoke drugs. Later, she goes to the bathroom to take a shower).<br/>Aliya: (in to the House quietly and take all packaging of drugs there. But Aliya changed his mind to put part of the drug packaging. Suddenly during his ring, place it stuck and disconnected. He felt anxious and not even managed to collect beads-Bead Bracelet that and continue to leave from there).</p> | 01:07:07-01:10:45<br>(Scene 53) |
| 8.   | <p><b>Background: Mummy House</b><br/>Yasir turun ke rumah ibunya, Mami untuk mencari Aliya.</p> <p>Yasir: Liya... (melihat hanya ada adik bongsunya, Ayu yang sedang tidur).</p> <p><b>Background: Mummy Warung</b><br/>Brother Aaron: (currently teaches a client about the tail number). Is math.<br/>Mummy: (still treat wounds Milda) Try you belasah male tu.<br/>Yasir: Mak... More<br/>Mummy: what else are you ni, Sir a...<br/>Yasir: Mak sees Min.liya, no?<br/>Mummy: Manalah I know.<br/>Yasir: Mak next time, sit under ni tengok-tengokkanlah kat. NI son lost itself not know ni.<br/>Mummy: Hey, kau ni apasal ni, ha?<br/>Yasir: he rembat goods I.<br/>Mummy: what?<br/>Yasir: Hey, is (snarling at)!</p>  | 01:15:15-01:16:17<br>(Scene 56) |



| Bil. | Babak   | Minit                           |
|------|---|---------------------------------|
| 9.   | <p><b>Background: Mummy Warung</b><br/>Maimun new bound underwritten by Brother Harun.</p> <p>Faith: (hugged his mother. Mummy and Ayu was happy to see them).<br/>Brother Aaron: last thing next time, log in, go to bail themselves.<br/>Mummy: Eh, not good speak of th.<br/>Brother Aaron: Hey, proper. Dah old. Last things last ni if, do not want to ask I go bail you again.</p> <p><b>Background: Under The Bridge By The River, Kuala Lumpur.</b><br/>Aliya in unconscious.</p> <p>Friend 1: Aliya in... (surprised to see white foam out of the mouth of Aliya). Aliya, Min.liya And... (aid).<br/><b>Background: Mummy Warung</b><br/>Friends Aliya Aliya sent a taxi to his parents.<br/>Friend 2: (out of the taxi) Mak cik, Aliya and...<br/>Ayu: Sister Of...<br/>Mummy: (continue to get his son the).<br/>Brother Aaron: what th... more<br/>Ayu: Mak... More<br/>Mummy: Why this? Darling, darling adopted a... (aid and put Aliya Street).<br/>Brother Aaron: Yes God... (surprised). Apasal ni, ha... more<br/>Mummy: Why ni, Min.liya and... Yes God...<br/>Brother Aaron: Min.liya The... Min.Liya... more<br/>Ayu: Sister Of... sister of...<br/>Maimun: Mummy, Mummy, why is this? (aid. Faith is also there).</p> <p>They continue to try to alert the Aliya. Suddenly the eldest Mummy and brother Aaron, Yasir at there.</p> <p>Maimun: LI nak let je, Mummy.<br/>Yasir: what Ni ni?<br/>Mummy: Sir, did you watch the younger you ni, Sir. Sir, did you watch the younger you ni (crying).<br/>Brother Aaron: Apasal.<br/>Yasir: (go towards friends Aliya). Did you speak with me, what she smoke! (hold the face and see their eyes).<br/>Friend 2: Don't know, bang... more (fear).</p> <p>Yasir: You speak with me. Speak! (slap).<br/>Friend 1: Don't know.<br/>Mummy: Why, Sir? Why the younger you, Sir! Why, Sir?<br/>Yasir: (terduduk and fidget). Her overdose, mak.<br/>Mummy: Overdose, what!<br/>Nasir: Drugs!<br/>Mummy: a brother you don't take things th! Brother you never take. (Forced counterparts Aliya tells). Speak, speak the... Min.Liya packed things tu who for?<br/>Ayu: sister, sister of..<br/>Brother Aaron: Min.liya The... Min.Liya... more<br/>Mummy: Mak cik pleaded desperately. Tell mak cik and... (crying and unbearably sad).<br/>Friend 2: he say he the older brother Yasir had stolen.<br/>Friend 1: Brother Yasir a...<br/>Mummy: (direct hit Yasir continuously).<br/>Yasir: what ni, mak. MAK, mak... more<br/>Mummy: have you got the goods. The you say stuff you're missing today. Work you, sitting kat a... sold items (direct hit).</p> | 01:22:20-01:25:48<br>(Scene 60) |

| Bil. | Babak   | Minit |
|------|---|-------|
|      | <p>Yasir: Wait, mak... more Looking forward to...</p> <p>Brother Aaron: Hey, Hey, Hey, hey...! (call the wife kept hitting Yasir), dah dah Min.liya nobody.</p> <p>Mummy: (stop hitting Yasir, tergamam 42 terduduk as stunned by the death of Aliya).</p> <p>Ayu: Sister Of... Sister of... wake up...</p> <p>Brother Aaron: Kau ni why, ha... more (rejecting Yasir and continues to embrace his wife that terduduk on the way). Bodohlah are you Yasir!</p> <p>Yasir: (doesn't fight back, burst into tears and regret).</p> <p>Ayu: Sister....!</p> <p>Maimun: Mummy, watch sons of ni, Mummy and... Partners 1 and 2: (approached the body of Aliya and crying).</p> |       |

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## Conference Paper

# Hospital Efficiency in Indonesia with Frontier Analysis

Edi Abdurachman, Yuli Eni, Asnan Furinto, Dezie Warganegara, and Idris Gautama So

Management Department, Binus Business School Doctoral Program, Bina Nusantara University

## Abstract

Hospitals are health care institutions for people who provide individual health services. Health services in hospitals are provided for inpatients, outpatients, and emergency unit patient. Facilities in the hospital are also provided for the fulfillment of health services for all patients. However, currently, there are still many doctors who are unbalanced in getting patients. For example, in a hospital, there is a doctor who is a favorite of patients, so they have a large queue of patients. However, on the other hand, some doctors are not favorites so that almost no patients come. This makes the hospital inefficient in terms of labor and time. This study discusses the efficiency of existing resources in hospitals which includes input variables (beds, general practitioners, specialist doctors, nurses, pharmacists, medical technicians, health workers, non-health workers, building area) and output variables (inpatient, outpatient, and patient emergency unit). The method used in this study is Stochastic Frontier Analysis using Frontier 4.1 software. The results indicated that more than 50% of the hospitals are below the efficiency average. This happens for the three types of output.

Corresponding Author:

Edi Abdurachman  
edia@binus.edu

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

**Keywords:** efficiency, frontier, inpatient, outpatient, emergency unit patient

## 1. Introduction

Health is an overall condition that includes the physical, mental, and social aspects of each human being (Setiyo, 2015). The health industry is one indicator that supports economic progress and prosperity. Also, the health industry is also one of the government's priorities because it is related to the quality of human resources. Health is the right of all Indonesian people, and the people of Indonesia are entitled to proper health facilities. One facility that supports health is the role of hospital growth (Syukro, 2017).

In the current era of globalization, the population of a country if monitored from year to year is increasing. Indonesia is the fourth most populous country in the world, with a population of 258,316,051 people (Dickson, 2018). When compared with the ratio of the population in the world, Indonesia is recorded at 3.5% of the population in the world. However, when viewed from population growth in Indonesia in 2012-2016, population

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growth is increasing. Population growth, which continues to increase from year to year needs special attention, especially in terms of health. Health is the most important thing in human life. The health industry in Indonesia has a bright future because the need for health is classified as mandatory and urgent. The growth in the number of hospitals is considered important to meet people's needs. Apart from that, the need for resources in the hospital must be able to meet the wishes of patients. However, in reality, there are still many hospitals that have excessive human resources due to uneven placement in each hospital. As a result, there are hospitals that are inefficient in terms of resources within the hospital. One method approach that can measure efficiency is the stochastic frontier analysis (SFA) method. Efficiency measurement with the SFA assessment is based on the production function. This SFA approach can only be used for analysis with multiple inputs and one output variable. The analysis that can be done through the SFA method includes knowing which DMUs or production units are relatively efficient, which production units are not yet or less efficient. The SFA method can also analyze profit and non-profit companies (Coelli, Rao, O'Donnell, & Battese, 2005).

## 2. Literature Review

Efficient comes from Latin "efficere" which means to produce or make. An activity or action that we do can be said to be efficient if it reaches maximum results. So efficiency is when the sacrifice or effort that we do is proportional to the maximum results that we get. Based on KBBI, the Big Indonesian Dictionary, efficiency is defined as the ability to do work properly and adequately (by saving energy, time, and cost). According to Robbins & Coulter (2010), Efficiency refers to getting the most output from the least input. Because managers handle rare inputs, including resources such as people, money and equipment - how these resources can be used efficiently. Efficient is often referred to as "doing things right", that is by not wasting resources. The type of method used to measure the level of efficiency Also into two, namely parametric methods and nonparametric methods. Parametric methods for measuring the level of efficiency, including ratio analysis and Stochastic Frontier Analysis (SFA). Ratio analysis is an approach that provides information about the relationship between one input and one output, and its weaknesses cannot be used for cases with many inputs to the output whereas Stochastic Frontier Analysis (SFA) can only accommodate one output with many inputs.

Efficiency related to resources, especially doctors, is very instrumental in increasing hospital profits. Research in Germany, which took physician practice data from 2008

- 2010 using panel data of 5,964 practices and using the SFA method, showed that management of disease management by specialists produced higher profit efficiency values. Apart from that, handling practices in groups can be more efficient than individual practices (Kwietniewski & Schreyögg, 2016). Another study that supports this research is Pross, Strumann, & G (2018), where the study used data from 2006 to 2013 with a total of 1100 observations in German hospitals. The results of the study are that regional (regional) and hospital special categories can improve resource efficiency. Then a Vietnam study conducted by Pham (2011) also supported that there was evidence of an increase in overall technical efficiency from 65 percent in 1998 to 76 percent in 2006. Hospital productivity increased by around 1.4 percent per year, mainly due to increased technical efficiency. Also, provincial hospitals are more technically efficient than central hospitals and hospitals located in various regions (Pham, 2011). In Coelli, Rao, O'Donnell, & Battese (2005) state that modern efficiency measurements were first pioneered by Farrell (1957), working with Debreu and Koopmans, by defining a simple measure to measure the efficiency of a company that can take into account much input. According to Coelli, Rao, O'Donnell, & Battese (2005), there are two types of efficiency measurements, namely:

1. Input-Oriented Measures

Input-oriented measurements show that a number of inputs can be reduced proportionally without changing the amount of output produced (Arcaya & Yumanita, 2006).

2. Output-Oriented Measured

Output orientation measures when many outputs can be increased proportionally without changing the number of inputs used. (Arcaya & Yumanita, 2006).

Data use processing Frontier Software 4.1. Frontier Software 4.1. This can be used to predict production functions with various choices, namely:

1. Predict the production function model with panel data that is not balanced (balance) and has a normal distribution cut off,
2. the two-stage regression function by calculating the estimation of production functions and efficiency than the results of predictions on the value of the effect of inefficiencies from specific variables (such as managerial, producer characteristics, etc.) and
3. estimating cost functions and predicting efficiency both technical efficiency and cost efficiency functions.

### 3. Methodology/Materials

This research uses quantitative methods. Quantitative methods are research methods that are based on a positivist philosophy, and sampling techniques are generally done randomly, data collection uses research instruments, data analysis to test predetermined hypotheses (Sekaran, 2013). The data used is hospital data obtained from the health ministry page data of the Republic of Indonesia. Time data collection (Time horizon) for the related variable is One-Shot Cross-Sectional, that is, and research carried out data is only taken once in a given period, to answer research questions or research hypotheses (Sekaran, 2013). In this study, data collection from the population of all hospitals in Indonesia in 2018. The type of research used is associative (describing the relationship and causal influence of causation) and descriptive (describing a problem or problem in a variable such as average, median, mode, etc.) supporting previous studies that have been done. The data used to estimate and hypothesis test the Cobb Douglas production function is adjusted data from the complete data relating to inpatients totaling 1550 hospitals and 1405 for outpatients.

### 4. Results and Findings

The research results in this dissertation are the results of the efficiency of Stochastic Frontier Analysis (SFA). The following is the result of frequency efficiency from the SFA results

TABLE 1: Inpatient.

| Data               | Frequency |
|--------------------|-----------|
| $E \leq 0,1$       | 0         |
| $0,1 < E \leq 0,2$ | 283       |
| $0,2 < E \leq 0,3$ | 272       |
| $0,3 < E \leq 0,4$ | 255       |
| $0,4 < E \leq 0,5$ | 232       |
| $0,5 < E \leq 0,6$ | 179       |
| $0,6 < E \leq 0,7$ | 160       |
| $0,7 < E \leq 0,8$ | 80        |
| $0,8 < E \leq 0,9$ | 54        |
| $E \leq 0,9$       | 35        |
| TOTAL              | 1550      |

When referring to inefficient classification according to Coelli, Rao, O'Donnell, & Battese (2005) and paying attention to the results of calculations using the Stochastic

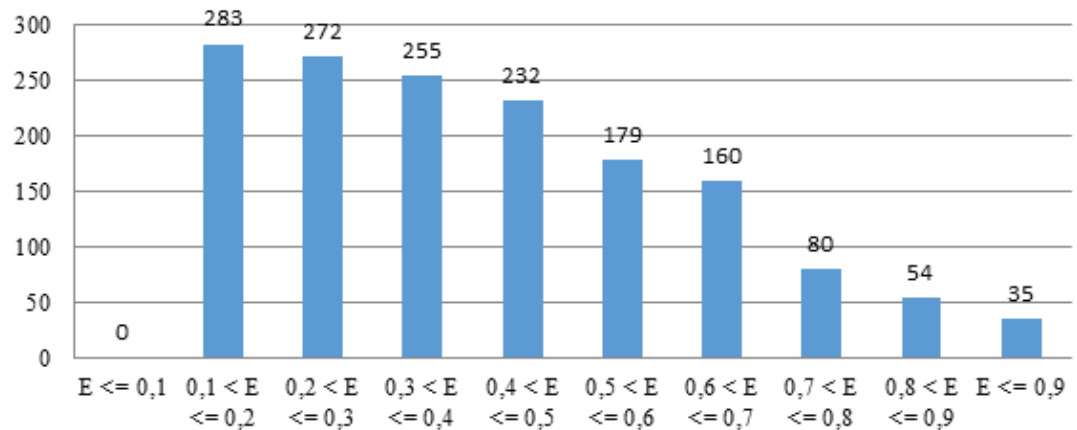


Figure 1: Efficiency Value of Inpatient.

Frontier Analysis (SFA) function presented in Table 1 and Figure 1, showing that the majority of hospital management is still less efficient as many as 1,381 hospitals (90%) seen from the efficiency value of inpatients, accordingly. There are 283 hospitals or around 18% with efficiency levels below 0.2, 272 hospitals with efficiency levels between 0.2 - 0.3, 255 hospitals with an efficiency level of 0.3 - 0.4, 232 hospitals with an efficiency level of 0.4 - 0.5, 179 hospitals with a level efficiency of 0.5 - 0.6, 160 hospitals with efficiency levels of 0.6 - 0.7, 80 hospitals with efficiency levels 0.7 - 0.8, 54 hospitals with efficiency levels 0.8 - 0.9, and 35 hospitals with efficiency levels 0.9 - 1.0. This inefficiency is probably caused by hospital management factors that have not been optimal and characteristic characteristics of the hospitals studied.

TABLE 2: Skewness Coefficients.

|   |                        |             |
|---|------------------------|-------------|
| N | Valid                  | 1550        |
|   | Missing                | 0           |
|   | Mean                   | .415106548  |
|   | Std. Deviation         | .2129311506 |
|   | Skewness               | .548        |
|   | Std. Error of Skewness | .062        |
|   | Minimum                | .1001228    |
|   | Maximum                | .9991986    |

To further support the results in Table 2 and Figure 2 quantitatively the slope coefficients (skewness coefficients) are estimated using the formula (Black, 2010):  $Sk = (3(\mu - Md)) / \sigma$ .

The estimation results obtained by the coefficient of +0.548. This shows that the distribution of efficiency that is ramped to the right is positive (positively skewed). This means that most hospitals studied specifically for inpatients are more inefficient.



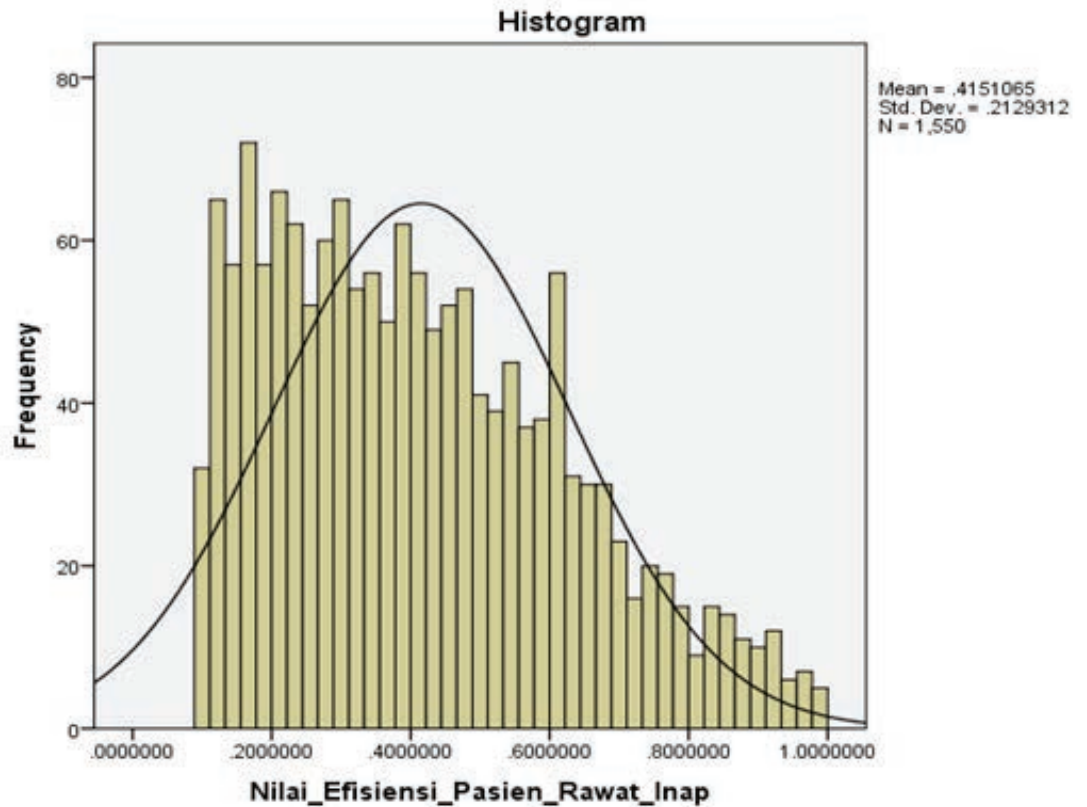


Figure 2: Skewness Coefficients.

TABLE 3: Outpatient.

| Data               | Frequency |
|--------------------|-----------|
| $E \leq 0,1$       | 0         |
| $0,1 < E \leq 0,2$ | 323       |
| $0,2 < E \leq 0,3$ | 240       |
| $0,3 < E \leq 0,4$ | 197       |
| $0,4 < E \leq 0,5$ | 174       |
| $0,5 < E \leq 0,6$ | 170       |
| $0,6 < E \leq 0,7$ | 123       |
| $0,7 < E \leq 0,8$ | 81        |
| $0,8 < E \leq 0,9$ | 52        |
| $E \leq 0,9$       | 45        |
| TOTAL              | 1405      |

If we refer to inefficient classification according to Coelli, Rao, O'Donnell, & Battese (2005) and pay attention to the results of calculations using the Stochastic Frontier Analysis (SFA) function presented in Table 3 and Figure 3, showing that the majority is still less efficient, namely 1,227 hospitals (87%) seen from the efficiency of outpatients. There are 323 hospitals or around 23% with efficiency levels below 0.2, 240 hospitals

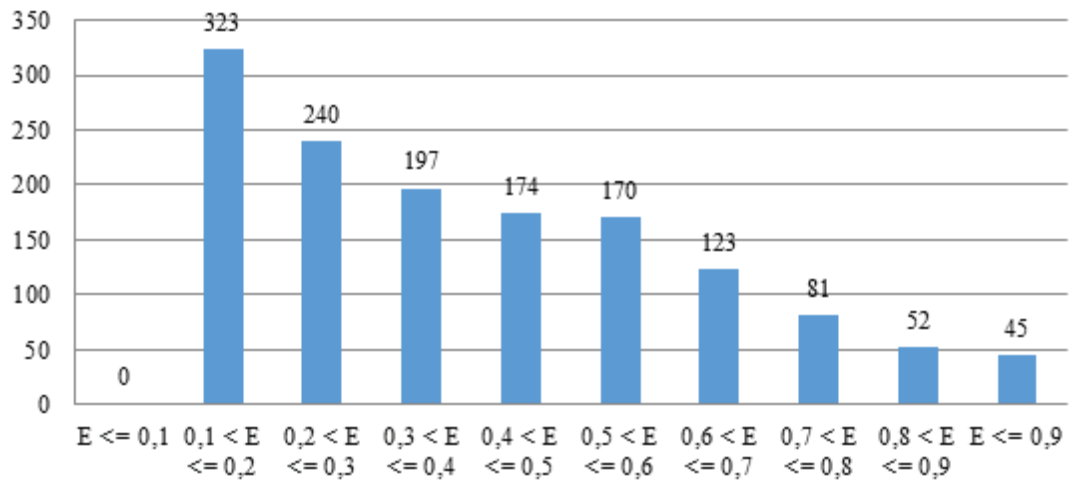


Figure 3: Efficiency Value of Outpatient.

with efficiency levels between 0.2 - 0.3, 197 hospitals with efficiency levels of 0.3 - 0.4, 174 hospitals with an efficiency level of 0.4 - 0.5, 170 hospitals with a level of efficiency. Efficiency of 0.5 - 0.6, 123 hospitals with an efficiency level of 0.6 - 0.7, 81 hospitals with an efficiency level of 0.7 - 0.8, 52 hospitals with efficiency levels 0.8 - 0.9, and 45 hospitals with efficiency levels 0.9 - 1.0. This inefficiency is probably caused by hospital management factors that have not been optimal and characteristic characteristics of the hospitals studied.

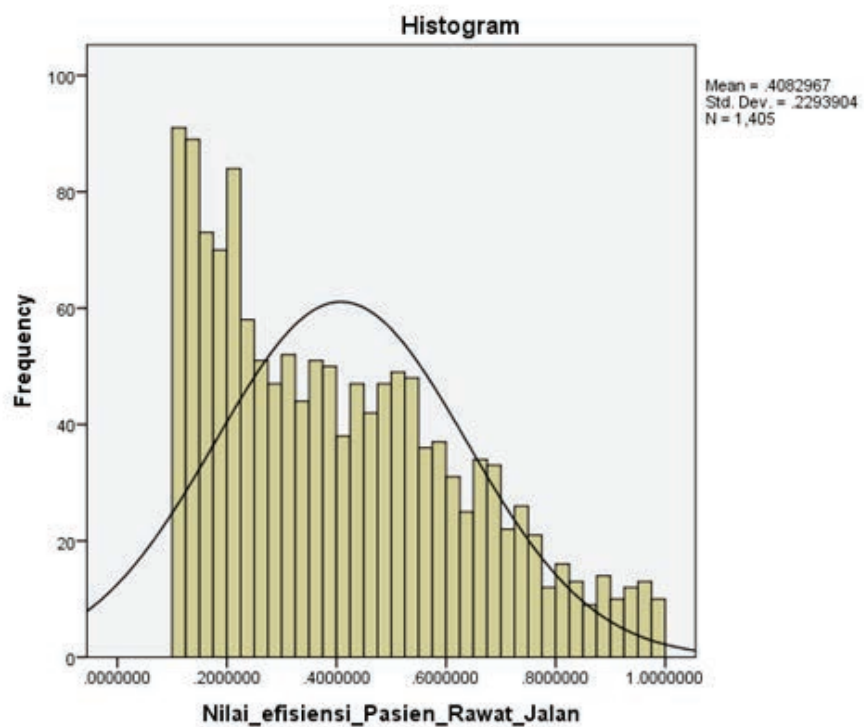


Figure 4: Positive Skewed.

TABLE 4: Positive skewed.

|   |                        |             |
|---|------------------------|-------------|
| N | Valid                  | 1405        |
|   | Missing                | 0           |
|   | Mean                   | .408296696  |
|   | Std. Deviation         | .2293903902 |
|   | Skewness               | .596        |
|   | Std. Error of Skewness | .065        |
|   | Minimum                | .1000410    |
|   | Maximum                | .9983617    |

Estimation results with the same formula, namely  $Sk = (3(\mu - Md)) / \sigma$  obtained slope coefficient of +0.596. This shows that the distribution of efficiency levels is right-positive (positively skewed). This means that most hospitals studied specifically for outpatients are more inefficient.

## 5. Conclusion

Based on the results obtained, there are still many inefficient hospitals. This causes the hospital sometimes not optimal in maximizing the available resources. It is better for hospitals to pay attention to inpatients and outpatients in the best manner.

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## Conference Paper

# Impact of Brexit on Construction Stocks listed on Bursa Malaysia

Senthil Kumar, Mohd Ridzuan Darun, and Mohammad Aslam

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

The British exit from the European Union (Brexit) referendum conducted in the United Kingdom (UK) about remaining in the European Union (EU) has had a profound effect on the world economy. Stock markets across the globe bore the brunt and pound sterling weakened sharply on this announcement. However, not all the economies were affected in the same way and the effect ranged from no impact to high impact. Economies which had considerable exposure to the UK, were affected. Though Malaysia does not have highly significant trade connections with the UK, the construction sector has moderate exposure to UK investments. In this study, construction companies' stock price movement during the Brexit announcement was analyzed using the Event Study Methodology. Ten publicly traded construction companies were randomly selected and their stock returns were compared with the KCI Market Index returns. The returns were very volatile and showed a negative trend during the first few days around the Brexit announcement indicating that there was an insignificant short-term impact. However, the shock was quickly absorbed and the stock returns stabilized in a few days implying that the Brexit announcement did not have a significant long-term impact on construction company stocks in Malaysia.

**Keywords:** brexit, event study, bursa Malaysia, Malaysian construction industry.

Corresponding Author:  
Senthil Kumar  
senthilkumar@ump.edu.my

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

The Brexit referendum was conducted on 23<sup>rd</sup> June 2016 to decide if the UK should remain or leave the European Union (Thomson, 2016). In a rather unexpected development, the UK decided to leave the European Union (EC, 2016). Consequently, stock markets in the United States, Japan, South Korea, Australia, China, Taiwan, India and Southeast Asian countries crashed due to the uncertainty created by the impending exit. It was reported that the estimated losses in just four days around the announcement were about 3 trillion dollars and the US alone accounted for more than 1.3 trillion dollar losses (David, 2016). The oil prices and the currency markets were highly affected, as well. The pound sterling suffered its worst decline since 1985 and was traded at 11% lower rates before making a marginal recovery (Kirka & Lee, 2016).

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The uncertainty was slowly ingested due to numerous reasons and the financial markets recovered in a few weeks. **First**, the decision had arrived and it ceased to contribute as a source of speculation. The UK and other economies had come to accept the imminent 'Brexit'. **Second**, the UK was already a detached member of the European Union, which had even refused to accept the common currency (Kauko, 2016). Its economy contributed to only 2.5% of the global GDP, which is much smaller than the collective contribution of the EU. **Third**, the withdrawal from the union was a long drawn process and was unlikely to happen in a haste. Hence, it was generally perceived that the exit would not pose a serious threat to the financial stability of the world in the future.

In general, the short-term impact of Brexit in some economies, particularly in their stock markets, was profound and in the other markets, the impact was rather ambiguous. In the case of Malaysia, it appears that the impact of Brexit on the stock market has not been analyzed. Hence, this study was conceived to examine the short-term term effects of Brexit announcement on Bursa Malaysia to explore the future course of action and to take preventive measures against financial shocks in the future. Malaysia's trade exposure to the UK is quite limited and only the construction industry has some exposure to investments from the UK. Hence, only the construction company stock returns were analyzed. The primary notion of this study is to probe the behavior of construction company stock returns around Brexit announcement (23<sup>rd</sup> June 2016) through event study analysis.

## 2. Literature Review

### 2.1. Brexit impact

Numerous *ex-ante* studies have been done on the potential impact of Brexit on financial markets and other domains. In general, the results indicated that the outcome of Brexit would be unfavorable and significant market reactions were expected on the day of poll results. (Bianchetti, Galli, Ricci, Salvatori, & Scaringi, 2016) used Johansen-Ledoit-Sornette model to detect possible bubbles and reported that there were no bubble signals in equity and currency markets. Hence, it was concluded that there would not be any crashes or sharp rises in equity markets and currency markets. However, bubble signals were found in the domains of rates, credit and real estate. The central bank's Financial Market Committee (BNM, 2016) cautioned that the impact and volatility of Brexit could spill into the financial markets. Japan Centre for Economic Research also

warned that Malaysia is likely to face the biggest effect of Brexit, among other Southeast Asian countries. It had the most credit from British banks and made higher Foreign Direct Investments in the UK, compared to other major South East Asian economies. It was observed that, Malaysia's GDP growth was declining and the rate was expected to decrease further as the exports to the UK and EU were about 7% of its GDP.

Brexit may cause different border controls as separation of the UK primarily from European Union and secondarily from whole Europe. This would restrict export-import and free movement of goods & services. Tielmann and Schiereck (2017) found an overall negative effect on logistic sectors. Logistic companies based in the UK have relatively poorer performance than logistic companies based on Continental Europe after Brexit. Uncertainty and speculation had worsened the scenario causing harm to the UK economy. Steinberg (2019) tried to measure the uncertainty impact on trade policies after Brexit. It was observed that total consumption-equivalent welfare cost, attributable to Brexit, for UK households ranged from 0.4% and 1.2%. However, less than one-fourth this cost was attributed to risk or uncertainty. Schiereck, Kiesel, and Kolaric (2016) studied the stock market and Credit Default Swap (CDS) market response around Brexit. In the case of stock market response, their findings pointed out the short-run drop in stock prices for Brexit announcement. Bashir et al. (2019) investigated the vigorous link of the stock price with the exchange rate for Britain and the other four countries in the European Union surrounding Brexit event. They opined that direction of co-movements between them demonstrated a different pattern for the pre and post period and most European stock markets tended to be negatively correlated with exchange rate in the long term after Brexit. Hall and Wójcik (2018) explored financial geography settings with Brexit. They opined that geographical shifting from London would bring uncertainty to business since London had dominated in financial activity and was the *de facto* financial capital of the Eurozone. Providing strong business service depends on the location of the financial sector and hence, business services were expected to be negatively affected as London's role as the International Finance Center would be reduced. Domestic sales rather than foreign sales oriented firm stocks showed more negative abnormal return after Brexit. However, internationally exposed firms did not have any relevant pricing effect in the post-Brexit days. A high degree of market efficiency was noticed when there was a quick adjustment of stock prices to reflect firm-level internationalization (Oehler, Horn, & Wendt, 2017). Nearly \$3 trillion was wiped off from the global markets and most firms had negative returns following Brexit referendum as there had been homogenous negative expectation all around. However, it was noticed that the changes were heterogeneous and not homogenous.

In addition, firms reliant on import oriented intermediates also performed poorly (Davies & Studnicka, 2018). Other studies by (Oliver, 2016) and (Kauko, 2016) were broader *ex ante* studies which analyzed the strategic impact of Brexit. Rana's (2016) study was *ex post* but it dwelled on scenarios, broader dimensions and suggestions.

## 2.2. Malaysia and UK economic ties

As the British economy was expected to shrink, the trade relations between the UK and Malaysia were likely to be affected. The HMT (2016) anticipated that a vote to leave the EU would have a negative impact on UK Gross Domestic Product (GDP) and the real estate industry. In the worst-case scenario, GDP would have declined to around 3.6% after two years and house prices would have fallen by 10% when compared the no-Brexit outcome. A relatively weaker economic condition would increase uncertainty and reduce the confidence of the investors.

Although the Malaysian economy is not susceptible to direct threats from Brexit, it may be affected by the indirect diversified effect that is not reflected by the markets and would ultimately pose a risk. Investors may mutely observe for quite some time and desist from participating in the market. This weak appetite of investors may affect the overall market attitude and ultimately impose a domino effect on the currency. However, Malaysia would experience a positive outcome when the UK tries to expand its trading relationship beyond Eurozone. It would only have a short-term effect on financial markets marked with uncertainty and volatility. Although Ringgit has been affected, the investment from Britain to Malaysia is expected to continue. Malaysia does not have strong economic ties and exposure to the UK unlike the European countries. At most, the negotiation between Malaysia-EU free trade agreement could be paused and delayed but will eventually progress later. On the contrary, if the UK did not leave there wouldn't be any impact on the Eurozone and the world at large. Trade and investments would simply continue on a regular basis without any interruption (The Sun Daily, 2016).

In addition, Malaysia is not exposed to adverse direct trading effects of Brexit. Only indirect and spillover effect was anticipated since the UK is not among the top ten significant trading partners of Malaysia. Although the British recession and reduced demand for Malaysian products may happen, it would not be a great threat to the Malaysian economy. Nevertheless, the indirect effects could be quite serious. Many forecasters predicted Brexit to have a hazy effect on UK, Europe and the world economy together with chances of global financial turmoil. Economic impact on Malaysia would be very less as trade between these two countries had significantly reduced (Khor, 2016)



from the 1990 scenario where the UK was the fourth biggest trading partner of Malaysia behind Singapore, the United States and Korea.

In the short term, foreign direct investment from Europe will remain unaffected due to the very nature of the medium. However, capital market investments such as stocks and debentures were likely to be affected by temporary phenomena. The number of Malaysian firms with exposure to the UK is quite less and just limited to property development, regulated assets and casinos (The Star Online, 2016). Hence, the null hypothesis is that Brexit announcement did not have a significant impact on construction company stocks in Malaysia.

### 3. Methodology

Event study tool is commonly applied for analyzing the impact on stocks for various events in the finance world (Kumar, Panda and Radzi, 2016). The impact of the public announcement on stock prices is gauged by measuring the difference between actual and expected stock returns. This difference is an abnormal stock return and a positive value indicates that the public announcement was viewed favorably by the markets and vice versa. The result date of vote in the UK parliament for Brexit was considered as the event day (23 June 2016) i.e. 'day zero'. Daily closing stock price data of construction companies and closing value of KLCI index were used for computing daily stock returns and market returns respectively in event study analysis. KLCI Index and Stocks of construction companies not traded in holidays were ignored and the event day was fixed for the next trading day. A typical estimation period may be about -120 to -30 days before the event. Here, the clean period was chosen as 90 trading days with the consideration that if the reference period was too short, it might not serve as a valid benchmark. The event window was chosen as  $\pm 30$  trading day.

Since the Brexit referendum, which was conducted on 23 June 2016, was in favor of leaving the European Union, the time period surrounding the announcement viz. May, June, July and Augusts 2016 was considered for analysis. The FTSE Bursa Malaysia KLCI Index was used for computing market return and among the listed construction companies in Bursa Malaysia, 10 construction companies' stock were selected randomly for this study. They are UEM Sunrise Bhd (UMSB), YTL Corporation Bhd (YTLS), IJM Corporation Bhd (IJMS), Gamuda Bhd (GAMU), Malaysian Resource Corporation Bhd (MYRS), WCT Holdings Bhd (WCTE), WCE Holdings Bhd (WCEH), Hock Seng Lee Bhd (HSLB), Mudajaya Group Bhd (MJYA) and Muhibbah Engineering (MUHI). Historical data used in this study was obtained from Investing.com.

Typical canonical form of the model is given below:

$$r_{jt} = R_{jt} - (\alpha + \beta R_{mt} + \varepsilon_{jt})$$

Where,

$r_{jt}$  = Abnormal return for construction stock  $j$  at time  $t$

$R_{jt}$  = Actual return of construction stock  $j$  at time  $t$

$\alpha$  = Intercept of the market model regression (Ordinary Least Squares estimate)

$\beta$  = Beta in the market model regression (Ordinary Least Square estimate)

$R_{mt}$  = Return of market index KLCI on day  $t$

$\varepsilon_{jt}$  = Error term of stock  $j$ 's return

The average abnormal return was calculated as  $AAR_t = \sum_{i=0}^n r_{it}/n$

Where,  $n$  = Number of stocks in the event study

The statistical significance of AAR was computed as  $t = AAR/S.D$

Where,  $t$  = Student's  $t$  statistic value and S.D = Standard Deviation of average returns

## 4. Results

Stock returns have been analyzed from three perspectives i.e. analysis of daily average abnormal returns, analysis of average abnormal returns in various event windows and patterns of stock behavior.

### 4.1. Daily average abnormal returns (AAR)

On the day of Brexit Referendum average abnormal returns declined to -0.70% from 0.45% on the day before announcement (Appendix-1). This further declined to -0.92% one day after the announcement. Negative returns of -1.00% were observed two days before 'day zero'. Interestingly, the returns were 0.06% the previous day. This probably indicates that there was some speculation two days ahead of the announcement and that could have resulted in adverse stock market reaction. On the event day, the maximum gain of 0.47% was made by IJMS and maximum loss of -2.14% was incurred by UMSB. Maximum AAR of 1.80% was observed 12 days after the event day and the maximum loss of -1.38% was observed 19 days before event day. In general, construction stocks appear to have lost value in the few days around the Brexit announcement. This construction sector behavior is similar to logistic sector behavior in the study of Tielmann and Schiereck (2017) who found an overall negative effect on logistic sectors and UK based logistic companies with significantly poorer performance than those from

Continental Europe. This finding also corroborates with the findings of Schiereck et al. (2016) which indicated short-run loss around Brexit announcement.

Abnormal returns of construction stocks in various event windows are presented in Appendix-2. Maximum returns of 0.76% were experienced by GAMU in the (-1, 0) event window. The maximum loss of 2.14% was experienced by UMSB in the (0, 0) event window. Overall, the maximum average returns of 0.06% were observed in the (0, +20) event window. Minimum average returns of -0.81% were observed in the (0, +1) event window. Returns in the other event windows show a declining trend indicating that the market reaction was generally adverse for Brexit announcement.

## 4.2. Pattern analysis of AAR

The AAR values of construction stocks are provided in Appendix-1 and the same has been charted in Figure 1. The AAR had declined from 0.45% to -0.70% on the day of the announcement. It was also observed that the AAR further declined to -0.92% one day after the announcement. Negative returns of -1.00% were observed two days before 'day zero' and negative returns of -0.45%, -0.17%, -0.40%, -0.29%, -0.65% and -0.32% was observed on the second day, fourth day, fifth day, tenth day, fourteenth day and fifteenth day after announcement. This was followed by high volatility in stock returns in Figure-1.

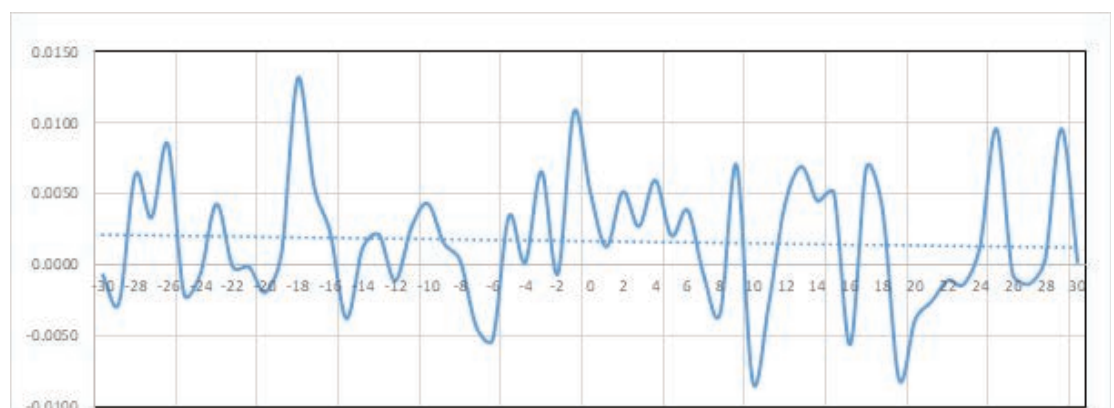


Figure 1: Pattern of Average Abnormal Return.

## 5. Discussion

In general, several studies have indicated a negative outcome in the Brexit fallout. Although there was no bubble estimation signal in equity and currency markets, a bubble signal was found in the domains of interest rate, credit and real estate. The

impact and volatility of Brexit spilled into the financial markets for a short period. Malaysia is expected to face more effects of Brexit compared to other Southeast Asian countries. It has availed higher credit from British banks and has made higher FDI in the UK compared to its neighbors. Different border controls would restrict export-import and free movement of goods & services. Some specific sector like the construction sector could be affected very negatively because they are exposed to the UK economy. Uncertainty and speculation have also played a vital role and it had a negative impact on the foreign exchange rate as well. Since the geographical spread of Finance contributes to higher uncertainty, sector internalization may be attempted to reduce the risk exposure. In the case of Malaysia, the expectation was homogeneous, i.e., negative outcome. This was true on the event day as the construction companies' stocks experienced negative returns. Negative returns were observed during the next few days indicating the market reaction was generally unfavorable. However, the long-term outcome was heterogeneous, as many construction company stocks had recovered the losses after the first few days.

## 6. Conclusion and Implications

On the day of Brexit announcement, the average abnormal return of construction stocks declined and the further decline was observed in the following days. Negative returns were observed two days before the event day. Intriguingly, the returns were positive on the previous day. This probably indicates that there was some speculation two days ahead of the announcement that leads to adverse market reaction later. In general, construction stocks appear to have lost value in the few days around the Brexit announcement. Abnormal returns of construction stocks in various event windows after the event show a declining trend indicating that the market reaction was generally adverse for announcements. Overall, the market movement in the days around Brexit could be described as volatile with a negative trend. Hence, the prospective and current investors should be careful while making investment decisions during high impact events such as Brexit.

## 7. Limitation

This study considers only a few construction company stocks listed on Bursa Malaysia and hence it cannot be generalized for other industries or other countries.

## 8. Recommendation for Policy Maker

Capital market agencies need to ensure that information relating to events with a major potential impact is available to all investors. This would help the typical investors to avoid risk and capital loss.

## Acknowledgment

We have used publicly available data sources of Bursa Malaysia and investing.com viz. FTSE Bursa Malaysia KLCI Index and historical stock prices, and we are very thankful to these institutions. We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

## Appendix 1 Daily Average Abnormal Returns

| DAY | Trading Date | UMSB    | YTLS    | IJMS    | GAMU    | MYRS    | WCTE    | WCEH    | HSLB    | MJYA    | MUHI    | AAR     | SD     | T       |
|-----|--------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|
| -30 | 11-May-16    | -0.0005 | 0.0254  | -0.0004 | -0.0046 | -0.0069 | 0.0001  | 0.0001  | -0.0021 | 0.0019  | -0.0010 | 0.0012  | 0.0089 | 0.1359  |
| -29 | 12-May-16    | -0.0144 | 0.0031  | 0.0068  | -0.0046 | 0.0056  | -0.0092 | 0.0005  | -0.0064 | 0.0376  | -0.0160 | 0.0003  | 0.0153 | 0.0186  |
| -28 | 13-May-16    | 0.0359  | -0.0126 | 0.0207  | 0.0030  | 0.0358  | 0.0112  | 0.0026  | 0.0180  | -0.0111 | 0.0072  | 0.0111  | 0.0169 | 0.6545  |
| -27 | 16-May-16    | -0.0002 | 0.0038  | -0.0122 | 0.0092  | -0.0187 | -0.0086 | 0.0492  | -0.0141 | -0.0041 | -0.0096 | -0.0005 | 0.0194 | -0.0274 |
| -26 | 17-May-16    | -0.0145 | -0.0079 | -0.0188 | -0.0105 | -0.0013 | -0.0321 | -0.0211 | -0.0032 | 0.0239  | 0.0015  | -0.0084 | 0.0152 | -0.5516 |
| -25 | 18-May-16    | -0.0022 | -0.0083 | -0.0011 | -0.0037 | -0.0177 | 0.0040  | -0.0154 | -0.0464 | -0.0185 | -0.0241 | -0.0133 | 0.0147 | -0.9061 |
| -24 | 19-May-16    | 0.0127  | 0.0071  | 0.0090  | 0.0110  | 0.0024  | 0.0125  | 0.0010  | 0.0011  | -0.0158 | 0.0054  | 0.0046  | 0.0085 | 0.5487  |
| -23 | 20-May-16    | 0.0164  | -0.0039 | 0.0070  | 0.0019  | 0.0128  | 0.0200  | -0.0041 | 0.0370  | 0.0027  | -0.0020 | 0.0088  | 0.0130 | 0.6749  |
| -22 | 23-May-16    | -0.0069 | 0.0022  | -0.0024 | -0.0013 | -0.0046 | -0.0043 | -0.0051 | -0.0128 | -0.0048 | 0.0142  | -0.0026 | 0.0070 | -0.3663 |
| -21 | 24-May-16    | -0.0073 | -0.0014 | -0.0146 | 0.0017  | -0.0078 | 0.0045  | -0.0038 | -0.0201 | 0.0055  | 0.0049  | -0.0039 | 0.0087 | -0.4433 |
| -20 | 25-May-16    | -0.0057 | 0.0028  | 0.0095  | -0.0029 | -0.0038 | -0.0097 | 0.0004  | -0.0070 | 0.0124  | -0.0078 | -0.0012 | 0.0074 | -0.1573 |
| -19 | 26-May-16    | 0.0102  | -0.0006 | -0.0120 | -0.0069 | 0.0006  | -0.0937 | -0.0047 | 0.0005  | -0.0173 | -0.0139 | -0.0138 | 0.0292 | -0.4709 |
| -18 | 27-May-16    | -0.0461 | 0.0141  | -0.0111 | 0.0051  | -0.0135 | -0.0649 | 0.0113  | 0.0046  | -0.0216 | 0.0186  | -0.0104 | 0.0274 | -0.3778 |
| -17 | 30-May-16    | 0.0097  | -0.0087 | 0.0253  | 0.0030  | -0.0008 | 0.0706  | -0.0040 | 0.0028  | -0.0214 | -0.0005 | 0.0076  | 0.0252 | 0.3014  |
| -16 | 31-May-16    | 0.0055  | 0.0144  | 0.0009  | 0.0076  | 0.0121  | 0.0080  | 0.0066  | 0.0135  | -0.0067 | -0.0206 | 0.0041  | 0.0107 | 0.3846  |
| -15 | 1-Jun-16     | 0.0100  | -0.0071 | 0.0023  | 0.0076  | -0.0619 | -0.0206 | -0.0047 | -0.0055 | -0.0010 | -0.0237 | -0.0104 | 0.0211 | -0.4962 |
| -14 | 2-Jun-16     | 0.0055  | -0.0030 | -0.0017 | -0.0149 | -0.0590 | 0.0034  | 0.0059  | 0.0110  | 0.0054  | 0.0204  | -0.0027 | 0.0218 | -0.1230 |
| -13 | 3-Jun-16     | -0.0067 | -0.0041 | -0.0023 | 0.0133  | 0.0241  | -0.0042 | 0.0165  | -0.0013 | -0.0134 | 0.0233  | 0.0045  | 0.0135 | 0.3356  |
| -12 | 6-Jun-16     | -0.0050 | -0.0018 | -0.0131 | -0.0064 | 0.0091  | -0.0211 | -0.0056 | -0.0091 | -0.0179 | -0.0031 | -0.0074 | 0.0086 | -0.8591 |
| -11 | 7-Jun-16     | 0.0245  | 0.0167  | 0.0013  | 0.0002  | 0.0179  | 0.0187  | -0.0055 | -0.0088 | 0.0264  | -0.0070 | 0.0084  | 0.0137 | 0.6155  |

| DAY | Trading Date | UMSB    | YTLS    | IJMS    | GAMU    | MYRS    | WCTE    | WCEH    | HSLB    | MJYA    | MUHI    | AAR     | SD     | T       |
|-----|--------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|
| -10 | 8-Jun-16     | 0.0226  | -0.0050 | -0.0136 | 0.0029  | 0.0031  | 0.0008  | -0.0098 | 0.0014  | -0.0160 | 0.0013  | -0.0012 | 0.0109 | -0.1135 |
| -9  | 9-Jun-16     | 0.0096  | -0.0017 | 0.0050  | -0.0073 | -0.0117 | 0.0034  | 0.0123  | 0.0203  | 0.0129  | 0.0039  | 0.0047  | 0.0097 | 0.4821  |
| -8  | 10-Jun-16    | -0.0158 | 0.0106  | 0.0056  | 0.0039  | 0.0088  | 0.0104  | 0.0283  | 0.0034  | -0.0031 | -0.0039 | 0.0048  | 0.0115 | 0.4176  |
| -7  | 13-Jun-16    | -0.0042 | -0.0054 | 0.0005  | -0.0138 | 0.0023  | -0.0064 | 0.0071  | -0.0076 | -0.0104 | -0.0163 | -0.0054 | 0.0072 | -0.7490 |
| -6  | 14-Jun-16    | -0.0045 | -0.0108 | -0.0049 | 0.0138  | -0.0153 | 0.0327  | 0.0011  | 0.0017  | 0.0018  | 0.0154  | 0.0031  | 0.0142 | 0.2190  |
| -5  | 15-Jun-16    | 0.0080  | -0.0201 | -0.0157 | -0.0139 | 0.0088  | -0.0139 | 0.0163  | -0.0118 | -0.0019 | 0.0031  | -0.0041 | 0.0126 | -0.3259 |
| -4  | 16-Jun-16    | 0.0073  | 0.0138  | 0.0040  | 0.0037  | -0.0072 | 0.0069  | -0.0242 | -0.0133 | -0.0096 | 0.0073  | -0.0011 | 0.0119 | -0.0955 |
| -3  | 17-Jun-16    | 0.0083  | 0.0122  | 0.0083  | -0.0155 | 0.0216  | -0.0451 | 0.0106  | 0.0097  | 0.0020  | -0.0057 | 0.0006  | 0.0191 | 0.0325  |
| -2  | 20-Jun-16    | -0.0311 | -0.0129 | -0.0037 | 0.0053  | 0.0004  | 0.0000  | -0.0212 | 0.0034  | -0.0255 | -0.0152 | -0.0100 | 0.0129 | -0.7760 |
| -1  | 21-Jun-16    | 0.0156  | 0.0217  | -0.0015 | 0.0187  | -0.0107 | 0.0296  | 0.0112  | -0.0064 | -0.0213 | -0.0114 | 0.0045  | 0.0170 | 0.2666  |
| 0   | 23-Jun-16    | -0.0214 | -0.0136 | 0.0047  | -0.0036 | -0.0109 | -0.0149 | 0.0006  | -0.0121 | -0.0022 | 0.0029  | -0.0070 | 0.0087 | -0.8082 |
| 1   | 24-Jun-16    | -0.0018 | -0.0215 | 0.0016  | -0.0018 | -0.0135 | -0.0103 | -0.0093 | -0.0037 | -0.0344 | 0.0031  | -0.0092 | 0.0116 | -0.7885 |
| 2   | 27-Jun-16    | -0.0036 | -0.0042 | -0.0105 | -0.0025 | -0.0052 | -0.0113 | -0.0150 | 0.0019  | 0.0120  | -0.0068 | -0.0045 | 0.0076 | -0.5950 |
| 3   | 28-Jun-16    | 0.0528  | 0.0089  | -0.0019 | -0.0026 | 0.0164  | -0.0100 | 0.0059  | 0.0052  | 0.0152  | 0.0062  | 0.0096  | 0.0172 | 0.5593  |
| 4   | 29-Jun-16    | -0.0283 | 0.0072  | 0.0115  | -0.0022 | 0.0033  | -0.0122 | 0.0001  | 0.0100  | -0.0062 | -0.0005 | -0.0017 | 0.0118 | -0.1456 |
| 5   | 30-Jun-16    | -0.0332 | 0.0165  | 0.0073  | 0.0043  | -0.0192 | -0.0076 | -0.0056 | 0.0088  | 0.0007  | -0.0117 | -0.0040 | 0.0148 | -0.2691 |
| 6   | 1-Jul-16     | 0.0005  | -0.0325 | -0.0064 | 0.0053  | -0.0022 | 0.0037  | 0.0069  | 0.0029  | 0.0230  | -0.0004 | 0.0001  | 0.0139 | 0.0062  |
| 7   | 4-Jul-16     | -0.0002 | 0.0069  | -0.0061 | -0.0004 | 0.0223  | -0.0124 | 0.0001  | 0.0038  | -0.0064 | -0.0053 | 0.0002  | 0.0096 | 0.0251  |
| 8   | 5-Jul-16     | 0.0057  | 0.0019  | 0.0010  | 0.0015  | -0.0150 | -0.0052 | 0.0012  | -0.0041 | -0.0070 | 0.0335  | 0.0014  | 0.0127 | 0.1068  |
| 9   | 8-Jul-16     | -0.0015 | 0.0032  | 0.0046  | 0.0065  | 0.0061  | -0.0040 | 0.0067  | -0.0094 | 0.0307  | -0.0191 | 0.0024  | 0.0130 | 0.1822  |
| 10  | 11-Jul-16    | -0.0010 | -0.0061 | -0.0092 | -0.0048 | -0.0073 | 0.0075  | -0.0053 | 0.0096  | -0.0069 | -0.0057 | -0.0029 | 0.0064 | -0.4592 |
| 11  | 12-Jul-16    | 0.0005  | -0.0006 | 0.0025  | -0.0087 | 0.0284  | 0.0192  | 0.0008  | 0.0005  | -0.0097 | 0.0086  | 0.0042  | 0.0118 | 0.3333  |
| 12  | 13-Jul-16    | 0.0494  | 0.0137  | 0.0004  | 0.0006  | 0.0662  | 0.0022  | 0.0003  | -0.0014 | 0.0217  | 0.0269  | 0.0180  | 0.0235 | 0.7660  |
| 13  | 14-Jul-16    | 0.0075  | 0.0150  | 0.0044  | -0.0123 | -0.0033 | -0.0108 | 0.0013  | 0.0022  | 0.0376  | -0.0102 | 0.0031  | 0.0149 | 0.2108  |
| 14  | 15-Jul-16    | -0.0345 | 0.0035  | 0.0067  | 0.0015  | -0.0189 | -0.0152 | 0.0051  | -0.0035 | 0.0071  | -0.0169 | -0.0065 | 0.0141 | -0.4636 |
| 15  | 18-Jul-16    | 0.0162  | -0.0080 | -0.0184 | -0.0037 | -0.0014 | 0.0045  | 0.0006  | -0.0061 | -0.0191 | 0.0027  | -0.0032 | 0.0106 | -0.3068 |
| 16  | 19-Jul-16    | -0.0082 | -0.0242 | 0.0141  | 0.0079  | 0.0266  | 0.0257  | 0.0062  | 0.0006  | -0.0005 | 0.0043  | 0.0053  | 0.0151 | 0.3474  |
| 17  | 20-Jul-16    | 0.0110  | -0.0187 | -0.0173 | -0.0082 | 0.0093  | -0.0133 | -0.0098 | 0.0414  | 0.0656  | 0.0090  | 0.0069  | 0.0275 | 0.2502  |
| 18  | 21-Jul-16    | 0.0061  | 0.0192  | 0.0036  | -0.0011 | 0.0034  | -0.0005 | 0.0018  | 0.0155  | -0.0167 | 0.0066  | 0.0038  | 0.0097 | 0.3890  |
| 19  | 22-Jul-16    | 0.0008  | 0.0296  | 0.0026  | -0.0004 | -0.0079 | 0.0190  | 0.0116  | 0.0006  | 0.0075  | -0.0046 | 0.0059  | 0.0114 | 0.5138  |
| 20  | 25-Jul-16    | -0.0125 | -0.0069 | -0.0010 | 0.0109  | -0.0254 | -0.0069 | -0.0108 | 0.0029  | -0.0160 | -0.0197 | -0.0085 | 0.0108 | -0.7883 |
| 21  | 26-Jul-16    | -0.0097 | -0.0025 | -0.0215 | -0.0055 | 0.0145  | 0.0224  | 0.0068  | 0.0026  | 0.0200  | 0.0080  | 0.0035  | 0.0138 | 0.2555  |
| 22  | 27-Jul-16    | -0.0020 | -0.0079 | 0.0048  | 0.0006  | 0.0078  | 0.0037  | 0.0007  | -0.0057 | -0.0021 | 0.0073  | 0.0007  | 0.0053 | 0.1382  |
| 23  | 28-Jul-16    | 0.0068  | -0.0036 | 0.0013  | -0.0084 | 0.0051  | 0.0021  | -0.0041 | 0.0132  | 0.0107  | -0.0107 | 0.0012  | 0.0079 | 0.1559  |
| 24  | 29-Jul-16    | -0.0120 | 0.0087  | -0.0016 | 0.0020  | 0.0053  | -0.0163 | -0.0041 | -0.0090 | -0.0294 | -0.0107 | -0.0067 | 0.0113 | -0.5957 |
| 25  | 1-Aug-16     | -0.0140 | 0.0045  | 0.0162  | 0.0022  | -0.0184 | -0.0076 | -0.0002 | -0.0031 | -0.0505 | -0.0117 | -0.0082 | 0.0179 | -0.4597 |
| 26  | 2-Aug-16     | 0.0163  | -0.0036 | -0.0045 | -0.0085 | -0.0029 | -0.0174 | 0.0013  | 0.0188  | 0.0027  | -0.0066 | -0.0005 | 0.0110 | -0.0410 |
| 27  | 3-Aug-16     | 0.0150  | -0.0113 | -0.0112 | 0.0071  | 0.0188  | 0.0060  | 0.0018  | 0.0041  | -0.0014 | 0.0155  | 0.0044  | 0.0104 | 0.4257  |
| 28  | 4-Aug-16     | 0.0569  | 0.0071  | 0.0004  | 0.0026  | 0.0289  | 0.0277  | 0.0003  | 0.0040  | -0.0139 | -0.0133 | 0.0101  | 0.0218 | 0.4620  |

| DAY | Trading Date | UMSB    | YTLS    | IJMS    | GAMU    | MYRS   | WCTE    | WCEH   | HSLB    | MJYA    | MUHI    | AAR     | SD     | T       |
|-----|--------------|---------|---------|---------|---------|--------|---------|--------|---------|---------|---------|---------|--------|---------|
| 29  | 5-Aug-16     | -0.0190 | -0.0057 | -0.0150 | -0.0045 | 0.0103 | -0.0186 | 0.0055 | -0.0076 | -0.0152 | -0.0099 | -0.0080 | 0.0098 | -0.8109 |
| 30  | 8-Aug-16     | 0.0080  | -0.0056 | 0.0116  | 0.0058  | 0.0248 | -0.0186 | 0.0162 | 0.0198  | 0.0281  | 0.0039  | 0.0094  | 0.0142 | 0.6638  |

## Appendix 2 Average Abnormal Return in different run up window

| Event Window | UMSB    | YTLS    | IJMS    | GAMU    | MYRS    | WCTE    | WCEH    | HSLB    | MJYA    | MUHI    | MEAN    | SD     | t       |
|--------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|
| (-30,0)      | 0.0005  | 0.0006  | -0.0006 | 0.0001  | -0.0028 | -0.0036 | 0.0017  | -0.0019 | -0.0036 | -0.0017 | -0.0011 | 0.0019 | -0.6075 |
| (-25,0)      | 0.0003  | 0.0003  | -0.0005 | 0.0004  | -0.0039 | -0.0028 | 0.0008  | -0.0020 | -0.0061 | -0.0013 | -0.0015 | 0.0022 | -0.6628 |
| (-20,0)      | -0.0002 | 0.0006  | -0.0006 | 0.0000  | -0.0041 | -0.0052 | 0.0023  | -0.0005 | -0.0061 | -0.0016 | -0.0015 | 0.0027 | -0.5664 |
| (-15,0)      | 0.0014  | -0.0007 | -0.0015 | -0.0004 | -0.0050 | -0.0013 | 0.0024  | -0.0016 | -0.0046 | -0.0005 | -0.0012 | 0.0023 | -0.5074 |
| (-10,0)      | -0.0005 | -0.0010 | -0.0010 | -0.0005 | -0.0010 | 0.0003  | 0.0029  | -0.0011 | -0.0067 | -0.0017 | -0.0010 | 0.0024 | -0.4317 |
| (-5,0)       | -0.0022 | 0.0002  | -0.0006 | -0.0009 | 0.0003  | -0.0062 | -0.0011 | -0.0051 | -0.0098 | -0.0032 | -0.0029 | 0.0033 | -0.8764 |
| (-4,0)       | -0.0043 | 0.0042  | 0.0024  | 0.0017  | -0.0014 | -0.0047 | -0.0046 | -0.0038 | -0.0113 | -0.0044 | -0.0026 | 0.0045 | -0.5786 |
| (-3,0)       | -0.0071 | 0.0018  | 0.0020  | 0.0012  | 0.0001  | -0.0076 | 0.0003  | -0.0014 | -0.0118 | -0.0074 | -0.0030 | 0.0050 | -0.5989 |
| (-2,0)       | -0.0123 | -0.0016 | -0.0002 | 0.0068  | -0.0071 | 0.0049  | -0.0031 | -0.0051 | -0.0163 | -0.0079 | -0.0042 | 0.0072 | -0.5827 |
| (-1,0)       | -0.0029 | 0.0040  | 0.0016  | 0.0076  | -0.0108 | 0.0073  | 0.0059  | -0.0093 | -0.0118 | -0.0043 | -0.0013 | 0.0076 | -0.1657 |
| (0,0)        | -0.0214 | -0.0136 | 0.0047  | -0.0036 | -0.0109 | -0.0149 | 0.0006  | -0.0121 | -0.0022 | 0.0029  | -0.0070 | 0.0087 | -0.8082 |
| (0,+1)       | -0.0116 | -0.0176 | 0.0032  | -0.0027 | -0.0122 | -0.0126 | -0.0043 | -0.0079 | -0.0183 | 0.0030  | -0.0081 | 0.0077 | -1.0494 |
| (0,+2)       | -0.0089 | -0.0131 | -0.0014 | -0.0026 | -0.0099 | -0.0122 | -0.0079 | -0.0046 | -0.0082 | -0.0003 | -0.0069 | 0.0045 | -1.5470 |
| (0,+3)       | 0.0065  | -0.0076 | -0.0015 | -0.0026 | -0.0033 | -0.0116 | -0.0044 | -0.0022 | -0.0024 | 0.0013  | -0.0028 | 0.0048 | -0.5751 |
| (0,+4)       | -0.0005 | -0.0047 | 0.0011  | -0.0025 | -0.0020 | -0.0117 | -0.0035 | 0.0003  | -0.0031 | 0.0010  | -0.0026 | 0.0038 | -0.6793 |
| (0,+5)       | -0.0059 | -0.0011 | 0.0021  | -0.0014 | -0.0048 | -0.0110 | -0.0039 | 0.0017  | -0.0025 | -0.0011 | -0.0028 | 0.0039 | -0.7230 |
| (0,+10)      | -0.0029 | -0.0030 | -0.0003 | 0.0000  | -0.0023 | -0.0070 | -0.0012 | 0.0012  | 0.0017  | -0.0003 | -0.0014 | 0.0025 | -0.5669 |
| (0,+15)      | 0.0005  | -0.0006 | -0.0005 | -0.0014 | 0.0029  | -0.0048 | -0.0003 | 0.0003  | 0.0035  | 0.0005  | 0.0000  | 0.0023 | -0.0038 |
| (0,+20)      | 0.0002  | -0.0005 | -0.0003 | -0.0007 | 0.0025  | -0.0025 | -0.0003 | 0.0031  | 0.0046  | 0.0001  | 0.0006  | 0.0021 | 0.2957  |
| (0,+25)      | -0.0010 | -0.0004 | -0.0003 | -0.0009 | 0.0025  | -0.0019 | -0.0003 | 0.0024  | 0.0017  | -0.0006 | 0.0001  | 0.0015 | 0.0910  |
| (0,+30)      | 0.0016  | -0.0010 | -0.0008 | -0.0007 | 0.0047  | -0.0022 | 0.0006  | 0.0033  | 0.0015  | -0.0008 | 0.0006  | 0.0022 | 0.2844  |

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## Conference Paper

# Ethical Leadership, Ethical Leadership Climate and Employee Moral Effectiveness: A Social Learning Perspective

Freida Ozavize Ayodele<sup>1</sup>, Hasnah Binti Haron<sup>2,3</sup>, and Ishak Ismail<sup>2,3</sup><sup>1</sup>Department of Accounting and Finance, UCSI University, 56000 Kuala Lumpur, Malaysia<sup>2</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, 26300 Gambang, Pahang, Malaysia<sup>3</sup>FIM Governance and Integrity Center, 26300 Gambang,, Pahang Malaysia

## Abstract

The study employs social learning theory (SLT) to investigate the impact of virtue and tone based ethical leadership on the subordinates moral outcome in institutions. Data were collected from a survey of 182 academic staff in a university in Africa. The partial least squares structural equation modeling (PLS-SEM) is the data analytic technique employed to test the research model. The findings suggest that virtue-based academic ethical leadership and ethical leadership climate positively influence employee moral effectiveness. Academic ethical leadership was found to have a profound indirect significant influence on employee moral effectiveness and academic ethical leadership. The research is substantial and would be of interest to educational policymakers, academic leaders and government in resolving ethical issues.

**Keywords:** social learning theory, leadership, employee effectiveness.

Corresponding Author:  
Freida Ozavize Ayodele  
freida.ayodele@yahoo.ca

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Academic misconduct is any action that results in creating an unfair academic advantage for oneself to the disadvantage of other members of the academic community. Academic employee moral misconduct is potential harm to the institution irrespective of the benefits to be gained by such employee (Ayodele, Yao, & Haron, 2018). To this end, organizations are keen on mechanisms that will enhance the moral behavior of their employees to mitigate the undesirable effects of employee misconduct (Abboud, Wu, Pedneault, Stohr, & Hemmens, 2017). Employee moral behavior is the ability of the employee to form the right opinion about acceptable principles of right or wrong behavior based on applicable ethical standards (He, Zhu, & Zheng, 2014). The inner sense of what is right or wrong in one's conduct or motives, impelling employee toward the right actions (Moore, 2015). Employee ethical decision making in institutions are not entirely personal (Xu, Loi, & Ngo, 2016). Apart from the mindset of the individual

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employee, the decision to embark or not on morally acceptable conducts may have more to do with the moral consciousness created by top management than solely individual factors (Bagozzi, Sekerka, & Sguera, 2018). The observed moral actions of senior management by subordinates can foster the inclination of subordinates to follow the dictates of laid down rules on ethical issues (Sousa & van Dierendonck, 2017; Walker & Jackson, 2017).

Moreover, there is the saying that habits form character. As such, this study believes that the moral practices of academic leaders may tend to shape the morality and integrity of the academic subordinates they are directing or leading. Obviously, in institutions, leaders are a source of employee ethical guidance in the workplace (Hyytinen & Löfström, 2017; Walker & Jackson, 2017). The reason is that ethical leaders are morally obligated to be concerned with matters of integrity in their decision-making as practicing moral preachers and moral motivators (Hoch, Bommer, Dulebohn, & Wu, 2018; Leroy, Segers, van Dierendonck, & den Hartog, 2018). However, the upsurge in unethical practices of academic workings in different institutions across the continent is worrisome (Ayodele et al., 2018). The wholesale usage of the intellectual materials produced by others without acknowledging its sources by academic is on the rise particularly in Africa where majority of the journals published are paper-based. Due to the belief that leadership virtues contribute to explain the actions of their subordinates in a context (Riggio, Zhu, Reina, & Maroosis (2010)), leadership and the ethical tone created by those in top management might help to address the rise in unethical academic practices if emphasized.

In literature, extensive important works employ different perspectives about ethical leadership. Lewis (2017) and Hoch et al. (2018) see ethical leadership from a transformative perspective; Sidani & Rowe (2018) studied ethical leadership from an authentic viewpoint; Leroy et al. (2018) argued ethical leadership from a transactional perspective while Walumbwa et al. (2011) viewed ethical leadership from a charismatic perspective. However, some authors like Riggio, Zhu, Reina, & Maroosis (2010) criticized most of the current aspects of moral leadership in that they could lead to unethical social influence due to ethical relativism. More so, unlike the virtue and tone-based perspectives to explaining the effect of ethical leadership on employee moral effectiveness in the African context, other existing views have been well researched in the literature using social learning perspective (Brown & Treviño, 2006). Hence, ethical policymakers in the African context are not well abreast with the potential antecedents of virtue based academic ethical leadership and ethical leadership tone on employee moral effectiveness. Besides, the virtue-based perspective is grounded in prior studies only that consistency

of moral character is more emphasized. Thus, within the broad perspectives, imbibed as dimensions of ethical leadership in this study are the virtue-based viewpoint that believed that virtues describe ethical leadership and the ethical tone perspectives argued by Haron et al. (2017).

Despite, the interesting propositions on virtue and tone-based perspective, there is little understanding of the impact of ethical leadership on employee moral performance (moral positioning) based on the views. The reason is that the moral status of a person is important in making ethical decisions (Akere, Sevell, & Stewart, 2016; Rest & Thoma 1985). Meanwhile, Haron et al. (2017) have consistently argued that the ethical tone fostered by organizational leadership is an essential factor in curbing unethical conducts in organizations. Drawing from Haron et al. (2017) work, there is the possibility that the virtue-based academic ethical leader might stimulate moral climate that positions employee to make necessary moral choices. The question that comes to mind is that 'does the tone created by virtue-based ethical leaders (ethical leadership climate) a valid mechanism through which virtue-based ethical leaders impacts employee moral effectiveness in the workplace'? Secondly, does ethical leadership climate contribute to explain the moral outcomes of subordinates in institutions?

This study believes that virtue-based educational leadership plays a possible role in shaping the ethical conducts of academic lecturers and creating the enabling climate for moral decisions in academics. The aim of the study is to explore the linkages between academic ethical leadership, ethical leadership climate and academic employee moral effectiveness. The study proposes social learning theory (SLT) as a theoretical basis for understanding the predictive links between academic ethical leadership, academic ethical leadership climate and academics employee moral effectiveness (outcome) in a model. The empirical evidence from this type of study will provide new insight to educators on how educational ethical leadership can create an ethical climate for academic subordinates to indulge in morally acceptable behavior in institutions, the African context in particular. Consequently, the research is significant as it contributes to ethical perspectives in literature and advances knowledge on the links that can be employed to reduce unethical academic practices in academic research. This study also directs practitioners and educational, ethical lawmakers attention to the importance of stimulating a virtue-based environment for the enhanced moral performance of both the top management academic ethical leaders and subordinate academic employee. Hence, the study would be of interest to educational stakeholders in diverse positions, education policy-makers, and government and the social learning theory utilized may further inform theoretical development in future studies.

## 2. Literature Review

Brown & Treviño (2006) defined ethical leadership as the demonstration of normatively appropriate conducts through individual actions and interpersonal dealings and the advancement of such behavior to followers via two-way interaction, strengthening, and decision making. Kalshoven, Den Hartog, & De Hoogh (2011) opined that a set of accepted beliefs drives ethical leaders conducts and appropriate judgment that has been stipulated as morally right by instituted higher authorities and the society rather than selfish interest. However, due to moral absolutism associated with the virtue-based perspective to ethical leadership, it is the virtue-based perspective that is taken in this study. Riggio et al. (2010) argued that ethical leadership is the consistent makeup or virtues of the individual. By virtue, Riggio et al. (2010) imply all times practiced morals and that prudence, fortitude, temperance, and justice reflects moral virtues that transform an individual attitude. Virtue-based leaders are obliged to convey the interest of stakeholders on ethical matters by socially influencing the subordinate's moral status. Even Aristotle (2006) argued that the spirit of morality is awakened in individuals only through the witness and conduct of a moral person. Consequently, awakened in subordinates is the spirit of making ethical decisions by the conduct and virtues of moral leaders.

Moral leaders can influence the employees through 'the spirit' which connotes creating an enabling environment for them to do the right things by carrying out the moral action itself and possession of moral virtues. Besides, role modeling is a key aspect of a leader as employees can learn expected behavior, reward, and punishment through role modeling (Sidani & Rowe, 2018). Thus, in this context that academic leadership might possess the power to affect the ethical behavioral outcome of employees (moral status of the employee) and ethical climate outcomes in institutions. Drawing from Riggio et al. (2010), for academic leaders to be perceived as ethical leaders and to influence ethics-related outcomes, they must be perceived as prudent, credible, and legitimate by the would-be followers. It is based on the perceived virtues that leaders are morally obligated to communicate to employees about acceptable standards, conducts and values and motivates the staff to comply accordingly (Bouckenooghe, Zafar, & Raja, 2015). This study mentions that virtue-based leaders create an ethical climate for subordinates to act by their morally exemplifying behavior in the realizations of organizational objectives and due to the virtues, they possessed. The ethical tone created by leaders can be likened to the learning environment while the virtues possessed by the leaders likened to the observed moral that stimulates morale actions according to social

learning theory. Thus, the social learning perspective is employed to empirically test the proposed relationships between academic ethical leadership (AEL), ethical leadership climate (ELC) and employee moral outcome (EMO) in the study

## 2.1. Social learning theory (SLT) and research theoretical framework

Social learning theory (SLT), is a theory of social behavior which suggest that new behaviors can be acquired or imitated by observation and learning (Brown, Treviño, & Harrison, 2005). Drawing from SLT, observed attitudes from leaders and moral learning climate contribute to the follower's moral development (Brown & Treviño, 2006). Leaders possess the power to influence the actions of employees either in a morally acceptable way or otherwise (Reb, Narayanan, & Chaturvedi, 2014). Leaders in academics that are ethically inclined will be careful to emphasize morality in the way institutional academic KPI is set and realized through exemplifying attitudes. Giving unrealistic and unattainable targets to academic subordinates only provokes unethical conducts towards publishing goal attainment especially with those with morally weak tendencies. Ethical academic leaders are not expected to be preaching publish or perish spirit among the subordinates rather empathize and be temperate with the employees in their genuine effort to publish amidst difficulties (Grimes, Bauch, Ioannidis, & Grimes, 2018). This way academic leaders can reduce the pressure to indulge in unethical decisions and actions. Besides, Hunter et al. (2013) indicated a positive relationship between ethical leadership and ethical conduct of employees or subordinates. Although some might argue that to indulge or not in ethical academic actions is personal, this study argued that academic leaders could play a significant role in the academic ethical conduct of the employee in universities. As such, academic policy-makers can manipulate the link to reduce misconduct among academic employees in four different but interrelated psychological aspects argued by Rest & Thoma (1985). The psychological aspects because Rest & Thoma (1985) indicated that the moral status aspect (judgment, character, sensitivity, and motivation) of an individual must be influenced to behave ethically. Surprisingly, the influence of academic ethical leadership on academic employee moral outcome using social learning theory is currently under-researched. The study, therefore, proposes the following hypothesis to test the identified relationship:

H1: Academic ethical leadership positively influences employee moral outcome

In African universities, leaders communicate matters on ethics including the reward and promotion of ethical behaviors along with punishments associated with unethical

conducts among subordinates. When top academic leaders exemplify to clarify the role of employees and performance expectation on ethical related issue and dilemma in compliance with established ethical standards, expedited is the platform (which is the spirit according to Aristotle (2006) to embark on moral action by subordinates. Drawing from the social learning theory (SCT), learning orientation environment is stimulated through such observations of morally acceptable behaviors and fairness demonstrated by the leaders in meting out appropriate punishment and rewards. Brown et al. (2005) suggested that leaders create an ethical climate for employee moral effectiveness in organizations through the provision of ethical guidance. Similarly, De Hoogh & Den Hartog (2008) in their empirical work argued that ethical leader's role modeling creates enabling environment to employees to perform moral actions without fear of being reprimanded unjustly. Specifically, Riggio et al. (2010) argued that it is characteristics (virtues) that create a moral leader or makes the leader exhibit the desired moral actions or dictate the right ethical tone in the workplace. Besides, attributed to the presence of high ethical standards awareness and virtues possessed enabled by ethical leaders in the cognitive moral development and ethical decision-making behavior of the employee (Riggio, Zhu, Reina, & Maroosis, 2015; Hasnah et al., 2017). Consequently, this study posits that activated through the demonstration of acceptable ethical virtues by academic leaders as practicing preachers, the opportunity for academic employees to conduct themselves most ethically, thereby enhancing subordinate ethical behavior. Surprisingly, sparingly investigated in the literature is the link between academic ethical leadership and ethical leadership climate and the indirect link between academic ethical leadership and employee moral positioning using SLT. Thus, proposed in the study is the following hypotheses:

H2: Academic ethical leadership positively influences ethical leadership climate

H3: Ethical leadership climate positively influences employee moral outcome

H4: Academic ethical leadership positively influences employee moral outcome through academic ethical climate.

Figure 1 below is the proposed research theoretical framework for the study. Based on SLT, academic ethical leadership is expected to positively impact employee moral outcome either directly or indirectly via ethical climate while the ethical climate is expected to influence the employee morale outcome in the stud

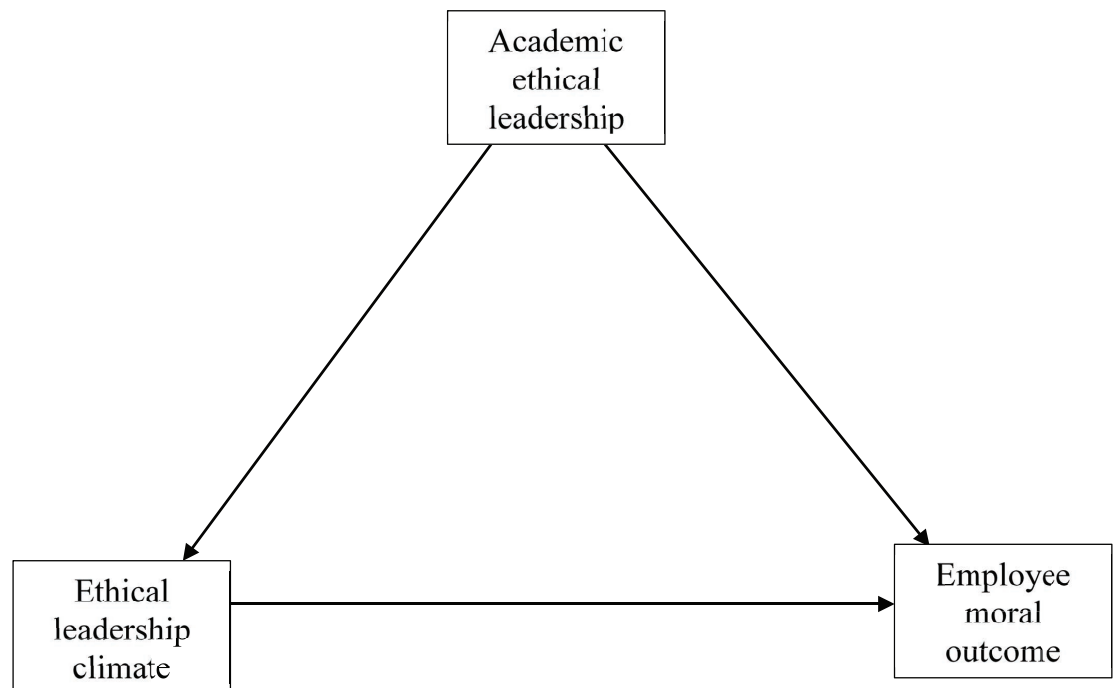


Figure 1: The Research Framework.

### 3. Research Methods

The study employs the refined instrument of Riggio et al. (2010) to measure virtue-based academic leadership construct. Although, De Hoogh & Den Hartog (2008) argued ethical leadership to be multidimensional, nevertheless, drawing from Riggio et al. (2010), virtue-based dimension to assessing ethical leadership is intimately related to one another. In this study, measured in terms of moral consciousness created by top academic leaders as indicated in Hasnah et al. (2017) is the academic ethical climate while academic employee moral outcome covers four interdependent perspectives (moral motivation, moral sensitivity, moral judgment, and moral character) measurement of Rest & Thoma (1985). In this study, employee moral outcome is used interchangeably with employee moral effectiveness and denotes the moral positioning of subordinates to take moral actions. The participants in the survey are lecturers in a public university in Nigeria. The lecturers participated voluntarily and were asked to fill out the questionnaire in confidence without discussion with colleagues. Out of the distributed 245 surveys, only 182 responses were usable and employed in the study. The 182 responses employed in the study is adequate as it is well above the 111-sample size requirement indicated in the G-power analysis with medium effect size, alpha level of 0.05, and actual power of 0.95. The study does not assume the normal



distribution of the data. The partial least squares structural equation modeling (PLS-SEM) technique was used to analyze the hypothesized relationships in the study. The measurement and the structural model need assessment by the rule associated with PLS-SEM (Hair, Hult, Ringle, & Sarstedt, 2017). The measurement model which entails the evaluation of the validity and reliability of the construct measures was evaluated based on reflective measurement theory. Expected in the study is the correlations of all the indicators of the three constructs. Going by the reflective measurement criteria, assessed in the study is indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. The structural model assessment draws on the 5000 bootstrap samples procedure (Hair et al., 2017) to test the significance of the hypothesized relationships at a 5% probability of error level in the study. Apart from checking the significance of the path coefficients, in evaluating the structural model in this study, considered is the coefficient of determination ( $R^2$ ), the model predictive relevance and  $f^2$  effect sizes.

## 4. Result

### 4.1. Measurement model assessment

From Table 1, the internal consistency reliability using composite reliability (CR) criterion indicates a satisfactory level of reliability ( $>0.70$ ). Also, the convergent validity which assesses the extent to which a measure correlates positively with alternative measures of the same constructs is satisfactory on the construct level since all values are above the 0.50 minimum threshold using average variance extracted (AVE) as a criterion in the study. On the indicator level (see Table 1), using the outer loadings of the indicators, the indicator reliability is satisfactory ( $>0.70$ ) also. Deleted items are ELC4, ELC6, AEL1, and AEL4. Please, note that items  $>0.40$  but  $< 0.70$  were not deleted as deletion does not increase the AVE and CR measures above threshold (Hair Jr, Sarstedt, Hopkins, & Kuppelwieser, 2014). Discriminant validity is assessed in the study based on Fornell-Larcker criterion in (Hair Jr et al., 2014). Overall, the square roots of the AVEs for the reflective constructs are all higher than the correlations of these constructs with other latent variables in the path model (Table 2). The result from the assessment of the discriminant validity in this study implies that it is satisfactory as each construct is unique and captures phenomena not represented by other constructs. Overall, based on the specific rule of thumb for reflective measurement model, the measurement characteristics of the three constructs are valid and reliable.

TABLE 1: Summary of the Measurement Model Assessment.

| Construct                         | Item  | loadings | CR    | AVE   | Discriminant validity |
|-----------------------------------|-------|----------|-------|-------|-----------------------|
| Academic ethical leadership (AEL) | AEL2  | 0.684    | 0.869 | 0.526 | Yes                   |
|                                   | AEL3  | 0.707    |       |       |                       |
|                                   | AEL5  | 0.696    |       |       |                       |
|                                   | AEL6  | 0.765    |       |       |                       |
|                                   | AEL7  | 0.735    |       |       |                       |
|                                   | AEL8  | 0.761    |       |       |                       |
| Ethical leadership climate (ELC)  | ELC1  | 0.796    | 0.925 | 0.605 | Yes                   |
|                                   | ELC10 | 0.795    |       |       |                       |
|                                   | ELC2  | 0.795    |       |       |                       |
|                                   | ELC3  | 0.792    |       |       |                       |
|                                   | ELC5  | 0.704    |       |       |                       |
|                                   | ELC7  | 0.75     |       |       |                       |
|                                   | ELC8  | 0.83     |       |       |                       |
|                                   | ELC9  | 0.756    |       |       |                       |
| Employee moral outcome            | EMO1  | 0.739    | 0.882 | 0.651 | Yes                   |
|                                   | EMO2  | 0.855    |       |       |                       |
|                                   | EMO3  | 0.814    |       |       |                       |
|                                   | EMO4  | 0.816    |       |       |                       |

TABLE 2: Discriminant Validity.

|                             | Fornell-Larcker criterion   |                            |                        |
|-----------------------------|-----------------------------|----------------------------|------------------------|
|                             | Academic ethical leadership | Ethical leadership climate | employee moral outcome |
| Academic ethical leadership | <b>0.725</b>                |                            |                        |
| Ethical leadership climate  | 0.629                       | <b>0.778</b>               |                        |
| employee moral outcome      | 0.508                       | 0.613                      | <b>0.807</b>           |

Note: Values in bold are the square roots of the AVEs for the reflective constructs

## 4.2. Structural model assessment

### 4.2.1. Hypotheses testing

Going by Hair Jr et al. (2014) on structural model assessment procedure, the result (Table 3), using VIF guidelines threshold of below 5.00, indicating that there is no collinearity problem as all the measures are below 5.00 stipulated threshold. The result (direct, indirect and total effects) in table 3 represent the hypothesized relationships among the constructs in the study. H1 states that academic ethical leadership has a positive influence on employee moral outcome. The result indicates that academic ethical leadership is significantly (Beta=0.202, t-value= 2.493, p-value= 0.006) related

to employee moral outcome and therefore contribute to explaining employee moral outcome. Thus, supported in this study is H1. On the direct relation between academic ethical leadership and ethical leadership climate, academic ethical leadership is significantly (Beta= 0.629, t-value= 10.933, p-value= 0.000) related to ethical leadership climate and therefore contribute to explaining ethical climate. Thus, supported in the study is H2 which states that academic ethical leadership positively impacts ethical leadership climate.

Another direct relationship considered in the research is H3. H3 indicates that ethical leadership climate positively influences employee moral outcome. The result suggests that ethical leadership climate is positive and significantly (Beta= 0.486, t-value= 6.617, p-value= 0.000) related to employee moral outcome and therefore contribute to explaining employee moral outcome. H4 suggests that academic ethical leadership indirectly influences employee moral outcome through ethical leadership climate. The outcome of testing the indirect relationship posit that academic ethical leadership is positive and significantly (Beta= 0.306, t-value= 5.059, p-value= 0.000) related to employee moral outcome and therefore contribute to indirectly explaining employee moral outcome. Hence, H4 is duly supported in the study. Overall, exploring the differential impact of the two drivers construct in the study, the total effect (see Table 3) shows that compared to ethical leadership climate, academic ethical leadership has a higher influence on employee moral outcome.

#### 4.2.2. Coefficient of determination, predictive relevance and effect sizes

Apart from testing the hypothesized relationships, the study employed the coefficient of determination ( $R^2$  value) to evaluate the model predictive accuracy. The  $R^2$  values in the research (see Table 3) is acceptable as academic ethical leadership explains 39.5 percent of the variation in ethical leadership climate while academic ethical leadership and ethical leadership climate jointly explain 40 percent amount of variance in employee moral outcome. Going by Hair Jr et al. (2014), the model's predictive accuracy is moderate. Using effect size  $f^2$  as a criterion to assess the substantive impacts on the endogenous construct (see Table 3), the impact of academic ethical leadership on ethical leadership climate is robust and ethical leadership climate impact on employee moral outcome is moderate while that of academic ethical leadership influence on employee moral outcome is weak. In addition to evaluating the magnitude of the  $R^2$  values in this study, the Stone-Geisser's  $Q^2$  value is employed to evaluate the model's predictive relevance. The result (See Table 3) from the structural model assessment in

the study indicate that the  $Q^2$  values for the endogenous reflective constructs are more substantial than zero and therefore implies that the model exhibit predictive relevance. It is worthy of mentioning that this study did not assess the global goodness of fit (GoF) as Henseler and Sarstedt (2012) argued that the GoF for PLS does not represent an appropriate measure and should not be employed unless in a PLS multigroup analysis (PLS-MGA). Figure 2 is a summary of the measurement and structural model assessment.

TABLE 3: Summary of the Structural Model.

| Hypothesized relationship   | Path coefficient ( $\beta$ ) | Direct effect            | P Values | $F^2$ |
|---|------------------------------|--------------------------|----------|-------|
|   |                              | T Statistics ( O/STDEV ) |          |       |
| Academic ethical leadership -> Ethical leadership climate                           | 0.629                        | 10.933                   | 0        | 0.654 |
| Academic ethical leadership -> employee moral outcome                               | 0.202                        | 2.493                    | 0.006    | 0.041 |
| Ethical leadership climate -> employee moral outcome                                | 0.486                        | 6.617                    | 0        | 0.238 |
|   |                              | Indirect effect          |          |       |
|   | Path coefficient ( $\beta$ ) | T Statistics ( O/STDEV ) | P Values |       |
| Academic ethical leadership -> Ethical leadership climate -> employee moral outcome | 0.306                        | 5.059                    | 0        |       |
|   |                              | Total effect             |          |       |
|   | Path coefficient ( $\beta$ ) | T Statistics ( O/STDEV ) | P Values |       |
| Academic ethical leadership -> Ethical leadership climate                           | 0.629                        | 10.933                   | 0        |       |
| Academic ethical leadership -> employee moral outcome                               | 0.508                        | 9.595                    | 0        |       |
| Ethical leadership climate -> employee moral outcome                                | 0.486                        | 6.617                    | 0        |       |
|   | $R^2$ values                 | $Q^2$                    |          |       |
| Ethical leadership climate  | 0.395                        | 0.208                    |          |       |
| employee moral outcome  | 0.401                        | 0.231                    |          |       |

## 5. Discussion and Implications

Academic subordinates with strong moral inclinations, if they have academic leaders that stress ethics in meeting up with deadlines and set targets about their job function may not be involved in academic misconduct or wrongly display attitudes. On the impact of virtue-based ethical leadership on employee moral effectiveness, the study arrived at a positive direct relationship. The result suggests the critical role of virtues in assessing academic ethical leadership social influence on employee moral motivation,

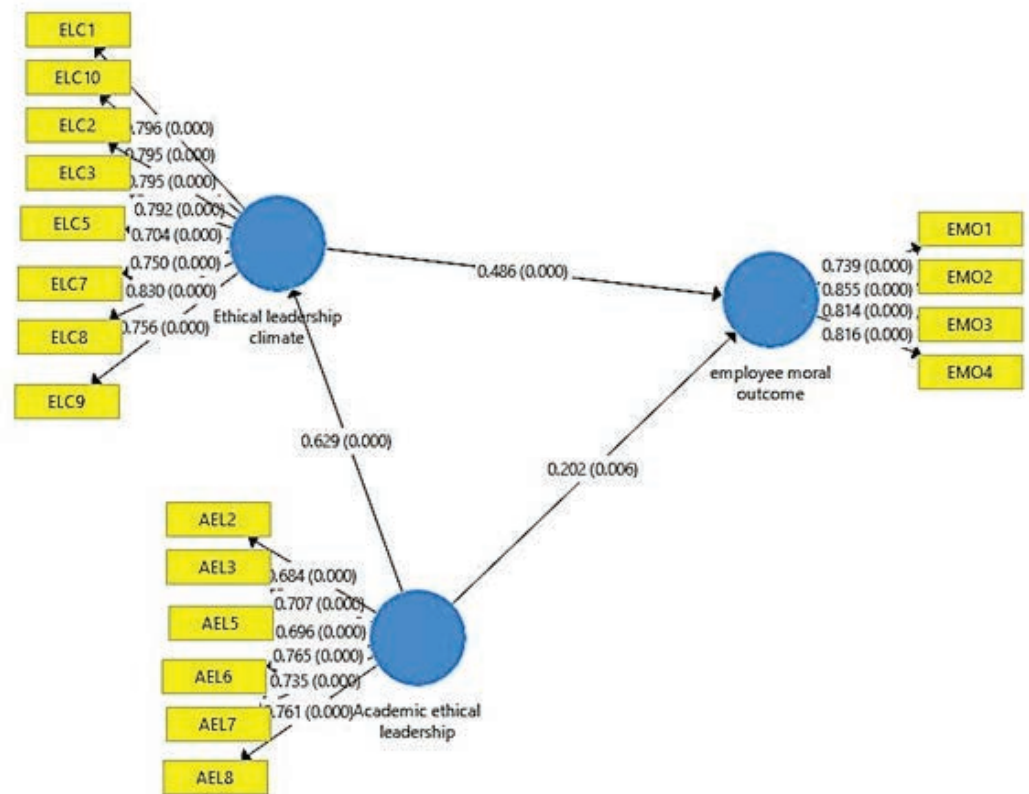


Figure 2: Structural Model.

moral sensitivity. This finding agrees with SLT that posit that observed moral fosters moral attitudes and prior works that argued leaders are role models for an employee to follow on moral matters since they possess high ethical and moral virtues (Hunter et al., 2013; Rest & Thoma, 1985; Riggio et al., 2010). Therefore, the study contributes to social learning theory and existing works on ethical leadership in literature.

Haron et al. (2017) intimate that the ethical tone at top leadership is a vital determinant of ethical behaviors in organizations. In this study, the impact of ethical leadership climate on the ethical effectiveness of subordinate indicates a positive relationship based on a social learning perspective. This finding is consistent with social learning theory that suggests that for anyone to embark on moral attitudinal behavior, a social learning climate must be present (Brown et al., 2005). The finding implies that to enhance the moral performance of academic subordinates; it is vital for academic bodies to emphasize the ethical tone capabilities of academic leaders. Thus, educational policymakers can explore leaders to weaken the effect of academic employee unethical conduct.

An ethical leader that exhibits the cardinal virtues of fortitude, temperance, justice, and prudence according to Riggio et al. (2010), will create an ethical tone for necessary ethical decision making in institutions (Haron et al. 2017). Another finding from this study

suggests that virtue-based ethical leadership positively influences ethical leadership climate in institutions. The result is consistent with prior literature (Riggio et al., 2010) that indicated that a virtue-based approach is a valuable tool for the assessment of ethical leadership. Based on social learning theory (SLT), this study argued that observation occurs before learning because, without the display of moral virtues by leaders, a learning environment cannot be created for an employee to learn morally from their leaders. The practical implication is that institutional ethical policymakers especially in Africa, can utilize a characterological perspective to enhance the ethical climate in institutions and mitigate the effects of unethical conducts in the academic.

One of the findings from the study indicates that virtue-based ethical leadership indirectly impacts employee moral effectiveness through ethical leadership climate. Therefore, institutions who want to influence their ethical climate and at the same time influence their subordinate moral behavior might consider selecting top leaders based on their virtues and not just their academic qualifications. The practical implication of the positive finding is that organizations may consider moral leadership development along with prudence, judgment, temperance, and justice as crucial components of virtues (Riggio et al., 2010) to manipulate workplace academic moral behaviors. This finding is consistent with social learning theory that indicates that people behave the way they do as a result of observation and learning occurrence and prior literature (Aristotle, 2006) that suggest moral habits makes a moral character. Overall, educational ethical policymakers especially in Africa should take cognizance of the differential impact of academic ethical leadership and ethical leadership climate on employee moral positioning when making policies in the institution of higher learning.

## 6. Conclusion

Indeed, academic leaders play significant ethical role as their moral habits (ethical virtues and tones) influences moral outcomes (employee moral effectiveness). This study provides empirical insight into the link between virtue-based academic leadership and academic employee morale result together with the role played by ethical leadership climate in the underlying relationships based on social learning theory (SLT) in an African context. The findings from this study provide evidence that virtue-based academic ethical leadership directly and indirectly socially influence proper employee positioning for moral actions via ethical tone enabled by leaders. As both the virtue and ethical tone-based leaders significantly contribute to the employee moral status, institutions in Africa can utilize the perspectives in their social network to stimulate employee moral

academic behaviors in the workplace and address unethical practices. The research is limited in that the conclusion drawn from this study is grounded on only a country sample context in Africa. Consequently, researchers are encouraged to validate the findings across different countries to aid better understanding and generalizability in the future.

## Acknowledgement

We would like to thank Yayasan Bank Rakyat for the financial support by sponsoring this paper to be presented in the FGIC 2<sup>nd</sup> Conference on Governance and Integrity 2019.

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**Conference Paper**

# Cyber Warfare Impact to National Security - Malaysia Experiences

**Azian Ibrahim<sup>1</sup>, Noorfadhleen Mahmud<sup>2</sup>, Nadrawina Isnin<sup>2</sup>, Dina Hazelbella Dillah<sup>2</sup>, and Dayang Nurfauziah Fauz Dillah<sup>2</sup>**

<sup>1</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

<sup>2</sup>Faculty of Administrative Science and Policy Study Universiti Teknologi MARA 94300 Samarahan Sarawak

## Abstract

This study analyzed the cyber warfare impact on national security and focusing on Malaysia experiences. The issues regarding cyber warfare have become a serious concern since it was a risk of national security in Malaysia. The objectives of the study are to analyze issues related to cyber warfare that affected Malaysian system security, to determine causes that caused to cyber warfare. This study used a qualitative research approach to evaluate the current defense approaches related to cyber warfare in Malaysia. The interviews were conducted with the respective respondents: the Senior Manager, Research Management Centre, Strategic Research, and Advisory Department of Cyber Security Malaysia Department. This study can contribute to expanding the security of national security by demanding the government to adopt a broad acquisition risk management strategy. It can assist in the development of highly effective aggressive and defensive methods to any company dealing with future cyber warfare challenges and risk.

Corresponding Author:

Azian Ibrahim  
 aziani@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

**Keywords:** cyber warfare, national security, experiences.

## 1. Introduction

As stated by the Global Information Assurance Certification Paper (2004), cyber warfare can be defined as cyber-attacks provide the terrorists a chance of bigger safekeeping and flexibility in operational. Ideally, it used a computer to attack from anywhere in the worldwide, avoid revealing the assailant to physical injury. In other words, this cyber warfare can have hacked the system of the computer without the owner of the computer knows that their computers been hacked by those cyber-attackers. They can attack the computer from one location to another location just by one click of the mouse. According to Ahmad Hemmat (2011), in recent decades, the world has witnessed the salient social transformation as our lives became inextricably linked and dependent upon technology and more particularly the internet. It has brought the influences in every aspect of people

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business and governmental transactions. There is crucial to understand and learn more about cyber-warfare due to the current environment now that all are depending solely on the internet. Furthermore, based on definition from U.S Army's Cyber Operations and Cyber Terrorism Handbook, they distinct cyber warfare as solely the latest form of information fighting and its comprise computer network attack (CNA), which contains the disruption and rejection of operations, damages or abolish resident information both in computers or computer networks or the computers and network themselves (Swanson, 2010). A CNA involves in "hacking" of other nation's computer networks, however, used different data systems as physical weapons when performing an attack. There are important elements that must be highlighted, which are attack and defend. The information would be the one been attacked.

Based on Ahmad Hemmat (2011) stealing information from storage devices and also attack data that has been processed, evaluate, and distribute information. They will attack the networking by using any form or method. Another important element in defending which involve what would be defended or protected. For example, to safeguard the information processes from being stolen and as well as disseminate the information from being attacked and protected on networking as a whole. In most cases, the growth of the technology has brought the progressive changes especially in the field of information sharing and innovation in defenses systems around the world, but this innovation turn into vulnerability is inescapable in today's globalized world.

According to Global Information Assurance Certification Paper (2004), the more developments in information and communications technology have revolutionary effect on the public, especially large impact towards our life and all the activities or actions become much depends on the information infrastructure. Apart from this, cyber warfare has also brought an impact on national security. National security can be defined as the term "security," it may be known as a free from the threat or risk of the simple principles both either in group or individual. While according to (A.Rahman, 2010) the national security can be defined as the national independence and local integrity as the most crucial to be defended.

National security not solely the objectives to be achieved but should be enlightened appropriately to the possible way. According to A.Rahman (2010), in Arnold Wolfares's seminal essay, he defined national security as "ambiguous symbols." In other words, it is combined with the emotional and political appeal within the full range of relevant meanings. There are different meanings of national security in other states. For example, the United States of national security policy in the 1980s and 1990s has to resolve with the Soviet Union and the relation of the United States has with the Soviet Union. It also

happened in Malaysia, whereby Malaysia also has its pre and post-independence. This situation gave diverse stages of national security and threats. The government policies become tighter when there is high pressure on the threats.

The Internal Security Act in Malaysia was first established and has been enforced in parliament on 1st August 1960 which to combat the threats from Communist and subversive action (A.Rahman, 2010). Malaysian Government could not accept 583 Communist members who located in the northern region as a Malaysian citizen after realizing what they had done to the country, especially during the establishment of the Act. National Defense Week has invited challenges from international adversaries, but three strong national defenses imply an efficient military which might threaten people's liberty (A.Rahman, 2010).

In conclusion, cyber warfare has brought the impact on national security when national security is weakened and easily can be hacked by those attackers. National security should be tightening as the technology nowadays can be reached easily, especially by those attackers, and the government must ensure their security more tighten as technology is moving forward. Therefore, this research will discover the issues related to cyber warfare that affected Malaysian system security, which aims to determine the factors that contribute to it and make an evaluation of the current defense approaches.

## 2. Statement of Problem

War, crime, and terrorism are outdated ideas which happen in a physical way, whereas cyber warfare is one that is used in conventional media as with information warfare. Lots of definition related to cyber war and it refers to the war on the internet or known as cyberspace which consists of Cyber-attacks alongside to a nation and communication network as well as cyber-terrorism where they used cyberspace to commit terrorism. It's being acknowledged as prohibited attacks and risk of attacks. They used computers, networks, and any information stored. Usually, cybercrime is faced by many parties and not only effect on individual but also the organization as well as the nation. According to Yunos (2008), the intention of doing a cybercrime is further towards computer-related crimes and to achieve monetary as their attention.

From the information security point of view, the risk is well-defined as possible to cause an undesirable case may affect assets, systems, or organizations. Three types of dangers have been identified, which is intentional, accidental, and environmental. Intentional threats include used fake or prohibited software while service down, a

mistake in people design or hardware failure can be considered as an accidental threat. Meanwhile, environmental dangers are further on the environmental effect such as quakes, thunderstorms, or lightning. As generally understood, these three threats cannot be removed but having effective measures to control such pressures inside each organization, which believed it can be reduced.

According to Yunos (2008), threats can cause an undesirable effect on safety, socio-economy, and human lives if not correctly controlled. New challenges faced by investigating computer-related crime by forensic specialists, as stated by Broadhurst (2006). Change away from “script kiddie” reliefs to cruel software which program aimed to rip-off information, specifically special identification data.

The challenges of taking out evidence from computers or servers are increased because of the more significant use of encryption and access protection. Many victims are not willing to lodge a report any wrong wrongdoings with regards to cybercrime, and this becomes a never-ending problem. As a consequence, these activities will lead to infrastructure security are dangerous. The available online source code and automatic “easy to use” hacking devices which act as system observation had offer variety manipulation tools and set up “spy-ware.” Key logging monitoring or program is an example that leads to other unlawful activity together with shakedown, financial or internet fraud, theft, telecommunications theft, and economic surveillance.

Furthermore, “patch” pledge an act to measures and have proved as insufficient due to numerous users unsuccessful to informed (both the software was legal nor illegal) as “MS blaster” proven, even though the accessibility of an active patch previous months before they relief of this specific malicious code.

According to Broadhurst (2006), many organizations of law enforcement are not able to answer efficiently to cybercriminals, including developed country, “play catch-up” with cyber-savvy wrongdoers. In a few years back, there is a keen technique in taking a customer’s identification by using web-page “jacking”. One of the cases that have been reported in December 2003, where an example of cyber-theft happen at copied Hong Kong and Shanghai Banking Corporations’ internet banking website that cooperated an unknown number of customers’ identification. Currently, cyber-criminals were operated for failed or failing situations. These will lead to wrongdoing to the worldwide economy, by providing a safe place.

According to Broadhurst, it is never happening before wherewith as lower cost the offender can face a terrible loss or destruction towards individuals, companies, and governments for another sphere. For instance, a 14year-old Hong Kong Boy was detained because of forming a malicious website which he claimed the website is

getting accredited by a well-known local newspaper. False information regarding SARS epidemic has been a blast on that website. Widespread panic was triggered among the Hong Kong community due to rumors that Hong Kong would be declared a red signal.

Other issues arise was in superstores where it is over-run by fearful citizens to buy more than usual of foodstuffs to get prepare for the quarantine rumor in Hong Kong. The situation becomes well after a few hours later when the government made a press conference and repeated an announcement which rejecting the unauthorized statement.

Meanwhile, a teenager (14-year-old) was found guilty and positioned below the welfare house for one year. From these threats it has shown that the sensitivity of "information security" is no longer in place. Everyone now can easily involve in this new medium to do a criminal, commercial communication, or relaxation purpose. They do not require more technical or computer specialist to do.

According to Gaurav Raghuvanshi, (2015), the recent case where it was involved Malaysia Airlines Website that has been hacked or attacked by a group of hackers. The group was calling itself as 'Cyber Caliphate.' The website has been hacked by this group that attempts to resolve a mark with a U.S. computer game firm. Users who go to that website have experienced different image as usual. They notice that the message stated 'ISIS WILL PREVAIL' was pop up on their browsers window and they have a difficulty to do a transaction. They cannot make an online ticket booking because that service was not available. It happens to Malaysia Aircraft (A380 plane) where '404-Plane Not Found' was appeared and it was 'done by Cyber Caliphate.' Both messages showed on the website. After that, the website had displayed different image which the website appeared a weird image. On the same day, the transporter changed the effected site with an appropriate version which gave customers to reserve flight tickets.

According to Pierluigi Paganini (2014), the financial institution also being effected in 2014. Affin Bank, Al-Rajhi Bank and Bank of Islam and other 17 bank outlets belonged to United Overseas Bank are reported being hacked by the Latin American gang. The losses were about more than RM3 million Malaysia Kini (2014) reported.

According to Mohd Hafizzuddin, in June 2011, Malaysian websites have been attacks by cyber-attacks and the hackers known as "Anonymous." It is being reported by Malaysia's Communications and Multimedia Commissions (MCMC) that about fifty-one of webpages in the "gov.my" domain was attacked. Forty-one suffered different ranks of interruption. This was disseminated through denial of service (DDoS).

Effected "gov.my" websites was reported cannot be accessible for the public. Due to this, the Malaysia Computer Emergency Response Team (MyCERT) performed a quick

action to resolve the destruction caused by 6 “Anonymous.” Within 24 hours prior to the attacked, all the affected “gov.my” websites were speedily back to normal.

According to Mohd Hafizzuddin, Malaysia has established a national cyber-security specialist that was known as Cyber Security Malaysia (CSM). It was parked under the Ministry of Science, Technology, and Innovation (MOSTI) in 1997 were formerly known as the National ICT Security and Emergency Response Center (NISER). Generally, this agency was established in order to observe Malaysia’s e-security aspect. Besides that they act national cyber-security to implement the policy, center of technical coordinator as well as a center for cyber risk research and assessment center.

According to MOSTI, there are 8 procedures under The National Cyber Security Policy which are Effective Governance, Legislative & Regulatory Framework, Cyber Security Technology Framework, Culture of security and Capacity Building, Research & Development towards Self-Reliance, Compliance, and Enforcement, Cyber Security Emergency Readiness, International Cooperation. In assisting Malaysia’s moving forward to a knowledge-based economy (K-economy), National Cyber Security Policy was created. The Policy was framed based on a National Cyber Security Framework which consists of regulation and control, technology, cooperation between public-private, institutional as well as worldwide aspects.

According to Mohd Hafizzuddin, in order to safeguard national security, efforts to infiltrate an infrastructure of a sovereign nation could further evolve from standard hacking and denial of services to the destruction and crippling the entire nation’s survivability or its ability to defend itself. The basic infrastructure and networks need to dependable, and governments have to implement a complete method to guard itself against any offensive activities. An essential vibrant of computer security is that the defenders must continually furnish themselves to protect vital information since enemies can attempt attacks at any time.

### 3. Research Objectives

There are several objectives of the study on the cyber warfare impacts towards national security based on Malaysian experience which are: (i) To analyze issues related to cyber warfare that affected to Malaysian system security (ii) To determine factors contribute to cyber warfare (iii) To evaluate the current defense approaches related to cyber warfare in Malaysia.



## 4. Literature Review

There are various terms of cyber warfare used in literature. Cyber-warfare can be well-defined as attacking and protecting information and computer networks in cyberspace, as well as denying an adversary's ability to do the same (Global Information Assurance Certification Paper, 2004). According to Parks and Duggan (2011), cyber warfare is the mixture of computer networks attack and defense which support with technical operations, and it is supported by Billo (2004) cyber-warfare consists of units organized along nation-state boundaries, either in an offensive or defensive operations. Through electronic means which used computers to attack other computer or network. While national security is referring to how protective measures of the state is taken. How they are avoiding their provinces and people from physical attack by others which include protection against important state economic, politic, military, social, and cultural and interests from being attacks by foreign or domestic sources which may harm, erode, or abolish these interests, thus threatening the strength of the state. This protection can carry out by military or non-military means (David S. Alberts, 2000). Since 1998, Scott Borg argued at a conference in Colorado Springs that lots of cyber-attacks have taken place. From 1998 to 1999, Kashmir, India, and Pakistan have developed cyber militias to carry out attacks against one another (Caplan, 2013) and each of this country has used this strategy in their long-run conflicts.

According to Caplan (2013), the United States utilized cyber-attacks in Operation Allied Forces when the NATO airstrikes on Serbia, provoking an eventual counterattack by Russian hackers. With the help of Iranian technology during the year of 1999, Hamas has attacked Israeli cyber targets. Due to this, cyber-attacks have started as a key feature of the Arab-Israeli conflict. Cyber-attacks were also used in the conflict between Turkey and Armenia in the year 2000. After that year, the terrorist 13 organization Hezbollah started to attack against Israel. In 2006, it was turned for Indonesia and Malaysia began to utilize cyber-attacks in their dispute over the Celebes Sea. In 2007 Russian had to attack Estonia and it is called a Web War One. There were many important Estonian websites were flooded by request to access that make the server breaking up. This case one of the utmost wired compared to others state. As a result, Estonians cannot use their internet banking, online newspapers, or government portal services.

Based on Ahmad Hemmat (2011) in his research paper, Russia's earliest examples of politically motivated explicit cyber-attacks date back to as far as 2002. In 2008, they used cyber-attacks evolved from selective targets to becoming key component of Russian military strategies. In re-act to Georgia's attack to protestors in South Ossetia,

massive damage to the networks was did against the Georgian government. This is the first time that cyber-attacks overlapped with land, marine, and air attack by one state to another in the history of warfare. The aimed is to overload and ultimately shut down Georgian servers through their cyber infrastructure. As a result, the servers in Georgia were filled with inbound attacks, but no outbound traffic could get through (Caplan, 2013). In conclusion, those were the history of cyber warfare that has emerged until now and become one of the serious problems that need to be resolved before it spread widely

Cyber-terrorism can be defined as interfaces between people intentions and information technology for extreme events on the Internet or the cybernetic world (Bogdanoski, 2013). Also can be defined as the use of computer network devices to shut down critical national infrastructures like energy, transportation, and government operation to pressure or threaten a government or civilian population (Lewis, 2002). They used information technology to bring together and perform attacks against networks, computer systems, and telecommunications infrastructure either to swapping the information or acting electronic risk.

According to Lewis (2002), there were four elements of reassessment of the cyber threat. The elements are as follows:

1. Positioned both cyber warfare and cyber terrorism in the historical perspective of attacks against infrastructure.
2. Observe any cyber-attacks towards a backdrop of repetitive infrastructure problems. For example, there is extensive data on power outages, flight delays, and disruptions of communication that generally occur and the consequences of these routine failures can be used to gauge the effect of cyber-warfare and cyber-terrorism.
3. Measure the dependence of infrastructure on computer networks and redundancy present in these systems.
4. Must consider the use of cyber-weapons in the context of the political goals and motivations of terrorists and whether cyber-weapons are likely to achieve these goals.

Cyber weapons are new warfighting and it is not an old weapon of fighting. There are various options of cyber weapons that may choose by individuals or nations, including syntactic, semantic, and mixed weapons (Swanson, 2010).

By using Syntactic weapons, they target computers operating system which contains malicious code such as viruses, worms, Trojan Horses, disseminated denial of service (DDoS) and spyware. The cyber attacker shuts off a website by blasting it with vast volumes of traffic by using the DDoS attacks. Whereas in the semantic attack, to avoid producing any errors without the handler's awareness, they will convert information's enters into the computers system. In other words, the semantic weapon targeted the exactness of information to which the computer user has the right to use.

The mixed weapon is the combination for both of the weapons which are a syntactic and semantic weapon. It also can be called as "blended weapons." This weapon is to attack both of the information and the computer's operating system, causing a further refined attack. For instance, based on what Swanson (2010) stated that assorted weapon is a "bot network," which is a multiplying of "bots," secretly fixed on not guilty to other computers.

Bots can be defined as automatic computer programs that spoil other computers. He or she can who has access to controlling it can detect, duplicate, and transfer sensitive data in a swarm attack against targeted computers. This person we called as a hacker. The attacked computers or networks that being infected by harmful software then will be controlled under an attacker in a remote control location (Swanson, 2010).

According to the Global Information Assurance Certification Paper (2004), information is an important valuable asset to any organization and is the main critical success factor. Lacking information security leads us at a certain level of threat. Based on Kenneth J. Knapp (2006) stated in his journal, for years, ' system security was a backburner issue among IT executives (Straub and Welke, 1998).

Security is now moving to the forefront follows the changes in the threat environment. A recent survey conducted by Lutfman and McLean (2004) in the same journal also, stated that security and privacy as the third top issue. Those who have specialties skilled in the particular area of security is high demand by the organization that wishes to protect their information security.

Furthermore, all information security controls and safeguard, and all dangers, vulnerabilities, and security process are a focus on this tenets yardstick (Global Information Assurance Certification Paper, 2004). Information is the highest significant asset in any organization. Regardless of any types of information takes either electronic, hardcopy, or a person's knowledge. The need for protection remains significance in order to offer business stability, capitalize on business opportunities, and soften potential risks to lose or damage.

According to Andrew Adams (2012) in 2011, the Internet came under a tremendously noticeable risk from the military. We do not refer to military forces attacking either the physical or informational infrastructure of the Internet but of growing claims by the US, UK and other military forces that they should be funded and authorized to conduct cyber-attacks to counter apparent threats to national security or national interests. While the concept of using communications infrastructure for military activity dates back to at least the early 90s, it is only very recently that the militaries of democratic regimes began proposing an explicit doctrine of legitimate cyber-offense. In this paper, we analyze the validity of these proposals by the military and find them lacking in justification both philosophically and practically. Based on the constitutional pacifism of Germany and Japan, we propose that military assets be focused on improving cyber-defense capabilities and not authorized to develop or deploy cyber-attack capabilities.

According to Lewis (2002), the military case for increasing its circle of activities to cyberspace is based upon the reality and potential for cyber-attacks. Although in the twentieth century there was a clearly defined principle (not always followed) that military personnel should be deployed primarily against other military personnel in attack and only in defense against civilian targets, this standard has come under pressure in many quarters in the last twenty years. It has been asserted that government-sponsored or even covertly condoned, cyber-attacks constitute military action.

According to Mohd Hafizzuddin (2011), there were cyber-attacks on Malaysian websites by the hacker known as "Anonymous." According to the report from Malaysia's Communications and Multimedia Commissions (MCMC), 51 of websites in the "gov.my" domain was attacked, where 41 of them suffered various levels of disruption. The caused: 24 a distributed denial of service (DDoS). The effected: inaccessibility of the "gov.my" websites for the public. As a result, the Malaysia Computer Emergency Response Team (MyCERT) acted quickly to mitigate the destruction caused by "Anonymous." The affected "gov.my" websites were quickly put back online within 24 hours before the attack.

Mohd Hafizzuddin reviewed that it was noticeable to have Cyber Security Malaysia (CSM) established as the national cyber-security specialist for Malaysia. This agency, under the purview of the Ministry of Science, Technology, and Innovation (MOSTI) was earlier known as the National ICT Security and Emergency Response Center (NISER) in 1997, to monitor Malaysia's e-security aspect. Besides that, CSM also plays a role as the national cyber-security policymaker, the national technical coordination center, and the cyber threat research and risk assessment center.

Mohd Hafizzuddin stated that in order for Malaysia's to dependence on cyberspace, infrastructure and networks must be dependable; therefore, the governments have to embrace a comprehensive method to protect from aggressive actions. The vibrant partnership between the private sector, the government law enforcement community and the national security community is vital in the way to boost up an ongoing national cyber defense competency. A new element of cyber defense that need to consider is the supply chain. In today world, the supply chain had become important in worldwide, and due to that, it has faced some weaknesses which can affect terrible damage if it is not being controlled properly.

Malaysia According to Borneo Post Online (2013), Malaysia is the sixth greatest open to cyber-crime. Malaysia is also reported to be significantly revealed to Android PC and devices malware attacks and listed ten riskiest countries. In the event of a cyber-crime, victims can lodge a report with Cyber Security Malaysia. Out of the RM1 billion in losses from cyber-crime in the first six months of this year, 9,857 cases were reported with 7,801 of these solved and 3,385 people arrested. Last year, the losses amounted to RM1.115 billion with 8,920 of the 11,543 reported cases solved and 3,712 people arrested.

According to Bukit Aman Cyber Crime and Multimedia Criminal Investigation officer ASP Mohd Syafiq Jiniu Abdullah, the regularity of cyber-crime cases had increased progressively, where about 6,586 reports of such cases were lodged last year with RM34 million incurred in losses compared with 6,238 cases involving RM18 million in 2010. He said online love scams usually involved African nationals whose love affairs with local women saw the latter being duped and losing their life savings to their paramours in extreme cases. A study showed that women who fall prey to the scams are single-mothers, unmarried women, and women with marital problems.

On cheating online purchases, it usually is reported by individuals who bought goods via online like mudah.my, e-lelong, and alibaba.com websites. The websites were not scams, but these websites assist as a platform for truthful traders to sell their products; however, they tend to invite fraud due to a lack of detailed procedures to control those involved in such scams.

Another cyber-crime method that has taken place was the fraud through online financial. It happened when consumers were fooled by unauthorized bankers or police officers that asking information such as bank account numbers. They claimed that the victim had won a contest or some other cases it is required to settle a credit card. They did not realize to be a victim until they know their money had been taken out without their approval.

Zahri Yunos (2008) reviewed that in 2001, Malaysia online systems were attacked by the Code Red worm. This is a typical case of how the system being attacked. Due to this, the Malaysia national communication network was stoppage, and it takes one quarter to remove these problems and losses caused were RM22mil. The viruses spread very fast, and this loss is not including other business losses as well as other sectors. In 2003 cyber-attacks caused by the Blaster and Naachi has been reported. Both worms started with the propagation of the Blaster worm through the scanning of vulnerable machines via the network, followed by Naachi worms. These worms used the weaknesses that have in the Windows NT, 2000, and XP software. The price for removing this was about RM31mil, which not counting any losses on intangible aspect like productivity and loss of business opportunity.

## 5. Methodology

Preliminary contacts were made to obtain the permission of the officers of the Cyber Security Agency and Malaysian Communication and Multimedia Commission to be interviewed. The sampling techniques best described as purposive and convenience, respectively.

## 6. Results

**Objective 1:** *To analyse issues related to cyber warfare that affected Malaysian system security*

In Malaysia, current issues related to cyber warfare are always about the elasticity of the Critical National Information Infrastructure (CNII) as provision for any cyber threats. CNII is defined as properties (real and virtual), systems, and functions that are vital to the nations. Their incapability or damage will give shocking impact to National such as economic strength, image, defense and security, impact on government functionality and public health and safety.

The National economic strength is where the self-assurance of the nation's key growth area can able to compete successfully in the global market while preserving satisfactory standards of living. To enhance national stature and sphere of influence, it's important to maintain a good national image.

National defense and security are to guarantee sovereignty and independence while maintaining internal security whereas Government capability is to functions and maintains order while performing and deliver minimum crucial to public services. Public

health and safety, they are responsible for bringing and maintaining optimal health care to all residents. There are ten sectors under CNI, which include National Defence & Security, Banking & Finance, Information & Communications, Energy, Transportation, Water, Health Services, Government, Emergency Services and Food & Agriculture.

The strength of any nation's security, against cyber-attacks, is as strong as its weakest link/point, and the National Cyber Security Policy (NCSP) was established to increase the resiliency of our CNII.

To assist Malaysia moving forward to a knowledge-based economy (K-economy), National Cyber Security Policy has been designed. A policy that formulated is based on National Cyber Security Framework. It covers legislation and regulation, technology, a collaboration between the public and private sector, institutional as well as institutional aspects. NCSP seeks to address the risks to the Critical 41 National Information Infrastructure (CNII), which comprises the networked information systems often critical sectors.

The issue affected Malaysian system security is any CNII system that is compromised is capable of disrupting the well-being of the nation. It is always a catch-up scenario, as cyber threats are always evolving. The Malaysian system needs to continuously enhance the knowledge and adopt more IT-savvy in order to stay ahead of cyber threats practices in securing the CNII operations.

Besides, the table also explained what would be attacked in the cyber warfare which the Cyber Security stated that if the attack intention is to disrupt the national economy, therefore, any of the CNII organizations are a potential target. When the cyber warfare attacked, the things that are protected are systems that do not have an internet connection and have their independent power supply such as its generator. In contrary, all electronic devices are vulnerable to an Electro-Magnetic Pulse (EMF) type of weapon.

Government documents have also been affected by cyber warfare as information theft is always a concern as the illegally obtained information could have a negative impact on the economic fortune of the nation. On top of that, from the country perspective, the victims that usually attacked by cyber warfare is CNII organizations while from economic perspectives, it could be the business with valuable trade secrets. Cyber-warfare can harm the security system when any systems that are not adequately secured are at risk. The only differences are in the impact or implication when these systems are compromised. All systems are vulnerable as Malaysia is dependent on these "foreign" technologies.

**Objective 2:** *To determine factors contribute to cyber-warfare*

Few aspects that contribute to cyber warfare which are economic gains or advantages, corporate espionage, nation spying, to destabilize a nation, and many others. The factors mentioned are motivations or reasons that contribute to the attacks which typically are done through hacking into any computer or system, figure out the flaws, and exploit those flaws to increase control of that system and take the sensitive information or destroy the system to sabotage the “enemies.”

Based on our finding, cyber-attacks have various impacts on the national security, which can jeopardize the political, economic, and social welfare of the country. The challenge of cyber warfare in Malaysia is in the fast detection of Advanced Persistent Threat (APT). Due to the pervasive and high interconnectivity in the cyber world, the scale of damages will be substantial from attacks on the CNII, for example, if TNB Power Transmission/Distribution services are down even though their power generation services are producing electricity.

**Objective 3:** *To evaluate the current defense approaches related to cyber warfare in Malaysia*

Cyber Security Malaysia claims that the current defense approach adopted against cyber-attacks is more of a proactive and preventive approach rather than reactive. The defense is done on an integrated and comprehensive approach rather than on a case basis. Preparedness as per the NCSP Policy Thrust Number 7, Cyber Security Emergency Readiness. Cyber Security Malaysia have been organizing with the National Security Council, regular Cyber Threat Simulation exercise called X-MAYA with CNII organization as part of the CNII preparedness in the event they are attacked.

Cyber Security has various Cyber Security Awareness for Everyone programme ([www.cybersafe.my](http://www.cybersafe.my)), which is a preventive programme and which is hard to measure as how do one measure something that was avoided or did not happen. The fact that there is still Malaysian being victims of cybercrime in the local media shows that more needs to be done. Cyber Security Malaysia is also assisting local Law Enforcement Agencies and the public by providing hotline e-mail at ([cyber999@cybersecurity.my](mailto:cyber999@cybersecurity.my)) in combating cybercrimes. The public can freely make any complain regarding the cyber-security issues to the mentioned email.

The defensive strategies using by cyber-security Malaysia to defend the national security being attacked by cyber warfare is being awareness, readiness, and knowledge sharing among the CNII organization. The National Cyber Security Policy addresses the need of the nation in order to avoid the national security attack. The current systems and policies are adequate to defend against the current threats, but there are no guarantees for tomorrow since the threat is always evolving. This is because Malaysia is ranked



Joined 3rd with Australia & Oman in the International Telecommunication Union's (ITU) 2014 Global Cyber Security Index.

## 7. Summary of Findings

From the findings on objective 1, it could be found that there are many issues related to cyber warfare that affected Malaysian system security. The issues are related to the CNII sectors, which consist of ten sectors. The cyber warfare could have attacked the Malaysian system security depend on the strength of resiliency of the CNII against any cyber threat.

Apart from that, in the findings of objective 2, it shows that there are various elements that can add to the cyber warfare in Malaysia which using various methods. The consequences of the cyber-attack not only harm the targeted victim but also the whole country will bear the adverse impacts. There is major challenge that the country must face, which is the fast detection of Advanced Persistent Threat (APT). Apart from that, due to the pervasive and high interconnectivity in the cyber world, there is a broad scale of damages caused by cyber-attack.

Last but not least, in objective 3, the findings discuss the current defense approach adopted against cyber-attacks by Cyber Security Malaysia. There are also defensive strategies using by cyber-security Malaysia to defend the national security being attacked by cyber warfare, namely being awareness, readiness, and knowledge sharing among the CNII organization. Besides, the applicable policy in Malaysia is the National Cyber Security Policy, which addresses the need of the nation to avoid the national security attack.

## 8. Conclusion and Recommendation

There are several consequences of the present research. From this study, it is proven that the Malaysian cyber-security is still lacking in some part of it, and there are many holes to be fixed. The government should follow the best practices in the developed country which experienced much longer in cyber security, for example, the United States. This is because there are still many cases of cyber attacking the national data system and individual privacy. Despite that, there are a lot of losses in terms of monetary and pride. The companies and organizations in Malaysia should not only depend on the government in protecting their respective cyber -security. Each of them should take their approaches and alternatives in adopting a new system as long as the system is

legal. The government should be bold in investing a lot in cyber-security purposes. This is because the money invested will be worth if any data breach can be detected in the early stages. This will help the government to avoid a lot of risks and losses.

Ethan Oberman (2014), the government need to be alert on the significance of guarding the sensitive national data because the range and cost of data breached are kept on increasing. The current era, all organizations, and companies are involved in controlling their valued information. All level need to understand this concept and not allow any delayed in any practices.

Malaysia has witnessed a massive breach of data that were arising due to malicious programs, and the financial impact is huge because of a data breaches. The cyber-security awareness in Malaysia also not communicated well through all citizens regardless of the walks of life. Ethan Oberman (2014) stated that lacking communication between IT and superior about the significance of cyber-security and damage a data breach may turn the company's public image to the bottom line. It is showed that the importance of communication about security awareness should be carried out to all levels of management.

This is because the consequences not only tarnish the organizations' and companies' but also the government as the responsible body to protect the national cyber-security in every level using various methods and approaches. The Malaysian cyber-security controls do not provide suitable protection for innovative cyber-attacks. This is because according to our finding, the government uses the proactive approach rather than a reactive approach which they only depend on the existing system in order to fight against the current cyber-attacks. This will be worsened when the government cannot find a way to fight the advanced cyber-attacks and still looking for the best way while the attacker is enjoying the moment the government is wasting. Malaysian cyber-security needs much improvement and still lacking in some part of it. There are several initiatives that have been mentioned by President Barack Obama (2008) that can be adopted into Malaysian cyber-security.

Firstly, use only Trusted Internet Connections to manage the Federal Enterprise Network and act as a single network enterprise. Secondly, install a sensor across Federal enterprise to detect any interference. It's very important for Malaysia Government network defense to use a passive sensor in Intrusion Detection Systems. Through the system, they can identify any unofficial users who plan to gain access to the network. Thirdly, set up the used of interference prevention systems through the Federal enterprise. As a result of these new ways, it is the next advancement to protect civilian Departments and Agencies of the Federal Executive Branch. Next is to pursue

research and development (R&D). These R&D activities are being sponsored by the government. Currently this initiative in the midst of developing strategies and structures in order to standardize all cyber R&D related works. Including R&D sponsored or lead by Malaysia Government. Fifthly, enhance situational awareness by connecting each of the cyber operations centers. Its need to ensure the government information security offices and strategic operations centers provide any information or data of dangerous activity to the federal system. Parallel with the practice where privacy protection and other protected information will be provided consistently to those who provide any wrongdoings.

Sixthly, plan such government-wide cyber counterintelligence (CI) need to be created and practiced since this plan was required to manage activities that happen across Federal Agencies. It is responsible is to spot, prevent, and alleviate the external cyber intelligence risk to Malaysia and private sector information systems. Finally, upsurge the confidence of our categorized networks. All sensitive information from Federal Government's which can support war-fighting, diplomatic, anti-terrorism, law enforcement, intelligence, and national security operations need to categorized or known as classified network. In order to secure the Malaysia Government in cyberspace, lots of investment or dollars have been spent however only the people who have an understanding, expertise and talents can implement those technologies. Implementation of CNCI in Federal Government or private sector is difficult due to not enough expert areas furthermore no stable career field in cyber-security. Currently, we have good cyber-security training and personal development programs but its lack of unity of effort. Developing a skilled workforce that equipped with technologically and cyber-savvy of next-generation employees are crucial. Therefore we can take technical advantage for future cyber-security.

## Acknowledgement

We would like to thank Yayasan Bank Rakyat for the financial support by sponsoring this paper to be presented in the FGIC 2<sup>nd</sup> Conference on Governance and Integrity 2019.

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## Conference Paper

# Examining the Link between Ethical Culture and Integrity Violations: The Mediating Role of Integrity Climate

Afzal Izzaz Zahari, Jamaliah Said, and Roshayani Arshad

Accounting Research Institute, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia

## Abstract

Integrity violations are actions that can cause harm to the economy and society at large. These violations would cost the organisation losses or devalue their reputation. Many initiatives were taken to mitigate integrity violations at the organisation level. Creating a positive ethical culture was argued as a crucial approach to minimise the incident of integrity violations. However, to date, little research was done to provide empirical support on whether ethical culture contributes significant effect to integrity violation. This paper aims to investigate whether ethical culture can impact integrity violations. Data were collected using questionnaires distributed to 459 state government departments. There are a total of 343 out of 459 (75%) questionnaires distributed to Malaysian state government departments were received. The findings indicate that integrity climate mediates the relationship between ethical culture and integrity violations. The practicality of the research provides a further understanding of public sector organisations and their behaviours. The viewpoint of whether having ethical culture as a social norm in an organisation provides insight towards the occurrence of integrity violations.

Corresponding Author:

Afzal Izzaz Zahari  
afzalizzaz@gmail.com

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

**Keywords:** ethical culture, integrity climate, integrity violation, Malaysia, and public sector.

## 1. Introduction

Integrity is achieved through honest moral behaviours and related to the following key definitions of wholeness, professional, incorruptible, and with strong moral principles (Huberts, 2018). The public sector which relates to government organisations plays a vital role in maintaining actions of integrity. The people within government organisations are required to practice specific amounts of restraint towards integrity violations. This is in order for people within government organisations able to execute their work descriptions for the benefits of the stakeholders which are the people. The actions of integrity violations often cause harm than good that impacts the people within and around the organisation itself (Graaf, Huberts, & Strüwer, 2017). Integrity violations

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are the acts of unethical, misdemeanour, procrastination, fraud, corruption and other related negative actions that are conducted by the employees within the organisation (Huberts, Kaptein, & Lasthuizen, 2007). These violations would often cause adverse effects within the organisation itself. The common effect includes the loss of revenue or productivity towards the organisation when the person commits integrity violations such as procrastinating their work (Graaf et al., 2017) The organisations are susceptible to losses when there are substantial integrity violations such as fraud and corruption taking place. Governments such as in the United Kingdom suffer losses of up to billions of dollars due to these actions of fraud and corruption (Button, 2016). These actions are costing the government financially that these funds could have been put to better use for other activities that would have benefited the population.

Government organisations are vulnerable to integrity violations as they employed a large number of employees. The control systems of these organisations are still controlled by human actions and behaviours. The people within the organisations themselves are the ones employing the control system and choosing their level of compliance with the rules and regulation (Jokipii, 2009). The Malaysian government is susceptible to these actions of integrity violations as the government employs a rather large amount of public sector employees (Kannan, 2017). The size of the government when there are a large number of workers will increase the chances of corruption occurring (Goel & Nelson, 1998). This would also be due to the chances that inefficiency within the government organisation itself due to large amounts of bureaucracy and systems check that are still controlled by government employees. Though current trends of research are currently observing the trends and impact of e-government towards reducing the acts of corruption and preventing these actions (Santhanamery & Ramayah, 2012).

Cultural studies demonstrated by Geert Hofstede are focused towards cultural dimensions of individualism, power distance, masculinity, uncertainty avoidance, orientation and indulgence (Hofstede, 1980). This study involves observations towards ethical culture studies that are more focused on levels of ethics maintained within the organisation itself. The cultural values of ethical culture were evaluated through the dimension of clarity, supportability, transparency, discussability, and sanctionability (Kaptein, 2008). The problems within a culture are whether these values are the reason people are acting towards integrity violations. Past studies in China had shown that cultural values of supporting unethical activities such as corruption are allowed through the normative ethical values (Hwang, 1987; Steidlmeier, 1999). Cultural studies in Malaysia had also

shown that gifts and favours as a social norm within the society (Ahmed, Ismail, Amin, & Nawaz, 2013).

The study attempts to investigate the effect of ethical culture behaviours within the organisations towards integrity violations. Subsequently, this study examines the role of integrity climate as a mediator between ethical culture and integrity violations. Prior studies had observed the impact of ethical leadership towards unethical behaviour that had shown that the leadership values as an underlying factor of explanation (Mayer, Kuenzi, & Greenbaum, 2010).

## 2. Literature Review

### 2.1. Theory

The studies of ethics and behaviour are a common approach towards understanding the principles of integrity. The meaning of integrity from the perspective of an individual or organisations would vary as the approach will have differentiating perspectives. The individual would define integrity as having honest values, ethical values and acceptable moral reasoning to which they practice in the society (Huberts, 2018). The organisational levels of integrity would involve a broader impact to the employees that involves the principle and adherence to their rules (Kolthoff, Erakovich, & Lasthuizen, 2010). Achieving organisational integrity would prove to be beneficial as the impact would be through not just the employees but to the people surrounding the organisation itself such as the stakeholders or customers.

The social theory dictates that it is an analysis of systems, surroundings, framework and phenomena that are used to explain the social environment (Coleman, 1990). The social theory explains the reason for the actions people would make in order to choose between a rational choice or a norm-orientated decision (Reckwitz, 2007). This is to observe whether the employees within the organisation are making the decisions based on their levels of integrity or based on the social norms of the society. This is where there is a significant difference between ethics and integrity as conducting a decision which is ethical does not necessarily mean that the person is acting with integrity. The person could act with ethical values as they are following the rules and regulations although that decision would be without integrity. An example would be an employee that is following the rules of their superior although it does impact their integrity. Such actions would not be accepted towards a person that practices high levels of integrity within their persona and character.



The acts of why people commit to unethical behaviour or integrity violations could be explained through the perspective of the fraud triangle. When there are pressure, opportunity and rationalisation the person will commit towards the act of fraud and corruption (Cressey, 1953). These values are applicable to the employees in the organisation when they have a large amount of negative cultural values. These values can be in the form of accepting the normalisation of corruption of where it is a social norm that is accepted in society (Ashforth & Anand, 2003). The rationalisation factor here is that people will think that it is acceptable to behave towards integrity violation as it would be a social norm within their society.

## 2.2. Ethical Culture

The aspects of ethical culture involve the experience and expectation the individual practice that would impact the organisation (Kaptein, 2009). Kaptein (2007) had conceptualised the ethical-cultural values as the dimensions of clarity, supportability, transparency, discussability, and sanctionability. The values in ethical culture enable the organisation to positively impact its overall structure through projected behaviours of leaders and employees. Studies related to ethical culture had shown different stages of the approach. Past studies of ethical culture had integrated values of ethical climate that is then separated from culture (Key, 1999). Ethical culture is the shared belief within the organisation that is shared with the employees. The ethical culture studies had also shown that some values do not have a significant impact towards unethical behaviour (Kaptein, 2011). Studies of Croatian firms had shown that ethical culture would have a positive impact towards organisational climate (Silvija & Ksenija, 2012)

The basis is whether the cultural values in terms of ethics would impact the employee's behaviour within the organisation. The practice of ethical culture is said to impact the ethical orientation of the employee that could impact their judgement (Douglas, Davidson, & Schwartz, 2001). Through having strong leadership values in the organisation, the levels of ethical culture could be reinforced in order to have more positive values in the organisation (Toor & Ofori, 2009). These studies had shown that cultural values in terms of ethics have a number of impacts to the organisation whether in terms of judgement, decision making and overall attitudes. This inquiry of past studies would indicate that ethical culture would have an impact towards integrity violations.

### 2.3. Integrity Climate

Climate studies are related to the intended data collected within the organisation (D. Denison et al., 2003). The studies of climate in terms of ethical climate had been observed through various researchers that are interested in observing the effect of climate towards the organisation (Demirtas & Akdogan, 2015; Ma'amor, Ann, Munir, & Hashim, 2012; Peterson, 2002) These studies include the observation of the level of ethical climate towards affecting employees behaviour such as conducting deviant actions (Peterson, 2002). The climate within the organisation enables the person to conduct such integrity violations within their workplace. The organisation's climate is also able to change the employees level of commitment to work (Ma'amor et al., 2012). Their commitment to work is dependent on the level of climate portrayed in the organisation itself.

Integrity climate is the study of climate under the principals of integrity. Integrity values are strongly related to honesty, conscientiousness and principle (Zahari, Said, & Arshad, 2019). They are related to the meaning, moral norms and rules and regulation in order to project integrity climate within the organisation itself.

Culture and climate are fundamentally not the same constructs, these two are different areas of research altogether. Climate is the experience within the organisation based on what the person see and report what is occurring to them within their direct contact (D. Denison et al., 2003). The climate structure involves what the employees perceived perception of the organisation in terms of their practices, procedures, policies, rewards, routines and other factors (Rentsch, 1990). Culture leans towards explaining on why these things occur (Schneider, 2000). Culture relates to fundamental ideologies, assumptions, and organisational events (Trice & Beyer, 1993). Culture is an evolved concept within the organisation's system, and it is much more stable than climate and not susceptible to change (D. R. Denison, 1996).

### 2.4. Integrity Violation

The acts of negative behaviour such as procrastination, bullying, discrimination, bribery, corruption and unethical attitudes are associated with integrity violations (Huberts et al., 2007). The literature on integrity violation provides insight towards further understanding of the reasoning of human behaviour. The acts of these violations such as corruption are harmful towards the organisation and should always be kept in

check whenever possible. Integrating preventive measures such as control systems and improving positive values will help reduce such actions of integrity violation.

Studies had shown that the acts of integrity violation are influential towards the societies environment as people are the ones viewing whether these actions are acceptable within the society (Gillanders & Neselevska, 2018). The levels of morality within the society are indirectly affected when people in the organisation practice acts of integrity violation. For instance, government officers who are in charge of lorry transport regulations are accepting bribes in order to not take action on these errant lorry operators who had abused the law. This can be seen in the recent case with the local Road Transportation Department in Penang that had been protecting lorry drivers who had committed road offences in Penang (Anis, 2019). This is when the social norms show an impact towards the overall society as stated in prior studies of normalisation within the societal values (Ashforth & Anand, 2003).

### 3. Methodology

#### 3.1. Research Model

The Cultural Ethical Values Model (CEVM) was used to evaluate ethical culture within an organisation (Kaptein, 2008, 2009). Integrity violations are based on past studies that relate to acts of unethical behaviour conducted in the organisation (Huberts et al., 2007; Kaptein, 2011). The five virtues of ethical culture are clarity, supportability, transparency, “discussability”, and “sanctionability” (Kaptein, 2008). Each of these virtues represents the ethical-cultural values that are practised in the organisation. The components of integrity climate involve values constructed from honesty, conscientiousness and principle (Zahari et al., 2019). The climate observed here in this study will serve as the mediator.

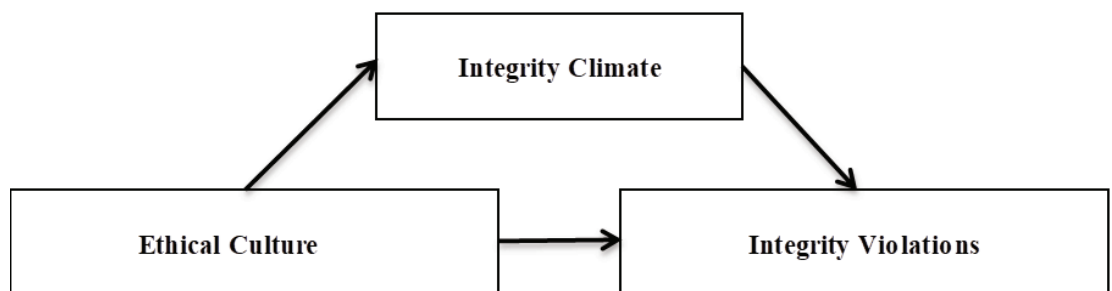


Figure 1: Conceptual Model.

Through practising, sustainable levels of ethical culture would lead to improved moral behaviour within the organisation. Past studies indicate that ethical culture as an impact towards moral behaviour (Kaptein, 2011). The employees will behave properly when the culture within the culture projects ethical values (Key, 1999). This is where the development of the first hypothesis states that:

H1: Ethical culture will be positively related to integrity climate

Integrity climate would be able to influence the organisations proportionately when the organisation practices healthy levels of integrity climate, the employees will also have good values integrated within them. The practice of honest behaviours in the organisation would positively affect other people within the organisation (Murphy, 1993). The reflection in this attitude will have an impact towards the climate of the organisation which would then reduce the amounts of integrity violation. This leads us to the next hypothesis:

H2: Integrity climate will be negatively related to integrity violation

The observation of mediation in this context is the role of integrity climate would have between ethical culture and integrity violations. This is to observe whether integrity climate serves as a source of mediation. Studies on leadership had found that ethical climate serves as a mediator between ethical leadership and employee’s misconduct (Mayer et al., 2010). The last hypothesis is:

H2: Integrity climate will mediate the relationship between ethical culture and integrity violations

### 3.2. Sample and Data Collection

The population of the study states that there are a total of 459 state government departments in Malaysia. A seven-point interval scale was employed ranging from 1 (strongly disagree) to 7 (strongly agree). The participants were assured that their responses are confidential and that they would not be identified individually.

TABLE 1: Demographic Profile.

| Category          | Type of position |                        |                    |
|-------------------|------------------|------------------------|--------------------|
|                   | Qualification    | Highest Qualification  | Position           |
| Senior Management | JUSA C and above | Degree and above       | CEO’s              |
| Management        | Grade 41 to 54   | Degree or Professional | Managers           |
| Support group A   | Grade 27 to 40   | Diploma or STPM        | Staff or Personnel |
| Support group B   | Grade 17 to 26   | SPM                    | Staff or Personnel |

| <b>Gender</b> |           |         |               |                    |
|---------------|-----------|---------|---------------|--------------------|
|               | Frequency | Percent | Valid Percent | Cumulative Percent |
| Male          | 150       | 43.7    | 43.7          | 44.9               |
| Female        | 189       | 43.7    | 43.7          | 100.0              |
| Total         | 343       | 100.0   | 100.0         |                    |

| <b>Education Qualification</b> |           |         |               |                    |
|--------------------------------|-----------|---------|---------------|--------------------|
|                                | Frequency | Percent | Valid Percent | Cumulative Percent |
| SPM                            | 33        | 9.6     | 9.6           | 15.7               |
| STPM                           | 9         | 2.6     | 2.6           | 18.3               |
| Diploma                        | 88        | 25.7    | 25.7          | 44                 |
| Degree                         | 146       | 42.6    | 42.6          | 86.6               |
| Masters                        | 42        | 12.2    | 12.2          | 98.8               |
| PhD                            | 4         | 1.2     | 1.2           | 100.0              |
| Total                          | 343       | 100.0   | 100.0         |                    |

| <b>Age</b>   |           |         |               |                    |
|--------------|-----------|---------|---------------|--------------------|
|              | Frequency | Percent | Valid Percent | Cumulative Percent |
| 20-30 Years  | 44        | 12.8    | 12.8          | 14.0               |
| 31-40 Years  | 180       | 52.5    | 52.5          | 66.5               |
| 41-50 Years  | 80        | 23.3    | 23.3          | 89.8               |
| 51 and above | 35        | 10.2    | 10.2          | 100.0              |
| Total        | 343       | 100.0   | 100.0         |                    |

| <b>Position</b>      |           |         |               |                    |
|----------------------|-----------|---------|---------------|--------------------|
|                      | Frequency | Percent | Valid Percent | Cumulative Percent |
| Grade 17 to Grade 26 | 74        | 21.6    | 21.6          | 30.0               |
| Grade 27 to Grade 40 | 82        | 23.9    | 23.9          | 53.9               |
| Grade 41 to Grade 54 | 153       | 44.6    | 44.6          | 98.5               |
| JUSA C and above     | 5         | 1.5     | 1.5           | 100                |
| Total                | 343       | 100     | 100           |                    |

| <b>Years of Service</b> |           |         |               |                    |
|-------------------------|-----------|---------|---------------|--------------------|
|                         | Frequency | Percent | Valid Percent | Cumulative Percent |
| Less than 5 years       | 49        | 14.3    | 14.3          | 14.9               |
| 6 to 10 years           | 83        | 24.2    | 24.2          | 39.1               |
| 11 to 15 years          | 105       | 30.6    | 30.6          | 69.7               |
| More than 15 years      | 104       | 30.3    | 30.3          | 100.0              |
| Total                   | 343       | 100.0   | 100.0         |                    |

Table 1 shows the overall profile of the respondents. The senior management comprises of officers who have the responsibilities of a Chief Executive Officer (CEO) in their organisation. They normally hold positions such as the head of directors, state secretaries or head of departments. Management is people who hold positions such as directors, assistant directors, and or head of units. The support group are mostly officers who are holding executive equivalent positions. The state department's demographic distribution table shows that female respondents exceed by 39 male respondents. The highest number of people holds degree certifications while philosophical degree holders are only four people in the mixture. The second highest amount of qualification goes to diploma holders with 88 people. The majority of the respondents are between the ages of 31 to 40 years old. Those people aged 51 above are the smallest portion with 35 respondents. The majority of the respondents are also people who held positions of grades from 41 to 54. Only 5 people are holding positions of JUSA and above. The large portions of the respondents have also served the government for more than five years.

There are a total of 459 state government departments in Malaysia. These state departments are the government departments that report directly to the state secretary. The constructs of the state department comprise of departments, offices, corporations ("*perbadanan*"), council, foundation and commissions that are under the state department leadership (Department of Information Malaysia, 2017). There are two sets of questionnaires per department that were delivered to each of the state departments. This is where one is to be returned and one to be kept for their departmental records. There are a total of 343 people who represented these state government departments that had answered the survey questionnaire.

## 4. Results and Analysis

### 4.1. Descriptive statistics

The means, standard deviations and inter-correlations among the key variables are presented in the following table

### 4.2. Convergent Validity

The use of convergent validity is the assessment to measure the level of correlation of multiple indicators of the same construct that are in agreement. In order to evaluate

TABLE 2: Descriptive Statistics and Correlations Among Variables.

| Variables            | Mean | SD   | Ethical Culture | Integrity Climate | Integrity Violations |
|----------------------|------|------|-----------------|-------------------|----------------------|
| Ethical Culture      | 5.37 | 1.26 | 1               | 0.82              | -0.083               |
| Integrity Climate    | 5.38 | 1.24 |                 | 1                 | -0.232               |
| Integrity Violations | 2.72 | 1.46 |                 |                   | 1                    |

Note: N = 343. All correlations are significant at  $p < 0.001$  (2-tailed)

establish convergent validity, the factor loading of the indicator, composite reliability (CR) and the average variance extracted (AVE) have to be evaluated and assessed. The value range of CR should be between 0 and 1 and AVE should exceed 0.50 to have an adequate convergence (Hair, Anderson, Tatham, & Black, 2010)

TABLE 3: Convergent Test.

|                      | Cronbach's Alpha | Composite Reliability | Average Variance Extracted (AVE) |
|----------------------|------------------|-----------------------|----------------------------------|
| Ethical Culture      | 0.987            | 0.988                 | 0.762                            |
| Integrity Climate    | 0.974            | 0.977                 | 0.828                            |
| Integrity Violations | 0.978            | 0.98                  | 0.66                             |

The values of each of the latent variable indicated that each is within the acceptable threshold. The convergent validity is then confirmed.

### 4.3. Discriminant Validity

Discriminant validity is the measurement to show that the construct and variables are not related to each other (O'Donohoe & Neijens, 2012). The purpose is to show that each of the constructs is distinct from each other throughout the model. The variables used within the study should have their validity in order to be evaluated with one another, if the item has the same construct or similar, then the variable should be removed within the general model. The assessment of discriminant validity in the variable through the structural equation modeling was through the use of heterotrait-monotrait ratio (HTMT). The HTMT is a recent assessment technique that was introduced within the SmartPLS version 3 software which enables such evaluation as compared to the traditional Fornell and Larcker criterions. Studies had observed that the use of HTMT was more strict towards its evaluation as compared to the other method (Abdul Hamid, Sami, & Sidek, 2017).

The HTMT criterion states that the threshold of value is 1 (Alarcón & Sánchez, 2015). When the values within the results are less than 1, then this indicates that these are

different factors. The lower the amount or value is, the more distinct the items are with each other.

TABLE 4: Discriminant Validity.

|                      | Ethical Culture | Integrity Climate | Integrity Violations |
|----------------------|-----------------|-------------------|----------------------|
| Ethical Culture      |                 |                   |                      |
| Integrity Climate    | 0.819           |                   |                      |
| Integrity Violations | 0.258           | 0.285             |                      |

The variables within the data of federal respondents indicate that each of the constructs is different from each other. The smaller values than 1 within the results shows that the true correlation between the constructs should differ.

#### 4.4. Model Fit

The software used for data analysis is the SmartPLS version in order to test the hypothesis. Prior to the testing of the hypothesized model, the model was tested in terms of model fit (Hooper, Coughlan, & Mullen, 2008). The model was tested through the three latent factors (i.e. ethical culture, integrity climate and integrity violations) and 59 indicators (25 items for ethical culture, 9 items for integrity climate and 25 items for integrity violations). The measurement model had an acceptable model fit.

TABLE 5: Goodness of Fit Indices for the Model.

| Goodness of fit measure | Recommended value     | Estimated Model |
|-------------------------|-----------------------|-----------------|
| SRMR                    | <0.08                 | 0.047           |
| NFI                     | Closer to 1 is better | 0.715           |

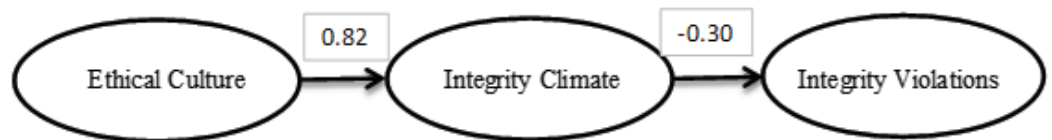
#### 4.5. Hypothesis Test

TABLE 6: Hypothesis Testing.

| Hypothesis   | Path coefficient                          | T-statistics <sup>1</sup> | P <sup>2</sup> | Result <sup>3</sup> |
|--|---|---------------------------|----------------|---------------------|
|  | Ethical Culture -> Integrity Violations   | 0.785                     | 0.432          |                     |
| H1   | Ethical Culture -> Integrity Climate      | 27.879                    | **             | Accept              |
| H2   | Integrity Climate -> Integrity Violations | 2.292                     | **             | Accept              |
|  | Total indirect effects                    | T-statistics <sup>1</sup> | P <sup>2</sup> | Result <sup>3</sup> |
| H3   | Ethical Culture -> Integrity Violations   | 2.222                     | **             | Accept              |
| T-statistics <sup>1</sup> Size of the difference relative to the variation |   |                           |                |                     |
| P <sup>2</sup> **Significant at (p<0.05)                                   |   |                           |                |                     |
| Result <sup>3</sup> Results on hypothesis test                             |   |                           |                |                     |



The partial mediated model was compared to a fully mediated model. The partial mediated model was through using a direct path between ethical culture and integrity violations. Through the results as stated in the previous table (Table 6), there was no significant direct effect of ethical culture on integrity violations when testing the partially mediated model. The rules of parsimony state that a fully mediated model is a better fitting model for examining these data (James, Mulaik, & Brett, 2016).



**Figure 2:** Fully Mediated Structural Equation Model Results (Note: Standardized path coefficients provided. All path coefficients significant at  $p \leq 0.001$ ).

The first hypothesis (H1) shows that the path coefficient between ethical culture and integrity climate ( $p \leq 0.05$ ) was positive and significant. The second supported hypothesis (H2) predicted that integrity climate is negatively related to integrity violations ( $p \leq 0.05$ ). The third hypothesis (H3) predicted that integrity climate mediates the relationship between ethical culture and integrity violations. In order to test for the mediation, there must first be a statistically significant relationship between the predictor and mediator (James et al., 2016). The second rule also states that there must be a significant relationship between the mediator and the outcome. The model fit must also be tested to investigate whether the path from the predictor exists only through the mediator. The results provided the support that integrity climate acts as a mediator for the relationship between ethical culture and integrity violations.

#### 4.6. PLS Model

### 5. Discussion

The issues of integrity violation within organisations are often considered a thorn and management and governmental organisations are always evolving in order to mitigate these problems. Studies on the effectiveness of control systems to control the environment had shown some effectiveness towards handling unethical behaviours and efficiency (Yurniwati & Rizaldi, 2015). The findings based on the hypothesis clearly states that ethical culture was positively related to integrity climate, integrity climate was then negatively related to integrity violations, and integrity climate mediated the

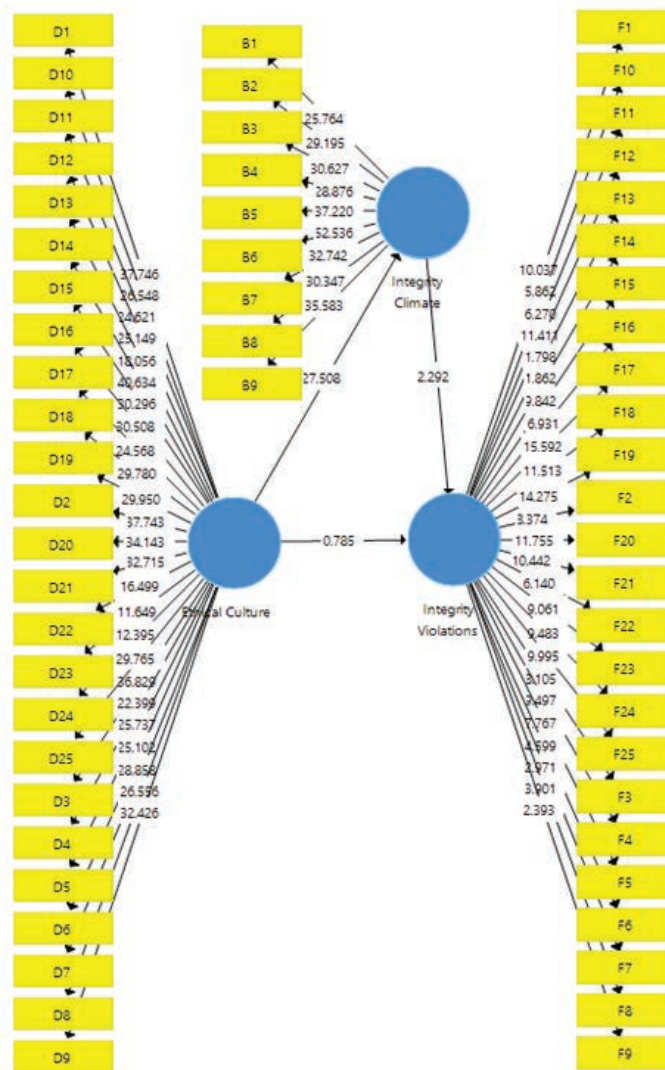


Figure 3: Hypothesized PLS Path Model.

relationship between ethical culture and integrity climate. The following section provides the impact towards the theoretical and practical impact of this study.

The study shows us some of the theoretical implications concerning the studies of culture within organisations. The result states that there is no significant relationship between ethical culture and integrity violations. The levels of ethical culture within employees would not have an impact on their action to commit an act of integrity violation. The findings suggest that the climate such as having an environment of integrity not only reduces the acts of integrity violation but also mediates the relationship between ethical culture and integrity violation. The statement here suggests that it would be best to promote immediate positive values in the organisation such as honesty and truthfulness in order to improve organisational levels of integrity.

Through the knowledge that ethical culture does not reduce integrity violations, it does however positive correlates with integrity climate. The management or leaders in the organisation should set a tone for more ethical culture behaviour within the organisation. Promoting actions such as through transparency and ethical supportability would improve the overall levels of integrity climate. The motivations to create an environment full of integrity should be implemented amongst the employees in order to reduce the rates of integrity violation. The organisation should further implement methods on how to improve the levels of integrity climate through the promotion of ethical culture amongst the employees.

The impact of integrity violations as stated in the earlier section of this paper shows a significant amount of losses for the organisation (Button, 2016). There is a need for observing effective methods of reducing integrity violations amongst organisational employees. The method should cover the overall effect and not just only focus on individual improvements. Improving the overall ethical culture will indirectly reduce the rate of integrity violations in an organisation. The result of this study suggests the areas of improvement in ethical culture that can be utilised to create a climate of integrity in the organisation.

The integrity climate will be able to be positively influenced when there is a positive ethical culture maintained within the organisation. The leaders can show positive ethical culture through becoming a mentor or role model themselves. This is shown in a previous study that directions of culture in an organisation depend on the tone of the leadership at the top management (Staicu, Tatomir, & Lincă, 2013). Through the influence of positive ethical culture, the overall climate will be improved that has an impact on the whole organisation (Shafer & Simmons, 2011). Maintaining a positive ethical culture in an organisation will bring forwards direct benefits where integrity violations can be controlled.

## 5.1. Limitations and Recommendation for Future Research

The drawback of this study is that the sample was only using government department employees. Though the limited sample was only towards government employees, there are further opportunities of including other sectors of industries such as the private sector or through specific areas of industry. Future research should focus on the effect of culture on positive behaviours as this study analysed the impact towards negative actions such as integrity violations. The difference is sample target may provide different

results as there are different motivations between private and public sector employees (Frank & Lewis, 2004).

## Acknowledgement

We are indebted to the Malaysian Institute of Integrity (IIM) and the Accounting Research Institute (ARI, UiTM) in giving us the support needed for this project. We appreciate the reviews and comments made by academicians on earlier drafts of this paper. Special thanks to the participating government agency, organisations and commissions that participated in this project.

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## Conference Paper

# An Error-Proof Approach for Decision Making Using DEMATEL

A.S.M.Touhidul Islam, Shariman Mustafa, and Shahryar Sorooshian

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

Decision Making Trial and Evaluation Laboratory method of Multi-Criteria Decision Making has been being used very widely in many management studies (like Operation Management) to identify causal relationships among factors and draw attention to valuable insight for decision making. The scope of this system has reached the manufacturing industry, social activities, farming, financial system, environmental science, energy, and other areas, and has solved numerous practical problems. However, the author has found that the results are misleading as and when it is applied with global (or overall) consideration or even elements/category of unequal weights. To show the serious differences in the results misguiding decision-makers, an example has been demonstrated in this study. Result of the Decision Making Trial and Evaluation Laboratory from global calculation can be corrected if the calculation and analysis are done based on distinct elements (cluster wise). Grading success or failure factors as per distinct elements of a system and integrating them as per criticality found at the element level, is an added methodology to the existing knowledge of using Decision Making Trial and Evaluation Laboratory. With another example from the previous study, the new approach is justified as well. This new approach will help to find critical factors in a truly holistic way and implement any principles, policies, or system more confidently.

**Keywords:** DEMATEL method; multi-criteria; critical factor; decision making.

Corresponding Author:  
A.S.M.Touhidul Islam  
asm\_touhidul\_islam@yahoo.com

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under  
the responsibility of the  
FGIC2019 Conference  
Committee.

## 1. Introduction

Researchers who study social science topics usually depend on statistics as a major analytical tool and seek to generalize from sample data collected from a population. The fundamental assumptions of the statistical approach, such as the assumed probabilistic distributions of data sets and the independence of variables, are unrealistic and unsuitable for certain real-world problems with complex and interrelated variables, attributes, and criteria (Liou & Tzeng, 2012). Here comes Multi-Criteria Decision Making (MCDM) study which is aimed at solving a predefined problem; therefore, more emphasis is placed on constructing models that may be close to the preference of decision-maker

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(DM), and yield ideal or satisfactory guidance for decisions. In statistical methods and models, such as regressions, the effect of random errors is assumed to be generated independently from a normal distribution with zero mean and a specific variation. But the assumption for the probabilistic distribution of the effect of random errors is neither identifiable nor examinable (Berk & Freeman, 2003); however, it has certain effects on the obtained regression model (Tzeng & Shen, 2017). Hence researchers prefer MCDM method to solve practical problems.

Also, a research project based on statistics attempts to generalize its models to support its hypotheses and theories; consequently, such projects must collect data samples that are sufficiently large to be representative for the assumed population, which can only provide averaged numbers (Spronk et al., 2005) from the sample data. Such averaged results can describe or explain the relationships among the explanatory and response variables. By contrast, MCDM studies often address a predefined case in which DMs attempt to select the optimal decision (ranking or resource allocation). MCDM approach also avoids questionable probabilistic assumptions and seeks to solve problems. Again, the statistical approach tends to collect questionnaires from all available employees or shareholders to determine the average opinion; but the MCDM approach would query the preferences, knowledge, and experience of the managers of the company to devise an optimal strategy. Thus, the statistical approach puts more emphasis on examining the relationships among the variables for theoretical purposes, whereas the MCDM approach focuses on supporting DMs who must solve complicated decision problems in practice (Tzeng & Shen, 2017). Hence for the study of ranking success factors, enablers, or barriers based on experts' judgment, MCDM is preferable to statistical analysis tools and models.

Following Hwang and Yoon (1981), MCDM problems can be categorized into two sub-fields: "Multiple Attribute Decision-making" (MADM) and "Multiple Objective Decision-making" (MODM). MADM is concerned with ranking or selecting by weighing up predetermined alternatives, and MODM is aimed at identifying the most favorable outcome by searching for a competent frontier within a solution space under the given constraints. Most conventional MCDM research comprises these two subfields of MADM and MODM (Köksalan et al., 2011). MADM methods are mainly devised for evaluations. By contrast, MODM is more suitable for designing or planning by optimizing the allocation of limited resources.

While discussing on multi-criteria problems, Sivakumar et al. (2018) stated that criteria interaction is principal of two categories, namely, "criteria dependency and criteria interactivity." Again, criteria dependency is subdivided into three types, namely, "structural

dependency causal dependency and preferential dependency.” In causal dependency, cause and effect relationships among factors are identified, and the statistical results are drawn (Sivakumar et al., 2018). Gölcük & Baykasoğlu (2016) mentioned seven key techniques to find causal dependency: “Causal maps” (Rodrigues et al., 2017), “Decision Making Trial and Evaluation Laboratory” (DEMATEL) (Wu & Lee, 2007; Patil & Kant, 2013), “Fuzzy cognitive maps” (Salmeron et al., 2012; Ferreira et al., 2017), “Bayesian networks” (Zeng et al., 2016; Marvin et al., 2017), “System dynamics” (Xu & Coors, 2012), “Interpretive Structural Modeling” (ISM) (Purohit et al., 2016; Girubha et al., 2016; Agi & Nishant, 2017) and “Structural equation modeling” (SEM) (Bagozzi, 2010; Hair et al., 2012).

Causal maps demonstrate causal relationships of different factors using positive or negative loading of potency indicated with numbers ranging from zero to five (Rodrigues et al., 2017). The DEMATEL method identifies net causes and net effects; forms the inter-relationship map (IRM) among factors based on threshold value; and finally, provides a structural framework for the system (Wu & Lee, 2007). Combining cognitive mapping with fuzzy logic, the fuzzy cognitive map is created (Salmeron et al., 2012), which represents the given system graphically. Bayesian networks also generate graphical models to represent information related to an undecided domain (Zeng et al., 2016). ISM is applied to identify relationships between factors and define problems clearly (Purohit et al., 2016). “System dynamics” defines problems dynamically presenting different stages of modeling and mapping (Xu & Coors, 2012), and guides to understand multifaceted problems while SEM also defines the structural relationship among factors but to provide statistical results (Bagozzi, 2010).

All these methods have some strengths and weakness, but DEMATEL methodology is more popular for the below reasons:

1. Relatively, it is not so inflexible (Bouzon et al., 2018).
2. Unlike ISM, it allows broad variations in relationships among factors (Yang & John, 2003; Zhu et al., 2011; Bai & Sarkis, 2013; Bouzon et al., 2018).
3. To compare with “Analytic hierarchy process” (AHP), Zhu et al. (2011) stated that “DEMATEL provides multiple directional relationships, while AHP has only a unidirectional relationship and multiple separate matrices requiring integration” (Sivakumar et al., 2018).
4. In comparison to the fuzzy set and probability theories, the most important benefit of DEMATEL method is its lesser requirement of sample data and higher flexibility in pattern recognition (Yang & John, 2003).

5. Another key advantage of DEMATEL over other systems is its confidence in its ability to produce possible results with the least amount of data (Bouzon et al., 2018).
6. The matrices portray contextual associations among system elements, where the numbers represent the strength of influences (Bouzon et al., 2018).

## 2. Problem Statement

“Most decision-making methods assume independence between the criteria of a decision and the alternatives of that decision, or simply among the criteria or the alternatives themselves. However, assuming independence among criteria/variables is too strict about overcoming the problem of dependent criteria. Therefore, some papers have discussed ways to overcome this problem. The DEMATEL method is used to detect complex relationships and build the IRM of relations among criteria. The methodology can confirm interdependence among variables/criteria and restrict the relations that reflect characteristics within an essential systemic and developmental trend” (Yang et al., 2008). However, the problem in DEMATEL may arise when some factors under a categorical element of a system like lean manufacturing, sustainable supply chain, etc. do not appear influencing other factors higher and these less influential factors are omitted as non-critical. To ensure the system works properly or even implemented effectively in the first place, all elements need to be well set in place. Especially, if the element is a distinct integral part of the system, it needs to be ensured to establish. Hence the factors related to that specific element requires pairwise comparison for critical. Otherwise, the system is not completely addressed and subsequently, may fail as a whole. Commonly, impact relations of some factors may not be in the higher rank in overall implementation, but for a specific element of a specific principle, they can be highly influential. Therefore, segregating factors as per elements of a management system; analyzing and identifying critical factors for all the elements separately, and then compiling them as per criticality found at the element level, is required to add to the existing knowledge of DEMATEL methodology.

## 3. Dematel Method

DEMATEL method was initially developed in the 1970s in the “Science and Human Affairs Program of the Battelle Memorial Institute of Geneva” to study the intricate and intertwined problematic group. It has been extensively acknowledged as one of the

best tools to solve the cause and effect relationships among the evaluation criteria (Wu et al., 2015; Kusi-Sarpong et al., 2016; Dong et al., 2016; Gan & Luo, 2017; Gołabeska, 2018; Sivakumar et al., 2018; Moktadir et al., 2018; Mangla et al., 2018) for its substantial benefits (Zhu et al., 2011; Bai & Sarkis, 2013; Bouzon et al., 2018) over other multi-criteria decision making methods. The procedure (Yu & Tseng, 2006; Liou et al., 2007; Tzeng et al., 2007; Yang et al., 2008; Wu & Lee, 2007; Shieh et al., 2010) of DEMATEL method is presented below in Figure 1.

Step 1: “Calculate the initial average matrix by scores. In this step, respondents are asked to indicate the degree of direct influence each factor/element  $i$  exerts on each factor/element  $j$ , which is denoted by  $A_{ij}$ . We assume that the scales 0, 1, 2, 3, and 4 represent the range from no influence to very strong influence. Each respondent would produce a direct matrix and an average matrix” (Yang et al., 2008). For each expert, an  $n \times n$  non-negative matrix is constructed as  $X^k = X^k_{ij}$ , where  $k$  is the expert number of participating in the evaluation process with  $1 \leq k \leq m$ . Thus,  $X^1, X^2, X, \dots, X^m$  are the matrices from  $m$  experts (Liu et al., 2011; Sumrit & Anuntavoranich, 2013). To aggregate, all judgments from  $m$  experts, the average matrix  $Z = [z_{ij}]$  is shown below (Sumrit & Anuntavoranich, 2013).

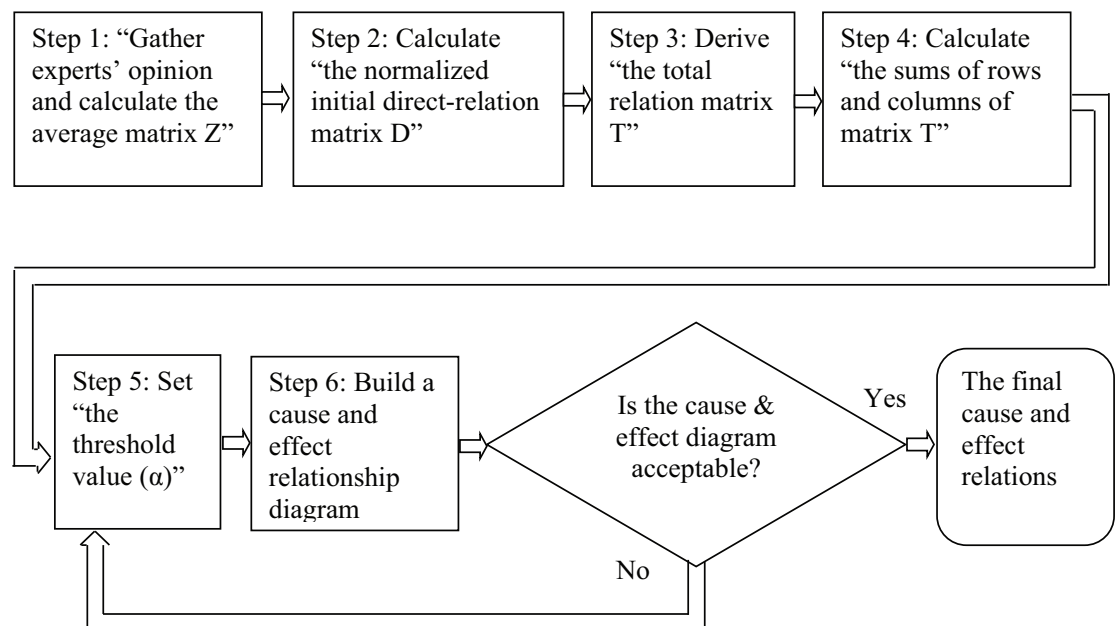


Figure 1: DEMATEL Analysis Flow Diagram (Source: Sumrit & Anuntavoranich (2013)).

$$Z_{ij} = (1/m) \sum_{k=1}^m x^k_{ij} \tag{1}$$

Step 2: The “normalized initial direct-relation matrix” (Wu & Chang, 2015)  $D = [d_{ij}]$ , where the matrix value is ranged between [0, 1]. The calculation is shown below (Yang et al., 2008; Sumrit & Anuntavoranich, 2013):

$$D = \lambda * Z \tag{2}$$

Where  $\lambda = \text{Min} [1/(\max_{1 \leq i \leq n} \sum_{j=1}^n |Z_{ij}|), 1/(\max_{1 \leq j \leq n} \sum_{i=1}^n |Z_{ij}|)]$

Step 3: The “total-influence matrix T” is obtained by utilizing Equation 3, in which “I is an  $n \times n$  identity matrix”. The indirect effects of factor i on factor j are represented by The element of  $t_{ij}$ , then the total relationship between each pair of system factors is reflected in the matrix T (Liu et al., 2011; Sumrit & Anuntavoranich, 2013).

$$T = D(I - D)^{-1} \tag{3}$$

Step 4: In matrix T, the vectors r and c represent the sum of rows and the sum of columns, respectively:

$$r = [r_i]_{n \times 1} = (\sum_{i=1}^n t_{ij})_{n \times 1} \tag{4}$$

$$c = [c_j]'_{1 \times n} = [\sum_{j=1}^n t_{ij}]'_{1 \times n} \tag{5}$$

“ $[c_j]'$  is transposition matrix” (Liu et al., 2011; Sumrit & Anuntavoranich, 2013).

“Where  $r_i$  denotes the row sum of the  $i^{th}$  row of matrix T and shows the sum of direct and indirect effects of factor/element i on the other factors/elements. Similarly,  $c_j$  denotes the column sum of the  $j^{th}$  column of matrix T and shows the sum of direct and indirect effects that factor/element j has received from the other factors/criteria. In addition, when  $i = j$  (i.e., the sum of the row and column aggregates)  $(r_i+c_i)$  provides an index of the strength of influences given and received, that is,  $(r_i+c_i)$  shows the degree of the central role that factor i plays in the problem” (Yang et al., 2008). “In contrast, the difference  $(r_i-c_i)$  represents the net effect that factor i contributes to the system. Specifically, if  $(r_i-c_i)$  is positive, factor i is a net cause, while factor i is a net receiver or result if  $(r_i-c_i)$  is negative” (Wu & Chang, 2015).

Step 5: “Set a threshold value and obtain the IRM. Setting a threshold value  $\alpha$  to filter the minor effects denoted by the factors of matrix T is necessary to isolate the relation structure of the factors. Based on the matrix T, each factor  $t_{ij}$  of matrix T provides information about how to factor i affects factor j. In practice, if all the information from matrix T converts to the IRM, the map would be too complex to show the necessary information for decision making. In order to reduce the complexity of the IRM, the decision-maker sets a threshold value for the influence level: only factors

whose influence value in matrix T is higher than the threshold value can be chosen and converted into the IRM. The threshold value can be decided through the brainstorming of experts. When the threshold value and relative IRM have been decided, the IRM can be shown” (Yang et al., 2008).

Many researchers (Chuang et al., 2013; Chien et al., 2014; Hwang et al., 2016; Si et al., 2018) have divided the IRM into four quadrants (Figure 2), by calculating the mean of  $r+c$ . As  $r+c$  represents prominence and  $r-c$  represents relation, “The factors in quadrant ‘I’ are identified as core factors or intertwined givers since they have high prominence and relation; the factors in quadrant II are identified as driving factors or autonomous givers because they have low prominence but high relation. The factors in quadrant III have low prominence and relation and are relatively disconnected from the system (called independent factors or autonomous receivers); the factors in quadrant IV have high prominence but low relation (called impact factors or intertwined receivers), which are impacted by other factors and cannot be directly improved. From Figure 2, decision-makers can visually detect the complex causal relationships among factors and further spotlight valuable insights for decision making” (Si et al., 2018).

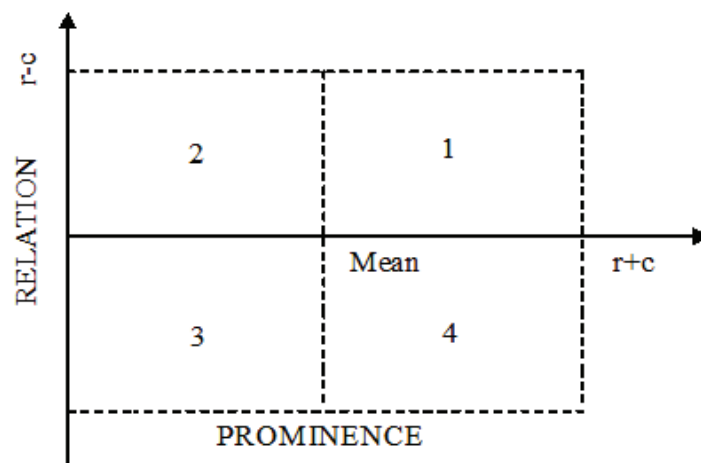


Figure 2: Four Quadrants IRM Structure (Source: Si et al., 2018).

#### 4. Calculation and Analysis

Let us assume, Z matrix by applying Equation 1 for experts’ scores of success factors to remain healthy like eating habit (F1), physical exercise (F2), sleeping order (F3), physical check-up (F4), social interaction (F5), moral consciousness (F6), sense of purpose (F8), financial solvency (F8) and community (F9) is in Table 1 below:

TABLE 1: Z Matrix for Factors of Health.

|    | F1  | F2  | F3  | F4  | F5  | F6  | F7  | F8  | F9  |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| F1 | 0.0 | 0.0 | 3.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| F2 | 3.0 | 0.0 | 4.0 | 0.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.2 |
| F3 | 3.0 | 2.0 | 0.0 | 0.0 | 2.0 | 1.0 | 0.0 | 0.5 | 0.0 |
| F4 | 3.0 | 3.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.5 | 0.2 | 2.0 |
| F5 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 3.0 | 3.0 | 3.0 |
| F6 | 3.0 | 3.0 | 2.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.2 | 0.0 |
| F7 | 3.0 | 2.0 | 2.0 | 2.0 | 2.0 | 3.0 | 0.0 | 1.0 | 1.0 |
| F8 | 3.0 | 0.0 | 1.0 | 2.0 | 1.0 | 1.0 | 1.0 | 0.0 | 1.0 |
| F9 | 2.0 | 2.0 | 0.5 | 1.0 | 2.0 | 0.5 | 1.0 | 0.5 | 0.0 |

Source: Authors' own work

Then, following Equation 2 and 3 the researchers can get the T matrix; and Equation 4 and 5 for corresponding 'r+c' & 'r-c' for factors of health as shown in Table 2 given below:

TABLE 2: T Matrix, and 'R+C' & 'R-C' for Factors of Health.

|    | F1   | F2   | F3   | F4   | F5   | F6   | F7   | F8   | F9   | r    | c    | r+c  | r-c   |
|----|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| F1 | 0.05 | 0.03 | 0.18 | 0.01 | 0.08 | 0.03 | 0.07 | 0.02 | 0.02 | 0.50 | 1.90 | 2.41 | -1.40 |
| F2 | 0.23 | 0.05 | 0.27 | 0.02 | 0.11 | 0.08 | 0.06 | 0.05 | 0.03 | 0.91 | 1.12 | 2.04 | -0.21 |
| F3 | 0.21 | 0.13 | 0.08 | 0.02 | 0.14 | 0.07 | 0.04 | 0.05 | 0.03 | 0.78 | 1.75 | 2.52 | -0.97 |
| F4 | 0.31 | 0.24 | 0.34 | 0.02 | 0.10 | 0.25 | 0.07 | 0.05 | 0.13 | 1.51 | 0.51 | 2.02 | 1.00  |
| F5 | 0.14 | 0.08 | 0.15 | 0.10 | 0.08 | 0.07 | 0.19 | 0.18 | 0.19 | 1.19 | 1.04 | 2.22 | 0.15  |
| F6 | 0.22 | 0.18 | 0.19 | 0.01 | 0.10 | 0.03 | 0.03 | 0.04 | 0.02 | 0.82 | 0.92 | 1.74 | -0.10 |
| F7 | 0.30 | 0.19 | 0.25 | 0.13 | 0.18 | 0.21 | 0.06 | 0.10 | 0.10 | 1.53 | 0.70 | 2.24 | 0.83  |
| F8 | 0.24 | 0.07 | 0.15 | 0.12 | 0.10 | 0.10 | 0.09 | 0.03 | 0.08 | 0.99 | 0.59 | 1.58 | 0.40  |
| F9 | 0.19 | 0.15 | 0.13 | 0.07 | 0.15 | 0.07 | 0.09 | 0.06 | 0.04 | 0.95 | 0.64 | 1.59 | 0.31  |

Source: Authors' own work

Considering, health has two distinct components of physical health (PH) and mental health (MH); success factors F1, F2, F3, F4, F5, and F6 have effects on PH and F4, F5, F6, F7, F8 and F9 influence MH; if the same steps are followed with the equations, the T matrix, and 'r+c' & 'r-c' values for PH and MH are shown in Table 3 and Table 4:

Finally, following step 5, three IRMs can be drawn as given in Figure 3 below:

## 5. Results and Discussion

If the global (or overall) IMR is followed, the factors F5 and F7 are the most critical factors; also, factor F4 can be considered as it is very close to average r+c value. However, the IRMs of components PH and MH are showing that in addition to factors F4, F5 and F7;



TABLE 3: T Matrix, and 'R+C' & 'R-C' for Factors of PH.

|    | F1   | F2   | F3   | F4   | F5   | F6   | r    | c    | r+c  | r-c   |
|----|------|------|------|------|------|------|------|------|------|-------|
| F1 | 0.07 | 0.04 | 0.26 | 0.01 | 0.12 | 0.02 | 0.52 | 1.64 | 2.16 | -1.12 |
| F2 | 0.35 | 0.09 | 0.42 | 0.01 | 0.17 | 0.11 | 1.14 | 1.00 | 2.15 | 0.14  |
| F3 | 0.31 | 0.19 | 0.15 | 0.01 | 0.21 | 0.10 | 0.98 | 1.83 | 2.81 | -0.85 |
| F4 | 0.49 | 0.37 | 0.56 | 0.01 | 0.17 | 0.36 | 1.97 | 0.13 | 2.10 | 1.84  |
| F5 | 0.06 | 0.04 | 0.12 | 0.07 | 0.03 | 0.03 | 0.35 | 0.86 | 1.21 | -0.50 |
| F6 | 0.35 | 0.27 | 0.32 | 0.01 | 0.16 | 0.05 | 1.16 | 0.67 | 1.83 | 0.50  |

Source: Authors' own work

TABLE 4: T Matrix, and 'r+c' & 'r-c' for Factors of MH.

|    | F4   | F5   | F6   | F7   | F8   | F9   | r    | c    | r+c  | r-c   |
|----|------|------|------|------|------|------|------|------|------|-------|
| F4 | 0.03 | 0.06 | 0.32 | 0.06 | 0.04 | 0.17 | 0.68 | 0.73 | 1.41 | -0.05 |
| F5 | 0.18 | 0.11 | 0.14 | 0.29 | 0.27 | 0.30 | 1.31 | 0.77 | 2.08 | 0.54  |
| F6 | 0.02 | 0.08 | 0.01 | 0.02 | 0.03 | 0.02 | 0.19 | 1.04 | 1.23 | -0.85 |
| F7 | 0.20 | 0.21 | 0.30 | 0.07 | 0.13 | 0.16 | 1.07 | 0.69 | 1.76 | 0.38  |
| F8 | 0.18 | 0.12 | 0.16 | 0.12 | 0.04 | 0.14 | 0.76 | 0.62 | 1.38 | 0.14  |
| F9 | 0.12 | 0.19 | 0.11 | 0.13 | 0.09 | 0.07 | 0.70 | 0.86 | 1.57 | -0.16 |

Source: Authors' own work

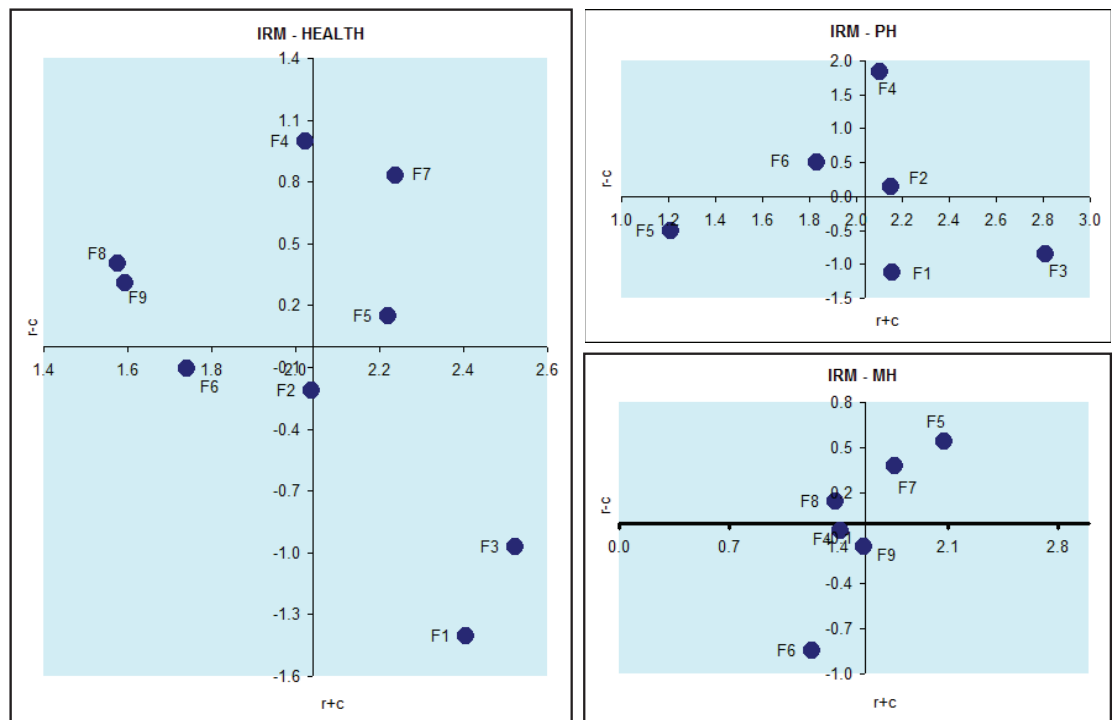


Figure 3: IRMs for factors of health, PH, and MH (Source: Authors' own work).

factor F2 is very critical for PH and subsequently for health as we can not ignore PH. To be perfectly decided, the factors F6 from IRM of PH and F8 from IRM of MH should be considered as quite critical; but in IRM of health, although factors F8 and F9 are

in Q2 and far from the average r+c; factor F6 is in Q3 which is quite deceiving. Thus it is proved that to get reliable results from DEMATEL; factors need to be evaluated separately/independently for each part or element of the objective and then combine for a complete real set of critical factors.

This result can also be justified from previous researches. For example, researchers Muktadir et al. (2018) classified 20 “common barriers with the help of experts and academic feedback” out of their primary list of 35 barriers for “Sustainable Supply Chain Management” (SSCM) and then using DEMATEL, found nine critical barriers as given below:

TABLE 5: Barriers for SSCM.

| “Category”            | Barrier (identification code)   | Critical? |
|-----------------------|---|-----------|
| “Environment”         | “Lack of eco-literacy amongst supply chain partner (E1)”                                  | Yes       |
|                       | “Lack of environmental requirement (E2)”  |           |
|                       | “Lack of practice on reverse logistics (E3)”  |           |
|                       | “Lack of awareness of local customers in green product (E4)”                              | Yes       |
| “Technology”          | “Lack of technical expertise (T1)”  |           |
|                       | “Resistance to change and adopt innovation (T2)”  |           |
|                       | “Lack of cleaner technology (T3)”   | Yes       |
|                       | “Outdated machineries (T4)”   |           |
| “Knowledge & Support” | “Information gap (KS1)”   | Yes       |
|                       | “Lack of commitment from top management (KS2)”  | Yes       |
|                       | “Lack of training and education about sustainability (KS3)”                               |           |
|                       | “Limited access to market information (KS4)”  | Yes       |
| “Society”             | “Lack of government support & guideline to adopt sustainable supply chain practices (S1)” | Yes       |
|                       | “Absence of society pressure (S2)”  | Yes       |
|                       | “Lack demand & pressure for lower price (S3)”   |           |
|                       | “Less of business friendly policy (S4)”   |           |
| “Financial”           | “Cost of sustainability & economic condition (F1)”  | Yes       |
|                       | “Capacity constraints (F2)”   |           |
|                       | “Lack of funds for sustainable supply chain practices (F3)”                               |           |
|                       | “Green power shortage (F4)”   |           |

Source: Muktadir et al., 2018

Surprisingly, “Lack of funds for sustainable supply chain practices (F3)” did not come out as critical, especially, for a country like Bangladesh, a poor (Sultana & Mallick, 2015) and the most densely populated (Ipe, 1995; Islam, 2009) country in the world where most of the people basically depends on cheaper commodity! In general, if there is lack of funds to take initiatives to implement, there is no point of considering “Lack of eco-literacy amongst supply chain partner (E1)”, “Lack of cleaner technology (T3)” as

critical; they all become secondary. If financial issues are not resolved, it may not matter whether access to market information is abundant or not. In this situation of the fund crisis, people may not get training continuously and even trained people can not apply their skills and knowledge. The first gap in this analysis is categorization which is not based on a distinct unit level. Hence the same weight of all parallel factors influenced the method incorrectly and moved towards misleading decisions.

Again, “Lack of commitment from top management (KS2)” may be the major reason for “Lack of funds for sustainable supply chain practices (F3)”. However, if the shareholders’ expectations are not addressed in the policy for sustainable development (Deloitte & Touche, 1992), top management commitment for sustainability may be treated as emotions only, not a practical idea to care it with the sacrifice of primary profits. “Information gap (KS1)”, another critical factor under the category of “Knowledge & Support” may also remain as less influential.

“Cost of sustainability & economic condition (F1)” and “Lack of government support & guideline to adopt sustainable supply chain practices (S1)” may not be in control of organization implementing SSCM. These critical factors need to be clarified that they are considered from an organization or government point of view; in both cases, one of those will remain considerable, and the other is not. Moreover, simultaneously, both “Lack of government support & guideline to adopt sustainable supply chain practices (S1)” and “Absence of society pressure (S2)” have been identified as critical which have relation to social sustainability. But if there is enough social pressure, the government will support unavoidably (Scott, 1998). So, only S2 is critical. Again, among the other factors under this category, if DEMATEL was applied separately within this category only, in addition to “Absence of society pressure (S2)”, “Lack demand & pressure for lower price (S3)” might also appear as critical as it has a high impact on investors’ decisions (Hendershott & Menkveld, 2014).

## 6. Conclusion

DEMATEL is sensitive to data uncertainty. If “combined grey-based DEMATEL” (Moktadir et al., 2018) is used, such uncertainty is overcome. However, to take correct decisions, the DEMATEL analysis must be used for clusters of distinct components or elements of any system to emerge all critical factors and merge them to avoid any factors lost in the overall competition. Some factors may not be in the higher rank in overall implementation, but for a specific element of a specific element, they can be highly influential. The results may vary in a higher amount when a bigger number of any data

(factors and elements) is in use. In that case, appropriate weights for elements may reduce the variation in results, but still, the elemental approach remains as the only correct way.

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## Conference Paper

# Malware Mobile Devices in Indonesia

Drajad Wiryawan<sup>1</sup>, Joni Suhartono<sup>1</sup>, Surjandy<sup>1</sup>, Yudi Fernando<sup>2</sup>, Idris Gautama So<sup>3</sup>, and Anderes Gui<sup>1</sup>

<sup>1</sup>Information Systems Department, School of Information Systems, Bina Nusantara University, Jakarta, 11480, Indonesia

<sup>2</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

<sup>3</sup>Management Department, Binus Business School, Undergrdaute Program, Bina Nusantara University, Indonesia, Jakarta, 11480, Indonesia

## Abstract

The number of mobile devices and information technology supporting applications is currently very diverse. Ranging from expensive to cheap, even new and used. On the other hand, the increase in connections needed every year always increases along with its development. Both of these are always accompanied by increasing crime in cyberspace so that the level of risk and threats that arise will also always spread threats from time to time. Many people do not understand what cyber risk is, its impact and how minimal handling is needed to overcome the above. This research was conducted to provide an overview of cybersecurity information to anyone about the amount of malware on existing and scattered devices and the user behavior itself. It starts with scanning network traffic, type of malware, then the patterns and its characteristics. On the other hand, this also provides input on how to make minimal handling as a way to control cybersecurity. The aim of the work is to focus on establishing the basic behavior of a user on mobile malware for user profiling analysis.

**Keywords:** malware, cybersecurity, user behavior, control.

Corresponding Author:

Anderes Gui  
anderesgui@binus.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

The role of information technology in the digital age is something that cannot be rejected or considered one by the eyes of anyone. Information technology explains some of the main concerns in it, ranging from data collection, processing it to become a piece of information than how to use the infrastructure owned such as computer resources, software, data and network by the use (Fox, 2013). With the existing information technology, these users can receive or provide information quickly and accurately to anyone directly or indirectly whether in secret or not. Starting from students, office workers to entrepreneurs and even children up to old age, all always take advantage of various information technology it has to support its daily activities. Until now, many sites on the

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internet, official or unofficial, paid and unpaid, which provide services and support for various updates and maintenance of information technology, both systems, applications, and network information technology. According to IDC survey data in Jan 2017 – Dec 2018, the number of operating systems used was Android (86.78%). It is the most widely mobile operating system used than others, like iOS (3.72%), Nokia (1.628%), Blackberry (0.91%), Symbian (0.37%), and Windows Phone (0.26%). (GStatcounter, 2018). A world map with circles corresponding in size to the total number of reports received from specific countries (Kaspersky Cybersecurity Map, 2019).

TABLE 1: Malware Package Detected on Mobile Apps.

| Period           | Risk Tool | Trojan Dropper | Adware  | Trojan | Trojan SMS | Trojan Banker | Trojan Ransom | Backdoor | Hacktool |
|------------------|-----------|----------------|---------|--------|------------|---------------|---------------|----------|----------|
| <b>(Q1) 2019</b> | 29.80 %   | 24.93 %        | 16.57 % | 9.61 % | 7 %        | 3.24 %        | 3.09 %        | 1.68 %   | 0.33 %   |
| <b>(Q4) 2018</b> | 48.59 %   | 11.04 %        | 8.32 %  | 16.6 % | 5.74 %     | 1.85 %        | 2.4 %         | 1.89 %   | 0.31 %   |

Based on Table 1 above, there are 905,174 application packages detected by malware in the first quarter of 2019, which are mostly in the form of trojans and risk tools. A large number of mobile device usage followed by the availability of various applications and support through the links provided on each device. Starting from the Play Store by Google (2.8M), Apps store by Apple (2.2M) and Windows Phone by Microsoft (670K), as well as developers such as Apple Corp., Samsung Corp., Xiaomi and many other devices, always provide the need through online and offline connections.

## 2. Literature Review

### 2.1. An overview of the literature review

In order to understand what cybercrime, cybersecurity, and malware, it is necessary for us to understand them first. Cybersecurity is the collection of tools, policies, security concepts, security safeguards, guidelines, risk management approaches, actions, training, best practices, assurance and technologies that can be used to protect the cyber environment and organization and user’s assets whereas (Kshetri, 2013). Cybercrime is defined as a criminal activity in which the computer or computer is the principal means of committing an offense or violating laws, rules or regulations (Kshetri, 2013). In another side, Malware is a general term for all the malicious code that is a program designed to harm or secretly access a computer system without the owners’ informed consent, such as computer virus, backdoor, Trojan, and worm. (Tan, 2016). Mobile device

features are continually changing, so it is difficult to define the term “mobile device”. Mobile devices are also known as handheld computers. A mobile device is a handheld tablet or other device that is made for portability and is therefore both compact and lightweight. New data storage, processing, and display technologies have allowed these small devices to do nearly anything that had previously been traditionally done with larger personal computers (Souppaya and Scarfone, 2013). The following hardware and software characteristics collectively define the baseline for this publication: (1) At least one wireless network interface for network access (data communications). This interface uses Wi-Fi, cellular networking, or other technologies that connect the mobile device to network infrastructures with connectivity to the Internet or other data networks. (2) Local built-in (non-removable) data storage (3) An operating system that is not a full-fledged desktop or laptop operating system (4) Applications available through multiple methods (provided with the mobile device, accessed through the web browser, acquired and installed from third parties).

## 2.2. Historical review

Cybersecurity in the digital age is very important and an integral part of information technology. Proper learning of online behavior and system protection will reduce the vulnerability of safer online environments. Rapid technology expansion also creates and makes cybersecurity more challenging, so it is necessary, a framework or technology useful for protecting networks and information not only for the short-term but also long-term. A better understanding of security and the right strategy can help to protect assets and reduce both financial and reputation losses (Wiryawan and Noerlina, 2016). Related to various things above, until now, there are so many risks that arise in cyber activities that are caused, including malware. According to Monnappa K A., the various motives of malware such as (1) Disrupting computer operations (2) Stealing sensitive information, including personal, business, and financial data (3) Unauthorized access to the victim's system (4) Spying on the victims (5) Sending spam emails (6) Engaging in distributed-denial-of-service attacks (DDOS) (7) Locking up files on computers and holding them for ransoms (Monnappa, 2018)

## 2.3. Malware Characteristic

Based on Prayudi and Yusirwan (2015), some of the malware that has so far been found in Indonesia through previous research is: (a). The Trojan / Backdoor is a malicious

program that can install itself on a victim's computer to open a gate for hackers to enter it. Backdoor usually make a hacker able to connect to the victim's computer without certain permissions and immediately execute commands on the target computer. (b). The Botnet is a malware that has the ability like a backdoor, but when the computer has been infected (botnet), the infected computer will obey the command as if the instruction was given by the server control. (c). Downloader is a program that is usually installed by hackers when they already have access to the victim's computer system. This type of malware will download and install other malware to the system that is victimized. (d). Information-stealing malware is malware that collects information from the victim's computer, then send information that has been obtained to certain people. Examples of this type of malware are sniffers, password hash grabbers, and keyloggers. (e). Rootkits are programs that are made to hide other malware so that it cannot be detected by Anti-Virus. (f). Scareware is malware that aims to scare the victim with a specific message, where the victim is asked to buy a certain program to remove the malware (g). Viruses are malicious programs designed for destroying a computer system, like causing interference with the operating system, excessive memory usage on a computer, or data destruction.

### 3. Methodology

Based on Feys and Saeger (2015), the method of the approach taken in this study is a qualitative approach with the fishbone graph (Figure 1), where the main instrument research is data in the form of observation of the results article research both in the form of library books, and interviews with users of information technology devices. Source of research data are students, lecturers, and the general public. To collect data above, then the researcher conducts several stages, namely: (a) determining the literacy that is the subject of writing, (b) observing during the process of making the article takes place, (c) collecting various articles from previous studies, (d) conducting interviews with the writing object. Whereas in analyzing the authors conduct evaluations and reductions on data that are relevant to the research objectives. Then, the researcher presents the data in narrative form for later verification based on the predetermined study theories and conclude them.

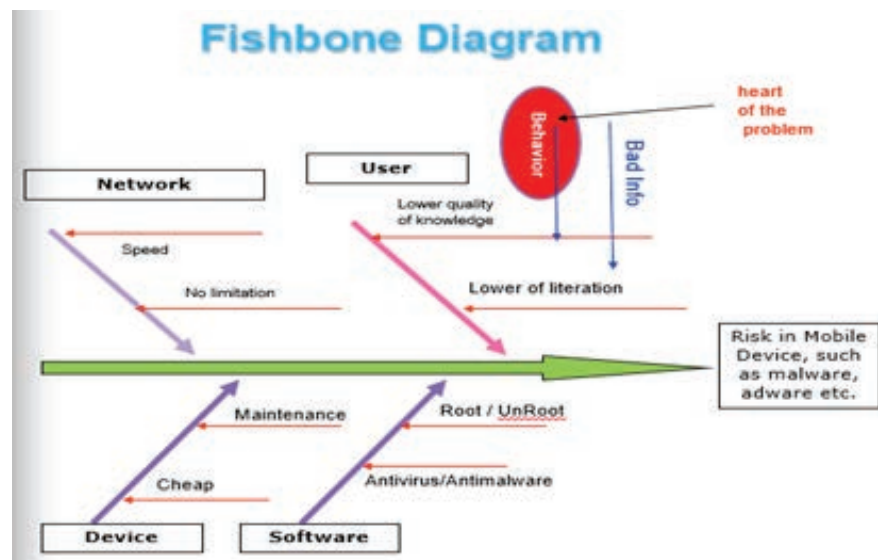


Figure 1: Fishbone Diagram.

## 4. Results

Based on survey results by analysis in 2018, internet usage rate in Indonesia is 75.5% dominated by 13-17-year-old age, 74.23% by 18-33 year, 44.06% by 34-54 years, and 15.72% for more than 54 years old. In another side, the education level of internet using were 88.24% for S2 / S3, 79.23% for S1/Diploma, 70.54% for the High School, 48.53% for Middle School, 25.10% for Elementary School, and only 5.43% unstudied. In relation to the survey of the device, most of 50.08% users have mobile devices such as smartphones or mobile phones, and only 44.16% of the devices are used to access various information over the internet. Compare with immobile ownership such as computer or laptop which is only 25.72%, of which only 4.49% is used for internet access. Based on the two images, it can be deduced that users prefer mobile devices compared to immobile devices, such as a PC or laptop. Indonesia has experienced tremendous growth in information technology. Shown with increased year-on-year internet access shows that the total number of internet users was up to 143.26 million, and its trend will be a rise in 2019. Although the majority is still dominated by Java (58.8%) and located only in big city cities (72.41%), but with the ongoing development time and infrastructure it does not rule out the potential of other regions will also increase significantly.

Related to the picture above, some things that become the most important part in it are about how people use the device they have, such as access to the site or installation of prohibited applications or not. It was shown that the usage points (operational) accounted for 60% of the spread of malware every day. Then on the point of maintenance, both on the side of the update/patch, the installation of antivirus or VPN

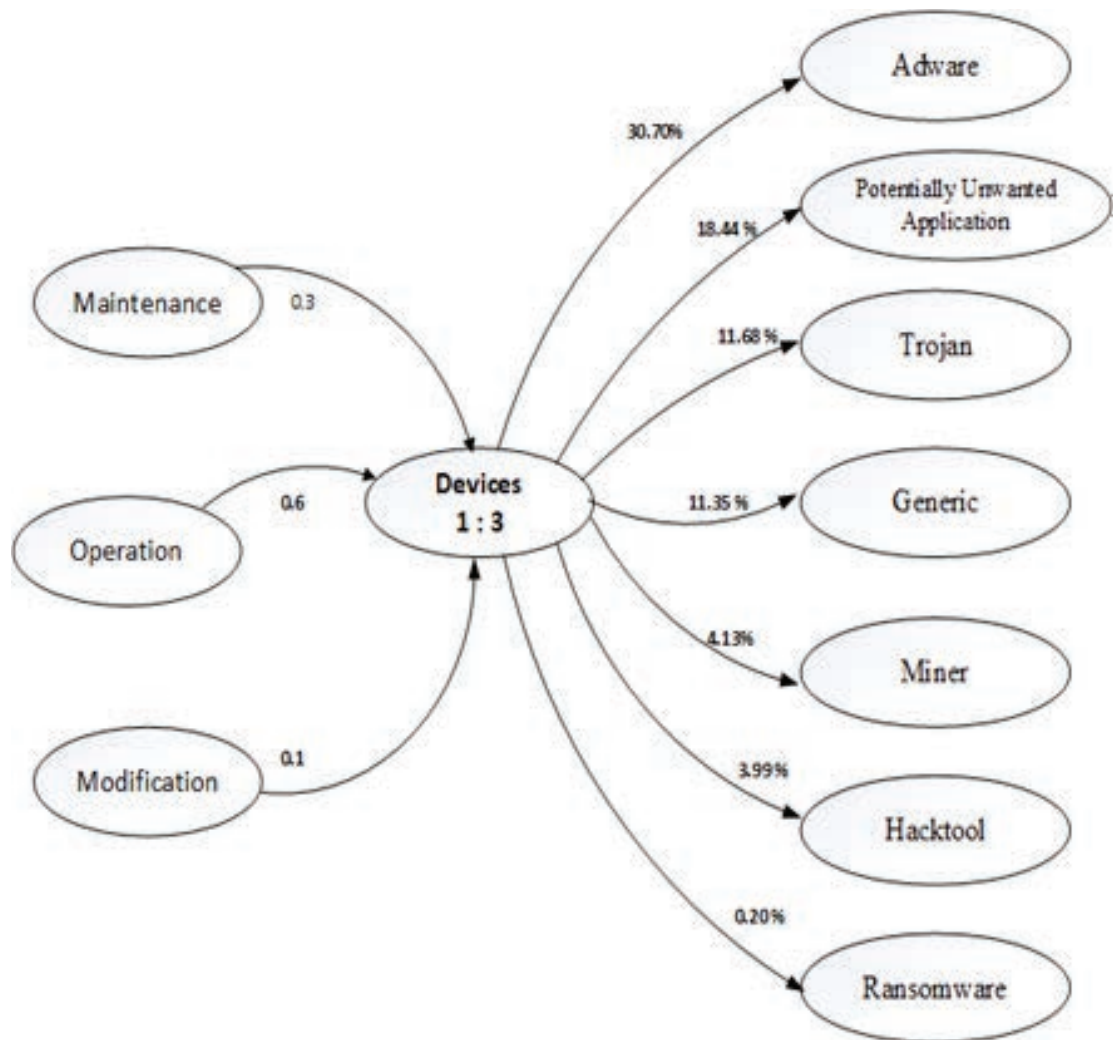


Figure 2: Malware Relation.

accounts for 30% in the spread of existing malware. Whereas on the side of changes in the operating system or internal devices, it only accounts for 10%. Although only small, but modifications to the technology devices used, also a factor in the spread of the intended malware.

Related to Figure 2 and Table 2 above, it can be explained (Table 3) that the results of the analysis carried out on user behavior for maintenance, operation, and modification in the device are as shown in (1) On the Maintenance side, only a few users pay attention to devices that are used daily. This is indicated by a value of 37, 9%. (2) On the Operations side, there are quite a number of users who can use or operate their information technology devices, indicated by a value of 86.2%. (3). On the side of Modification, only a few understand how to make changes to the technological devices used. This is indicated by the value of 8.3%.

TABLE 2: Malware Analysis.

| No | Name and Type |              | Percent (%) |
|----|---------------|--------------|-------------|
| 1  | Malware       |              | 44          |
|    | a             | Backdoor     |             |
|    | b             | Generic      |             |
|    | c             | Heuristic    |             |
|    | d             | Mogoogwi     |             |
|    | e             | Worm         |             |
|    | f             | Ramnit       |             |
|    | g             | WannaCry     |             |
|    | h             | Others       |             |
| 2  | Adware        |              | 38          |
|    | a             | Install Core |             |
|    | b             | PUA          |             |
|    | c             | Generic      |             |
|    | d             | Others       |             |
| 3  | Trojan        |              | 18          |
|    | a             | Dropper      |             |
|    | b             | Hacktool     |             |
|    | c             | Generic      |             |
|    | d             | Others       |             |

TABLE 3: Behavior of User.

| No | Behavior     |                        | Score (%) |
|----|--------------|------------------------|-----------|
| 1  | Maintenance  |                        |           |
|    | a            | Content Revision       | 15        |
|    | b            | Update / Patching      | 17.2      |
|    | c            | Cleaning               | 5.7       |
| 2  | Operation    |                        |           |
|    | a            | Content Control        | 40.8      |
|    | b            | New Apps. Installation | 25        |
|    | c            | Capabilities           | 20.4      |
| 3  | Modification |                        |           |
|    | a            | Unnecessary Apps.      | 2.3       |
|    | b            | User Privilege         | 3         |
|    | c            | Others                 | 3         |

## 5. Discussion

The programs like malware, are created by people with a degree of technical skill, they are network security professionals or only amateurs. Tools such as port and vulnerability scanners that are ostensibly designed to be used by 'white-hat' or ethical

individuals and professionals may also be open to abuse by 'black-hat' attackers. The term 'script kiddies' also exists to describe amateur self-termed 'hackers' who lack the technical skills of their own to develop exploits and perform attacks but instead use tools developed by others, often with little understanding of how they work. Script kiddies such as these, therefore, are likely to make use of programs that are covered by the Hacktool detection. Based on various things related to the causes and impacts, malware is one of the activities that cause various losses that exist, especially not only in the user but in the other arrangements that exist in information technology systems, such as maintenance. Regarding current users, pay more attention to existing device users. Very few users pay attention to the maintenance of all the devices they have. Good for content revisions, updates are available for each application installed. This is very important. However, many do not want to know. Without maintenance, then all devices used will experience various things that are inappropriate in the future. Starting from losing data and information to financial losses in online transactions (such as mobile banking transactions, etc.)

## 6. Conclusion and Implications

If you think you have malware on your phone, the most important thing to maintain (more than 60 % did not maintain) is to stop the malware from causing any further damage. Do not wait until your device gets infected. Make protecting your device a priority. Having good anti-malware software that protects your PCs, tablets, and other mobile devices may help prevent malware from spreading from device to device. Some steps that need to be used as a reference in the first minimal handling malware that has been found in research are (1) Turn off the phone and restart in safe mode. (2) Uninstall the suspicious app. (3) Look for other apps you think may be infected. (4) Install a robust mobile security app on your phone. Based on research with static and dynamic analysis and increasing prevalence above, it has often been done. It is hoped that in the next study, this research will be able to help in the next step regarding the kind of maintenance for the user. Especially in how the user cannot maintain their devices? so that the technology used will not be something daunting the users. In other words, it is expected that the user will concern with malware being a something which very critical.

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## Conference Paper

# Performance of Islamic Microfinance Banks: The Case of a Developing Country

Taufik Akbar<sup>1</sup> and A.K Siti Nabiha<sup>2</sup><sup>1</sup>Graduate School of Business, Universiti Sains Malaysia 11800 Penang, Malaysia 1, Universitas Mercu Buana, 11650 West Jakarta, Indonesia<sup>2</sup>Graduate School of Business, Universiti Sains Malaysia 11800 Penang, Malaysia

## Abstract

Similar to conventional microfinance banks institutions, Islamic microfinance banks provide intermediary financial services by receiving funds from investors and other stakeholders and disbursing funds to micro, small and medium-sized entrepreneurs and poor households. Islamic microfinance banks play a significant role in developing countries, especially in Indonesia. However, Islamic microfinance banks have not experienced significant growth and achieved good performance as expected. The paper thus investigates Indonesian Islamic microfinance banks performance in comparison to conventional microfinance banks. The data from the Indonesian Services Authority (OJK) were analyzed from 2012 to 2017. The findings showed that Islamic microfinance banks had performed poorly as compared to conventional microfinance banks. Suggestions for further empirical investigation were made to ascertain the reasons for such poor performance.

**Keywords:** islamic microfinance banks, performance of islamic microfinance banks, indonesia, developing country.

Corresponding Author:

Taufik Akbar

taufikakbarakt@gmail.com

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Committee.

## 1. Introduction

Microfinance institution (MFIs) is the provision of various financial services including credits, insurance, savings, deposits, and payment services to poor, low-income households, and micro or small businesses that are financially excluded due to the lack of collateral (Ledgerwood, 1999; Littlefield, Morduch, & Hashemi, 2003; Robinson, 2001; Abdelkader & Salem, 2013; Begum, Alam, Mia, Bhuiyan, & Ghani, 2018; Berguiga et al., 2017; Hermes & Hudon, 2018; Reichert, 2018; Wediawati et al., 2018). In particular, MFIs differ from traditional financial institutions due to the existence of double bottom-line objectives for serving poor customers (outreach) and financial sustainability (Tulchin, 2003). Hence, MFIs are the financial institutions that serve as an intermediary whose purpose is not merely to seek profits but also to realize social goals such as community development (Baskara, 2013). Islamic Microfinance Institution (IMFIs) was established to cater to the needs of the Muslim community as it supposed to operate based

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on the *Sharia* principles. IMFIs reflects the confluence of two fast-growing industries, microfinance, and Islamic finance. Microfinance is as an essential tool in supporting and strengthening the economy at the bottom of the socio-economic pyramid by facilitating access to financial services for the poorest and the destitute, while Islamic finance is a financial system based on *Sharia* principles. The strict prohibition of paying or receiving any fixed interest (*riba*) is the most widely known characteristic of this financial system (CGPA, 2013; Abdelkader & Salem, 2013; Mobin et al., 2017). The purpose of IMFIs is similar to conventional MFIs in terms of providing services to financially excluded, hence it needs to achieve a social objective while at the same time being financially sustainable (Abdelkader & Salem, 2013;Hermes & Hudon, 2018; Mobin, Masih, & Alhabshi, 2017;Tulchin, 2003;CGPA, 2013; Murdock, 1999). IMFIs' financial and social performance is not satisfactory compared to conventional MFIs. The CGAP survey in 2007 showed that Bangladesh, a country with the largest microfinance coverage in the world with almost 8 million microfinance lenders, has an Islamic microfinance coverage of only 1 percent or around 100,000 clients. In Syria and Indonesia, the figures contribute 3 percent and 2 percent of the microcredit value respectively in 2006 (Karim, Tarazi & Reille, 2008). Therefore, it is indicated that Indonesia *Sharia* microfinance showed low financial and social performance even though Indonesia is the largest Muslim country with total followers around 207,176,162 people but it is unable to make IMFIs performance grow and develop (Risfandy, Husa, & Asrihapsari, 2016; Central Bureau of Statistics, 2018). Hence, this paper investigates the recent financial and social performance of formal IMFIs and compared their performance to the conventional MFIs and to suggest avenues for further research in this area.

## 2. Microfinance Institutions in Indonesia

Indonesia has both conventional and Islamic microfinance institutions. The MFIs in Indonesia are regulated by Law No. 1 of 2013 which stipulates that microfinance is a financial institution purposively established to provide business development and community empowerment services, either through loans or financing to micro-scale businesses and community members, deposit management, and to provide business development consulting services that are not profit-oriented based on conventional or Islamic principle. Hence, MFIs are the financial institutions that serve as an intermediary whose purpose is not merely to seek profits but also to realize social goals such as community development (Baskara, 2013). Microfinance programs in Indonesia are managed by formal, semi-formal, and informal institutions. Formal microfinance institutions

are those that are regulated under the Indonesian banking law, and Financial Services Authority of Indonesia (OJK). The legal entities of formal microfinance institution are a private business, cooperative or regional company, specifically for formal Islamic microfinance as referred to in Law No. 21 of 2008 Article 7 which stipulates that a legal entity is a private business. Supervision and guidance for formal microfinance institution are conducted by Indonesia Financial Services Authority (OJK). Formal microfinance institutions are classified into: Commercial Banks which have microfinance business unit (Bank of BRI Bank - Unit, and Bank of Mandiri (Micro Banking Unit), microfinance banks (*Bank Perkreditan Rakyat*) either under conventional or Sharia principle (BPRS). Thus, in Indonesia, conventional based microfinance is called *Bank Perkreditan Rakyat* (BPR), and microfinance institutions based on Islamic principles are called *Bank Perkreditan Rakyat Syariah* (BPRS). Both are categorized as formal microfinance institutions (Usman et al., 2004; World Bank, 2005; Indonesia Financial Services Authority, 2018). Semi-formal microfinance institutions are those that are regulated by either central or regional government. The legal entities of semi-formal microfinance institution are a private business, the company's local government or regional government. Supervision and guidance for formal microfinance institution are done by the Financial Services Authority of Indonesia (OJK), and the Minister for Cooperatives Small and Medium Enterprises. Based on its institutional classification, informal microfinance are classified as Pawnshop, Village Credit Agencies (BKD), Social enterprises /Saving and Loan (S&L) Cooperative (KSP), Social enterprises /Saving and Loan (S&L) Cooperative (KSP), Baitul Maal Wa'atamwil (BMT). While the informal microfinance institutions are those that have no legal force as there is no specific regulation governing the matter (Baskara, 2013; Haryanto, 2011; Martowijoyo, 2000; Mujiono, 2013; Nelson, 2011; Susila, 2007; Usman et al., 2004; World Bank, 2005, Financial Services Authority of Indonesia, 2018). The classification of microfinance institutions in Indonesia is shown in Table 1.

### 3. Indonesian Islamic Microfinance Bank

One of the formal MFIs in Indonesia is a microfinance bank. According to Indonesian government regulation No. 10 of 1998, a microfinance bank is a bank that carries out its business activities either on a conventional (BPR) or on a sharia basis (BPRS) ([www.bi.go.id](http://www.bi.go.id)). These types of formal microfinance banks provide such financial services to customers as savings, loans/credit, and deposits (Hamidi, 2017; Iswandari & Anan, 2015; Yusi & Idris, 2016).

TABLE 1: Microfinance Institutions in Indonesia.

|                                      | Type of Institution   | Business License   | Legal Entities  | Guidance   | Supervision  |
|--------------------------------------|---|--|---|--|--|
| Formal Microfinance Institution      | Commercial Banks with microfinance business unit (Bank of BRI Bank - Unit, and Bank of Mandiri (Microbanking Unit)  | Financial Services Authority of Indonesia (OJK)              | Private Business, Cooperative or Regional Company   | Financial Services Authority of Indonesia (OJK)              | Financial Services Authority of Indonesia (OJK)              |
|                                      | Microfinance banks (BPR) either Conventional or Shariah-based namely <i>Bank Perkreditan Rakyat Syariah</i> (BPRS). | Financial Services Authority of Indonesia (OJK)              | Private Business, Cooperative or Regional Company. <i>“Particular for Islamic Microfinance Banks (BPRS), The legal Entity is a Private Business Refer to (Law No. 21 of 2008, Article 7)”</i> | Financial Services Authority of Indonesia (OJK)              | Financial Services Authority of Indonesia (OJK)              |
| Semi-Formal Microfinance Institution | Perum Pegadaian (Pawnshop)  | Financial Services Authority of Indonesia (OJK)              | Private Business, Government Regional Company.  | Financial Services Authority of Indonesia (OJK)              | Financial Services Authority of Indonesia (OJK)              |
|                                      | Village Credit Agencies (BKD)   | Financial Services Authority of Indonesia (OJK)              | Government either central and Regional  | Financial Services Authority of Indonesia (OJK)              | Financial Services Authority of Indonesia (OJK)              |
|                                      | Social enterprises /Saving and Loan (S&L) Cooperative (KSP)   | State Minister for Cooperatives Small and Medium Enterprises | Private Business/Social enterprises   | State Minister for Cooperatives Small and Medium Enterprises | State Minister for Cooperatives Small and Medium Enterprises |
|                                      | Baitul Maal Wa'atamwil (BMT)  | State Minister for Cooperatives Small and Medium Enterprises | Private Business/Social enterprises   | State Minister for Cooperatives Small and Medium Enterprises | State Minister for Cooperatives Small and Medium Enterprises |
| Informal-Microfinance Institution    | NGO (LSM), Shark Loan, Rotating Savings Club  | Does not have legal force                                    | Does not have legal force   | -  | -  |

Source: (Baskara, 2013; Haryanto, 2011; Martowijoyo, 2000; Mujiono, 2013; Nelson, 2011; Susila, 2007; Usman et al., 2004; World Bank, 2005; Indonesia Financial Services Authority, 2018, Bank Indonesia, 2018)

Both BPR and BPRS provide such financial services to customers as savings, loans/credit, and deposits (Hamidi, 2017; Iswandari & Anan, 2015; Yusi & Idris, 2016). Formal microfinance banks have not only profit orientation objectives but also to increase the income and the welfare of the people and to help increase economic empowerment and productivity of the community by facilitating credits to the poor and low-income people, especially micro, small and medium businesses (Indonesian government regulation No. 10 of 1998; Masyita, 2017; Mulyati & Harieti, 2018). This means that BPR and BPRS have a system that operates almost the same which is based on profit in the context of financial sustainability, but in the social performance context, they have different characteristics from both BPR and BPRS. The social performance of BPRS not only includes the number of borrowing clients, the number of loans and savings accounts and the number of branches established, but also the integration of zakat, wakaf and qardlu hasan for rural and urban, which the performance of conventional microfinance institutions does not have (Fersi & Boujelbéne, 2016; Mobin et al., 2017; Ahmed, 2002, Riwayatanti, 2013).

According to Indonesian government regulation No. 10 of 1998, BPRS is a bank that conducts its business activities based on sharia principles. BPRS is fostered and supervised by the Financial Services Authority of Indonesia (OJK), and the legal entity of Islamic microfinance banks according to Law No. 21 of 2008, Article 7, which stipulates that the form of Islamic microfinance banks business is private where the capitals are obtained from internal and external investors.

Basically, BPRS has a system which is almost similar to the conventional rural bank operated on a profit basis. These institutions can earn profits in three areas, including trading, leasing, and direct financing from profit-loss sharing (PLS) contracts (Al-Omar & Abdel-Haq, 1996). The products, services, and akad (contracts) used are different, however, all activities must be based on Islamic sharia law where *riba*, *maysir*, and *gharar* practices are prohibited. According to Chapra (1985), the term *riba* is commonly defined as taking extra profits from basic assets or capital. It is insubstantial because the owner of the fund requires the borrower to pay more than the borrowed funds irrespective that the borrower earns profits or experiences losses. Whereas "*Maysir*" literally means getting something very easily without hard work or getting profits without work. In Islam, *maysir* is anything that contains the elements of gambling, betting, or a risky game. Gambling in any form whatsoever is prohibited in Islamic laws (Hameed, 2009). As noted earlier in the Quran, Allah (s.w.t) clearly prohibits gambling (Al-Baqarah, 2:219 and Al-Maidah, 5:93). In Islam, *gharar* are all economic transactions involving the elements of obscurity, fraud or crime. It is condemned by Islam in the Qur'an (QS 6 152;

83 1-5; and 4 29) and Hadiths. In the business world, *gharar* means blindly running a business with limited understanding (Rahmanti, 2012; Uddin, 2015).

#### 4. The Differences Between Conventional Microfinance Banks (BPR) and Islamic Microfinance Banks (BPRS)

BPRS is not only a financial institution which serves a dual mission (financial and social) but also serves as a religious institution that runs its da'wah function (Wediawati, Effendi, Herwany, & Masyita, 2018). The financial benefit provided by BPRS is to strengthen the Islamic economy, particularly weak economic community groups generally in rural and urban areas, and to increase the employment rate by developing Micro, Small and Medium-sized Enterprises (SMEs) with capital assistance from IMFI (Amalia, 2009; Sumitro, 2002).

Both BPR and BPRS financial performance is associated with the return on equity (ROE), profit margin, return on asset (ROA), operational self-sufficiency (OSS), and financial self-sufficiency (FSS) (Schreiner, 2002; Rama, 2015; Hermes & Hudon, 2018; Mobin, Masih, & Alhabshi, 2017; Purwanto, Primiana, Masyita, & Febrian, 2018; Wediawati et al., 2018). Social performance both BPR and BPRS are based on the average loan amount (relative to the income of the target population), the number of borrowing clients, the number of loans and saving accounts, the number of branches established and the share of loans to female borrowers are most often used (Hermes & Hudon, 2018; Purwanto et al., 2018).

However, the differences between BPRS and BPR lie in their targeted organizational objectives. In BPRS, the organizational objective is based on shari'a principles (*maqasid Sharia*) which may lead to the balance of life (*Falah*) between worldly goals (financial and social goals) and hereafter goals (spiritual goal) in an expect to obtain blessings from the Almighty Allah SWT to run all organizational activities (Wediawati et al. 2018). Therefore, the financial BPRS performance puts more emphasis on profit and loss sharing based on *mudharabah* and *musyarakah* contract (Mobin et al., 2017; Purwanto et al., 2018; Wediawati et al., 2018). *Musyarakah* contract is a contract between two or more partners sharing both recent profits and losses. Instead of imposing interests as a creditor, the financier will receive a return based on a predetermined ratio in the form of a proportion of the actual profits earned. Unlike a traditional creditor, however, the financier will also share any losses. While *mudharabah* contract is a partnership in which one party provides the capital and another party provides labor force or skills. The capital provider is known as *Rab Al-Mal*, while the counterpart is known as the

Mudarib. It is a trust contract, the mudarib is not liable for any losses except breach of trust (Fersi & Boujelbéne, 2016).

The crucial part of the social performance is a provision of charity to the poor in which funds are obtained from zakat, wakaf and qardlu hasan, which the performance of conventional microfinance institutions does not have. These three funds serve as a charity instrument which occupies a central position in Islamic financial institution in terms of poverty eradication (Fersi & Boujelbéne, 2016; Mobin et al., 2017). As a Sharia-based financial institution, the objectives of BPRS must be consistent with the objectives of sharia principles (maqasid Sharia). These objectives will lead to the balance of life (*Falah*) between the worldly purposes (material / financial and social) and hereafter purpose (spiritual) in favor of Allah SWT (Wediawati et al., 2018). In other words, both financial performance and social performance are the objectives that must be achieved concurrently by BPRS (Abdelkader & Salem, 2013; Fersi & Boujelbéne, 2016; Mobin et al., 2017; Wediawati et al., 2018). The BPRS through Islamic financial instruments provides intermediary financial services by receiving funds from investors and other stakeholders on one hand and disbursing funds with or without profits to micro, small and medium entrepreneurs and poor households on the other hand. The basic model is needed to complete a full cycle of the Islamic microfinance process, namely: funding, an Islamic micro-finance institution, an Islamic financial instrument for disbursement of funds, the borrower, and the repayment. All these reasons make BPRS different from its conventional counterpart (Mobin et al., 2017).

In BPRS, Islamic charities such as *zakat* and *waqf* are special sources of funding. But if it is related to external funds, and the savings used as a source of funds, both from sharia and BPR are the same. Another specialty of BPRS is the financing mode that must eliminate interests in its operations while BPR adapts interest-based financing. Funding carried out by BPR is channeled to poor people in rural and urban areas with interests. While BPRS provide financing for poor people in rural and urban areas by integrating *zakat*. Another characteristic concern the transfer of funds by formal microfinance institutions. On BPR, institutions can directly provide cash to their clients as a form of financing. While service providers BPRS use goods transferred (*murabahah*). On the other hand, BPRS use Islamic financial instruments based on profit-sharing schemes instead of loans. While BPR target women as clients, whilst BPRS argue that the coverage should be targeted at all families members instead of just women. The characteristics and the difference between BPRS and BPR are summarized in Table 2.

TABLE 2: The Differences Between Conventional Microfinance Banks (BPR) and Islamic Microfinance Banks (BPRS).

|   | <b>Conventional Microfinance Banks (BPR)</b>         | <b>Islamic Microfinance Banks (BPRS)</b>   |
|---|--|--|
| Liabilities (Source Of Funds)               | External Funds, Saving of Client                     | External Funds, Saving of client, Islamic Charity Funds  |
| Asset (Mode of Financing)                   | Interest-Based                                       | Islamic Financial Instrument (Profit and Low Sharing approach)                                 |
| Financing the Poorest                       | Poorest In Rural and Urban Area                      | Poorest are Included by integrating <i>zakah</i> with microfinancing in a rural and urban area |
| Fund Transfer                               | Cash given   | Goods transferred ( <i>Murabahah</i> )   |
| Deduction at Inception of Contract          | Part of the funds deducted at Inception              | No deductions at inception   |
| Target Group                                | Family, Micro, and Small Medium Enterprises (SMEs)   | Family, Micro, and Small Medium Enterprises (SMEs)   |
| The objective of Targeting Women            | Ease of Availability                                 | Ease of Availability   |
| Liability Of the Loan (When Given to women) | Recipient and spouse                                 | Recipient and spouse   |
| Work Incentive of Employees                 | Monetary   | Monetary and Religious   |
| Dealing With Default                        | Group/Central Pressure and Threats                   | Group/Centre/Spouse Guarantee, and Islamic Ethics  |
| Social Development Programme                | Secular – behavioral, ethical and social development | Religious (Includes behavior, ethics and social)   |
| Legal Entity                                | Private Business, Cooperative or Regional Company    | Private Business <i>Refer to (Law No. 21 of 2008, Article 7)</i> "                             |
| Guidance and Supervision                    | Financial Services Authority of Indonesia (OJK)      | Financial Services Authority of Indonesia (OJK)  |
| Board of Supervision                        | No Board of Syariah Supervision                      | Board of Syariah Supervision   |

Source: (Ahmed, 2002, Riwayatanti, 2013, Indonesia Service Authority, 2018)

## 5. Methodology

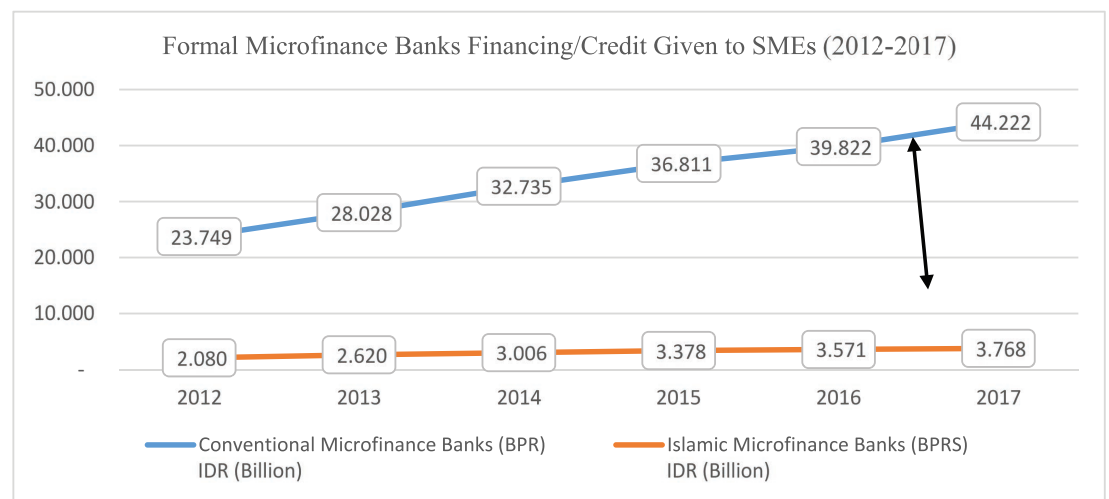
This study uses documentary data to compare the performance of BPR and BPRS. The data was sourced from the Indonesian Services Authority (OJK) from 2012 until 2017. The financial performance is measured based on (i) Financing/credit, (ii) Profit, i.e, net income. These measures, i.e., profit and financing are used in other studies (see for example Masyita, 2017; Siti-Nazariah, Siti-Nabiha, & Azhar, 2016; Ayayi & Sene, 2008; Charitonenko & Afwan, 2003; Asutay 2010; Kaplan & Norton). Financial perspectives measure whether an organization’s strategy, implementation, and execution are contributing to the organization improvement in general.



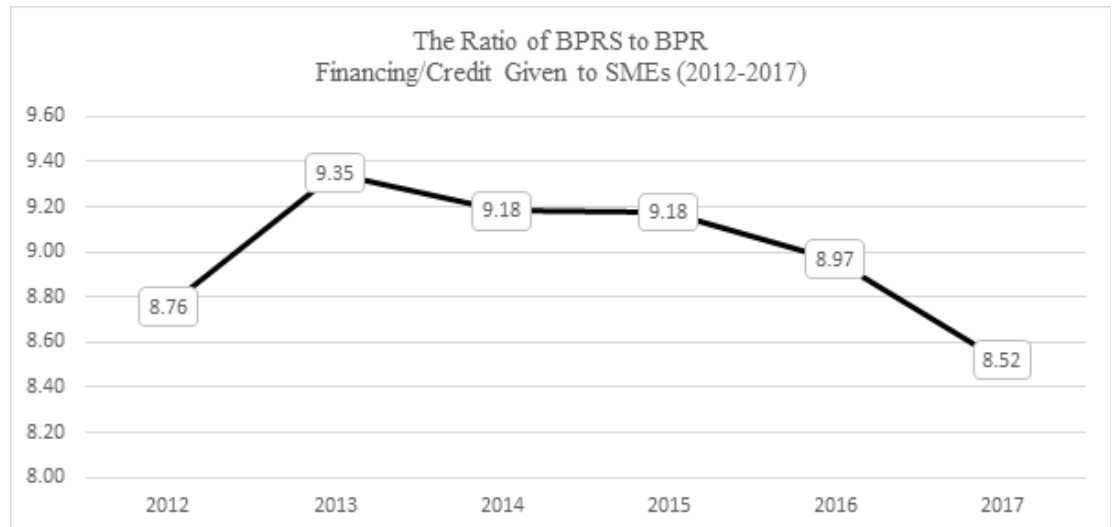
Social performance is based on the measure of (i) Bank growth – Number of branches established and (ii) Number of customers. The measures used are similar to several other studies (see Fersi & Boujelbéne, 2016; Hermes & Hudon, 2018; Purwanto et al., 2018; Asutay 2010; Mersland & Strom, 2009; Luzzi & Weber, 2006). Social performance reflects the measure of the BPRS intention to have a social and feasible impact integration in the environment (Boye et al., 2006). This confirms that the role of social performance is to eradicate poverty in rural and urban areas (Fersi & Boujelbéne, 2016).

## 6. Result and Discussion

The main activities of both BPR and BPRS are to serve SMEs and local communities in rural and urban areas (Trinugroho, Risfandy, & Ariefianto, 2018; Yusi & Idris, 2016). About 99 % of the companies in Indonesia can be classified as SMEs (Shaban, Duygun, Anwar, & Akbar, 2014). Therefore, formal microfinance banks either BPR or BPRS have a vital role in the current Indonesian economy (Trinugroho et al., 2018). The graphs show the difference between the credit/financing to customers by BPRS and BPR. The total credit/financing to customers from BPRS in 2012 is 2.080 Billion compared to the 23.749 Billion of BPR (see Figure 1). The BPR is currently the largest contributor in the credit/financing category for SMEs in Indonesia between 2012 and 2017. The percentage credit/financing of BPRS is from 8.52% to 9.35% of the total credit/financing of BPR in Indonesia between 2012 and 2017 (see Figure 2). It indicates that the total financing/credit accruing to the Islamic microfinance banks (BPRS) in Indonesia is lower than the Conventional microfinance banks (BPR).

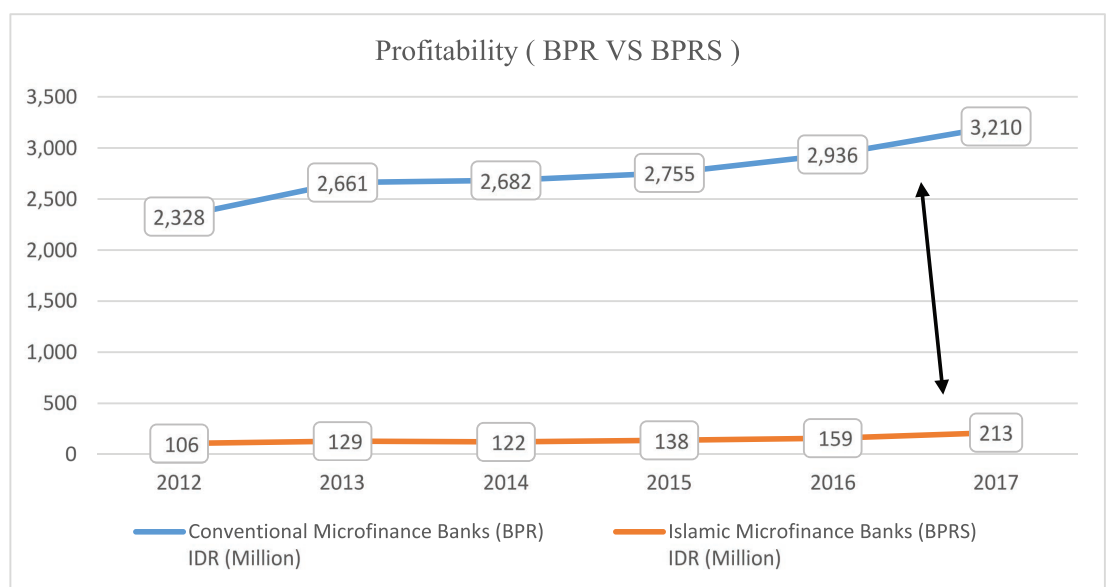


**Figure 1:** Formal Microfinance Banks Financing/Credit Given to SMEs (2012-2017) (Source: (Indonesia Financial Services Authority, 2018)).

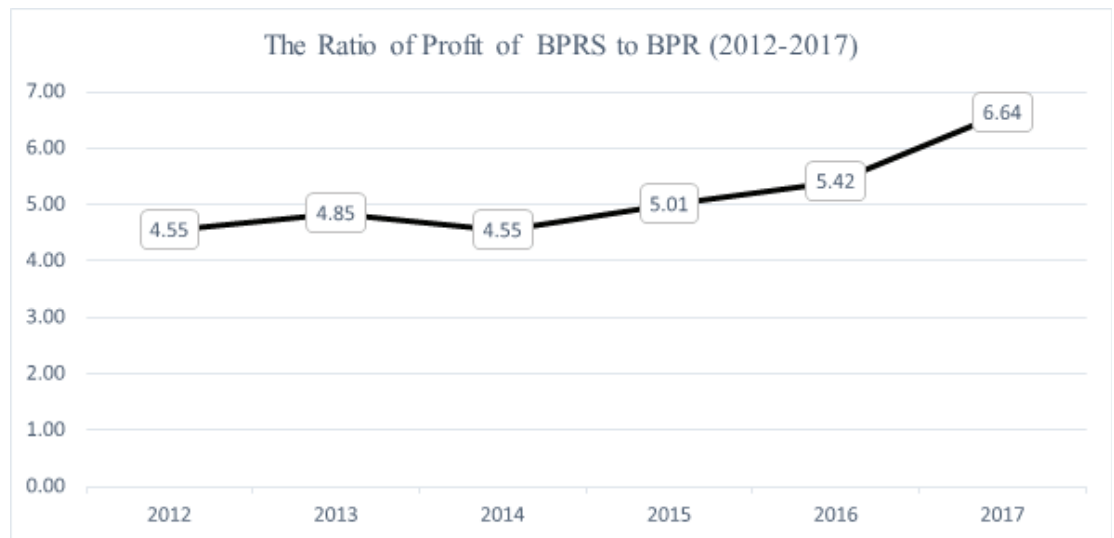


**Figure 2:** The Ratio of Islamic to Conventional Microfinance Banks (2012-2017) (Source: (Indonesia Financial Services Authority, 2018)).

Figure 3 shows the profitability for BPR and BPRS in Indonesia between 2012 and 2017. The profit of BPRS is 106 Million in 2012, rose to 129 Million in 2013, declined in 2014 and increased further in 2015 till 2017. However, the profit of BPRS from 4.55 % to 6.64 % of the total profit of BPR in Indonesia between 2012 and 2017 (see Figure 4.2). It indicates that the financial performance of BPRS from 2012 to 2017 is still far behind from BPR. This is supported by studies (Hamidi, 2017; Hanif et al., 2012; Wasiuzzaman & Gunasegavan, 2013) which revealed that the financial performance of conventional microfinance banks is greater than that of Islamic microfinance banks.

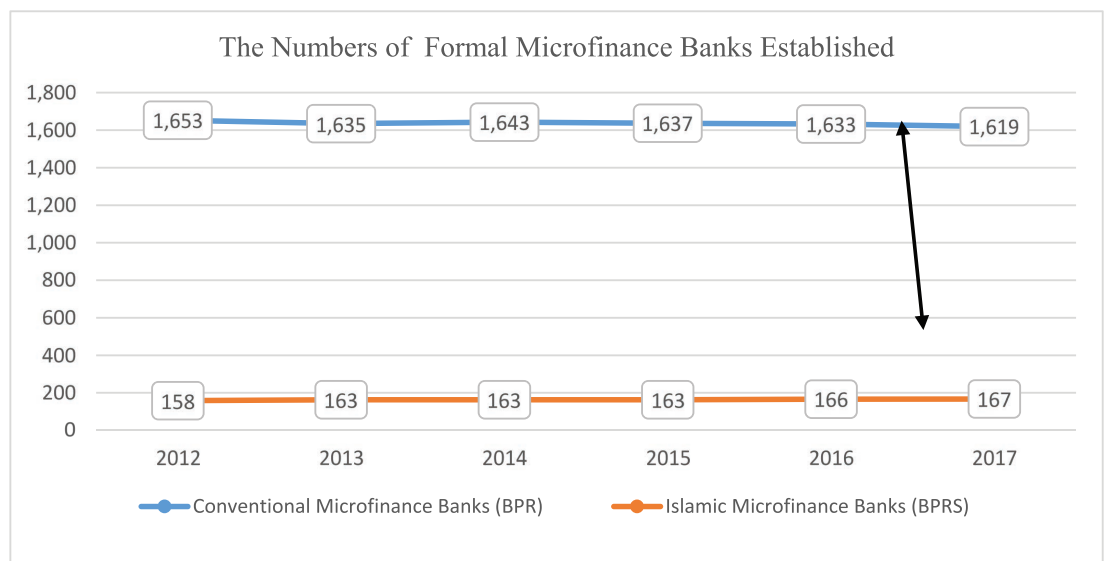


**Figure 3:** The Profit of Indonesian Formal Microfinance Banks (2012-2017) (Source: (Indonesia Financial Services Authority, 2018)).



**Figure 4:** The Ratio of Profit of Islamic to Conventional Microfinance Banks (2012-2017) (Source: (Indonesia Financial Services Authority, 2018)).

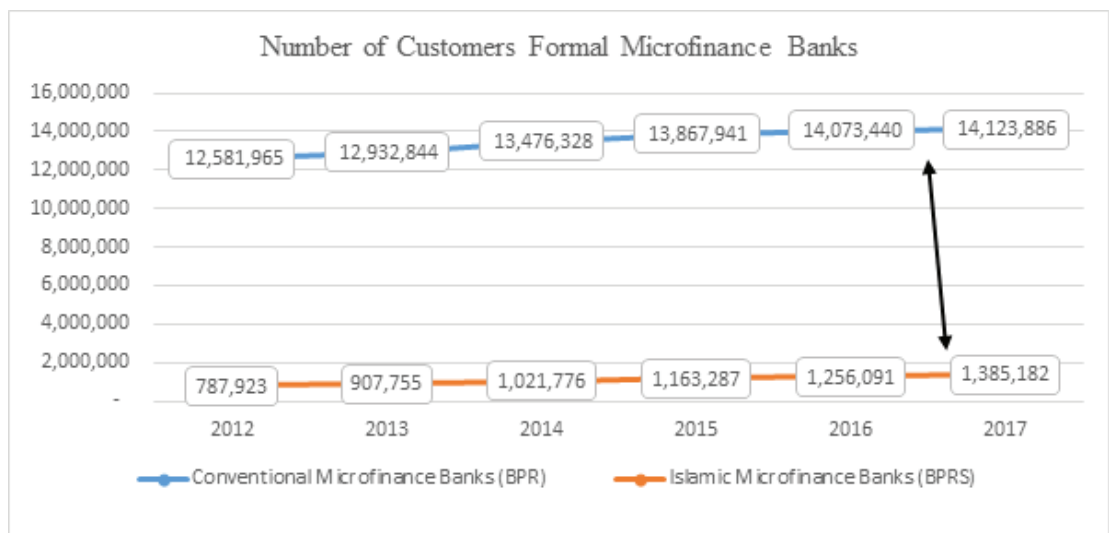
Social performance, measured by the increase in the number of Islamic microfinance banks established is 158 in 2012, rose to 163 in 2013, stagnated in 2014, 2015, and increased further in 2016-2017 (Financial Services Authority, 2018). The number of BPRS represents approximately 10% of BPR annually (Indonesian Financial Services Authority, 2018) (see Figure 5). This result indicates that Islamic microfinance banks (BPRS) have fewer numbers when compared to the number of conventional microfinance banks (BPR) established.



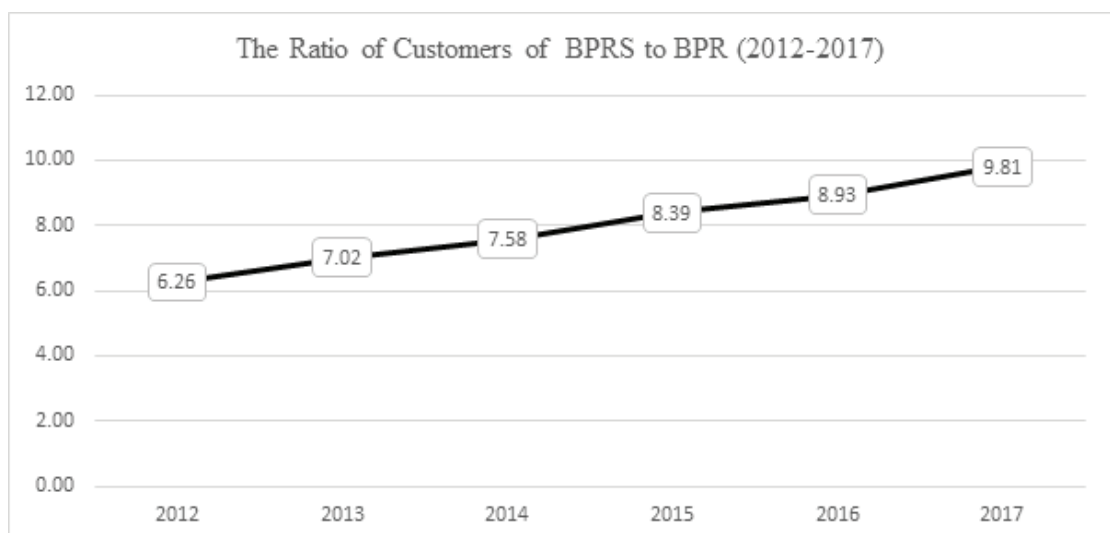
**Figure 5:** The Numbers of Indonesian Formal Microfinance Banks Established (2012-2017) (Source: (Indonesia Financial Services Authority, 2018)).

The other social performance is the number of formal microfinance banks customers. Figure 6 shows the difference between the number of customers by BPRS and BPR. The

total customers from BPRS in 2012 are 789,923 compared to the 12,581,965 customers of BPR, in 2013 customers from BPRS is 907,755 compared to the 12,932,844 customers of BPR. It indicates that the number of BPR customers compared to BPRS customers is the largest in Indonesia between 2012 and 2017. Figure 7 shows the ratio of customers in conventional and Islamic microfinance banks. The figure shows that there is an increasing trend in the number of customers for both BPR and BPRS. Results show that in 2012, the number of customers for BPRS is 6.26% of customers of BPR. It increased to 7.02% in 2013, and increased further in 2014-2017. This shows that the number of Islamic microfinance banks (BPRS) customers is far behind conventional microfinance banks (BPR).



**Figure 6:** The Number of Customers of Indonesian Formal Microfinance Banks (2012-2017) (Source: (Indonesia Financial Services Authority, 2018; Indonesia Banking, 2018)).



**Figure 7:** The Ratio of Islamic to Conventional Microfinance Banks (2012-2017) (Source: (Indonesia Financial Services Authority, 2018; Indonesia Banking, 2018)).

Based on the data described above, Islamic microfinance banks have shown poor financial and social performance. Many researchers report similar findings that showed that the profitability of BPR is higher than that of BPRS (see for example Hamidi, 2017; Hanif, Tariq, Clean, & Momeneen, 2012; Wasiuzzaman & Gunasegavan, 2013). Moreover, several findings revealed that either the financial performance or social coverage of Islamic microfinance banks remains behind that of conventional banks.

Hence, there is a need to investigate the reason for such poor performance over the years. One avenue is to focus on corporate governance and internal mechanisms of BPRS as the insights of several studies have shown that poor performance is caused by problematic corporate governance (Hermes & Hudon, 2018; Dian Masyita & Ahmed, 2013; Seibel, 2008). Moreover, the lack of corporate governance is a critical problem in Islamic banks' performance as noted by Muliaman D. Hadad, the Indonesian Service Authority Board of Commissioners, as he stated in a speech in on 10<sup>th</sup> of July 2017:

*“70% of business closures of microfinance banks are caused by poor corporate governance and service.”*

Therefore, in order to improve organizational performance, especially that of the BPRS, good corporate governance is thus required. Microfinance practitioners stated good governance is of great importance because it is one of the keys to the success of both financial and social performance (Campion 1998; Rock et al. 1998; Labie 2001; CGAP 2006; Helms 2006; UN 2006; Arena, 2012; Varottil, 2012).

According to Hermes and Hudon (2018), governance refers to how rights and obligations are shared among stakeholders in an organization. This applies to who owns and manages the organism daily, and what mechanisms (internal and external) exist to ensure that stakeholder interests are safeguarded by the organization's administration. Therefore BPRS need a board of directors who are competence and experts in the Islamic financial field who can manage the organization, provide strategic direction and monitor the progress of the company with respect to the objectives set by the shareholders. Therefore, it is imperative to build the right processes, and policies within the organization, and to choose the right people to run the business. Therefore, with all these tasks and roles, determining the composition of the right board of directors in an organization should be done carefully (Niinikoski, 2018). This mean board composition in corporate governance is very important in improving performance in BPRS. As stated by Seibel (2008) who believes that if you want to improve performance in MFI you must increase competency and expertise (board composition) on the board of directors.

In addition, the BPRS needs an effective Sharia Supervisory Board (SBB). SSB as an internal governance mechanism will encourage management to be transparent and have an impact on the institution's performance (Srairi, 2015). Thus, BPRS requires not only the Board of Directors' competence and expertise, but also SSB competence and expertise. Therefore, further research investigating BPRS governance should focus on both SSB and BOD. Based on Lan's findings (2012), it was found that protecting the interests of the investing public, maintaining confidence in the company and enhancing a country's global reputation as a trusted financial center would promote transparency and accountability. The two elements (transparency and accountability) in corporate governance can ensure activities of BPRS to be objective, professional, and can protect the interests of stakeholders so that it has an impact on improving the performance of these institutions (Augustine, 2012; Goddard 2005). It is, therefore, necessary to investigate BPRS elements and corporate mechanisms.

## 7. Conclusion

The data showed that BPRS's financial and social performance was poor compared to BPR for the five years from 2012 to 2017. This problem must be addressed by the management and stakeholders. Increasing the effectiveness of BPRS governance can help them manage some of the challenges they faced today to improve their outreach and sustainability (Kassim, Hassan, & Nadhirah, 2018). In addition, this will help BPRS achieve the dual baseline of balancing social goals with financial goals. However, this research has several limitations. The data explain only part of the financial and social performance, as it measures performance based solely on profit, financing, a number of borrowing clients and bank growth. Further research could include more holistic performance measures as financial and social performance in Islamic microfinance banks should also include profit and loss sharing (PLS) contracts, as well as the number of loans and savings accounts, and other more relevant measures of social performance. It is also suggested that further research could investigate corporate governance mechanisms which include board composition on BOD and SSB, and elements of corporate governance, such as transparency and accountability. The findings of this research could then provide a more practical recommendation and policy input to improve the governance and performance of BPRS in Indonesia.

## Funding

The authors would like to express their gratitude and appreciation to the Malaysian Ministry of Education for the funding of this research through the Fundamental Research Grant Scheme (FRGS): Grant No. 203.PPAMC.6711633.

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## Conference Paper

# Status and Barriers Impeding Utilization of Project Management Tools: Epidemic for Tripartite Construction Parties in Malaysia

Chia Kuang Lee<sup>1</sup>, Tak Wing Yiu<sup>2</sup>, Wei Xin Lim<sup>3</sup>, Adekunle Qudus Adeleke<sup>1</sup>, and Tien Choon Toh<sup>4</sup>

<sup>1</sup>Senior Lecturer, Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Kuantan, Pahang

<sup>2</sup>Senior Lecturer, Faculty of Engineering, Department of Civil and Environmental Engineering, The University of Auckland, Private Bag 92019, Auckland 1142, New Zealand

<sup>3</sup>Graduated Student, Project Management Programme, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Kuantan, Malaysia

<sup>4</sup>Assistant Professor, Department of Surveying, Lee Kong Chian Faculty of Engineering and Science, Sungai Long Campus, Jalan Sungai Long, Bandar Sungai Long Cheras 43000, Kajang, Selangor

## Abstract

Project management tools have been widely used in construction project life cycles to monitor progress, evaluate payments/claims, and manage construction works worldwide. Despite their capability in helping project managers to achieve specific objectives within time, budget, and standards, not every construction organization in Malaysia would fully utilize these tools due to several challenges. As numerous studies substantiate the importance and of project management tools, lackluster adoption rates have led to productivity problems, project delays, and maturity problems at both project and enterprise levels in the construction industry. This study investigates the level of implementation and addresses the significant barriers that impede the utilization of project management tools. A survey was administered to well-known construction companies in Malaysia. This study revealed that the implementation level was discouragingly low, and the top 5 barriers were: (1) financial considerations, (2) restrictions on human capital, (3) high annual turnover, (4) lack of technology awareness, and (5) organizational culture. These findings suggest that the Malaysian construction industry should: overhaul financial and human resource limitations, increase assistance for users, and boost the partial implementation of basic techniques of project management to the maximum extent possible. The practitioners can understand the dynamics and causes of predicaments to the full implementation of project management tools in their respective companies. As for academicians, these findings help theoretical development and literature arguments on our current construction industry as a whole and optimistically help finds ways to make the Malaysian construction industry more efficient.

**Keywords:** barriers, project management tools, Malaysian construction industry

Corresponding Author:

Chia Kuang Lee  
chia@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

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## 1. Introduction

A Project is a temporary endeavour that has a beginning and end date. Project management, on the other hand, is “the application of knowledge, skills, tools, and techniques to project activities to meet project requirements” (PMI, 2013). Project-based organizations, often defined as “various organizational forms that create a temporary system for carrying out their work” (PMI, 2013), require management tools to initiate, plan, execute, monitor and control activities. Notably, the tools are numerous and continue to grow (Jonsdottir, Ingason, & Jonasson, 2014). Project Management Tools have a significant effect on project productivity on an enterprise level, directly as well as indirectly, depending on the sectors analysed (Devaraj & Kohli, 2003; Gilchrist, Gurbaxani, & Town, 2001; Gordon, 2000; Gretton, Gali, & Parham, 2004). Worth note-taking, adequacy of methods and tools are nevertheless the antecedents of project maturity (Spalek, 2014). The assessment of project management maturity has been done in the form of assessing project management practice (Sanjuan & Froese, 2013). Both maturity and productivity have been linked to the use of project management tools.

Several studies have substantiated the virtues of PM Tools. A study by Ika, Diallo, and Thuillier (2010) which involved empirical survey to 600 project coordinators in Africa demonstrated a strong correlation between the use of project monitoring & evaluation tools and project management success. Another empirical study which involved 154 project professionals working in the UAE by Mir and Pinnington (2014), showed investment in project management practices increases project management performance and enhances overall project success by several measures, including project efficiency, positive impact on the team and customer, business success and future preparation. Asserted by Mutesi and Kyakula (2011), the benefits derived from the use of technology tools are reduced mistakes in documents, easiness of complex tasks, time-saving, and increased productivity. On the whole, the investments in management technologies and tools contribute to the growth of productivity on an enterprise level, through the direct effects derived from the intensification of the capital, as well as to the overall effect on the factor contributing to productivity (Ollo-Lopez & Aramendia-Muneta, 2011).

Despite the advancement and availability of project management tools available to the industry, project success was not significantly improved (Mir & Pinnington, 2014). This notion asserts that tools are without its use if underutilized in organizations. The types and level of usage of the available project management practices and tools are

often overlooked and unheeded among the overgrowing interests of academics and practitioners (Ika et al., 2010).

Weak project management practices seem to be a plague within project owner organizations (Sanjuan & Froese, 2013). Despite the benefits of project management tools, White and Fortune (2002) showed that only a small number of tools and techniques of project management were deployed in project-based organizations. They observed among the limitations and drawbacks impart on the tools include inadequate for complex projects, difficult to model real-world, time-consuming, fail to predict future, constrained in views, not cost-effective, lack of training, unsuitability, immature, too much emphasis on standard, no lessons learned. In another research by Murphy and Ledwith (2007) in Irish high technology Small Medium Enterprise (SME) companies also suggested that project management tools have been used to a limited extent. In Malaysia, particularly, investigation done by Ibrahim, Roy, Ahmed, and Imtiaz (2010) have depicted that low productivity in the industry has significantly been associated with low usage of technology.

## 2. Epidemic of Underutilized Pm Tools

Information & Communication Technologies (ICT) has benefited the construction industry. In Malaysia, Abdul Kareem and Abu Bakar (2011) reported that among the major benefits of ICT to the Construction Industry were client satisfaction, cost reduction, management improvement, competitiveness advantages, improvement in business success criteria (i.e. efficiency, effectiveness and performance), information quality, organizational growth, work relations, and also increment in response rate, work flexibility, market share, reduction of working time.

The inclination and development of ICT have consequently developed various compute based tools to aid construction projects. Lately, Building Information Modelling (BIM), has been gaining widespread attention and interest in the construction industry. Academic wise, BIM allow students to experience practice project management in real projects (Peterson, Hartmann, Fruchter, & Fischer, 2011). However, the debut of BIM depends on the intended level of usage of information and communication technology (ICT) (Lee, Yu, & Jeong, 2013).

Given the fact that most project management tools are in the form of ICT, this assertion greatly implies that the utilization of project management tools reflects both the maturity and the readiness of BIM acceptance in the industry. The advancement and progression of tools need to be aligned with the management processes to maximize its potential



(Froese, 2010). Arguably, construction management tools are challenging to learn in the first place. Organization and technology need to work together. The involvement of project managers must be robust to ensure the coherence of tools and technologies utilizations in the organization (Hartmann, van Meerveld, Vosseveld, & Adriaanse, 2012). Effectiveness in project management can be increased, provided awareness coupled with training in a tool is adequate and lackluster of tools to manage projects is overcome (Papadaki et al., 2014; Pereira, Tenera, & Wemans, 2013).

According to Sanjuan and Froese (2013), lackluster of awareness and low confidence level of the value of project management are the pitfalls of project management practices and delivery in organizations. This explains the shortcomings of tools utilization in construction companies. It is a fact that not every construction companies will fully utilize project management tools. According to Ahuja, Yang, and Shankar (2009), construction organizations are slow in adopting technology tools. Without full utilization of Project Management Tools, these benefits may not be sustained in the long run. Research by Aouad, Kagioglou, Hinks, and Sexton (1999) suggested that technology tools are blockers rather than enablers of process improvement. There are assertions that the utilization of project management tools has both positive and negative effects. The first asserts that the higher adoption and use of the technology tools, the higher the productivity of the companies; while the latter implies that technological tools could have a negative impact due to the fact of great investment effort in the tools, and the high rate of capital depreciation of already installed or implemented tools is not compensated by earnings in productivity (Gilchrist et al., 2001; Greenan, Mairesse, & Topio-Bensaid, 2001; Gretton et al., 2004; Lehr & Lichtenberg, 1999).

Despite the contrary allegations of project management tools, the industry still heavily relies on these means of tools in managing multi-billion and mega projects. It is imperative that project managers understand the barriers that impede the full utilization of such tools in the organization. There is a need to address this issue, and the industry should leap forward to fix the quandaries underpinning utilization of project management tools. Once these factors of barriers are apparent, the project managers can eventually (1) overhaul the problems in tools adaptation in companies, (2) fostering acceptance of project management tools, (3) enhance project delivery process, (4) upgrade and enhance the existing project management tools as effective means in managing contractual claims and governance

### 3. Development of Project Management Tools (the Year 1950-1990's)

Modern project management has its roots back in the late 1950s with the development of Critical Path Method (CPM), and Program Evaluation Review Technique (PERT) (Hebert & Deckro, 2011). Since the 1950s, network-based techniques are commonly applied in project management (Shtub, 1997). With the merits of CPM, PERT, and PDM, two different professional project management institutes were formed. International Project Management Association or known as IPMA was formed in North Europe back in 1965, followed by the Project Management Institute (PMI) establishment in the USA and Canada in 1969 (Stretton, 2007). Following that, project management tools continue to propagate (Hebert & Deckro, 2011).

### 4. Development of Project Management Tools (the Year 2000's)

The Project Management Institute (PMI) particularly has continued to grow significantly. This institute advocates, develop and supports the use of project management tools to project success (Ika et al., 2010). Empirical research in 236 companies by White and Fortune (2002) showed that popular project management tools used included Critical Path Method (CPM), Work Breakdown Structure (WBS), Gantt Charts, Graphical Evaluation and Review Technique (GERT), Programme evaluation and review technique (PERT), and Project Management Software. The top 3 tools used were Project Management software, Gantt Charts, and Work Breakdown Structure. Another research by Besner and Hobbs (2004) also demonstrated that 753 project management practitioners extensively utilize PM software, Gantt chart, and work breakdown structure.

Research by Murphy and Ledwith (2007) showed that 40 respondents from small and medium project enterprise reported that Microsoft Project, Gantt chart and Critical Path Method are envisaged as the top 3 tools used in managing projects. Recent surveys among 50 project management practitioners covering construction industry by Jugdev, Perkins, Fortune, White, and Walker (2013) also confirms that project management tools include Gantt Charts, Work Breakdown Structures, Critical Path Method, Program Evaluation and Review Technique (PERT), strengths weakness, opportunities and threats (SWOT). The software used specifically includes Microsoft Project, Primavera, and Excel. Microsoft Project software invariably has been a hot debut since the 1990's. This software has consolidated all the essence of Activity on Node (AON) format, compliments

the precedence diagramming method and display the progress and relationships of activities in Gantt Chart View (Hebert & Deckro, 2011). Microsoft project software took its earliest form in 1992 and had several versions until 2010. Besides Microsoft Project Software, Primavera Software has incorporated the elements of project scheduling and networking and took various versions since the 1990's. It has been considered as one of state of the art tools in contemporary project management. Primavera software is similar to Microsoft Project; however, it is more advanced and more superior in terms of complexity and functionality. It enables multiuser access and incorporates various multiple projects at once (Salas-Morera, Arauzo-Azofra, García-Hernández, Palomo-Romero, & Hervás-Martínez, 2013).

## 5. Potential Barriers Underpinning Utilizations

The term “barriers” refer to the several certain factors that affect or hinder adoption and implementation of project management tools in construction companies. Overall, the barrier discussed in this paper is organized as follows, namely: financial considerations, organizational culture, attitude, lack of technological awareness, infrastructure, annual turnover, and restriction of human capital.

### 5.1. Financial constraints

Financial considerations pose a major constraint on the technology tools investments decision (Peansupap & Walker, 2005). Investments cost and unfavorable financial condition such as the high price of technology, the requirement on large investment, liquidity constraints, and so on are the potential barriers to technology tools investment (Hollenstein, 2004). Besides, hiring qualified personnel would also be costly (Ssewanyana & Busler, 2007). Asserted by Mutesi and Kyakula (2011), technology tool is constrained by the high cost of investment and recruitment of professionals. Construction firms are not providing enough caveats in investing in ICT systems development and skilled personnel (Alaghbandrad, Nobakht, Hosseinalipour, & Asnaashari, 2011).

### 5.2. Organizational culture

Organizational culture can be described as a set of norms, beliefs, principles, and ways of behaving that together give each organization a particular character (Brown, 2002). A firm's decisions are limited by its structural characteristics, which affect its ability

to adopt innovations in accordance with the benefits and costs involved (Moriones & Lopez, 2007). Once a company decides to implement new project management tools, there might occur some cultural changes in the organization. Cultural changes of the organization itself are more difficult and time consuming compared to technical changes because culture affecting every facet of the organization, including management styles, attitudes, standards, adaptability to change and power equilibrium (Milis & Mercken, 2002; Turner, 2008).

At the organizational level, the technology tools implementation constraints include basic levels of computer experience, time available to learn, and the identification of clear benefits of technology tools used. It also includes time available to share information, quality of personal contact, and geographical distance. Notably, it is not easy to accustom those practitioners with the technology tools, convince them to trust and use the new tools, as some of them may have been adapted with paper-based systems in their work over the years. It is believed that the best way to accustom construction practitioners with technology tools is to let them experience the benefits themselves (Alaghbandrad et al., 2011).

In reality, firms have different ways of organizing their activities and resources, and their decisions for technology tools adoption vary accordingly. Organizational factor influences not only the firm's innovative capability but also in the tool's contribution to the organizational principles followed by the firm (Moriones & Lopez, 2007).

### 5.3. Attitude

Behaviour is the action or reaction of a person in response to external or internal stimulation. It is believed that personal attitudes always contribute to shaping and affecting behaviour at work. New project management tools, change of technology, or culture may cause confusion, panic, and resistance among every individual in the organization (Milis & Mercken, 2002). Due to the expected resistance, management chooses to keep the users out of the project for as long as possible, which would probably result in mistakes or miscomprehension among the users (Milis & Mercken, 2002). Thus, this has become a barrier that impedes the full utilization of technology tools among companies.

In predicting technology use, the salient constructs underlining attitudes include perceived ease of use, perceived usefulness, and complexity (Taylor & Todd, 1995). Perceived ease of use refers to the degree of difficulty in understanding and operating (Rogers, 2003). Perceived usefulness, on the other hand, refers to the capability of

the system/ tool would enhance job performance. Later in 2008, another noticeable construct of attitudinal beliefs includes “computer anxiety,” which refers to an individual apprehension in using computers (Ventakesh & Bala, 2008).

The introduction of innovations can be intimidating for employees, mainly if it requires them to change their current practices or acquire new skills (Beatty, Shim, & Jones, 2001). There are varieties of people who have been using their methods successfully for many years, and this might encounter resistance to change when introducing the new project management tools. This is due to the lack of understanding in the new tools function, the benefits of using the tools and even believes that the tools will create more work. Besides, Alaghbandrad et al. (2011) stated that there are managers indicated that they had experienced resistance from ‘older’ workers whenever modern technology has been implemented. User resistance also occurs lackluster when inexperienced senior managers introduce the applications to the organization (Peansupap & Walker, 2005).

Since the improvement or enhancement of technology tools often lead to changes in the physical or technological environment, people should get acquainted with their changing working environment. They have to learn to work with new or changing technologies in an altered environment (Turner, 2008). As if this happens in a project team, the team members should be cohesive, well-motivated, and committed to the project, as a way trying to adapt to the introduced project management tools.

#### **5.4. Restrictions of human capital**

The human capital restriction is another barrier that impedes full utilization of project management tools in construction companies. Adoption of these technology tools may be fraught by human capital restrictions, for example, a general shortage of highly skilled workers, lack of tools specialists, insufficient training, and so on (Hollenstein, 2004). An inadequate number of trained workers implies fewer innovations. Shortages of staff cause insufficient time for the use of software project management tools forces companies to limit the utilization of management tools in practice (Sukhoo, Barnard, Eloff, & Van der Poll, 2004).

Apart from that, individual characteristics do play a crucial role in the implementation of new technologies and management tools in an organization (Mahmood, Hall, & Swanberg, 2001; Venkatesh & Morris, 2000). Notably, qualified and highly educated workers would increase organizational readiness for innovation (Moriones & Lopez, 2007). Plants with advanced technologies eventually would require high-skilled workers (Doms, Dunne, & Troske, 1997). High-skilled workers enhance the tools and thus making

the investments in project management tools worthy and more accessible (Morgan, Colebourne, & Thomas, 2006).

Another daunting factor in human capital is to explain worker disagreement over the introduction of new work practices between younger workforce and senior age personnel. In organizations with a younger workforce, managers seem to have more enthusiastic towards technology tools adoption. The opposite occurs with older and more experienced workers, where they will be more reluctant to accept innovation because they would consider themselves experienced and established (Moriones & Lopez, 2007).

### **5.5. Lack of technological awareness**

Lack of technology awareness is depicted to have impeded full utilization of project management tools (Pamulu & Bhuta, 2004). New technologies enable construction organizations to process and store their information easily, and huge amount of data can be transferred quickly (Alaghbandrad et al., 2011); however, current workloads deviate their focus on emerging new tools. Thus, awareness deficiency might lead to productivity problems and deter technology tools investments decision and obscure the technology tools investment opportunity (Peansupap & Walker, 2005). Limited awareness and understanding of potential gains by using these project management tools can be a significant loss (Adriaanse, Voordijk, & Dewul, 2010).

### **5.6. Infrastructure deficiency**

Infrastructure deficiency is one of the barriers that hinder technology tools implementation (Gichoya, 2012). Infrastructure is an underlying base or foundation for an organization or system. Malaysia is currently facing infrastructure deficiency, where the full potential of the internet has not been utilized by Malaysian construction companies (Abdul Kareem & Abu Bakar, 2011). Technology tools infrastructure at project sites is one of the important factors and need improvement in the construction industry (Ahuja et al., 2009). Among the drawbacks in implementing and managing technology management tools were identified as, inefficient use of software, ill-defined processes, and infrastructure-related problems (Isikdag, J.Underwood, Kuruoglu, Goulding, & Acikalin, 2009). Without a widespread and high-quality infrastructure, it is not possible to exploit technological power completely (Alaghbandrad et al., 2011).

## 5.7. Insufficient annual turnover

It is depicted that insufficient annual turnover of a company might become a barrier that impedes the utilization of project management tools. Previous studies by Ahuja et al. (2009) showed that SMEs with higher turnover have higher adoption of ICT. These organizations can handle the initial cost, cost of updating and maintenance cost of the technology tools, mainly for effective adoption of the tools for building project management. The basic stumbling block of full implementation of project management tools is the lack of genuine value (ROI). Arguably annual turnover of a company does have impacts on the implementation of technology tools.

## 6. Research Objectives

This paper presents two objectives. The first objective is to investigate the status quo of project management tools implemented in construction companies, and the second objective is to solicit the respondents' perception on the barriers that impede full utilization of the tools in their respective companies. To propagate the importance of project management tools convincing and compelling to the practitioners, it will be interesting to know the implementation level and the barriers to allow the practitioners to elevate the predicaments and improve the status quo.

## 7. Methodology

A questionnaire was developed and administered to 135 different well known major construction companies in Malaysia. These targeted companies handled more than 20 million ringgit Malaysia (USD 6 Million) worth of projects in Malaysia. The questionnaire consists of three parts. The first part intends to obtain the demography of respondents; the second part focused on the implementation level; while the third part investigates the barriers that impede the utilization of project management tools in their respective companies. To solicit the users' perception on the implementation level, two scales namely "Implemented/Utilized", and "Not implemented/Not utilized" were probed. To obtain the degree of the barriers, a five-point scale range from 1 (not important) to 5 (extremely important) was adopted to determine the relative degree of importance and relative Importance Index (RII) of the barriers in impeding the utilization of tools. Previous studies by Kometa, Olomolaiye, and Harris (1994) in identifying the relative importance of various causes and effects of construction delay have utilized RII. Research by

Sambasivan and Soon (2007) also adopted RII in soliciting the relative importance of factors that causes delay and prioritizing the ranks of causes and effects of project delay. Overall, the relative importance (I) for each factor was calculated as follows:

$$I = \frac{\sum_{i=1}^5 W_i X_i}{\sum_{i=1}^5 X_i}, \text{ where}$$

$i$  = Response category index; whereby 1=not important, 2= slightly important, 3= moderately important 4= very important, 5= extremely important

$W_i$  = Weight assigned to  $i$ th response =1, 2, 3, 4, 5 respectively.

$X_i$  = Frequency of the  $i$ th response given as a percentage of the total responses for each cause.

The Relative Important Index (RII) had a range from 1 until 5; the higher value of index implies the higher degree of barriers. The average index for the main barrier is the average of all the indexes of their respective barrier elements. The computed index was then used to rank the different sub-barriers and the main barrier as perceived by the contractors. About 42 Companies comprising of Grade-7 Contractors, Developers and Chartered Consultants responded to this survey, which achieved a response rate of 31.1%. A separate Spearman's Rank correlation was done to test the agreement between the tripartite parties. The spearman rank correlation coefficient can be tested to measure statically the degree of agreement related to the rankings of barriers perceived by contractors, developers, and chartered consultants. The higher the correlation coefficient at a significant level, 0.05 would indicate a stronger agreement between the groups of respondents (Hwang, Zhao, & Toh, 2014; Sambasivan & Soon, 2007).

## 8. Results and Discussions

The primary data were analyzed from the perspective of consultants, contractors, and developers. The implementation level of project management tools is analysed collectively. The status of implementation was probed based on a "yes"/"no" on "Implemented, not implemented" column, while each respondent's perceptions on barriers were computed by RII (Relative Importance Index). The demographics of respondents is portrayed in Table 1 below. Table 2 denotes the status of implementation, Table 3 depicts the ranking of barriers perceived (Overall); Table 4 shows the RII and ranking of barriers according to categories of respondents; and Table 5 describes the Spearman's Rank Correlation Coefficients of the ranking of Consultants, Developers, and Contractors.

Referring to Table 1, the characteristics of the subjects are discussed. Of the 135 different construction companies surveyed, 42 surveys were returned. All responses were complete and usable. Majority of the respondents were Company Managers



TABLE 1: Demographic Characteristics of Respondents.

| Description  | Frequency | Percentage (%) |
|--|-----------|----------------|
| <b>Positions</b>   |           |                |
| Company Director   | 11        | 26.20          |
| Company Manager  | 12        | 28.60          |
| Project Manager  | 6         | 14.30          |
| Project Engineer   | 9         | 21.40          |
| Project Coordinator  | 1         | 2.40           |
| Senior Architect   | 1         | 2.40           |
| Senior Quantity Surveyor                                       | 2         | 4.80           |
| <b>Type of Organizations</b>                                   |           |                |
| Developer  | 16        | 38.10          |
| Contractor   | 18        | 42.90          |
| Consultant   | 8         | 19.00          |
| <b>Experience in Construction Industry</b>                     |           |                |
| 5-10 years   | 14        | 33.33          |
| 11-15 years  | 12        | 28.57          |
| 16-20 years  | 7         | 16.67          |
| More than 20 years   | 9         | 21.43          |
| <b>Types of Projects Involved</b>                              |           |                |
| All more than RM 20 Million (USD 6 Million) worth of projects. |           |                |

(28.6%), followed by Directors (26.2%), Project Engineers (21.4%), and Project Managers (14.3%), Senior QS (4.8%), and having both project coordinator and architect being the least (2.4%). The company background consists of tripartite companies, namely the Contractor companies (42.90%), Developers (38.1%), and followed by Consultants (19%). A noticeable 21.43 % of the respondents have more than 20 years of experience, and all respondents have at least 5 years minimum of working experience in the construction industry.

First, the paper discusses the current status quo of the implementation level of project management tools. Next, top 5 (FIVE) highest rank sub barriers, and 1(ONE) lowest-ranked sub barrier are presented. Followed by that, the significant level of agreement between the contractor and consultant obtained through the analysis of Spearman Rank Correlation over the seven major barriers will be discussed. Based on the rankings, prescriptions that could overhaul these barriers are discussed.

Referring to Table 2, “Excel” is the most implemented tool used (85.7%), followed by Microsoft Project (40.5%), Gantt Chart (38.1%), Critical Path Method (38.1%), Work Break Down Structure (21.4%), Web-Based tools (14.3%), Other Technology Tools (14.3%), Precedence Diagramming Method (9.5%), Program Evaluation and Review Technique, (PERT)

TABLE 2: Implementation of Project Management Tools.

| Project Management Tools   | Implemented Frequency | %    | Not Implemented Frequency | %    |
|--|-----------------------|------|---------------------------|------|
| Microsoft Project  | 17                    | 40.5 | 25                        | 59.5 |
| Primavera P6 Professional Project Management (or other versions of Primavera E.g. Primavera Portfolio Management, Primavera P6 Analytics etc.) | 2                     | 4.8  | 40                        | 95.2 |
| Web-based tools  | 6                     | 14.3 | 36                        | 85.7 |
| Gantt Chart  | 16                    | 38.1 | 26                        | 61.9 |
| Critical Path Method (CPM)   | 16                    | 38.1 | 26                        | 61.9 |
| Program Evaluation and Review Technique (PERT)   | 3                     | 7.1  | 39                        | 92.8 |
| Graphical Evaluation Review Technique (GERT)   | 2                     | 4.8  | 40                        | 95.2 |
| Activity-On-Arrow (AOA)  | 3                     | 7.1  | 39                        | 92.9 |
| Activity-On-Node (AON)   | 2                     | 4.8  | 40                        | 95.2 |
| Work Breakdown Structure (WBS)   | 9                     | 21.4 | 33                        | 78.6 |
| Precedence Diagramming Method (PDM)  | 4                     | 9.5  | 38                        | 90.5 |
| Microsoft Excel  | 36                    | 85.7 | 6                         | 14.3 |
| Other technology tools (e.g., UBS, Microsoft Access)   | 6                     | 14.3 | 36                        | 85.7 |

(7.1%), Activity-on-Arrow (AOA) (7.1%), Graphical Evaluation Review Technique (4.8%), Primavera P6 Packages (4.8%), and Activity on Node (AON) (4.8%). The figures denote that the overall implementation level of project management tools is devastatingly low.

Based on the sub-barrier elements depicted in Table 3, **lack of corporate budget** (RII = 3.641) was ranked the highest. The respondents felt that the management does not have adequate funding for management tools, and it is almost impossible to have funding reconciliation for such purpose. Given the fact that managing projects heavily rely on managing people, reliance on management tools would imply managing software and tools itself.

TABLE 3: Relative Important Index (I) for Barriers.

| Factors   | Sub-Barrier Elements |      | Major Factors |            |
|---|----------------------|------|---------------|------------|
|   | Index (I)            | Rank | Index (I)     | Rank       |
| <b>Financial Considerations</b>                               |                      |      | <b>3.553</b>  | <b>(1)</b> |
| Lack of Corporate Budget                                      | 3.641                | 1    |               |            |
| Expensive Tools   | 3.512                | 3    |               |            |
| Expensive Experts   | 3.507                | 4    |               |            |
| <b>Organizational Culture</b>                                 |                      |      | <b>3.116</b>  | <b>(5)</b> |
| Cultural Changes  | 3.419                | 7    |               |            |
| Aversion of New Technology                                    | 3.391                | 8    |               |            |
| Acceptance of Employees                                       | 2.815                | 17   |               |            |
| Predicaments in Convincing Employees                          | 2.840                | 16   |               |            |
| <b>Attitude</b>   |                      |      | <b>2.963</b>  | <b>(6)</b> |
| Computer anxiety (Confusion & Panic)                          | 3.333                | 9    |               |            |
| Perceived Lack of Usefulness                                  | 2.810                | 18   |               |            |
| Perceived Lack of Ease of Use (User's Lack of Confidence)     | 2.745                | 21   |               |            |
| <b>Restriction on Human Capital</b>                           |                      |      | <b>3.32</b>   | <b>(2)</b> |
| Human Capital Problems  | 3.421                | 6    |               |            |
| Shortages of Staffs   | 3.558                | 2    |               |            |
| Unskilled personnel   | 2.981                | 13   |               |            |
| <b>Lack of Technology Awareness</b>                           |                      |      | <b>3.145</b>  | <b>(4)</b> |
| Slow Adoption   | 2.917                | 14   |               |            |
| Senior Managers Unaware                                       | 3.236                | 12   |               |            |
| Bad investments in wrong tools                                | 3.282                | 10   |               |            |
| <b>Deficiency in Infrastructure</b>                           |                      |      | <b>2.741</b>  | <b>(7)</b> |
| Quality problems of existing infrastructures                  | 2.688                | 22   |               |            |
| Unable to expand new infrastructure                           | 2.757                | 20   |               |            |
| Unsatisfied Infrastructure                                    | 2.778                | 19   |               |            |
| <b>Poor Annual Turnover</b>                                   |                      |      | <b>3.218</b>  | <b>(3)</b> |
| Poor level of Turnover  | 2.917                | 15   |               |            |
| Lack of return of investments in new management tools         | 3.479                | 5    |               |            |
| Inability of Company to Support and upgrade software/hardware | 3.257                | 11   |               |            |

Followed by that, **shortage of staffs** was ranked second, with RII =3.558. Worth note-taking, Malaysian Construction Industry is still facing challenges in recruiting expertise that can manage sophisticated project management tools such as Primavera or Microsoft Project software effectively and efficiently.

TABLE 4: RII and ranking of Main Barriers.

| Major Barriers               | Developer |      | Consultant |      | Contractor |      |
|------------------------------|-----------|------|------------|------|------------|------|
|                              | RII       | Rank | RII        | Rank | RII        | Rank |
| Financial Considerations     | 3.211     | 4    | 3.500      | 1    | 3.889      | 1    |
| Organization Culture         | 3.360     | 3    | 3.031      | 4    | 2.958      | 5    |
| Attitude                     | 3.000     | 6    | 3.000      | 5    | 2.889      | 6    |
| Human Capital Restriction    | 3.438     | 1    | 3.208      | 3    | 3.315      | 2    |
| Lack of Technology Awareness | 3.375     | 2    | 2.875      | 6    | 3.185      | 4    |
| Infrastructure               | 2.917     | 7    | 2.750      | 7    | 2.555      | 7    |
| Poor Annual Turnover         | 3.084     | 5    | 3.292      | 2    | 3.278      | 3    |

TABLE 5: Spearman's Rank Correlation Coefficients.

| Ranking           |                         | Consultant | Developer | Contractor |
|-------------------|-------------------------|------------|-----------|------------|
| <b>Consultant</b> | Correlation Coefficient | 1.000      | 0.286     | 0.857**    |
|                   | Significance            | -          | 0.535     | 0.014      |
|                   | N (Number of Barriers)  | 22         | 232       | 22         |
| <b>Developer</b>  | Correlation Coefficient | 0.286      | 1.000     | 0.607      |
|                   | Significance            | 0.535      | -         | 0.148      |
|                   | N (Number of Barriers)  | 22         | 22        | 22         |
| <b>Contractor</b> | Correlation Coefficient | 0.857**    | 0.607     | 1.000      |
|                   | Significance            | 0.014      | 0.148     | -          |
|                   | N (Number of Barriers)  | 22         | 22        | 22         |

**\*\*Correlation is significant at the 0.05 level of significance.**

The third highest barrier was an **expensive tool**, with RII=3.512. Understandable, project management tools such as Primavera, Oracle Software could be severely expensive. However, Microsoft based interfaces applications such as Excel, or Microsoft Project comes in handy and could be further implored.

Next, **expensive experts** were ranked the fourth highest rank, with RII reaching=3.507. Nevertheless, the respondents felt that real experts in management software and tools are not easily up for grabs. As much as the software itself, full-time experts are expensive to hire and recruit.

Ranked as fifth, the factor **lack of return of investments in new management tools** reached RII of 3.479. Lack of ROI in these tools would hinder the management to further uptake new tools. Although not further discussed, this paper speculates that investments made on the purchased tool/model did not seem to have to yield profitable returns. Moreover, the fundamental fault is on the workforce itself, as heartfelt by the respondents mentioned above –lack of experts to fully utilize these tools.

While all the major five sub barriers have been depicted above, the least ranked barrier would be **quality problems of existing infrastructures**. Ranked as 22 with RII =

2.688, it does not seem to be major presuppositions of barrier that need to be taken care.

Overall, depicted in Table 5, the Spearman rank correlation test was used to examine the agreement level between consultants, developers, and contractors. The result shows that both consultants and contractors share the same perception over 22 barriers, with a correlation coefficient of 0.857 at a significant level of 0.05. By only looking at the main barriers themselves, both consultant and contractor categories agreed that **financial consideration** poses major concern; while **infrastructure** poses the least concern (Table 4. On the other hand, for developers, the **human capital restriction** is their primary concern, with infrastructure being their least concern.

Based on the summary ranking in Table 3, the important barriers as perceived by the overall respondents were: (1) **financial constraints** [RII =3.553], (2) **restrictions on human Capital** [RII = 3.320], (3) **poor annual turnover** [RII =3.218], (4) **lack of technology awareness** [RII= 3.145], (5) **organizational culture** [RII = 3.116], (6) **attitude** [RII =2.963], (7) **deficiency in infrastructure** [ RII =2.741].

## 8.1. Prescriptions to overhaul barriers

Notably, the survey involves construction companies that handle more than USD 6 Million worth of construction projects. The survey above suggests a low implementation of project management tools in these respective construction companies. Besides Excel, the survey indicates no more than 50% implementation in all subsequent project management tools. More attention should be given to financial constraints, restrictions on human capital, poor annual turnover, lack of technology awareness, and organizational culture. Both attitude and deficiency in infrastructure, however, were perceived as not crucial (RII below 3.00).

The respondents were prompted earlier on their willingness to uptake new and enhanced management tools to their existing tools. 85.7% of the respondents agreed that their company has the urgency to uptake and enhance their existing project management tools; while the remaining 14.3% are pessimistic on improving and enhancing new tools in their organizations.

Besides managing the triple constraints such as time, cost, and quality of a project, the expectations of the tripartite parties (namely the developers, consultants, and contractors) need to be managed ideally. While selecting contractors in their prequalification process, the selected contractors in the tender evaluation process must exhibit robust capabilities in technicality aspects, and thus mitigating the probability of impeding

potential utilization of management tools on construction sites. On the other hand, developers and consultants (mostly working for the client in contemporary construction contract) should promptly assure the cash flow of the contractor by paying on time, and thus reducing any predicaments of project management tools in projects.

During the initiation phase, where expectations of all stakeholders are discussed, the project sponsor should take into account of the need and urgency of enhancing, or up taking new management tools in projects. And thus, the project team could savour the required budget for the development of project management tools. To overhaul lack of expertise in the organizations, management should emphasize on giving adequate in house training that would enhance tools usage and knowledge. Propagation of such knowledge should be then reinforced with management commitment from top-down. Attitude problems can be overcome with an increasing experience that diminishes computer anxiety, given that the users experience the enjoyment of using tools in day to day work. This heavily relies on organizational management support through helpdesk, and off the job training (Ventakesh & Bala, 2008).

Government Malaysia plays an important role as well in helping the industry to progress. Hand-in-hand with the Construction Industry Development Board (CIDB Malaysia), awareness and proper training program can be held to promote project management practices in the industry. Incentive alignment strategy as the post-implementation stage of tools takes place is one of the key factors that enhance user acceptance in technology usage (Todd & Benbasat, 1999). Particularly for the use of project management tools, Malaysian Construction Industry Development Board particularly can opt to cooperate with the Multimedia Development Corporation, or known as MDEC, which is an agency that oversees the implementation of multimedia and information infrastructures in Malaysia, and Project Management Institute Malaysian Chapter (PMIMY). In Malaysia, formal project management courses and the education training such as Certified in Project Management Professional (PMP®), or Certified Associate in Project Management (CAPM®) are delivered as means of formal training and pre-requisites for industrial practitioners in getting project management credentials, and the most predominant certification nevertheless is PMP®. In practice, MDEC, serving as the backbone of the Malaysian multimedia corridor, has been actively providing rebates up to RM 2,500 (USD 600) for individual project management exam and course takers. Incentives such as grants, rebates can be provided via these tripartite agencies such as this can be implemented to increase awareness and knowledge of practitioners of the use of project management methodologies and PM tools in the companies.

In the macro level, the Malaysian Construction Industry has been depicted to have faced predicaments in exercising the policies set out by the government, especially the contractors themselves in using and benefit from the state of the art technologies in managing projects (Ibrahim et al., 2010). Cautiously optimistic, this paper suggests that the Malaysian Government through CIDB should tackle the fundamental issues of formal project management education among practitioners. Application of new technologies requires fundamental project management knowledge, which can be strictly emphasized in the next Malaysian Construction Industry Master (CIMP 2016-2025). By advocating and propagating the need of formal project management practices aligned with its previous strategic thrust, further recommendations can be reinforced in fourth Strategic Thrust – “*Develop Human Resource Capabilities and Capacities in the Construction Industry*”; and sixth strategic Thrusts – “Leverage on information and communication technology in the construction industry”. Development of human resource requires fundamental realignment of skill in project management knowledge and the development of tools and technologies that the industries have to offer.

## 9. Conclusion

Project management tools have been a cornerstone in the operations of construction activities. Numerous studies have proved the use of PM tools in planning, monitoring, and controlling construction projects effectively. Besides increasing construction productivity, PM Tools are capable of circumventing delays, enhancing the delivery value of projects, and increases project management maturity in organizations. Using a survey design and Relative Importance Index (RII) methodology, this study investigated the implementation level of project management tools and the barriers that impede project management tools adoption in construction companies. The first findings suggest a low implementation level of project management tools. Although Microsoft Excel was ranked the highest being adopted, the other core PM tools such as WBS and Microsoft Project are devastatingly low. The second findings assert financial considerations and lack of human resource in exercising these tools to be two highest barriers that impede PM Tool’s adoption and substantiating the other main factors such as reduced annual turnover, lack of technology awareness, organizational culture, attitude, and infrastructure barriers equally being the stumbling block of adoption. The third finding concludes a consistent agreement on the barriers among), private contractors, and private consultants. To overcome these barriers, incentives alignment can be instigated by the Government sectors such as CIDB, MDEC, and non-profit organizations such as

the Project Management Institute for the propagation of project management training. Having the tools is never adequate without knowledge advancement. Through formal training, it reinforces a positive attitude and increases adoption.

Cautiously optimistic, this paper reveals the current status quo of project management practices and standard PM tools adoption in Malaysia, so that the key players can give proper attention on the important factors and make dynamic efforts to reduce barriers of project management tools utilization in projects. The practitioners can understand the dynamics and causes of predicaments to the full implementation of project management tools in their respective companies. As for academicians, it helps theoretical development and literature arguments on our current construction industry as a whole and optimistically finds ways to take the Malaysian Construction Industry for better improvements.

## Acknowledgement

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

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**Conference Paper**

# Project Management Performance and Its Influence on Malaysian Building Projects

**A.Q. Adeleke<sup>1</sup>, J.A. Bamgbade<sup>2</sup>, Maruf Gbadebo Salimon<sup>3</sup>, and Chia Kuang Lee<sup>1</sup>**

<sup>1</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

<sup>2</sup>Faculty of Engineering, Computing and Science, Swinburne University of Technology, Sarawak, Malaysia

<sup>3</sup>Department of Marketing, School of Business Management, Universiti Utara Malaysia, Kedah, Malaysia

## Abstract

Working environment and safety behavior are the primary concern in construction projects which in the long run are part of the yardstick in measuring project management performance. Construction safety and performance should be thoroughly investigated empirically by illustrating the current state of accident and performance in construction industries. Entrenched in the Malaysian construction industry experience, three dimensions of the project management performance (resolve cost, schedule, and quality) can buffer the contractor's and project manager's performance in building projects. Following organizational control theory, this research investigated the effects project management performance (resolve cost, schedule, and quality) on construction projects among G-7 contractors operating in Kuantan Malaysia construction industries through a personally administered questionnaire. Structural equation modeling (SEM) opined that schedule and quality have positive and significant influence, while resolve cost has a significant negative influence on Malaysia construction projects.

**Keywords:** project management performance, building project, contractor, project managers, client, construction industries, PLS-SEM.

Corresponding Author:

A.Q. Adeleke  
 adekunle@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Most of the industry sectors, like management consulting, information technology and construction, are progressively project-based, of which construction is undoubtedly the most complex and largest one (Adeleke et al., 2018; Whitley, 2006). The significance of contractors and project managers has been extensively recognized in project-based industry sectors, particularly in the building construction industry (Adeleke et al., 2019; Papke-Shields et al., 2010). Due to that, a great amount of research exertion has been made to deeply investigate both contractors and project managers towards their performance to the clients. These investigations as a whole underwrite to an up-to-date

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understanding of current knowledge of contractors and project managers as well as broader project management (Meng & Boyd, 2017; Adeleke et al., 2015).

Likewise, the success of every construction project is the sole objectives of project investors, including the contractors, and clients. The importance of project success has become the basis of almost every studies to investigate the factors that influence the success of every construction project. In addition, the clients of public projects are developing various delivery and procurement methods that consider the project characteristics and the most appropriate contractor for each project. Prior studies have focused on both delivery methods and contractor selection procedures. To ensure project success, the most frequently employed method is by identifying the critical factors influencing project performance and developing a pre-qualification model for selecting the most appropriate contractor or delivery method based on the relationship between project performance and the project characteristics affecting it. Construction work is described as civil engineering jobs and all kinds of new buildings such as hospitals, schools, homes, hotels, factories, and others (Wells, 2000). The construction industry plays a big role in the nation by contributing significantly to Gross Domestic Product (GDP), employment, capital and interaction between various economies (Adeleke et al., 2017; Hillebrant, 2005). This study aims to shed a light on the importance of resolve cost, schedule and project quality in influencing building projects from the global perspectives.

This research attempts to bridge the gap within the growing body of knowledge in this domain. It targets building construction projects in Malaysia. The objectives of this research are twofold: Firstly, to investigate the awareness and knowledge of contractors and project managers about project management performance on building projects; secondly to analyse the relationship between project management performance in terms of resolve cost, schedule and quality on building projects. This research mirrors the shift in building construction from planning till the closing phase of the projects, which implies that the construction industry is replacing traditional management philosophies with new management paradigms. It provides researchers and practitioners with deeper insights gained from construction practice today. Although it is based on construction projects, its findings may also be useful for project management in other industry sectors. The extant literature has indicated the essence of integration in attaining a better project success and performance. Aronson et al. (2013), for instance, outlined the various impacts of the leader's activities and project spirits on the success of construction projects. In the same manner, Ozorhon et al. (2014) enumerated certain enablers in construction innovation, such as leadership and integration. Furthermore,

Crawford (2005) indicated that project directors that are utilizing better integration and scope practices are always the top players in the industry.

Therefore, this study intends to contribute to filling the identified study gap through a conceptual framework that will picture the essentials of project management performance. The rationale for this framework is to bring about a reflection of the relationship between project management performance and building project considering the perceptions of the construction practitioners. In Figure 1, the components of the project management performance derived from this study and its relationship with building projects are portrayed. Likewise, Kuantan has been chosen in this study because it is becoming a centre of focus for more construction projects due to huge numbers of tourist visiting for attraction and relaxation.

## 2. Literature Review

### 2.1. The influence of project management performance on the building project

In this study, we intend to measure project management performance through project success, as suggested in the previous related studies (Demirkesen & Ozorhon, 2017; Mir and Pinnington, 2014). Majority of the previous studies on project success-focused mainly on timely completion (Meng & Boyd 2017), completion that are under budget (Bassioni et al., 2004; Berssaneti and Carvalho, 2015), quality criteria (Chou et al., 2013), customer satisfaction (Gayatri & Saurabh, 2013; Cserhati and Szabo, 2014; Nassar & Abourizk, 2014), as well as safely completed work (Almahmoud et al., 2012). Based on these reviewed previous works, this study also adopts the factors that are mostly discussed to measure project management performance in order to determine project success. The attributes of influencing project performance have been defined extensively. The study conducted by Ling et al. (2004) presented the project attributes affecting project performances, which were divided into three categories: (i) project attributes, (ii) owner and consultant attributes, and (iii) the contractor attributes. The project attributes include the gross floor area of the project, the form of contract, the type of building, the level of design and construction complexity, the percentage of repetitive elements, the time given to contractors to prepare their bids, the number of bidders, the bid evaluation and selection criteria, the author report a positive influence of cost, time and quality on construction projects. Alhazmi and McCaffer (2000) also outlined the type of project, degree of flexibility and complexity, time constraints, method of



payment, as well as the integration of the design and construction as project features that are important in positively influencing project performance.

Quality, cost, and time are the major project performance attribute that requires measurement and continuous improvement. The Quality Performance Index (QPI) is a measure of consistency in the application of the project standards and procedures, and the compliance of the delivered product with the project specifications. Inconsistency in the application of project processes will lead to rework, poor quality audits, and a high number of Non-Conformance Reports (NCRs). From the contractor's perspective, the QPI is best measured by the Construction Field Rework Index (CFRI) as defined in Fayek et al. (2003). The costs resulting from rework caused by change orders do not contribute to the quality performance and are excluded in the QPI calculations. These aforementioned project performance attributes have a significant relation to construction projects (Nassar & AbouRizk, 2014). Others, such as Lo et al., (2006) also identified poor performance (in terms of time delays and cost overruns) as a common phenomenon in construction projects delivery, and some of the reasons behind these identified anomalies have been attracting the attention of construction researchers and practitioners. Earlier, Mansfield et al. (1994), for instance, identified four important issues that are mostly responsible for time delays and cost overruns. Their study beamed their searchlight on finance and payment problems, changes in site conditions, poor contract management, and material shortage. According to Kaming et al. (1997), the predominant factors that are capable of influencing time delays include design changes, inadequate planning, poor labour productivity, as well as a shortage of resources. Frimpong et al. (2003) also affirmed that there is a positive relationship between cost and time in construction project delivery in Ghana. Hence, the following hypothesis was developed based on the strong evidence provided by the literature considering the influence of project management performance on construction projects, specifically building projects as depicted in Fig.1.

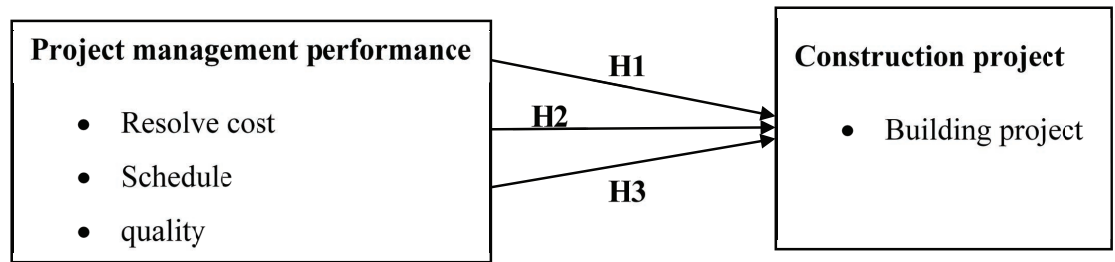
**H1.** There is a significant positive relationship between resolve cost and building project.

**H2.** There is a significant positive relationship between schedule and building project.

**H3.** There is a significant positive relationship between quality and building project.

### 3. Methodology

This research method is based on SEM, and the research model was ascertained through the SmartPLS 3.0 software (Ringle, Wende, & Becker, 2015). PLS-SEM seems an



**Figure 1:** Conceptual Model.

appropriate method to assess the results in the current research because its algorithm permits the unrestricted computation of cause-effect relationship models that employ both reflective and formative measurement models (Diamantopoulos & Siguaw, 2006); therefore, the reflective approach was employed in this research. Project management performance is a second-order reflective construct with three dimensions: resolve cost, schedule, and quality.

### 3.1. Sample and Data Collection

This study is a cross-sectional research design in nature, that shows data were gathered at a single-point-in-time using structured questionnaire among the G-7 contractors such as contract manager, executive director, marketing manager, project manager and engineer operating in Kuantan Malaysian construction industries (Kumar, Abdul Talib & Ramayah, 2013; Sekaran & Bougie, 2013). Therefore, proportionate stratified random sampling techniques were also employed in this research. A total of 120 questionnaires were obtained through face to face distribution; Hence, the final valid sample comprised of 115 contractors after removing those with incomplete answers.

### 3.2. Variable Measurement

To ensure that all the constructs in this study are properly measured, the items used in their measurement were adopted from various sources and then adapted to suit the objective of this study. These items were adopted from Meng and Boyd, (2017); and Demirkesen and Ozorhon, (2017) with the main aim of ensuring construct validity in terms of (a) creating contact prior to the main study between the researcher and the organizations (b) ascertain the reliability of the constructs and (c) anticipate the likely challenges that may arise before the actual data collection of the study. Similarly, the study adopted the use of five-point Likert scale rating from 0.1 = 'very low,' 0.3 = 'low', 0.5 = 'medium', 0.7 = 'high', 0.9 = 'very high', to measure the feedback to the questionnaires.

Likewise, all the constructs/variables in this study are multidimensional. The detail of the constructs and their analogous dimensions are depicted in Table 1.

TABLE 1: Sources of measurement.

| S/N | Constructs                     | Dimensions       | Sources                    | Remarks |
|-----|--------------------------------|------------------|----------------------------|---------|
| 1   | Project management performance | Resolve cost     | Demirkesen & Ozorhon, 2017 | Adapted |
|     |                                | Schedule         | Demirkesen & Ozorhon, 2017 | Adapted |
|     |                                | Quality          | Demirkesen & Ozorhon, 2017 | Adapted |
| 2   | Construction project           | Building project | Meng & Boyd, 2017          | Adapted |

### 3.3. Common Method Bias

Since all the gathered data used in this study have been received through a structured questionnaire and all depend on the contractor’s perceptions, common method variance can cause biased estimations. Podsakoff et al. (2003) suggested that both procedural and statistical methods can be applied to control for this assertions. First, all the participants were well-versed about the anonymous character of the answers to be provided, and questions were organized without any logic or apparent order. Second, if a common method bias exists, a single factor should appear from the exploratory factor analysis (Krishnan, Martin, & Noorderhaven, 2006). The results revealed the presence of two different constructs that together explained 64% of the total model variance for the sample of 115 individuals. The highest factor, related to resolving cost, schedule, quality and building project, explained 32.33%, 27.42% and 41.12% of the total variance respectively. As an outcome, apparent global factor and common method bias is not a problem in the data.

## 4. Results

### 4.1. Descriptive Results

Prior to the analysis of this study’s model, a descriptive analysis of the variables in this study’s model is reported. Total of 115 valid responses from the respondents was used for this result. there were 10.9% contract managers, 3.4% executive directors, 5.0% marketing managers, 31.5% project managers and 30.3% engineers. Their work experience is between one (1) to forty-seven (47) years. Based on this description, the sampled respondents can be adjudged conversant with project performance in

the industry and are well-informed to participate in this study. A contingency analysis revealed that there is no significant coincidence between the two constructs ( $\chi^2 = 0.794$ ;  $p\text{-value} = 0.373$ ).

### 4.2. Measurement Model Assessment

To ascertain the psychometric behaviours of the scales adopted in this research, individual item reliability, internal consistency reliability, and discriminant validity was computed. First, individual item reliability was determined by analysing the outer loadings of each construct's measure (Hulland, 1999). Following the rule of thumb for holding items with loadings above 0.50 (Barclay et al., 1995). The authors deleted 11 of 29 items because of loadings below the threshold. However, for the whole model, only 19 items were retained with the loading between 0.594 and 0.895, as shown in (Fig 2 and Table 2).

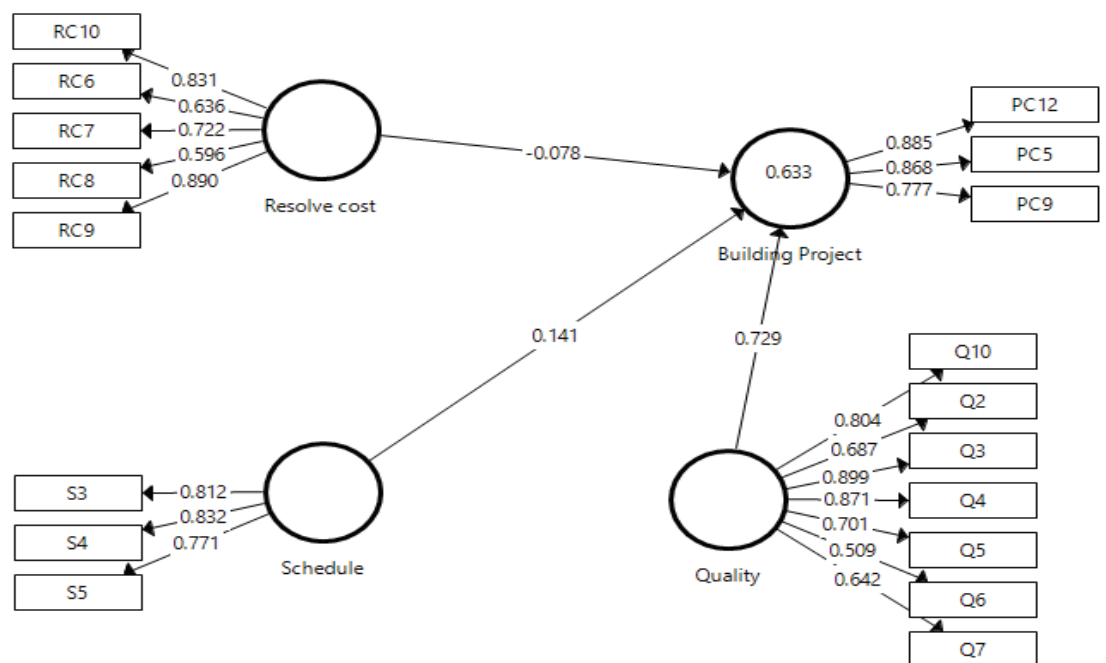


Figure 2: Measurement Model.

Table 2 shows the element that was used to determine construction project (building project) with one dimension, while project management performance dimensions were assessed with resolve cost, schedule and quality. Then, the composite reliability coefficient was used to determine the internal consistency reliability of items measured. Moreover, the composite reliability coefficients, based on the suggestion of Bagozzi and Yi (1998) and Hair et al. (2016) that the composite reliability coefficient should be 0.7 and above, Table 2 depicts these coefficients for each of this study's latent

TABLE 2: Measurement Model Assessment Results.

| Construct        | Items | Outer Loadings | Cronbach's Alpha | Composite Reliability | AVE   |
|------------------|-------|----------------|------------------|-----------------------|-------|
| Resolve Cost     | RC6   | 0.662          | 0.77             | 0.86                  | 0.556 |
|                  | RC7   | 0.764          |                  |                       |       |
|                  | RC8   | 0.609          |                  |                       |       |
|                  | RC9   | 0.861          |                  |                       |       |
|                  | RC10  | 0.803          |                  |                       |       |
| Schedule         | S3    | 0.828          | 0.725            | 0.847                 | 0.65  |
|                  | S4    | 0.834          |                  |                       |       |
|                  | S5    | 0.754          |                  |                       |       |
| Quality          | Q2    | 0.679          | 0.79             | 0.893                 | 0.55  |
|                  | Q3    | 0.895          |                  |                       |       |
|                  | Q4    | 0.869          |                  |                       |       |
|                  | Q5    | 0.701          |                  |                       |       |
|                  | Q6    | 0.516          |                  |                       |       |
|                  | Q7    | 0.649          |                  |                       |       |
|                  | Q10   | 0.807          |                  |                       |       |
| Building Project | PB1   | 0.594          | 0.578            | 0.841                 | 0.578 |
|                  | PB5   | 0.843          |                  |                       |       |
|                  | PB9   | 0.782          |                  |                       |       |
|                  | PB12  | 0.864          |                  |                       |       |

constructs. As indicated in Table 2, the composite reliability coefficient of each latent construct stretched from 0.841 to 0.893, as they are above the proposed threshold of 0.70; therefore, this study consistency reliability is acceptable (Hair et al., 2011).

TABLE 3: Discriminant Validity.

|                  | Building project | Quality         | Resolve cost    | Schedule        |
|------------------|------------------|-----------------|-----------------|-----------------|
| Building project | <b>0.844588</b>  |                 |                 |                 |
| Quality          | 0.782158         | <b>0.721275</b> |                 |                 |
| Resolve cost     | 0.146548         | 0.22442         | <b>0.744214</b> |                 |
| Schedule         | 0.613547         | 0.578272        | 0.396579        | <b>0.735469</b> |

*\*Note. The diagonal values in bold signify the average variance extracted (AVE) while the other entries signify the squared correlations.*

In the same vein, discriminant validity was determined using Average Variance Extracted (AVE) based on the suggestions of Fornell and Larcker (1981). This was achieved when the comparison was made in the correlations between the latent variables, which was attained with the square root of the Average Variance Extracted (AVE). To achieve acceptable discriminant validity, these researchers (Fornell & Larcker, 1982) also suggested that the square root of the Average Variance Extracted (AVE) must

be higher than the correlations between the latent variables. In Table 3, the correlations between the latent constructs were compared with that of the square root of the AVEs (indicated in boldface). Table 3 also shows that the square roots of the AVEs were all higher than the correlations between the latent constructs. Therefore, this study proposed sufficient discriminant validity.

### 4.3. Structural Model Assessment

To establish a significance of the coefficients for the research model, the authors used a standard bootstrapping process with 500 bootstrap samples and 115 cases (Hair et al., 2012). Table 4 and Fig.3 shows the significant paths for this research model. Fig. 3 shows the diagrammatical histrionics of the results for the structural modeling analysis proposed for checking the hypothesized association among the latent variables. Given that the author’s hypotheses are specified in a directional form, and the power of the one-tailed test is higher than for a two-tailed test, the one-tailed test was selected for this research.

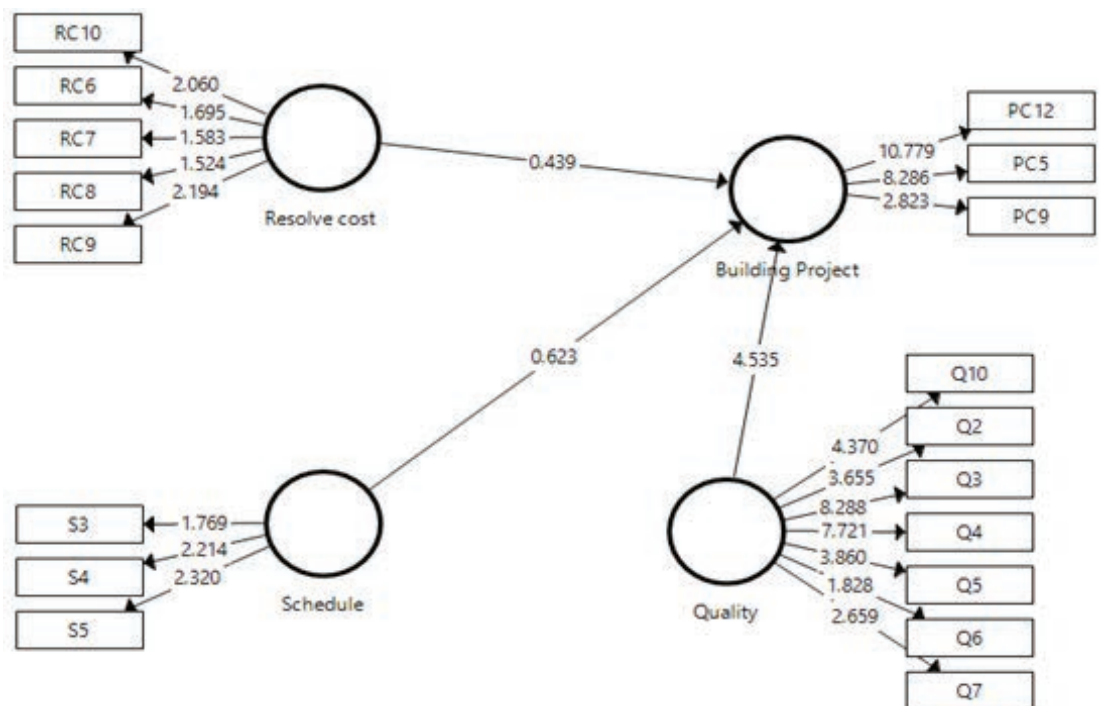


Figure 3: Bootstrapping Outcome.

In a nutshell, the authors are not suggesting the ignore the two-tailed test while testing a theory because we understand that there are some circumstances in which a two-tailed test is applicable (Kimm, 1957). Zikmund et al. (2009) for example, opined that a two-tailed test is more suitable when the researcher is not sure about the direction

TABLE 4: Path coefficient.

| Items | Hypothesis                       | $\beta$ | S/E   | T     | P     | Findings      |
|-------|----------------------------------|---------|-------|-------|-------|---------------|
| H1    | Resolve cost -> Building Project | -0.077  | 0.182 | 0.422 | 0.673 | Not Supported |
| H2    | Schedule -> Building Project     | 0.14    | 0.214 | 0.655 | 0.513 | Not Supported |
| H3    | Quality -> Building Project      | 0.729   | 0.158 | 4.627 | 0.000 | Supported     |

\*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01 (one-tailed tests)

of the hypothesis to be tested. Hypothesis 1 predicted that resolve cost would have a significant relationship with the building project. The results (Table 4) revealed that resolve cost has a negative relationship with building project such that the relationship between the variable is weak ( $\beta = -0.77$ ,  $p < 0.673$ ). Therefore, Hypothesis 1 was not supported.

Likewise, it was anticipated with Hypothesis 2 that schedule would have a significant relationship with the building project. The results opined that the schedule has a negative relationship with the building project ( $\beta = 0.14$ ,  $p < 0.513$ ). Therefore, Hypothesis 2 is supported as proposed.

Hypothesis 3 proposed that quality would have a significant relationship with the building project. The results revealed that quality significantly related to a building project with ( $\beta = 0.729$ ,  $p < 0.000$ ).

#### 4.4. Effective Size and Predictive Relevance

After the significance path coefficients for the research model has been accessed, the authors evaluated the level of the  $R^2$  values, effect size, and predictive relevance for the research model. The research model explained 63% of the total variance in building project; all the three exogenous latent variables (i.e., resolve cost, schedule, and quality), individually, explained 63% of the variance in a building project. Falk and Miller (1992) proposed 0.10 as the minimum accepted  $R^2$  level. Effect size shows the relative influence of a specific exogenous latent variable on the endogenous latent variable(s) through the changes in the  $R^2$  values.

Cohen (1988), suggested  $f^2$  values of 0.35, 0.15, and 0.02 can be regarded as a large, medium, and small effects, respectively. Our results opined the effect size of 0.10, 0.38, and 0.77 for resolve cost, schedule, and quality, respectively through the effect size calculator. The present research makes use of the Stone-Geisser test to ascertain the predictive relevance of the whole research model using the blindfolding processes (Geisser, 1974). To be specific, Results affirmed Q2 statistic of 0.309 for this study's

endogenous latent variable that is greater than zero, indicating predictive relevance of the model (Chin, 2003).

## 5. Discussion

This paper aimed to analyse if project management performance dimensions will influence building projects among the G-7 contractors in Kuantan Malaysia. Going by the previous research, project management performance has a significant positive influence on building projects as a strategy to deal with quality and how satisfied client are on building projects to be specific. This research proposes that schedule and quality are paramount aspects of project performance that determine client satisfaction on projects. Likewise resolve cost in Hypothesis 1, although this study result viewed it to have less significant influence on building project because at the initial stage of contract agreement between the client and the contractors, the cost of the building project will be sealed and no client will be ready to top-up extra cost incurred by the contractors on additional procurement on project execution. A general conclusion is that schedule and quality will significantly influence the building project.

Our results confirm that the schedule has a significant positive relationship with building projects as proposed with Hypothesis 2, anticipating that projects that keep to a schedule will always reach the heart of every client. This result is consistent with the study of Demirkesen and Ozorhon, (2017) which concluded that there is a significant positive relationship between schedule and building project. In a nutshell, every contractor that execute and transfer a project to the client within the stipulated time will always have the opportunity to be patronised by the client or associate partners for future transactions.

Similarly, Hypothesis 3 proposed that quality will have a significant influence on a building project. Result confirms that a significant positive relationship exists with quality and building projects. This is not surprising because it is the utmost expectations of every client even with low cost on a project, the quality will be the hammering point to the contractors, consistent with the study of (Meng & Boyd, 2017).

The contribution from this research to the growing body of knowledge within this domain, specifically construction management literature, is twofold. First, we opined evidence that schedule and quality as project management performance factors can positively influence building projects. These project management performance factors are different from customer satisfaction factors because the former are performance mechanisms that are within the control of contractors, while the latter pre-empt the



development of the clients and are beyond control because satisfaction is subjective due to different yardstick from every client's perspectives. These findings ratify project management performance on building projects; hence this theoretical framework is appropriate for this research. Second, it contributes by providing new evidence that resolves cost is not having a strong positive influence with building projects due to the client's requirements on a certain project and by investigating comparison in customer satisfaction preferences. This attributes of project performance provide better knowledge about how the revealed dimensions (schedule and quality) can buffer the building project and of course, successful delivery of the project to the clients by meeting their objectives.

## 5.1. Implications

This research permits us to provide some useful and interesting implications. Contractors should take into account that schedule and quality can increase building projects through their timely consciousness and quality attainment in every project. As a result, these contractors should be trained in meeting the delivery period has been undertaken by the clients and to avoid extension of time (EOT), more so, quality should always be at the back of the contractor's mind in order to provide the clients with the satisfaction they deserve, in the long run, the contractors will as well meet their own project objectives. Schedule monitoring software like Gantt chart and Primavera will also help the contractors to keep to time and track every project tasks till milestone stages. Contractors should as well hire team members with high team competency, effective communication, and active leadership as this will help to increase the quality and allow timely delivery of the projects. Furthermore, team members should be persuaded in attending training and courses on effective project management performance through resolve cost, schedule, and quality.

Although the project management performance dimensions (resolve cost, schedule, and quality) investigated in this study are not easily controllable social factors, project managers should try to adopt persuading approaches in dealing with the clients when it comes to late delivery of project which might lead to extension of time (EOT) to avoid total abandonment of the whole project, likewise techniques in presenting the overall project to the clients because quality identification depends on the preferences of individual clients requirements. Our research also provides contractors, project managers, team members, and clients with some strategies as to know how to deal with difficult situations in project execution and delivery.

In the same vein, the result of this study echoes that, when compared to resolve cost, schedule, and quality, construction industries with efficient project management performance would likely exhibit higher project success. Implementation of the project performance dimensions could also result to more projects issuance by the clients which will foster ease of life within Malaysia because, in the long run, it will lead to the affordability of houses and other buildings. More so, Increase in projects issuance might aid to develop new job opportunities to people, and richly buffer wealth formation, which is required to support Malaysia's economy. It might also lift Malaysia's global recognition in term of building projects and thus, brings in more investors. Besides, there is also a need for the development of policies that encourage and support projects issuance. Policymakers should, therefore, develop initiatives that can motivate contractors and project managers to adherence to effective project management performance in order to attract client's patronage. Policymakers might as well consider organizational control theory to mitigate the occurrence of less quality, cost overrun, and time overrun on projects.

## 5.2. Limitation and Paths for Future Research

Our research is not without limitations, which allows us to give rooms for future researchers. First, the data were gathered through a survey conducted in one of the states in Malaysia, so the generalization of these results should be carried out with caution. Future studies might carry out this research in other countries contexts to ascertain if the results investigated in Malaysia will be similar. Likewise, a longitudinal analysis might provide better findings, such as going to the field to obtain the data more than once and test if differences exist.

Second, our study focused on resolve cost, schedule, and quality in the building project. Therefore, these dimensions of project performance can be used in another aspect of construction projects, such as road projects, bridges, airports, and dam projects. So, further research might investigate other Grades of Malaysian construction industries apart from Grade 7 contractors to know if there is similarity in the results because other Grades of the contractors might have potential positive contributions to the construction industry as well.

Some precautions are needed in generalizing this study's results, as data for this research were obtained from a single state in Malaysia. This study has been directed solely to the contractor's perceptions. Future studies might consider investigating other top management in construction industries such as decision and policymakers.

## Acknowledgement

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

## Funding

Authors of this study acknowledge the research funding from the Fundamental Research Grant Scheme (FRGS), Managed by PNI, Universiti Malaysia Pahang (Grant code: RDU190127).

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## Conference Paper

# Application of Discrete Event Simulation (DES) for Queuing System Improvement at Hypermarket

Fazeeda Mohamad and Siti Filza Saharin

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

This paper focuses on the development of a computer simulation model for improving the queuing system at a hypermarket using Discrete Event Simulation (DES) and to propose the most efficient hypermarket queuing system for overall improvement. Data were collected from the Hypermarket A using the time study. The method of this study is using modeling and simulation. Arena Simulation Software is used to develop the model to replicate the actual system. Three scenarios had been tested, and the alternatives will be ranked based on the level of the efficiency of the system performance. The most efficient queuing system is identified based on the scenario analysis. In this study, the waiting time for each customer can be improved by up to 26%, which equivalent to 5.24 minutes. Overall, this study contributes to a better understanding of the queuing system performance.

**Keywords:** hypermarket, queuing system, waiting time, simulation, Discrete Event Simulation (DES)

Corresponding Author:

Fazeeda Mohamad

fazeedamohamad@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

There is a growing demand for the services offered, like getting treatment in the hospital or clinic, post office service, buying goods at the hypermarket and service at the banking system. Waiting line or queue is the normal situations in life, especially in the organization that making a profit (J.S.K.C & T.M.J.A, 2016). This type of services typically requires the customer to queue to be served. If the system management was inefficient, customers will face long queuing and require long waiting times.

As a growing retail industry, system management needs improvement in terms of their efficiency. Malaysia retailing industry is growing due to an increment in terms of hypermarkets available in the country, for instance, Giant, Tesco, Carrefour, and MYDIN (Kar, 2014). Most of the services provided by the hypermarket are related to the queuing problem and waiting time. Majority of the customer experienced long waiting time before getting served. In the retail industry, they recognize that waiting time is one of

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the important aspects of customer services. Therefore, this problem needs to be solved so that the service provided will increase customer satisfaction.

Nowadays, hypermarkets could be considered as a modern retailing format that provides everything under one roof. Although this concept is similar to the existing shopping center, hypermarkets focus more on fast-moving consumer goods (FMCG) (Hassan, Bakar Sade, & Sabbir Rahman, 2013). The hypermarket has to improve service operations to attract and fulfilling customer satisfaction. Customer satisfaction will give a big impact on the retail industry as contributes to overall performance.

In general, a hypermarket is a place for people to buy household goods and necessities. The hypermarket typically located outside a town with self-service superstore with a variety of products and also providing the car park. By providing a variety of products, it causes the hypermarket to became the focus of the public to buy all the required products in the one outlet. The typical queuing problem is because of several factors such as insufficient checkout system opens, especially during peak hours. This makes the waiting line will be too long, which lead to customer dissatisfaction. Due to this, the quality of the services will be decreased. Based on the previous study, most customer satisfaction lies in car park facilities and a short period for the payment process (Kar, 2014).

According to Xing, Li, & He (2015), there are different ways of handling the queuing problem, which is based on management. Therefore, the management experiences will lead to the decisions since it will be the different volume of the customer within a certain period. Some of the management take action to set the number for cashier opening. However, some of the management making the decisions by providing 'fast cashier' or 'express counter' for the customer that is only buying little quantity of products. Annas (2017) noted that to reduce the waiting times, the management needs to implement strategies to increase the service rate. It can be by adding servers, faster server, automated system, or a combination of these three strategies.

There are two general methods to evaluate the queuing length which affecting in waiting time, such as by applying a queuing theory or using simulation (Kim, Galiza, & Ferreira, 2013). This study will develop the model and analysis by using Arena simulation software. Thus, this model is to mimic the actual system. This simulation and modeling can enhance the level of efficiency of the queuing system without intruding the actual operations in the hypermarket. It is impossible to identify all the factors when the new system completed set up. According to Robinson (2015), Discrete Event Simulation (DES) is commonly used by other researchers in the services sector, such as supermarkets,



banks, and airports. Karnon et al. (2012) verifying that DES is a form of computer-based modeling that provides an intuitive and flexible approach to representing complex systems. DES also as a tool for analyzing the service performance that gives an impact on customer satisfaction (Xian, Hong, & Hawari, 2016).

Hypermarket A facing the similar problem as other researchers have mentioned in their study, which refers to the queuing problem. The queuing problem is due to the insufficient checkout system. There are several checkout systems at the Hypermarket A without standardization. For instance, the checkout system opened to all the customers without emphasizing the volume of the products, the mode of a customer making payment either using cash or credit card. This unstructured system leads to longer queuing time and unorganized checkout system. This contributes to customer dissatisfaction, especially when the customers have to be in the long queue just to buy a small amount of product. Therefore, this study was conducted to look at the possibility of improving the queuing line and the waiting time for the hypermarket under study.

## 2. Literature Review

### 2.1. Hypermarket

The hypermarket is one of the distribution channels that lead to selling product, especially for household necessities. Hypermarkets can also be considered as a normal retailing industry that sells a huge amount and diversity of products within one outlet (Hassan, Rahman, & Sade, 2015). It is confusing to identify differences between hypermarket and supermarket. A study conducted by Hassan et al. (2015) states that the number of hypermarket outlet is expected to constantly increase from year to year. In Malaysia, the retail industry has fierce competition. This is because of government adopted free trade with every developed and developing country. Therefore, many hypermarkets were built by a foreign entrepreneur (Firdaus & Et, 2016). The hypermarket usually located at high population density. The strategy to gain more consumer is by where the hypermarket located. Usually, the target market for a hypermarket is on the working people. So, the hypermarket located near to the workplace which can attract customers to buy after the working hours. Historical review

## 2.2. Queuing Concept

The concept of queues is a common procedure before getting served. A queue is the line of people or objects that are waiting to be operated. The waiting lines are also known as queuing theory. The study about a queue or waiting line is related to queuing theory. It is an important part of the operation and used by operations managers as an appraisal tool. Management can get started with an operational technique as a strategy for decreasing the waiting time (Tom & Lucey, 1995).

Waiting line models are handy for the manufacturing and services industry. In the service industry, a queue is a line of customers that waiting for the service. Almost all services require customers to wait until their turn to get the service. The formations of a queuing are based on some customers need to wait before getting serves. However, there is no queue if the service rates are less than the arrivals rates (Kim et al., 2013). The queue is analyzed in terms of the length of the waiting line, average waiting time, and another factor that used to understand the service system.

In the previous study, single-server with single-phase system and multiple-server with multiphase system usually used for service sectors. The servers are the channel provided in the system, while phases are the number of service stops that must be made. Prasad, V.H, & Koka (2015) noted that multi queue-multi server model as Figure 1 is the design for supermarket and hypermarket systems.

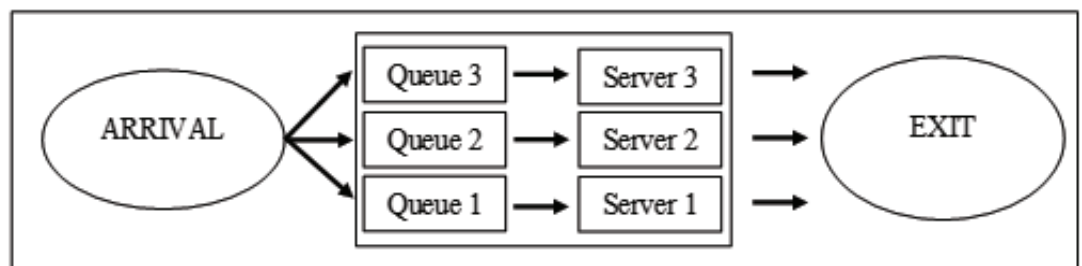


Figure 1: Multi-Queue, Multi-Server (Source: Town (2014)).

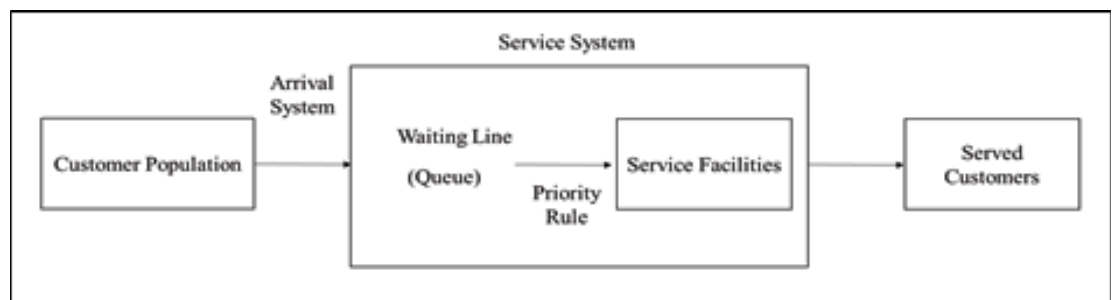
Ray & Bunday (1988) acknowledged the queuing theory to measure the performance of the system in terms of the variables. The variables included the volume of customers in the system, a volume of customer waiting, utilization of the servers, response time, waiting time of the customers, idle time in the system. The queuing theory used a mathematical model to analyze the performance of the checkout systems (J.S.K.C & T.M.J.A, 2016).

There are two costs related to the queuing concept, which are the cost of providing service and the cost of not providing service. To attract customer, the management

usually focuses on providing service with the shortest queue for customers. Operation manager requires a short queuing system to ensure high customer satisfaction in the process of buying rather than making the customer leave the checkout system without buying. The improvement in the level of services will reduce the cost of waiting time. Waiting costs are considered as a reflection of the efficiency in the operations.

### 2.2.1. Queuing System

According to Heizer & Render (2014), there are three parts of the waiting line system or queuing system. The queuing system includes arrivals, queuing discipline, and the service facility. The waiting line system is shown in Figure 2.



**Figure 2:** Queuing System (Source: Heizer & Render (2014)).

The characteristics for the arrival are the size of the population and the pattern of arrivals at the system. The population is either unlimited (infinite) or limited (finite). This study is the unlimited size of the population because the number of customer arrival at a hypermarket cannot be identified. Next, the pattern of arrivals at the system is either scheduled or randomly. The pattern of arrival is measured based on the number of arrivals. Indeed, the hypermarket pattern is random. It is because the occurrences cannot be predicted.

The queuing discipline refers to a guideline, which is the rule for the customers in the line before getting served. There are First In, First Out (FIFO) rule that customer needs to obey. In other words, FIFO was also known as First In, First Served (FIFS). This rule shows that the first customers in the line will be the first people to receive the services. The FIFS usually used in the service system. However, the other service discipline used is Last In, First Out (LIFO) which the customer comes later will be the first who leaves the system. Service in Random Order (SIRO) also one of the service disciplines which the customers will randomly be selected to be served.

Finally, is the service facility. It refers to the characteristics that including design and the statistical distribution of the time for services. This includes the type of server which

relates to serving rate and serving time. There are three types of customer behavior, such as balking, reneging, and jockeying (Upadhayay, 2017).

### 2.3. Simulation

Simulation is a method for evaluating the behavior of the model with a various situation that allows for making the decision (Ghaleb, Suryahatmaja, & Alharkan, 2015). This simulation requires developing a model that represents the system. Therefore, the simulation will act as an operation of the system. After simulating the model, the real effects of each alternative and actions will be identified. Vaisi, Raissi, & Vaisi (2015) states that it may be important to make improvements in the actual system by using simulation. This is because the whole performance of the system can be assessed.

Xian et al. (2016) state that simulation also can be clarified as a series of 'what if.' The 'what if' is experiments that will be implemented through the simulation. Simulations are of great importance to avoid the failures in the system due to the impact of change. This can be examined without interrupting the working of the actual system through new changes, procedures, information flow in the systems (Sharma, 2015). Modeling assists to understand the behavior of the system and to forecast the effects of changes in the system (Ozgormus, 2015).

Based on Ghaleb et al., (2015), a simulation is experimental of the model that represents real life. It can be studied through the computer simulation how the system operates. The prediction can be made if the variable changed. It also as a tool to virtually investigate the performance of the system. In the previous study mentioned that to improve the performance of service, industries need to use intelligence system such as simulation (Berhan, 2015). The better decision can be made for improving the queuing system if using simulation software. Moreover, there are complex decisions in the service industry since it will involve randomly in customer arrival and time of services.

Discrete Event Simulation (DES) models the operation of a system as a discrete sequence of events in time. Each event appears at a particular present in time and marks a change of state in the system (Sharma, 2015). Due to the changes in the system, this simulation will prevent failure without interrupting the actual system. Robinson (2015) mentioned that DES usually being used in the manufacturing system. However, it has rapidly increased in the service sectors.

According to Karnon et al., (2012), DES provides an intuitive and flexible tool to solve the complex system by using computer-based modeling. Moreover, DES also

can be identified as a flexible modeling method that has the ability to representing complex behavior within, and interaction between individuals, populations, and their environments. Among the simulation methods, only DES provides discrete sequences of the event in time.

### 2.3.1. Simulation Studies for Queuing Problem

In recent years, the research related to the queuing problem has been studied. To solve the problem, several researcher choosing to used discrete event simulation. There are several studies conducted for the queuing problem by using simulation. There is research conducted by Xing et al., (2015) related to simulation and queuing system. Based on their study, there are using simulation as a tool for improving the efficiency of the operation at the supermarket.

The previous study conducted by Xian et al. (2016) examined the service performance, which will affect customer satisfaction. In the study, they aimed to help the management to improve service performance by developing a simulation model. The best alternative will be improving the level of customer satisfaction against the service provided.

The study conducted by Kar (2014) was about the number of parking bays and checkout system. This study applied SAS simulation studio to modeling and analyzed the services provided. In the study, the simulation model is the parking area, normal and express checkout counter. There simulated all the scenarios which included several factors. The factors were based on time, day, shopping pattern, payment mode, and types of checkout system. This study also mentioned that the model would be used as a guide for the process of decision making.

According to Upadhayay (2017), developing a simulation model is needed to make a confirmation against the queuing theory. The study is about bank ATM, which applied to queue theory to reduce the queuing length. This theory requires calculating all the data using the mathematical model. The result also inaccurate because the data involves assumption. In this study mentioned that developing the model of simulation will give reflection to the actual operations compared to the analytical model.

Lastly, a study conducted by Kim et al., (2013) that related to simulation. This study is about modeling pedestrian queuing by using micro-simulation. The model was developed with the details that included travel time, waiting for a time length of the queue, and the number of customers in waiting lines. The main purpose of this study is improving the queue without high costs.

### 3. Methodology

The simulation method requires real data to complete this study. Therefore, this study using observation, interviews, and time study to gather all the information. The information obtained is original data specific for the study. The data taken is related to time and volume. This study needs the data consists of the volume of the customer queuing, and the time is taken for each customer to finished the buying process at the checkout system. The data collected obtain within the data collection period. Data collected must be accurate so that the final results are valid to the system.

Conducting this study require researcher for making plan visit. This is one of the methods to collect the data directly through the Hypermarket A. The data collected through observation at the Hypermarket A for the real customer flows. Observations at the Hypermarket A are required to understand the real situation such as the customer flows and the process of the system. Next, the interview session conducted by interviewing the personnel in charge from Hypermarket A. The personnel in charge are the employees that have more experiences with the Hypermarket A service system. Time study is an important part to get data in terms of time. Therefore, the time of customers in the system was recorded to measure the performance of the queuing system at the Hypermarket A. The time for each customer for completed their process of buying are recorded. Time study needs to be done since this study deal with time.

To view the actual performance, a simulation model was built using Arena simulation software. Moreover, the software also analyses the performance of the current system by using the data collected. This simulation is run for one hour, which is the peak hours at the Hypermarket A. The model was simulated 30 times, which is 30 replications. After running the simulation models, statistical results are collected and recorded to analyze the data. Statistical data produced is in term of the waiting time, the number waiting, and number busy. Those aspects are under performance measurement. Figure 3 shows the standard steps of the simulation process.

The initial step involves problem identification. Identify the problem occurs in the system to be studied. Further defined the requirements for the system and the process to be studied. After problems were identified, the objectives of this study must be established so that the researcher knows the process aimed at this study. Next is to collect and prepare the data. Collect the information on existing system and data needed to conduct the simulation. The data used to formulate the model and run the model using Arena simulation software. If the data did not meet with all the objectives, the process to refine the objectives need to be done. The data also should be recollected

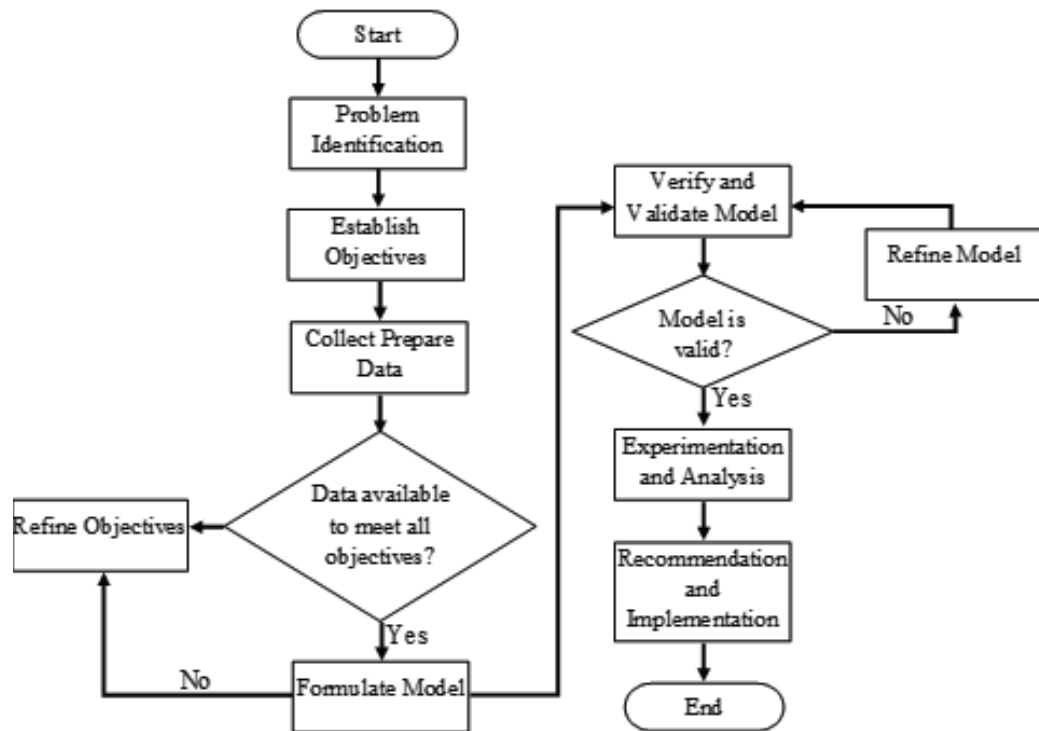


Figure 3: Simulation Modeling Process (Source: Centeno & Carrillo (2001)).

and prepared the model again. Otherwise, if the data available to meet all the objectives, proceed to the formulating model and running the model. To have accurate results in this study, the validation and verification process needs to be done. This process is to ensure that the model is accurate. Verification model is a process of ensuring that the model as intended which computerized model and implementation are correct. The model may be verified but not valid. Validation is to ensure that no difference exists between the model and the actual system.

R. Abdoel Djamali (2018) point out that the validation in this modeling which carried out by comparing the behavior of modeling and real system such as the test of Mean Absolute Percentage Error (MAPE). MAPE is one of the relative measures that relate to the percentage error. This test can be used to determine whether there is suitability between estimation result and actual data. This test can be calculated by the formula below:

$$MAPE = \sum \frac{|X_m - X_d|}{X_d} \times 100\%$$

$X_m$  = data of simulation result

$X_d$  = actual data

TABLE 1: MAPE Percentage and Analysis.

| MAPE Percentage | Analysis      |
|-----------------|---------------|
| MAPE<5%         | Very accurate |
| 5<MAPE<10%      | Accurate      |
| MAPE>10%        | Not accurate  |

Source: R. Abdoel Djamali (2018)

The next process after validate and verifying the model is conducting a model experiment to improve the queuing system performance. In an experiment, some scenarios have been realized as an alternative to making improvements. In a simulation, implement ‘what if’ analysis is important to improve the system performance. Then, the improvements have been made to improve the efficiency of the queuing system by making changes to the simulation model. Therefore, reducing the risk of the ineffectiveness of the improvement since it only involves computer software. This scenario was developed to see the changes in the result. After that, the recommendation is made for the management to decide on improving the queuing system.

#### 4. Results

There are several processes for the queuing system. Figure 4 shows the process flow of the checkout system at the hypermarket.

This process modeled for mimicking the actual system by using Arena simulation software. The modules that used are CREATE, PROCESS, DECIDE and DISPOSE module. The module is intended to build as a flow chart for introducing the system. Figure 5 shows the queuing system model using Arena simulation software.

The actual system showed that the release volume of customers is 129 people, while the model is 132 people. Therefore, the calculation of MAPE test is carried out. The value of MAPE for this research is 2.33%, which proved that the model is accurate for the next step, which is to perform the ‘what if’ or scenario analysis.

In the simulation, implementing ‘what if’ analysis is important to improve the system performance. Through the simulation model, the impact of the changes can be identified before implementing it in the actual system. Therefore, this can avoid the failures in the system due to the impact of the changes. The scenarios experimentation is important for the management as it contributes to the alternative action to reduce the waiting time at the queuing system in the hypermarket.



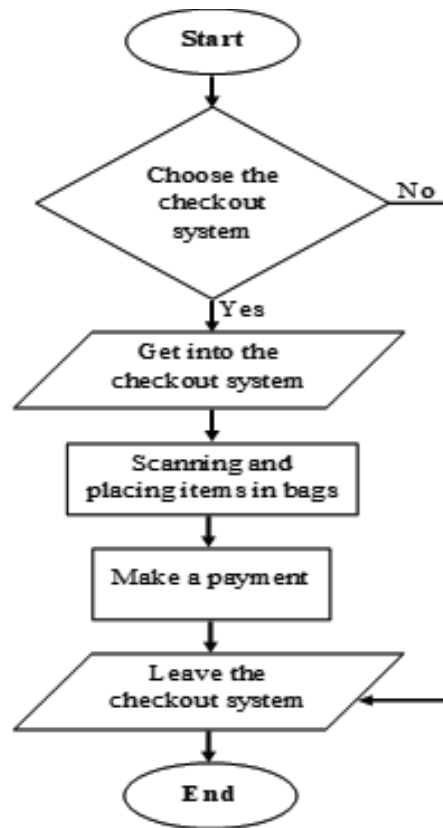


Figure 4: Process Flow of Checkout System at Hypermarket A (Source: Authors' own work).

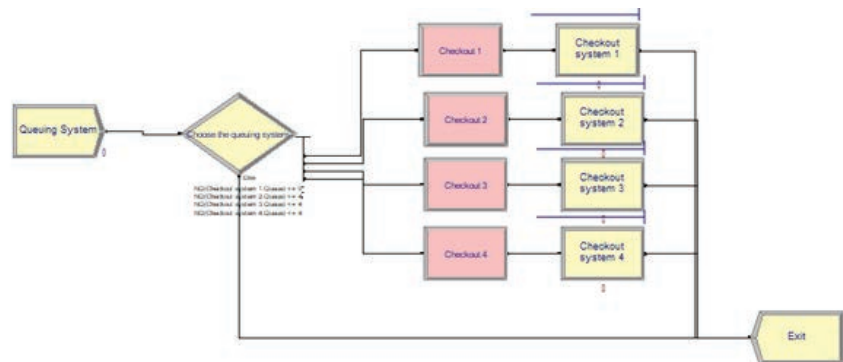


Figure 5: Queuing System Model using Arena Simulation Software (Source: Authors' own work).

In this study, five scenarios to analyze the changes in term of waiting time, number of waiting, and number busy had been conducted. The hypermarket has six checkout system including the express counter. The checkout counter for the hypermarket normally open for four checkout system with three checkout system operate as normal counters, and one checkout system operates as an express counter. Five scenarios have been tested using 'what if' analysis as the following:

1. Scenario 1: Maintain number of customer arrival and open five checkout system

2. Scenario 2: Maintain number of customer arrival and open six checkout system
3. Scenario 3: Increased number of customers and open four checkout system
4. Scenario 4: Increased number of customers and open five checkout system
5. Scenario 5: Increased number of customers and open six checkout system

Table 2 shows the overall results of the system performance between the base case which is the actual system and the scenarios experimentation. The results showed the system performance which is the average waiting time, the average number waiting, and the average number busy for resources usage were improved from the actual system. The increment volume of customers coming in brings to the increasing volume of customer release.

TABLE 2: Results between Base Case and Scenarios.

|  | Base Case | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
|--|-----------|------------|------------|------------|------------|------------|
| <b>Output (People)</b>                 | 132       | 132        | 132        | 180        | 180        | 180        |
| <b>Average Waiting Time (Minutes)</b>  | 4.9273    | 3.8961     | 3.9844     | 5.1111     | 4.0363     | 4.0859     |
| <b>Average Number Waiting (People)</b> | 2.1716    | 1.5726     | 1.5017     | 2.2916     | 1.6465     | 1.5758     |
| <b>Average Number Busy (Minutes)</b>   | 0.6808    | 0.6435     | 0.6139     | 0.7004     | 0.6606     | 0.6306     |

In order to recommend the most efficient queuing system, the overall results cannot be the main indicator since there are differences in terms of the aspect of changes for each scenario. Thus, the system performance is defined by referring to the average waiting time for each checkout system and the most efficient queuing system was analyzed. Table 2 and Table 3 showed the analysis in terms of the average waiting time for each checkout system. This shows the average waiting time for the base case and all the scenarios.

In this study, the scenarios for improving the queuing system performance as per suggestion will incur some cost. The costs involved will be either for the recruitment of the cashiers or for the training to improve the cashier efficiency. The overall result shows that the waiting time for all scenarios was decreased except for scenario one as the scenario was conducted to see the effect if no additional check out system open when the number of customer arrival was increased. It means that by opening up one

TABLE 3: Average Waiting Time for Base Case and Scenarios.

| Average Waiting Time (Minutes) | Checkout system   | Base Case                           | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
|--------------------------------|-------------------|-------------------------------------|------------|------------|------------|------------|------------|
|                                |                   | Checkout system 1 (Express counter) | 0.0935     | 0.0900     | 0.0895     | 0.0937     | 0.0911     |
|                                | Checkout system 2 | 7.3481                              | 5.2477     | 4.8391     | 7.5257     | 5.3529     | 5.0286     |
|                                | Checkout system 3 | 6.8971                              | 4.8440     | 4.5985     | 7.1471     | 4.9853     | 4.5642     |
|                                | Checkout system 4 | 5.3705                              | 3.7062     | 3.5087     | 5.6778     | 4.0620     | 3.6976     |
|                                | Checkout system 5 | -                                   | 5.5924     | 5.2770     | -          | 5.6902     | 5.4377     |
|                                | Checkout system 6 | -                                   | -          | 5.5933     | -          | -          | 5.6976     |

checkout system, the overall waiting time for each customer can be decreased up to 21% which is equivalent to 1.03 minutes.

Among the scenarios suggested, scenario 2 was found to be the best strategy to be proposed. If the management implement scenario 3, there will only spend some expenses for recruitment of the cashier for checkout system 5. In addition, if the management implement scenario 2, the waiting time already showed the positive changes by reducing 20% of waiting time from the actual system. The difference number of waiting time for scenario 2 and scenario 3 was only in a second.

Therefore, scenario 2 is the best alternative to be proposed for the management to be implemented for this case. Despite the increased associated with the opening of an additional checkout system, it can reduce the waiting time for each customer. The improvement of scenario 2 is better as compared to the other two scenarios as it will incur lower investment with additional only one cashier.

Even though when the number of customers increased, still by adding up one additional counter as in scenario 4, the average waiting time for the customer still will be decreased by 21%. Kar (2014) mentioned that maintaining and enhancing customers satisfaction is important factors in providing convenience and efficient services. Therefore, from the analysis, this study can conclude that just by adding one checkout system during peak hours and peak day can help to reduce the average waiting time and reduce the number of queuing in the line.

## 5. Discussion

The waiting time is a common problem faced whether in service or production line. This study focused on the services which are hypermarket queuing system. The service sectors problem, especially at the hypermarket relates a lot with the insufficient checkout

system provided, which will lead to longer waiting time among customers. This situation will bring to customer dissatisfaction and frustration (Xian et al., 2016). There are several processes for the customers to complete the buying processes which are choosing the checkout system, get into the checkout system, cashiers scanning and placing all the items in bags and make a payment before leaving.

Management faced difficulties in deciding whether more checkout system should be added as it will also involve more cost. Therefore, the simulation tool is used as it can identify the problem and suggest an improvement to the management without interrupting the actual system. Other than that, the process of making the decision is quicker and more reliable since the model developed based on the actual system. The analysis of queue considers the length of the waiting line, average waiting time, and other factors that contribute to the system (Heizer & Render, 2014). Thus, the results showed that in terms of system performance which are average waiting time, the average number waiting and average number busy for resources usage are improving from the actual system

In this study, there are five scenarios for improving checkout system performance. The scenarios were based on the number of checkout system opened, and the level of staff efficiency. All scenarios tested considered the alternatives related to the additional number of the checkout system. This recommendation is based on the five scenarios that have been implemented in the simulation model.

## 6. Conclusion and Implications

Hypermarket needs to improve their service operations to attract more customer, earning loyalty, and also fulfilling customer satisfaction. Even though the waiting time and queue is a normal situation in the organization that makes a profit, the improvement is needed to ensure customer happiness. The study of a queuing system comprises five processes which are customer choosing the checkout system, get into the checkout system, scanning and placing items in bags by the cashier, making a payment and leave the checkout system. The problem faced by these processes has been analyzed by using the simulation model. The model was developed and running using Arena simulation software. After that, the model requires the process of validation and verification.

Next, 'what if' analysis was implemented to come out with several scenarios for improving the queuing system. The improvement of the queuing system is through the model. So, the improvement process is not interrupting the actual system. This also

reduces the risk and avoid the failures in the system due to the impact of changing the system. The results of these scenarios are related to the enhancement of the model simulation. Next, the recommendation is made to the management to take action for improving the queuing system. The most efficient queuing system will be proposed to the management.

The most efficient queuing system is by opening five checkout system, which reduces the number of waiting time, number of waiting and increasing the number busy of the resources usage. The whole process for developed the model and analyze the system is done virtually by using Arena simulation software. The modeling and simulation method reduces the risk of changing the real system by doing the scenario analysis using the model developed. However, this study is introducing the simulation to be used to make a quicker and reliable decision.

This research shows that the application of Discrete Event Simulation (DES) as a computer-aided tool can help the management to improve the queuing system at the hypermarket. There is a recommendation for further study which considered to calculate the costing involved while deciding the best scenario. The basic model for this research can be generalized by other hypermarket or retail store that have a similar operating system.

## Acknowledgment

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

## Funding

The authors would like to acknowledge the support of the Faculty of Industrial Management, Universiti Malaysia Pahang in funding this project.

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## Conference Paper

# An Investigation of the Current Autonomy Status of the Malaysian Public and Private Universities: An Empirical Result

Basheer Al-haimi, Daing Nasir Ibrahim, and Ab Hamid MR

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

The benefits and importance of university autonomy for facilitating and accelerating higher education transformation have been broadly agreed by many higher education stakeholders. This paper aims to investigate the Malaysian public and private universities degree of independence and autonomy from the government and other external forces. The extent of an institute's autonomy is measured based on their independent in appointive, academic, administrative, and financial matters. An emailed survey has been sent to top-level management of 28 public and private universities in Malaysia, resulting in 126 respondents. The respondents for the survey consisted of vice-chancellors, deputy vice-chancellors, deans, directors, and deputy deans. Using SPSS statistical software, data were analyzed by descriptive and inferential statistical analysis. The results demonstrate that the majority of the components under academic matters, administrative and financial matters are considered high autonomy, with less interference of the government over those institutions. With some reason, autonomy related to the appointment of the vice-chancellors and dismissals of rectors and vice-chancellors is still under government control. However, based on the findings, autonomy development at public and private universities in Malaysia has been engaged in a long journey that enabled it to compete and to progress well at the global level.

**Keywords:** universities, autonomy, Malaysia

Corresponding Author:  
Basheer Al-haimi  
basheerump@gmail.com

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Higher Education is considered to be the cornerstone of any country's development, growth, and prosperity of its people. The contribution made by Higher Education Institutes (HEIs), play a significant role in the cultural and intellectual growth of a nation on a macro and micro scale. Higher education institutions contribute to the technology, economy, social, and cultural advancement of the country (Milton & Barakat, 2016). For this reason, over the last few decades, Higher Education has become of the essential institutes that grow a country on several levels (Kimenyi, 2011). Thus, many countries,

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including Malaysia, have strengthened their education systems in order to cope with the new changes and challenges of the world.

Generally, higher education systems have gone through dramatic changes with the increase in many aspects such as internationalization, research and innovation, students bodies and the growing number of students enrolled in tertiary education has led to the need for universities to become more self-governing and autonomous (Henard & Mitterle, 2009). Self-governance and full academic freedom in universities play a significant role in managing universities efficiently and adequately. (Salmi, 2009) linked the success of universities and the way of getting World Class University (WCU) status to three complementary sets of factors: concentration of talent, self-governance and full autonomy and abundant resources. Hence, many prestigious universities in the world have full autonomous status. However, universities in developing countries are not self-governed and are controlled by their government systems (Lee, 2013). In addition, a World Bank study entitled “The Road to Academic Excellence: The making of world-class research universities”, found that new universities that are equipped with academic talent, financial resources and governance, particularly autonomy and academic freedom, can grow into top-quality research institutions within two or three decades (Sharma, 2011). Thus, academic freedom and university autonomy are essential factors for strengthening HEIs and achieving WCU status.

Higher Education in Malaysia has also gone through many development transformations and reforms (Sirat, 2013). In order to cope with the new changes, challenges and competition of the world, the Malaysian government, spent a great deal of effort into strengthening the higher education system as a response to these changes and challenges. These efforts allowed Malaysia to enter into the global competition and become one of the international hubs for students from all over the world. These efforts are present in the strategic plans that aimed to ensure that the HEIs are encouraged to achieve excellence and be able to compete on an international scale (Education, 2007). For instance, the Malaysian Education Blueprint (MEB) 2015-2025 laid out 10 shifts to catalyze continued excellence in Malaysia’s higher education. One of these 10 shifts is empowering governance.

Thus, recognizing the importance of autonomy in facilitating and accelerating the transformation of Malaysian higher education institutions, the Malaysian government has given the autonomy status to many public universities, particularly to the institutes that focus primarily on research. Although the government had granted the public universities full autonomy, it is still argued that some universities are not yet fully autonomous institutions (SUFEAN HUSSIN, 2019). Similarly, (Wan, 2017) stated that “the

autonomous status awarded to certain public universities only represents a fraction of the autonomy that public universities used to have.” Since Malaysia is aspiring to have more world-class universities and in-line with a strong higher education system, this study was carried out to empirically investigate to what extent are Malaysian universities autonomous, as well as the different types of autonomy models that are granted to these universities. Moreover, to the best of our knowledge, few empirical studies have been carried out to cover all the dimensions related to autonomy, wherein previous studies focused on some of the academic and administrative matters, this study will cover appointive, academic, administrative and financial matters.

This paper is organized into five sections. The first section provides a basic introduction, as well as elaborating on the problem background. The second section focuses on the literature review related to autonomy both on a general and Malaysian perspectives. The third section elaborates on the methodology used in this research. The fourth section is the data analysis section, which is followed by a fifth section, which is the findings and discussion of the research, which discusses the results and the implications of those aforementioned results.

## 2. Literature Review

Autonomy in HEI has increasingly become an important factor that is essential for improving a university’s performance and success (Al-haimi, Ab Hamid, & Hujainah, 2018). However, autonomy is defined in several different contexts, some of which is unique to the HEIs. Thus, there needs to be an understanding of the word first and what it would mean in the context of HEIs. There are many definitions for university autonomy described by many agencies and scholars. According to the Lima Declaration on Academic Freedom and Autonomy of Institutions of Higher Education (1988), University Autonomy is defined as “the independence from the state and other pressures of society to make decision regarding its self-government, finance, administration and to establish its policies of education, research, extension work and other related activities”(WUS, 1988). European Universities Association outlines it as including organizational, financial, staffing and academic independence of Universities (Estermann, Nokkala, & Steinel, 2011).

For a better understanding of the meaning of university autonomy, Gornitzka and Maaen categorized university autonomy into four types 1) the fully non-autonomous centerline state control, 2) the traditional academic autonomy, 3) the semi-autonomous corporate state and 4) the fully autonomous corporate model. Thus, university autonomy

can be defined as the degree to which a university’s academic and managerial entities enjoy the freedom to make decisions with less interference and control by the state. (Levy, 1980) published a study that aimed at shedding light on the defining variables in university autonomy and its relationship between the government and the university as two intertwined entities. The study was conducted in Mexico, with the relationship being analyzed through the lens of the involved universities and the Mexican government. In this study, autonomy is defined as the degree of authority the university practices and how much control it has over its various sub-entities and the outcome of the decisions that are made. Furthermore, Levy stated that “the extent of autonomy can be classified into three components of self-government, namely, appointive, academic, and financial” (Levy, 1980). Table 1 shows the components of self-governance in university autonomy.

TABLE 1: Components of Self-government for University Autonomy (Source: Levy (1980)).

| Nature of Relations | Degree of Autonomy   |
|---------------------|--|
| Appointive          | <ul style="list-style-type: none"> <li>- hiring, promotion, and dismissal of professors</li> <li>- selection and dismissal of deans, rectors, and other administrative personnel</li> <li>- terms of employment</li> </ul>                             |
| Academic            | <ul style="list-style-type: none"> <li>- Access admission to the university</li> <li>- career selection</li> <li>- curriculum offerings and course instruction</li> <li>- degree requirements and authorization</li> <li>- academic freedom</li> </ul> |
| Financial           | <ul style="list-style-type: none"> <li>- determination of who pays</li> <li>- funding level</li> <li>- funding criteria</li> <li>- preparation and allocation of university budget</li> <li>- accountability</li> </ul>                                |

The aforementioned definitions of autonomy directed us to the importance of university autonomy and highlighted the reason behind the rise and popularity of this topic among many researchers and academics. In the current century, flexibility and agility are a must, as the world is being geared more towards external factors such as globalization and global competitiveness. (Sadlak & Liu, 2007) stated that: “institutions that have complete autonomy are also more flexible because they are not restricted by heavy bureaucracies and externally imposed standards, in spite of the legal accountability mechanisms that observe them.” As a result, they can manage their resources with agility and quickly respond to the demands of a rapidly changing global market”.

Moreover, experts have linked a HEIs performance to autonomy or good governance of the university. These factors are also contributing criteria in achieving the WCU status. Jamil Salmi, the higher education expert related to the achievement of world-class university status to three complementary sets of factors with autonomy and academic freedoms as one of the quintessential elements (Salmi, 2009). An empirical study at Europe and the United States universities examined the relationship between the

university autonomy and their performance and productivity and the findings indicated a strong correlation between these indices and the university output (Aghion, Dewatripont, Hoxby, Mas-Colell, & Sapir, 2010).

Furthermore, a study conducted in the form of a survey discovered that the post-secondary education system in the US was considered to be the “the best in the world,” due to universities being wealthy, independent of state control, fiercely competitive, and innovative. It was observed that this environment created educational institutions that promoted competitiveness, unrestrained scientific inquiry, critical thinking, innovation, and creativity. This contrasts with German and French universities that have excellent educational systems, but each nation has few world-class universities, with the best university in France and Germany in 2006 being ranked by SJTU 46th and 51st, respectively (Salmi, 2009). This is due to a lack of student screening and a non-competitive environment. Both Germany and France also have educational systems that lack autonomy, with universities being constrained by rigid management control and civil-service employment rules, preventing them from offering the salaries necessary to attract world-class talent. France also has a two-tiered post-secondary education system, with the best scoring students being admitted into engineering and professional schools, leaving other universities to admit the bulk of students (Salmi, 2009).

The number of students in public and private institutions has expanded significantly, which consequently has made the higher education system as a whole, a more complex entity. Thus, such an unsustainable model has led many countries to look for other alternatives such as supervising model rather than a control model (Fielden, 2008). Table 2 shows the example of universities autonomy practices in selected countries. For instance, Malaysian university autonomy extends to only 4 categories, namely academic tenure, selection of textbooks, research priorities, and approval of publication. The results seem to be in contrast to what is currently practiced at Malaysian universities. Therefore, due to the importance of the governance at the universities level, the level of freedom of the universities to manage their affairs as well as the lack of knowledge to what extent Malaysian universities are free to govern their internal governance aspects, this research attempts to fill this gap. This can be done by examining the two type of institutional autonomy, which is related to academic and research matters and procedural autonomy that is related to non-academic matters (Bladh, 2007).

TABLE 2: University Autonomy in Selected Countries.

| Category   | HOL | UK | DEN | CAN | MAS | PAK |
|--|-----|----|-----|-----|-----|-----|
| Appointment /dismissal of VCs                          | X   | X  | X   | X   |     | X   |
| Appointment /dismissal of Professors                   | X   | X  | X   | X   |     | X   |
| Academic tenure  | X   | X  | X   | X   | X   | X   |
| Academic pay and conditions                            |     |    |     | X   |     | X   |
| Students entry standards                               |     | X  |     | X   |     | X   |
| Selection of students                                  |     | X  |     | X   |     | X   |
| Size of enrollments                                    | X   | X  | X   | X   |     | X   |
| Quotas for special groups                              | X   | X  | X   | X   |     |     |
| Language of instruction                                |     | X  |     | X   |     | X   |
| Introduction of new courses/elimination of old courses | X   | X  |     | X   |     | X   |
| Selection of textbooks                                 | X   | X  | X   | X   | X   | X   |
| Examination/graduation standards                       | X   | X  |     | X   |     | X   |
| Decision to teach courses at graduate level            | X   | X  |     | X   |     | X   |
| Research priorities                                    | X   | X  | X   | X   | X   | X   |
| Approval of publications                               | X   | X  | X   | X   | X   | X   |
| Membership and control of governing council/board      |     | X  | X   | X   |     | X   |
| Management of university budget                        | X   | X  |     | X   |     | X   |
| Level of tuition fees                                  |     | X  |     |     |     |     |
| Approval of income generation ventures                 | X   | X  |     | X   |     | X   |
| Own buildings and equipment                            | X   | X  |     | X   |     | X   |
| Ability to borrow funds                                | X   | X  | X   | X   |     | X   |

Note: X means the university is independent to take a decision; HOL is Holland, the UK is the United Kingdom, DEN is Denmark, CAN is Canada, MAS is Malaysia and PAK is Pakistan.  
 Source: Fielden (Fielden).

### 3. Methodology

To understand the perceptions of the respondents on the autonomy practices at their respective Malaysian public and private institutions, this research employed quantitative research method. This study proceeded by questionnaire using an email survey sent to vice-chancellors, deputy vice-chancellors, directors, deans and deputy deans of 28 public and private universities. Table 3 shows the demographics of the participated respondents.

### 4. Results and Discussion

This study was carried out to empirically investigate in-depth all the dimensions of autonomy at the Malaysian public and private universities. These dimensions are related to an appointment (see Table 4), academic matters (see Table 5) and administrative and financial matters (see Table 6). The respondents were asked to rank the degree of autonomy and the influence of the government and other agencies at their respective universities. The instrument and scale used for this study ranged from 1= extremely low to 7= extremely high.

TABLE 3: Demographics of Respondents.

| Item                                     | Frequency | Percentage (%) |
|--|-----------|----------------|
| <b>Title</b>                             |           |                |
| Professor                                | 53        | 42.1           |
| Associate Professor                      | 47        | 37.3           |
| Dr                                       | 25        | 19.8           |
| Mr                                       | 1         | .8             |
| <b>Gender</b>                            |           |                |
| Male                                     | 84        | 66.7           |
| Female                                   | 42        | 33.3           |
| <b>Job</b>                               |           |                |
| Ministry Higher Education Top Management | 1         | .8             |
| Vice Chancellor                          | 2         | 1.6            |
| Deputy Vice Chancellor                   | 7         | 5.6            |
| Associate Vice Chancellor                | 2         | 1.6            |
| Faculty Dean                             | 30        | 23.8           |
| Deputy Dean                              | 71        | 56.3           |
| Director                                 | 13        | 10.3           |
| <b>Experience (Years)</b>                |           |                |
| 1-2                                      | 2         | 1.6            |
| 3-5                                      | 5         | 4.0            |
| 6-10                                     | 9         | 7.1            |
| 11-15                                    | 26        | 20.6           |
| Above 15                                 | 84        | 66.7           |
| <b>University Age</b>                    |           |                |
| <b>University Type</b>                   |           |                |
| Public                                   | 113       | 89.7%          |
| Private                                  | 13        | 10.3%          |
| <b>University Category</b>               |           |                |
| Research University                      | 55        | 43.3%          |
| Comprehensive University                 | 20        | 15.7%          |
| Focused University                       | 51        | 40.2%          |

As shown in Table 4, public universities show more interference and influenced by the government in terms of appointment of VCs / Rectors, dismissal of CEO/rectors, academic pay and conditions followed by appointment of professors representing mean values as 6.21, 5.78, 4.57 and 3.17 respectively (see at mean column). Furthermore, an independent sample test (t-test) has been conducted to statistically explain the difference between these scores and whether the scores are statistically significant. However, an independent t-test result found the aforementioned components to be significant, whereby p-value <0.05 (see appendix A). Thus, both tests revealed that the

TABLE 4: The Overall Mean Score of Respondents Related to Autonomy (Appointment).

| Dimension 1<br>University type<br>Items      | Appointive: In light of university autonomy, to what extent does the Government directly influence the following items? |          |                      |          |
|--|---|----------|----------------------|----------|
|  | Public Universities   |          | Private Universities |          |
|  | Mean  | Std.Dev. | Mean                 | Std.Dev. |
| Appointment of CEO (VC/Rector)               | 6.21  | 1.16     | 2.54                 | 1.33     |
| Dismissal of Chief Executive Officers        | 5.78  | 1.48     | 2.54                 | 1.39     |
| Appointment of Professors.                   | 3.17  | 1.74     | 2.15                 | 1.34     |
| Dismissal of professors                      | 2.80  | 1.61     | 2.54                 | 1.50     |
| Appointment of other academic staff          | 2.73  | 1.66     | 2.54                 | 1.50     |
| Termination or discipline of academic staff. | 2.81  | 1.64     | 2.08                 | .76      |
| Academic tenure                              | 2.80  | 1.71     | 1.85                 | .55      |
| Appointment or dismissal of general staff    | 2.50  | 1.44     | 2.00                 | 1.08     |
| Academic pay and conditions                  | 4.57  | 1.78     | 2.69                 | 1.43     |

government has more control over the appointment of VCs, dismissal of CEO/rectors, academic pay and conditions, and less interference on the other components. The reason behind this might be due to the over-dependence on public funds whereby 70% to 80% of the budget spent on public HEIs are from the government (Hock-Eam, Taib, Abdullah, Adiana, & Hwa, 2016). Hence, the government oversees and monitors the spending of those funds, and treats the HEIs like any other government agency. This forces the universities into a specific strategic plan set by the government.

Likewise, in private universities, the influence and interference of the government are considered very low compared to public universities. However, there is an exception for academic pay and conditions, which shows high results in the mean's score as 2.69, which is considered to be low when compared to public universities. On the other hand, public and private universities show more independence in terms of appointment of general and academic staff and academic tenure. The results indicate that private universities are comparatively more autonomous in terms of appointment while the development of autonomy at public universities is ongoing which is considered to be acceptable and healthy for the higher education system in Malaysia as a whole. The second dimension for this study covered the academic matters related to students, curriculum and teaching, academic standards, research and publication, and governance. In this dimension, the respondents were asked to rate the degree level of independence and authority of their universities to take decisions related to the aforementioned academic matters. Interestingly, the results show that public and private universities both have high autonomy and more authority to make decisions on all the academic matters, as displayed in Table 5. Also, the t-test result shown in appendix 2 indicates that there are no differences between public and private universities in most of academic matters components. A few academic matters such as entry standards, methods for selection students, the quota for minority group and accreditation of institutions and courses are among the academic matters in which the government moderately controls

TABLE 5: The Overall Mean Score of Respondents Related to Academic Matters.

| Dimension2               |                                 | Academic : The extent to which your university is independent and has the authority to make decisions with regards to the following academic matters: |          |                      |          |       |
|--------------------------|---------------------------------|---|----------|----------------------|----------|-------|
|                          |                                 | Public Universities   |          | Private Universities |          |       |
|                          |                                 | Mean  | Std.Dev. | Mean                 | Std.Dev. |       |
| Curriculum and Teaching  | Student                         |   |          |                      |          |       |
|                          |                                 | Entry standards   | 5.26     | 1.20                 | 4.23     | 1.481 |
|                          |                                 | Methods for selection and admission of students   | 5.05     | 1.26                 | 4.31     | 1.316 |
|                          |                                 | Quotas for minority group   | 4.85     | 1.46                 | 4.77     | 1.166 |
|                          |                                 | Pass and failure rate   | 5.21     | 1.56                 | 5.15     | .987  |
|                          |                                 | Discipline of students  | 5.23     | 1.50                 | 5.54     | .776  |
|                          |                                 | Methods of teaching   | 5.52     | 1.50                 | 5.15     | .801  |
|                          |                                 | Methods of examination  | 5.57     | 1.487                | 5.23     | .927  |
|                          |                                 | Language of instruction   | 5.49     | 1.513                | 5.54     | .776  |
|                          |                                 | Introduction of new teaching fields.  | 5.30     | 1.413                | 5.38     | .768  |
| Academic Standards       |                                 | Termination of teaching fields.   | 5.14     | 1.322                | 5.31     | .855  |
|                          |                                 | Entry standards of students   | 5.56     | 1.110                | 4.85     | 1.214 |
|                          |                                 | Graduation standards  | 5.81     | 1.00                 | 5.31     | .85   |
|                          |                                 | Standards in particular subjects  | 5.75     | 1.13                 | 5.38     | 1.04  |
|                          |                                 | Quality Audits  | 5.57     | 1.18                 | 5.31     | .75   |
| Research and Publication |                                 | Accreditation of institutions   | 5.58     | 1.28                 | 4.54     | 1.45  |
|                          |                                 | Accreditation of courses  | 5.38     | 1.37                 | 4.62     | 1.26  |
|                          |                                 | To open postgraduate studies.   | 5.52     | 1.166                | 5.15     | 1.14  |
|                          |                                 | Research Priorities.  | 5.55     | 1.427                | 6.00     | .91   |
|                          |                                 | Particular research topics.   | 5.59     | 1.237                | 5.54     | .77   |
| Governance               |                                 | Approval of publications.   | 5.35     | 1.433                | 5.54     | 1.45  |
|                          |                                 | Restriction on public statements by academic staff.   | 4.84     | 1.411                | 5.46     | .77   |
|                          |                                 | Membership of governing councils of institutions.   | 5.06     | 1.403                | 5.85     | .89   |
|                          |                                 | Control of governing council.   | 5.01     | 1.271                | 5.85     | .89   |
|                          |                                 | Membership of academic boards.  | 5.44     | 1.239                | 5.92     | .86   |
|                          | Control of academic boards.     | 5.38  | 1.270    | 5.92                 | .86      |       |
|                          | Control of student association. | 5.35  | 1.374    | 5.15                 | 1.281    |       |

(particularly in private universities) whereby the mean scores and t-test indicate such differences. As a result, the effort of the government towards granting HEIs the full autonomy status will lead to better a performance in Higher Education, and it would allow the institutes to compete on a global scale.

Furthermore, Table 6 displays the results related to administrative and finance matters at public and private institutions of Malaysia. From the results shown above, it can be observed that public and private universities are relatively equal in controlling the components that relate to administrative and financial matters. The mean scores for all components are greater than 5, with the exception of the level of tuition fees at the public universities, which is 4.71. This result indicates less interference and influence from the government over the public and private universities in Malaysia. In line with this result, the t-test performed in this study revealed no differences between public and private universities in all the components related to administrative and financial matters whereby the p-value is greater than 0.05 except with the level of tuition fees (see appendix 3). However, this result is consistent with what has been declared by the



Malaysian government from time to time, which is that they have granted the autonomy status to all public universities.

TABLE 6: The Overall Mean Score of Respondents Related to Administrative and Finance.

| Dimension 3                                      | Administrative and Finance: The extent to which your university plays direct role in controlling the following components related to administration and finance matters. |          |                      |          |
|--|--|----------|----------------------|----------|
|  | Public Universities  |          | Private Universities |          |
| University type                                  | Mean   | Std.Dev. | Mean                 | Std.Dev. |
| Items  |  |          |                      |          |
| Student numbers.                                 | 5.31   | 1.203    | 5.15                 | 1.214    |
| Student numbers in particular fields.            | 5.19   | 1.194    | 5.08                 | 1.038    |
| Closure or amalgamation of institutions          | 5.04   | 1.319    | 5.08                 | .641     |
| University rules and regulation.                 | 5.37   | 1.219    | 5.46                 | .967     |
| Duration of academic year.                       | 5.27   | 1.296    | 4.85                 | 1.519    |
| Financial audit                                  | 5.27   | 1.239    | 5.54                 | .776     |
| Preparation and allocation of university budget. | 5.27   | 1.382    | 5.62                 | .768     |
| Approval of commercial or money making projects. | 5.27   | 1.311    | 5.31                 | .751     |
| Approval of major capital expenditure.           | 5.25   | 1.386    | 5.46                 | .967     |
| Level of tuition fees.                           | 4.71   | 1.551    | 5.38                 | .870     |
| Financial support to students.                   | 5.08   | 1.565    | 5.31                 | .855     |
| Accountability.                                  | 5.60   | 1.161    | 5.77                 | .832     |

## 5. Conclusion

Higher Education Institutes are always under pressure to grow and improve their performance, as the world is becoming more global, which requires them to be highly agile and adaptive to change as well as having a high degree of responsiveness. In order to achieve this goal effectively and efficiently, self-governance and autonomy of universities are an essential factor. Many successful universities around the world are granted the full autonomy status by their governments that have geared them towards excellence.

Malaysia is a developing nation that strives for a high performing economy and education system. By giving a full autonomy status to its universities, it has contributed to growth and degree of excellence in which has made Malaysia globally competitive. This study revealed a rapid and effective autonomy development at Malaysian public and private universities in terms of academic and administrative and financial matters. However, at public universities, a few components related to the appointment of vice-chancellors, deputy vice-chancellors, and academic pay and conditions are still in

control of the government. This could be improved by relying less on public funds where the government might have the right to regulate and oversee how these budgets are spent and keep track of their performance and holds them accountable.

## Appendices

### Appendix 1

#### Independent Sample t-test (Appointment)

|   |                             | Levene's Test for Equality of Variances |      | Test t-test for Equality of Means |        |                 |
|---|-----------------------------|---|------|-----------------------------------|--------|-----------------|
|   |                             | F                                       | Sig. | t                                 | df     | Sig. (2-tailed) |
| Appointment of VC/Presidents/Rectors        | Equal variances assumed     | 1.184                                   | .279 | 10.647                            | 124    | .000            |
|   | Equal variances not assumed |   |      | 9.549                             | 14.183 | .000            |
| Dismissal CEO                               | Equal variances assumed     | .133                                    | .716 | 7.488                             | 124    | .000            |
|   | Equal variances not assumed |   |      | 7.895                             | 15.330 | .000            |
| Appointment of Professors                   | Equal variances assumed     | 5.756                                   | .018 | 2.028                             | 124    | .045            |
|   | Equal variances not assumed |   |      | 2.490                             | 17.014 | .023            |
| Dismissal of Professors                     | Equal variances assumed     | 1.191                                   | .277 | .550                              | 124    | .583            |
|   | Equal variances not assumed |   |      | .581                              | 15.333 | .570            |
| Appointment of other Academic Staff         | Equal variances assumed     | 1.246                                   | .267 | .388                              | 124    | .698            |
|   | Equal variances not assumed |   |      | .420                              | 15.553 | .680            |
| Termination or discipline of Academic Staff | Equal variances assumed     | 14.891                                  | .000 | 1.576                             | 124    | .117            |
|   | Equal variances not assumed |   |      | 2.789                             | 27.505 | .009            |
| Academic tenure                             | Equal variances assumed     | 21.625                                  | .000 | 1.983                             | 124    | .050            |
|   | Equal variances not assumed |   |      | 4.267                             | 46.709 | .000            |
| Appointment or dismissal general staff      | Equal variances assumed     | 8.524                                   | .004 | 1.201                             | 124    | .232            |

|                             |                             | Levene's Test for Equality of Variances |      | Test t-test for Equality of Means |        |                 |
|-----------------------------|-----------------------------|---|------|-----------------------------------|--------|-----------------|
|                             |                             | F                                       | Sig. | t                                 | df     | Sig. (2-tailed) |
|                             | Equal variances not assumed |   |      | 1.507                             | 17.332 | .150            |
| Academic pay and conditions | Equal variances assumed     | 1.021                                   | .314 | 3.643                             | 124    | .000            |
|                             | Equal variances not assumed |   |      | 4.333                             | 16.597 | .000            |

## Appendix 2

### Independent Sample t-test (Academic Matters)

|   |                             | Levene's Test for Equality of Variances |      | Test t-test for Equality of Means |        |                 |
|---|-----------------------------|---|------|-----------------------------------|--------|-----------------|
|   |                             | F                                       | Sig. | t                                 | df     | Sig. (2-tailed) |
| Entry standards                                 | Equal variances assumed     | 1.620                                   | .206 | 2.846                             | 124    | .005            |
|   | Equal variances not assumed |   |      | 2.409                             | 13.877 | .031            |
| Methods for selection and admission of students | Equal variances assumed     | .015                                    | .904 | 2.002                             | 124    | .047            |
|   | Equal variances not assumed |   |      | 1.942                             | 14.678 | .072            |
| Quotas for minority group                       | Equal variances assumed     | .306                                    | .581 | .191                              | 124    | .849            |
|   | Equal variances not assumed |   |      | .229                              | 16.699 | .822            |
| Pass and failure rate                           | Equal variances assumed     | 1.471                                   | .227 | .132                              | 124    | .895            |
|   | Equal variances not assumed |   |      | .188                              | 19.723 | .852            |
| Discipline of students                          | Equal variances assumed     | 3.891                                   | .051 | -.725                             | 124    | .470            |
|   | Equal variances not assumed |   |      | -1.197                            | 24.157 | .243            |
| Methods of teaching                             | Equal variances assumed     | 3.829                                   | .053 | .869                              | 124    | .387            |
|   | Equal variances not assumed |   |      | 1.400                             | 23.252 | .175            |
| Methods of examination                          | Equal variances assumed     | 1.243                                   | .267 | .794                              | 124    | .429            |

|                                     |                             | Levene's Test for Equality of Variances |      | Test t-test for Equality of Means |        |                 |
|-------------------------------------|-----------------------------|---|------|-----------------------------------|--------|-----------------|
|                                     |                             | F                                       | Sig. | t                                 | df     | Sig. (2-tailed) |
|                                     | Equal variances not assumed |   |      | 1.147                             | 19.976 | .265            |
| Language of instruction             | Equal variances assumed     | 3.262                                   | .073 | -.121                             | 124    | .904            |
|                                     | Equal variances not assumed |   |      | -.200                             | 24.276 | .843            |
| Introduction of new teaching fields | Equal variances assumed     | 3.755                                   | .055 | -.210                             | 124    | .834            |
|                                     | Equal variances not assumed |   |      | -.333                             | 22.806 | .742            |
| Termination of teaching fields      | Equal variances assumed     | 1.200                                   | .275 | -.442                             | 124    | .660            |
|                                     | Equal variances not assumed |   |      | -.620                             | 19.354 | .542            |
| Entry standards of students         | Equal variances assumed     | .124                                    | .725 | 2.169                             | 124    | .032            |
|                                     | Equal variances not assumed |   |      | 2.018                             | 14.402 | .063            |
| Graduation Standards                | Equal variances assumed     | .021                                    | .886 | 1.710                             | 124    | .090            |
|                                     | Equal variances not assumed |   |      | 1.949                             | 16.099 | .069            |
| Standards in particular subjects    | Equal variances assumed     | .281                                    | .597 | 1.111                             | 124    | .269            |
|                                     | Equal variances not assumed |   |      | 1.191                             | 15.475 | .252            |
| Quality Audits                      | Equal variances assumed     | 1.249                                   | .266 | .767                              | 124    | .445            |
|                                     | Equal variances not assumed |   |      | 1.095                             | 19.710 | .287            |
| Accreditation of institutions       | Equal variances assumed     | .790                                    | .376 | 2.739                             | 124    | .007            |
|                                     | Equal variances not assumed |   |      | 2.490                             | 14.260 | .026            |
| Accreditation of courses            | Equal variances assumed     | .012                                    | .915 | 1.919                             | 124    | .057            |
|                                     | Equal variances not assumed |   |      | 2.053                             | 15.458 | .057            |
| To open Postgraduate studies        | Equal variances assumed     | .010                                    | .920 | 1.081                             | 124    | .282            |
|                                     | Equal variances not assumed |   |      | 1.097                             | 15.018 | .290            |
| Research Priorities                 | Equal variances assumed     | 3.376                                   | .069 | -1.112                            | 124    | .268            |

|  |                             | Levene's Test for Equality of Variances |      | t-test for Equality of Means |        |                 |
|--|-----------------------------|---|------|------------------------------|--------|-----------------|
|  |                             | F                                       | Sig. | t                            | df     | Sig. (2-tailed) |
|  | Equal variances not assumed |   |      | -1.575                       | 19.527 | .131            |
| Particular research topics                         | Equal variances assumed     | 2.481                                   | .118 | .155                         | 124    | .877            |
|  | Equal variances not assumed |   |      | .223                         | 19.849 | .826            |
| Approval of publications                           | Equal variances assumed     | .000                                    | .986 | -.439                        | 124    | .661            |
|  | Equal variances not assumed |   |      | -.435                        | 14.826 | .670            |
| Restriction on public statements by academic staff | Equal variances assumed     | 4.504                                   | .036 | -1.555                       | 124    | .122            |
|  | Equal variances not assumed |   |      | -2.454                       | 22.516 | .022            |
| Membership of governing councils of institutions   | Equal variances assumed     | 3.993                                   | .048 | -1.963                       | 123    | .052            |
|  | Equal variances not assumed |   |      | -2.776                       | 19.582 | .012            |
| Control of governing council                       | Equal variances assumed     | 1.847                                   | .177 | -2.305                       | 124    | .023            |
|  | Equal variances not assumed |   |      | -3.029                       | 18.057 | .007            |
| membership of academic boards                      | Equal variances assumed     | 6.742                                   | .011 | -1.359                       | 124    | .177            |
|  | Equal variances not assumed |   |      | -1.806                       | 18.264 | .087            |
| Control of academic boards                         | Equal variances assumed     | 6.826                                   | .010 | -1.498                       | 124    | .137            |
|  | Equal variances not assumed |   |      | -2.029                       | 18.612 | .057            |
| Control of student association                     | Equal variances assumed     | .692                                    | .407 | .478                         | 124    | .633            |
|  | Equal variances not assumed |   |      | .506                         | 15.359 | .620            |

### Appendix 3

#### Independent Sample t-test (Administrative and Finance)

|   |                             | Levene's Test for Equality of Variances |      | Test t-test for Equality of Means |        |                 |
|---|-----------------------------|---|------|-----------------------------------|--------|-----------------|
|   |                             | F                                       | Sig. | t                                 | df     | Sig. (2-tailed) |
| Student numbers                                 | Equal variances assumed     | .002                                    | .962 | .442                              | 124    | .659            |
|   | Equal variances not assumed |   |      | .439                              | 14.844 | .667            |
| Student numbers in particular fields            | Equal variances assumed     | .902                                    | .344 | .341                              | 124    | .734            |
|   | Equal variances not assumed |   |      | .381                              | 15.895 | .708            |
| Closure or amalgamation of institution          | Equal variances assumed     | 5.431                                   | .021 | -.088                             | 124    | .930            |
|   | Equal variances not assumed |   |      | -.151                             | 25.898 | .881            |
| University Rules and regulations                | Equal variances assumed     | .451                                    | .503 | -.256                             | 124    | .798            |
|   | Equal variances not assumed |   |      | -.308                             | 16.723 | .762            |
| Duration of academic year                       | Equal variances assumed     | .202                                    | .654 | 1.086                             | 124    | .280            |
|   | Equal variances not assumed |   |      | .956                              | 14.082 | .355            |
| Financial Audit                                 | Equal variances assumed     | 2.212                                   | .139 | -.775                             | 124    | .440            |
|   | Equal variances not assumed |   |      | -1.115                            | 19.887 | .278            |
| Preparation and allocation of university budget | Equal variances assumed     | 2.954                                   | .088 | -.895                             | 124    | .373            |
|   | Equal variances not assumed |   |      | -1.402                            | 22.283 | .175            |
| Approval of commercial or money making projects | Equal variances assumed     | 4.569                                   | .035 | -.090                             | 124    | .929            |
|   | Equal variances not assumed |   |      | -.138                             | 21.602 | .892            |
| Approval of major capital expenditure           | Equal variances assumed     | 1.418                                   | .236 | -.540                             | 124    | .590            |
|   | Equal variances not assumed |   |      | -.717                             | 18.225 | .483            |
| Level of tuition fees                           | Equal variances assumed     | 3.556                                   | .062 | -1.542                            | 124    | .126            |
|   | Equal variances not assumed |   |      | -2.400                            | 22.068 | .025            |
| Financial support to students                   | Equal variances assumed     | 3.035                                   | .084 | -.515                             | 124    | .607            |

|                |                             | Levene's Test for Equality of Variances |      | Test t-test for Equality of Means |        |                 |
|----------------|-----------------------------|---|------|-----------------------------------|--------|-----------------|
|                |                             | F                                       | Sig. | t                                 | df     | Sig. (2-tailed) |
|                | Equal variances not assumed |   |      | -.817                             | 22.675 | .422            |
| Accountability | Equal variances assumed     | 3.917                                   | .050 | -.504                             | 124    | .615            |
|                | Equal variances not assumed |   |      | -.656                             | 17.886 | .520            |

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## Conference Paper

# An Empirical View on Ethical Values and Moralism of Public Bus Service in Kuantan

Diyana Kamarudin<sup>1</sup>, Mohammad Fitri Idrus<sup>2</sup>, Siti Aisyah Ismail<sup>2</sup>, and Shariman Mustafa<sup>1</sup>

<sup>1</sup>Faculty of Business Management, University College of Yayasan Pahang, Taman Gelora Campus 25050 Kuantan, Pahang, Malaysia

<sup>2</sup>Faculty of Industrial Management, University Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

Ethics is a discipline dealing with a set of rules, principles, and beliefs used to judge the value of human actions. Ethics are relevant in the transportation sector because of the diversity and the social relevance of its effects, both positive and negative. Ethics in Business is nothing but the do's (good things and honest activities) and don'ts (bad things, cheating, bribe, duplicate products) by the marketers in the business. There should be business ethics, meaning that the business should be conducted according to certain self-recognized moral standards. Most of the government agencies have very strict conduct of rules and moral standard on which the entire functioning is hovering and most of the time customer gains the benefits. In order to protect the public and company interest, the practice of professionalism in bus services should be practiced. The objective of this research is to analyse the ethical issue in Rapid Kuantan bus service. The study utilizes informal interview toward operation and bus control centre staff and observational as its methodology. Four dimension of different cases discussed in this paper to see the relation of action taken and its relation with the said elements. In this study, the expected outcome is high ethics and morality is a vital value and characteristic that lead to the trusted and effective of bus services.

**Keywords:** ethics, transportation sector, moral standard.

Corresponding Author:  
Mohammad Fitri Idrus  
mohdfitri.idrus@gmail.com

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Numerous factors influence the quality of public transport. Nowadays, the ethical elements of the job of professional drivers are becoming increasingly important. Reviewing the determinants of this group's conduct therefore seems suitable. These determinants were presumed to rely on both the driver himself and his working environment. Therefore, it has been pointed out the reasons and implications of the moral dilemmas that arise owing to the disputes between the individual and the organization.

Ethics is seen as the personal attitude of a person and faith in what is correct or wrong. What is correct or wrong is a personal matter, but it is still affected by socially

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accepted norms. It reflects a judgment of conduct towards individuals they thought were just. Ethics are helpful instruments within complicated human interactions to sort out the good and bad. Company operation in good faith could be referred to as a set of values and guidelines. Business ethics should exist, which means the company should be carried out following certain self-recognized moral norms. Most public offices/agencies and renowned organizations have very rigid laws and moral standards on which the entire functioning is benefiting most of the time user/customer.

Business ethics gives the organization a lot of goodwill that will translate into tangible advantages in the long run. Current business functional circumstances, particularly service firms, require them to produce suitable conduct towards a more challenging customer. The same applies to the transport of passengers.

Passengers want public transport operator to provide high-quality service. The ethical elements are partially linked to the norms in businesses or industries, but also to the workers' inner attitudes about what's correct when it comes to the job.

This paper will present to look at cases from 4 different dimensions (Refer to Table 1) specifically in the bus service point of view. The cases will be examined through the legal and rules views, and on the other hand highlighting the ethical dimensions above the act.

TABLE 1: Different Scenarios of Bus Service.

|        | <b>LAW AND REGULATION</b>   | <b>ETHICS</b>  |
|--------|---|--|
|        | RIGHT - RIGHT   |  |
| CASE 1 | Passenger pay fare when enter the bus                                       | Bus driver will print out the ticket                       |
|        | RIGHT – WRONG   |  |
| CASE 2 | Passenger at the bus-stop waving at the bus driver to pick up               | Bus went straight past without even slowing down           |
|        | WRONG - RIGHT   |  |
| CASE 3 | Passenger did not prepare exact fare  | Bus driver allow passenger on board                        |
|        | WRONG – WRONG   |  |
| CASE 4 | Passenger press bell and inform bus driver to stop at their nearby location | Bus driver did not stop bus at approve designated bus stop |

The objective of this research is to analyse the ethical issue in Rapid Kuantan bus service. Bus drivers must comply with the laws and regulations at all times. They are anticipated to fulfill their duties and obligations to provide the passenger with excellent service. Legal and ethical concerns are some of the most significant problems facing the bus driver profession. Cases of non-observance of the law can seriously damage the reputation and trust of the public and bus operations

## 1.1. Background of the Cases

### 1.1.1. Right / Right

It should be a normal practice of an organization to exercise morally right actions for morally right motives or intentions. This ethical action is acceptable in all organizations and all religious in the world. This view is permissible because it would harm others either physically or emotionally.

### 1.1.2. Right / Wrong

This dimension shows that the organization is doing unjustifiable and unfair actions. Doing something right but with a wrong condition is unacceptable morally and ethically.

### 1.1.3. Wrong / Right

Wrong right dimension magnifies the situation that the organization is doing an immoral thing for the right motives or intention. This ethical behavior also not acceptable as it could harm other person either physically or emotionally.

### 1.1.4. Wrong / Wrong

Wrong wrong dimension would be critical to an organization. If they have done this to either of their staff or customer, it will affect their organization in whole operation and management. Both action and their motives and intention would be ethically immoral.

## 2. Literature Review

### 2.1. Public Bus Service in Kuantan

Prasarana Malaysia Berhad is the country's leading players in offering facilities of public transport. The research of bus commuting behavior is essential with different kinds of transportation managed by Prasarana Malaysia Berhad. Rapid Kuantan is one of Prasarana Malaysia Berhad's bus operating subsidiary that serves bus shuttles specifically in Kuantan city.

Kuantan is the capital of Pahang State, Malay Peninsula's biggest state. Over 400,000 individuals live in Kuantan; making it the biggest town in eastern coast Malaysia. In Kuantan, only Rapid Kuantan presently provides the stage bus service.

The government gives the company a legal monopoly where it has exclusive rights to offer the service of stage buses. The benefits of having a monopoly phase bus operator are that there will be no overlapping schedule with other carriers and broad area coverage, meaning that the operator cannot select the region with higher demand, it has to serve all regions fairly.

Rapid Kuantan presently runs a fleet of 69 buses of the Scania K-series and a total of 16 routes. At the early phase of operation, Rapid Kuantan implemented 32 air-conditioned, GPS-installed buses with ergonomic characteristics to accommodate disabled passengers (with normal wheelchair room, a boarding device for wheelchair users to get on and off, priority seats, handrails, color contrast and simple bell pushes).

## 2.2. Morally Right or Wrong Actions

Actions can be assessed in different ways. We can do this in two distinct ways when we assess them from the moral point of perspective. We can find them morally correct or incorrect, but we can also judge them morally good or bad. Both assessments are logically independent of each other, and David Ross was definitely correct in pointing out that a clear difference between morally correct and morally goodwill do much to remove some of the perplexities of our moral thinking (Ross, D., 1930).

The opposition between teleology (consequentialism) and deontology has dominated the study of correct and incorrect action. The right-making characteristics of actions are only their implications, according to teleologists. Deontologists have rejected this, insisting that an action can be correct or incorrect in itself. Despite their disagreement over the right-making variables, the teleologist and deontologist will agree that if performed for the former purpose, the action is morally bad, but morally good if achieved from the latter. (Ross, D., 1930).

## 2.3. Motives

Most philosophers would look at the motives of a person as factors that contribute to their actions, whether it be morally good or bad. Some philosophers would say that the motives are the only relevant factors for an action's moral worth. Some philosophers might argue that moral evaluation is important, but not as exclusively relevant

(Brandt,1996). The motives are seen as important for the morality of certain actions. If a person spends their money in order to help innocent civilians in a war-torn country, her motivation tends to make her action morally good. But if a person decided to spends their money only because they see it as a lucrative investment, then their action may be prudent but it would not be seen as morally praiseworthy. Moreover, if someone turns his radio up only to disturb his neighbor, he will be rightly blamed, but if he does this only because he likes loud music, his action is less blameworthy, even though not entirely morally flawless (Blum, 1980).

## 2.4. Intention

The intention of a person's action is often not distinguished from their motives. Both of these concepts are related but they are not identical (Bennet, 1995). If A puts poison into B's coffee with the intention to kill him, his motive may have been the hope to inherit B's wealth. Intentions are also relevant to the moral worth of our actions. Oedipus intentionally killed an older man but unintentionally it is his father. If he had killed his father intentionally, then we would judge his deplorable action differently. However, since the arguments put forward to show the moral relevance of intentions are not substantially different from those referring to motives, it is not necessary to treat intentions here separately (Smith, 1994).

## 2.5. Emotions

Emotional reactions heavily influence a person's moral evaluations. As human beings with emotions, we tend to judge a person condition more negatively when we are pleased about someone's harm than when we feel sorry for them. However, emotions also affect the evaluation of the moral worth of actions (Broad, 1985). If somebody does not help an injured person out of fear of doing something wrong, this emotion is an excuse for his omission. His behavior is therefore less blameworthy; and from this it follows that an emotion such as fear influences the morality of our behavior. Also, emotions also affect our thinking (Oakley, 1992). If a person is angry, she may interpret a situation differently than she would have had she been relaxed. For example, if in a moment of anger some-one considers a person's request as an impertinence and gives her therefore very short shrift, her behavior can be partly excused by referring to her emotional condition. This shows again the effect of emotions on the moral evaluation of actions. However, emotions are not part of our character; they are a component of our

personality (Pervin, 2000). If we were to determine the basis on which we evaluate a person's actions as morally good or bad, we must therefore refer to the broader concept of personality which includes, character and emotions.

## 2.6. Muslim Views on Ethics

If God orders an action because it is correct, then the rightness and wrongness of the action reside in its very nature as an action, and we humans can learn for ourselves in principle whether it is correct or incorrect by using our reason to evaluate the action. The role of God's command in that situation is to give power and clarity to the voice of our conscience, in particular by pointing to the ultimate reward or penalty that our activities deserve.

An action is only correct because God commands it, and incorrect only because God forbids it, then by using our powers of reasoning we cannot learn for ourselves what activities are right or wrong by evaluating the nature of the actions, but instead we merely have to depend on learning from God's mouth what his command is. We do not have a conscience until we hear the order of God.

## 3. Methodology

This paper is a conceptual paper to discuss a few actions that have been done in an organization which could be the morally right or morally wrong action. The author used his experience and knowledge during working with the organization and made some observations to the actions been directly and indirectly exercised by the organization. Then he will use to analyse the reason and relation to ethical and moral behaviour.

## 4. Finding and Discussion

### 4.1. Right – Right Action

| RIGHT – RIGHT |   |
|---------------|---|
| CASE 1        | Passenger pay fare when enter the bus      Bus driver will print out the ticket |

Rapid Kuantan bus accepts cash for payment of fares. Once boarding the bus, the traveler must drop money in the farebox beside the driver. The ride must be paid immediately after entering the bus. Fare boxes accept banknotes and coins, but change is not available. Bus drivers will select the fare amount and print out paper receipts as

tickets using electronic ticketing machine. Traveler must keep ticket safe, undamaged for the duration of the journey for inspection purposes. If cannot present a ticket on request, the passenger may be asked to pay another fare. For ticket inspection, the ticket inspector will check the boarding stop, date and time and fare amount printed on the ticket. Inspector will ride the bus regularly for all routes to eliminate the pilferage cases

In the most cordial way, cash and tickets should be handed over. Without a ticket as evidence of being a fare-paid passenger, it may be difficult for those who suffer injuries in a bus to file a suit or making a claim later. As such, the ticket not only supports bus services but also confirms that holders are insured under the cover for “passenger’s legal liability”.

#### 4.2. Right – Wrong Action

|        | RIGHT – WRONG  |   |
|--------|--|---|
| CASE 2 | Passenger at the bus-stop waving at the bus driver for pick up | Bus went straight past without even slowing down and stop |

Waiting passengers should be created into a group at appropriate points on most urban paths where the quantity of traffic is sufficiently large. A sign on a pole or passenger shelter should indicate these. By approaching drivers, the signs should be obviously noticeable and ideally illuminated at night. Passengers must inspect the route/destination signage at the front of the bus. As the bus approaches, send a signal to the driver by holding arm high in the air

It is frustrating to be passed on, particularly when it rains outside. It may be because the driver did not see obviously or the bus was out of service if the bus did not stop. Passengers must make sure that at the bus stop they are obviously noticeable to the bus driver, wave or lift hands to the driver is advisable. At designated bus stops, bus drivers can only pick up or drop off passengers. Wear light-colored clothing or reflective strips during dark periods to make yourself more visible. If you can, if you stand up, move or wave as the bus approaches, it is useful to the bus driver.

One of the reasons the driver hasn’t stopped because the bus is complete and overcrowded to pick up passengers because it’s late, causing travelers to wait behind for another bus. The driver doesn’t stop sometimes because the bus isn’t in service. There is signage on the front of the bus that says “Not in Service,” which means that the bus is not in operation or the bus driver in training and it won’t stop picking up passengers. The driver may also have inadvertently missed a bus stop. When this occurs, passengers

can complain by calling the operator Bus Control Center and providing data such as route, date and time and a number of the bus plate so that the Operator can conduct investigations. If the outcome of the finding is deliberately missing the stop, the bus driver will face the disciplinary action.

### 4.3. Wrong – Right Action

|        | WRONG – RIGHT   |                                     |
|--------|---|-------------------------------------|
| CASE 3 | Passenger did not prepare exact change and pay correct fare | Bus driver allow passenger on board |

Passengers must pay the fare onboarding the car in accordance with the law and they must be ready at the precise fare required as the riders do not bring the change. The more prepared, the easier it will be for drivers to rapidly pick up passengers and maintain up with a timetable. A passenger refuses to pay or is unable to pay the fare in some cases.

Suppose the driver won't let the individual go on the bus or get them off. They can't remove the individual physically, but they can stop the bus and refuse to move until the individual gets off or the authorities appear. Bus operators are told not to confront and allow the unpaid passenger to ride. There are also moments when the ticketing machine breaks and is not going to collect cash or issue the ticket. Sometimes, if only a few cents are short, the driver will just take whatever changes passenger has made and let the passenger remain on. Sometimes there are drivers letting people who looked like they really needed the help, and honestly they couldn't afford the bus fare. The guideline is that in a professional way the operator should ask for the fare. Otherwise the driver will take the information about the passenger and they will be requested to pay within three working days. Public bus is a social service, and the bus must be accessible and safe for passengers to ride. Maintaining service appears to be a priority rather than collecting tariffs.

### 4.4. Right – Right Action

|        | RIGHT – RIGHT   |  |
|--------|---|--|
| CASE 4 | Passenger press bell button and inform bus driver to alight | Bus driver stop bus at approve designated bus stop |

In most countries, allowing buses to stop only at designated stops in urban regions is common practice. There are designated stop-over zones where passengers can take



off or board a bus. However, a lot of controversies has been raised when it comes to bus drivers letting their passengers off outside the specified stopping fields. Bus drivers that fail to follow this fundamental traffic regulation will jeopardize the life of a passenger.

Bus stop location includes a number of factors, including those that affect bus passengers and other road user's security and comfort. Ideally, stops should be selected through consultation among all interested parties, including road authorities, bus operators, police and potentially passenger officials.

Sometimes travelers may request drop-offs at a place near their home but this request should be declined owing to security reason bus driver. Simply put, enabling bus drivers to discharge passengers in undesignated stopping fields not only endangers other people's lives, but it can also lead to significant traffic issues.

By dropping passengers off outside the specified stopping fields leads the bus drivers to breach the traffic laws. If they do, their activities that jeopardize the safety of their travelers and the public should be held responsible. Making exceptions or giving way to private or selfish request will only generate a ripple effect on the busy highways of the city that will lead to chaos. Bus drivers effectively block other cars when offloading passengers in unauthorized regions and cause an enormous traffic jam.

## 5. Conclusion and Implications

The right and wrong ethics is clearly identified within the organization action. If the action would do harm to the other person or organization, it would be classified as immoral or wrong actions. On the other hands if the action is good either the action and the result of the action, it will be classified as a right or morally right actions. In normal life, if a person did something immoral, he or she should ask for forgiveness from the person they have done wrong and from God. But if the organization did something immoral, they should have asked for forgiveness by doing a charity to society. It is a normal situation that a person could do morally wrong action because the decision making is done by himself or herself. An organization on the other hands, shouldn't have done immoral actions as they were managed by a group of people. The decisions were being made in a meeting and monitored by all members of the organization.

These findings indicate that to mitigate worker fraud, powerful religiosity is essential. The opportunity to commit such fraud should be reduced in order to minimize employee fraud through strong internal control and reduced negative rationalization. A better general organization may create a mixture of high moral value and religious. Religiosity is negatively linked to worker fraud. By contrast, all three elements of the fraud triangle

hypothesis, namely pressure, opportunity, and rationalization, are positively associated with worker fraud (Said, Alam, Karim, & Johari, 2018).

## Acknowledgement

The author would like to thank the bus passengers in Kuantan for facilitating this study. Special appreciations are dedicated to the management Rapid Kuantan operations for assisting information collection, cooperation and their warm welcome.

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## Conference Paper

# An Empirical View of Business Ethics on Private College in Kuantan: A Case Study

Diyana Kamarudin<sup>1</sup>, Haziman Zakaria<sup>2</sup>, and Azizan Azit<sup>1</sup><sup>1</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia<sup>2</sup>Faculty of Management, University College of Yayasan Pahang, Taman Gelora Campus 25050 Kuantan, Pahang, Malaysia

## Abstract

Private institutions in Malaysia are bound to the Private Higher Institution Act 1996, normally relies on corporate investment to sustain their operations. Data from Department of statistic Malaysia show that there is a significant incensement of gross output value in the education sector in Malaysia from RM 17.6 billion in 2017 compared to RM 15.2 billion in 2015 which reflect the business competencies in private institution (Ministry of Education Malaysia, 2015). In this research, a case study will be conducted at one of the private colleges in Kuantan, Pahang. The aim of this research is to analyze the ethical issue regarding business ethics using a semi-structured interview method with college staff and students. The interviews were recorded and transcribed. Each case would be analyzed, discussed and the cases would be related to the business ethics concept and ethical principle. This study aims to create good moral value and business ethics that can be practiced in the private education sector in Malaysia.

**Keywords:** business ethics, private institution, ethical principle.

Corresponding Author:

Haziman Zakaria  
haziman@zoho.com

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Higher Education Institutions (HEI) in Malaysia can be divided into two major categories which are Public higher education institution and private higher education institution. Public Higher Education Institutions refer to public universities and colleges that are funded by the government- which is considered to be under the Ministry of Education. Institutions such as this help provide quality education to Malaysian students and are categorized into three major groups; Research Universities, Focused Universities and Comprehensive Universities (Ministry of Education Malaysia, 2015). Private Higher Education Institutions refers to universities and colleges that are privately owned and rely on corporate investment, alumni and student funding under the Private Higher Educational Institutions Act 1996 to help sustain their operations (Laws of Malaysia, 2015). Some of these institutions' establishment work together with legitimate remote colleges to mutually grant degree capabilities.

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All private-subsidized advanced education organizations go under the locale of the Ministry of Education and include Private Universities which grant their own degree capabilities, recognitions and establishment thinks about, Private University-Colleges which grant their very own degree capabilities, confirmations and establishment examines, Foreign University Branch Campuses which grant their very own degree capabilities, confirmations and establishment studies and Private Colleges which grant their very own capabilities at recognition and authentication levels just as 3+0 degrees, split-degrees and instructional exercise support for expert capabilities (Wan, Sirat, & Razak, 2018).

This case study will review ethical values, moralism and integrity of a private college located in Kuantan based on the ethical principles. The evaluation conducted was based on semi structured interview conduct toward college staffs and students. The college has around 294 academic and support staff and run a various program from diploma to master program.

There are three objectives for the case study:

1. To study the ethical behavior and cases in four different ethical component setups;
2. To understand and related the ethical cases with ethical principle;
3. To analyses the implication of ethical action toward their organization.

## 2. Literature Review

### 2.1. Basic Principle of Ethics and Business

Ethics is the study of morality which is defined as a rule that an individual or a group of people has about what is good or evil, or right or wrong. In the business perspective, ethics has been seen as a moral standard that measures a business, institution and organization's behavior (Trevino & Weaver, 2013).

There are three types of ethical issues that are normally concerned in a business, which is systemic, corporate and individual. Within where a business organization operates, the systemic ethical issue normally will question an organization's economic system, legal, politic and social. The corporate ethical issue will question a particular organization's actions, impact, climate, culture and policies. Apart from that, the individual ethical issue will raise a question about a specific personnel character, behavior and decision (Trevino & Weaver, 2013).

## 2.2. Utilitarian Principle

Utilitarianism promotes any policies or actions to be judged based on the cost and benefits of the actions towards society. From the list of the utility alternative in any situation, the greatest utility will be considered as the only moral right action. Some of the famous utilitarian theorists are Jeremy Bentham; Bentham's Theory of Legislation (1932) and John Stuart Mill; Utilitarianism (1863) (Byars, Stanberry, & OpenStax College, 2018).

There are also some critics on the utilitarian principle which states that not all values can be measured as utilitarians consider monetary and common sense can measure everything. There also critics that said right and justice will not merge with utilitarianism principle.

## 2.3. Kant and Moral Right Principle

The concept of right can be defined as an individual's consent to do something. A right concept can be divided into two types which are legal right and moral right. A legal right is a consent from a legal system that empowers a person to act in a specific way towards others and vice versa. Another one is moral right where right that been accepted in the society which follows the norm of the virtue of human beings (Byars et al., 2018).

Kant and moral right principle refer to an individual's interest in general which cannot be halt and should be left equally free. The interest should be a right and the interest needs to stay rational and free.

Some critics towards Kant principle are that they are imperative and unclear. When we talk about right, their definition of right is subjective which can bring to conflict and Kant's principle cannot address such conflict. Besides that, Kant's principle can easily entail in moral judgment that is mistaken.

## 2.4. Libertarian Principle

Libertarian philosophy asserted that freedom is necessarily good when it contacts with human constraint and all constraint placed by others are necessarily evil except when needed to prevent intrusion from larger human constraint. Robert Nozick in 1974 said that the only moral right is the negative right to freedom and the right to freedom require social welfare program that needs to be found by eliminating taxes, freedom of contract, free market and private property (Trundle, 2012).

Justice can be divided into three categories which are distributive justice, retributive justice and compensatory justice. Distributive justice requires the just distribution of burden and benefit. Retributive justice required the just imposition of punishment and penalties. Lastly compensatory justice requires just compensation for wrong and justice.

## 2.5. Ethics of Care

Ethics of care emphasize that ethics should not be impartial and must be nurturing and preserving the concrete value of the relationship. The ethics of care falls under the normative ethical theory which states that moral action centers on interpersonal relationships and views the act of care or compassion as a virtue. Ethics of care is one of a cluster of normative ethical theories that were developed by feminists in the second half of the twentieth century.

There are some critics on ethic of care which it can degenerate into favoritism. Besides that, it will lead to “burnout” which will acknowledge the need for a caregiver to care (Jeurissen & Rijst, 2007).

## 2.6. Moral Virtue Principle

Aristotle in his book *Nicomachean Ethics* in 1566 said that virtue is a habit that enables a person to respond by habitually choosing the mean between extremes in emotion and action. Aquinas in his writing of *Summa Theologica* in 1217 in general said virtues are a habit that enables a person to live reasonably in this world and be united with God in the next. MacIntyre in his book *After Virtue* in 1981 define virtue as a disposition that enables a person to achieve the good at which human “practice” aim. Lastly Pincoffs in 1971 said that virtue is dispositions we use when choosing between persons or potential future selves (Byars et al., 2018; Salehi, Saeidinia, & Aghaei, 2012).

Some critics toward virtue theories are inconsistent with psychology which showed that behavior is determined by the external situation, not moral character.

## 3. Methodology

Business ethics is a study of moral right and wrong that focuses on an organization. When describing what to be covered within an organization in studying business ethics, there many issues that can be covered. Usually, business ethics studies will be divided into three main categories which are a systematic issue, corporate issue and individual

issue. On the other hand, for this study, the issue will be selected according to four different categories based on moral and legal right or wrong.

The informal interview was held to gather experience and perspective of the college staff toward ethics, morality and integrity from college staff and student and all case study was recorded. The case study was then classified into four different dimensions as shown in Figure 1. The best-case study from each dimension then will be selected and discussed from a theoretical point of view.

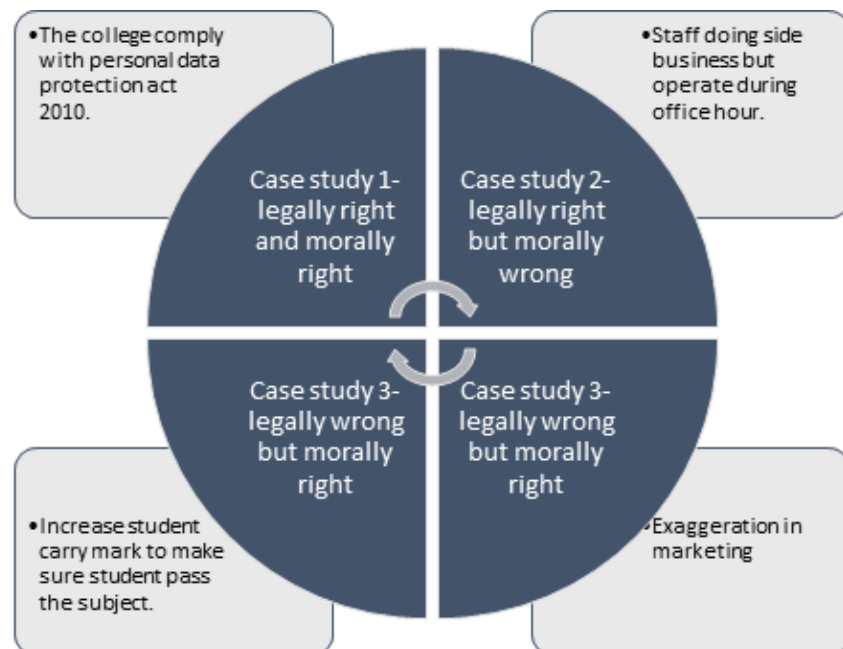


Figure 1: Case Study Component (Source: Authors' own work).

The research is a qualitative research method which is based on the unquantifiable or non-numerical aspect for example opinion, or felling. Research design is based on exploratory case study research design. The aim of this study is to explore business ethics in a private university environment without an attempt to find a conclusive answer to research objectives. Unstructured interviews were conducted. The minimum 20 sample size is set as nature of study are based on the grounded theory where non-probability data sampling is used.

## 4. Finding and Discussion

### 4.1. Legal Right and Morally Right Case Study

Personal data is any information that relates to an identified or identifiable living individual. Different pieces of information, which are collected can lead to the identification

of a particular person and constitutes personal data. The purpose of personal data protection is to secure the essential rights and freedom of an individual that is identified with that information. On the other hand, securing individual information it is conceivable to guarantee that people's rights and freedom are not violated. For example, incorrect processing of personal data, might bring about a situation where an individual person is overlooked for a job opportunity or, even worse, loses his/her current job. Next, personal data guidelines are essential for guaranteeing and customer friendly toward the provision of service. Personal data protection can create a circumstance, where, for instance, personal data cannot be sold to any party and thus an individual has greater control over who makes him an offer and what kind of offer is being made.

According to the Personal Data Protection Act 2010, there are four main policies namely data collection, sharing and use of data, application of the privacy policy and changes/amendment. The college will not gather any customer identifiable personal information except for information given itself by the customer through message or email. When a customer provides personally identifiable information, the data will be shared when necessary, with the Malaysian government, government authorities, government agencies and other relevant authorities for a reason to serve the customer in the most competent and effective manner only. Other than that, the information also may be used by the college for the purpose of handling complaint, registration, internal audit, an audit by relevant authorities and other matter involving the college. The privacy policy is only applicable only on the college and there may a different and additional policy on different department or faculty. Customer is advised to check regularly as the college can make a change or amendment toward the policy.

Every individual should maintain their right regardless of their skin color, race and religion. The college should protect a student's personal data given to the college for academic purpose and the college has a moral obligation to use their student's data only for academic and internal purposes only. This case is related to the concept of right and duty. Right in general is an individual's entitlement to something and in this case, it is the student's right to know how their personal information that has been given to the college has been utilized. Specifically, this case can be related by contractual right and duties. This principle is also called special obligation or special right and duties. Contractual right and duties principle is defined as the limited right and correlative duties that arise when one person enters an agreement with another person. The student acquires a contractual right to whatever the college has promised, and college has a contractual duty to perform as what it has promised.



## 4.2. Legal Right and Morally Wrong Case Study

For this section, the selected case is staff doing side business but operate during office hour. First, we cross-check with the law either someone who already works with an organization can engage in other business or trade. Based on the Malaysia Bar council for example, section 12.01. (2) said that; 'An Advocate and Solicitor who is a legal assistant may engage on a part-time basis in a business or trade that is in the opinion of the Bar Council not incompatible with the dignity of the legal profession, provided that it does not infringe his/her full-time employment by an Advocate and Solicitor or a firm of Advocates and Solicitors in accordance with section 30(1)(b) of the Legal Profession Act 1976.' (The Malaysia Bar council, 2014). Based on that policy there is no restriction for a person to register and conduct a side business. It just a matter of how the personal responsibility toward their real job.

In this case some student reported during the academic section, there is some stuff promoting and sell their side business product during class. Morally, its wrong act because the staff should not mix their full time working with their business. Them should maintain their professionalism as academicians and smart to manage their time. It is not wrong to promote their side business product or service to co-worker and student but it morally wrong to do it during class section as they are being paid to teach not selling or do other things.

Next will be discussed is on the ethical principle point of view on staff doing side business but operate during office hour. It is not wrong to own a side business but it morally wrong when someone more focus on their side business plus worst when they promote or doing the business during main working hours. For this case we cannot assume that is wrong as there is an ethical principle that supports this behavior which is libertarianism principle on justice as freedom. There is no particular way of distributing goods can be said to be just or unjust apart from the free choices an individual make. Any distribution of benefits and burden is just if it is the result of individuals freely choosing to exchange with each other the goods each person already own. Related to the case, for what the staff chooses to do for example selling cookies, then the staff should be allowed to sell the cookies anywhere and anytime if the staff want to. This principle stress on every person has a right to freedom coercion that takes priority over all other values and rights.

### 4.3. Legal Wrong and Morally Right Case Study

For this section we will discuss on case study that both are legally and morally wrong. Based on interviews, most lecturer faces a dilemma related to students' grade. Most of them admit that they have added at least one mark to increase a student's carry mark to make sure that the student passes the subject they teach. This situation happens normally when some student received a marginal pass grade. It's always a question for the lecture; if one of your students got a marginal passing grade, would they let him/her pass?

There is a huge debate about this problem, and it depends on the situation at that time. But in general, this kind of act is legally wrong because to pass, the student should obtain marks more than the college's passing grade. It is also morally wrong if the lecturer passed the student because of favoritism or empathy, but the student should fail as the student has missed classes and do not submit their assignments.

For this case, depending on the course being lectured. For example, a language course, or a literature course is different from a Calculus course or Mathematics or Physics course. Calculus course is normally considered as difficult, and for this type of course, in the authors' opinion, marks can be added to students obtaining a marginal pass to assist them to pass the course. The attitude of students during the whole semester, his/her interest in learning in the class and the attention given to the professor on his/her lectures and practical classes during the semester should also be considered in assisting students with a marginal pass to pass the course.

It is related to the first factor that is the difficulty level of the course such as calculus. If the student has given full commitment during class thus its morally okay to help the student due to their effort. Lecture judgment also effected by the student result on partial tests carried out during the semester and the level accomplished of all of the students' duties and the number of times that the student disapproved other classes on the same or related subject. Lastly another factor that may affect lecture judgment are influenced such an act is the year where the student is. Is not the same if the student is in his or her first year of his or her career or the student is close to being graduated.

In business ethic point of view, the case was when the lecture increase student carry-marks to make sure student pass the subject. As elaborated earlier in the previous paragraph above we will view this case on student situation supposedly need to help. The most suitable principle related to the case is the ethic of care. Ethics of care need to be impartial, unlike conventional ethical principle which assumes ethic has to be impartial. This principle stress on someone should be care for those dependent on and

related to us. For a case study on certain situation the student mostly dependent on care from the lecture for example the student already on the final semester and to pass the paper is necessary which fail to do so the student need to extend their study time which related to their financial problem.

#### 4.4. Legal Wrong and Morally Wrong Case Study

Advertisements should not be framed so as to abuse the trust of the consumer or exploit his lack of experience or knowledge, is one thing in code in The Malaysian Code of Advertising Practice by The Advertising Standards Authority Malaysia to avoid Exaggeration in marketing (Standards & Damansara, 2014). The Advertising Standards Authority Malaysia is the independent body responsible for ensuring that the self-regulatory system works in the public interest. The ASA's activities include investigating complaints, mediating and providing copy text advice on your advertising(advertisement).

As private university mostly relies on student's enrollment to sustain is operations, they should not take advantage to do an exaggeration in marketing to motivate students to join their college. This act is clearly legally and morally wrong. In most cases, the marketing team often give incomplete information about the program offered to student especially on the student loan and scholarship. The worst case is when some of the students have been approached to enter the program and there is a promise to offer student loan but all is done verbally. When the student does not obtain the loan, nothing can be done as the discussions are done verbally.

For the case of exaggeration in marketing in business ethic principle, this kind of activity is unacceptable but in ethic principle point of view there is some principle that supports this kind of activity. The most suitable principle to relate with this kind of case is Utilitarianism principle. Utilitarian promote actions should be evaluated on the basis of the benefit and cost they produced for everyone in society. The academic institution is the place to nature education to society. On the other hand the college hardly depends on the student enrollment to sustain the business. Thus, it may be considered okay for the college to a litter bit of exaggeration in their marketing as long their business can sustain and provide education services to all the student enroll.

### 5. Conclusion and Implications

In conclusion, ethical behavior and organization sustainability is related to one and another. From the four different cases of legally and morally different setup, there is

a related ethical principle that we can be related to that act. In business the practice ethical principle uses can justify some action that may be in general the society sees it as wrong, but justification can prove it differently. For example, the principle of utilitarian approached in some moral decision making in some makes it can neglect the morally wrong action as it considers will bring impact toward the cost of the organization if been abolished. For further research it is recommended that the case study is analyzed deeper using proper research design and statistical analysis. Other than that, integration between various approached needs to study toward moral evaluation.

The implication that may happen to college organization if they take action to improve their organization business ethic based on the cases disused are first the college employee will not feel okay to by-pass established protocols in order to be more efficient or effective at work. Besides that, the college will try to do business that will not deceive customers. The college employee will avoid conflicts of interest by not advancing their interests over those of the company. Next the college management will improve awareness and protection of the claims and rights of people in the community served. Other than that, the college management will provide training programs that effectively communicate ethical standards and policies. Lastly, the ethics committee or team that deals with ethical issues in the organization will be created and the code of ethics and SOP regarding the ethical issue will be created.

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## Conference Paper

# Decrypting the Real Life Escape Room Experience

Lim Qian Pink, Mohd Ridzuan Darun, and Gusman Nawair

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

An escape room is a game that requires a group of players to solve a variety of tasks within a given amount of time in order to fulfill a specific goal, typically escaping a locked room. Despite gaining tremendous popularity of the game in Malaysia, there is no study being conducted in this area. Existing customer experience frameworks offer a limited explanation of this rising phenomena due to the unique inherent nature of Escape Room. Towards this end, the present paper aims to identify the key constructs of Malaysian Escape Room customer experience and determinants of the players revisit intention with respect to the Escape Room. The research is conducted on 20 players who have played at least one game in any Escape Room establishment in Malaysia. This study adopts the sequential incident technique, a qualitative approach to unearth the hidden perception of players. Thematic analysis was subsequently used to analyse the data which revealed fifteen determinants of which 9 are related to the model of goal-directed behaviour. Our research contributes to the body of knowledge in mapping customer experience in this fair nascent industry. Insights from this study are aimed at benefiting Malaysian Escape Room business operators in designing and enhancing the customer experience in their escape rooms.

**Keywords:** escape room, customer experience, sequential incident technique, goal-directed behaviour

Corresponding Author:

Lim Qian Pink  
qianpink87@gmail.com

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

The delivery of experiences has become a theme of growing importance in businesses strategy development and management (Heinonen, Campbell, & Lord Ferguson, 2019; Kandampully, Zhang, & Jaakkola, 2018). The impact of globalization and the IT revolution has significantly influenced consumption behaviour evolving it from being utility-driven to become centered on consumer experience. As such, consumers constantly crave for innovative offerings that not only fulfill their needs but also provide them with fresh experiences which are memorable and relatable to them (Collier, Barnes, Abney, & Pelletier, 2018). Given the significance of customer experience in business development,

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a wide range of conceptual frameworks in this area have been developed (Følstad & Kvale, 2018; Jain, Aagja, & Bagdare, 2017; Nasution, Sembada, Miliani, Resti, & Prawono, 2014). While studies on customer experience frameworks are in-depth, there are still substantial research gaps in the field of contemporary tourism, which require the further attention of researchers. Most of the studies are dedicated to augmenting traditional service industries namely retail, banking and traditional tourism whereas new and non-traditional attractions are neglected such as game-induced tourism (Dubois & Gibbs, 2018) and urban tourism (Novy & Colomb, 2019). One example of these neglected niches is the now burgeoning Escape Room industry.

The Escape Room game is a live-action, team-based game where players are required to conduct multiple tasks (mainly solving numerous puzzles) to escape from a locked room within in a limited amount of time (Nicholson, 2015). This form of reality game has taken the world by storm since its inception in Japan back in 2007. Originating from a video-game concept, the Escape Room became a huge hit in major cities in Asia, America and Europe. According to the listing of the world's largest Escape Room directory, there are approximately 4,000 companies currently in operation to date, spanning over 90 countries (PlayExitGames, 2019). Despite being a decade old industry, this industry has exhibited tremendous growth. It was reported that successful Escape Rooms were able to recoup their investments within the first five months of operation, in addition to enjoying 800% annual growth in sales (Sally & Shaw, 2015).

Similar to other parts of the world, Malaysia is also catching up on this trend. To date, Malaysia hosts the second largest number of Escape Rooms in Southeast Asia. Currently, there are 23 Escape Room establishments in the country, three of which are global brands. This nascent game concept landed in Malaysia back in 2013, when the Escape Room Holdings opened its first Malaysian branch in Kuala Lumpur. The industry in Malaysia has also proven to be as lucrative as their global counterparts. It is observed successful home grown Escape Room brands have established their presence globally with outstanding financial success. One of the registered proprietors of Escape Rooms in Malaysia was reported to have accumulated a net asset worth amounting to RM1.45 million with a net profit of RM1.03 million and cited this as the main reason for its acquisition by a renowned entertainment company (Zaki, 2015). The Malaysian home-grown Escape Room brand was voted as the Asian Entrepreneur of the Year after expanding its franchise into Canada, the United States, South Korea, and Myanmar (the Asian entrepreneur, 2016).

The lucrative pull of this business notwithstanding, the Escape Room game industry has its shares of challenges. The immediately apparent problem plaguing escape room

business owners is the hardship associated with making and keeping a significant customer base. Once customers have tried a particular room and completed it, there is no clear motivation for them to try the same room again even if they found the experience enjoyable simply because the novelty of the experience has worn off (Stone, 2017). It is interesting to note that the research on escape room games is scarce despite its commendable success. At the time of writing of this paper, there is only one whitepaper and one academic journal published on this topic. Based on the survey of 175 escape room operators globally, Nicholson (2015) provides an overview of the demographic characteristics of player and types of Escape room game structures, covering an assortment of puzzles, themes, and storylines. However, his study lacks insights into players' experience during gameplay, e.g., preference towards elements in the Escape Room. On the other hand, attempts to conceptualize Escape Room experience are limited to empirical studies from Western countries. Kolar (2017) attempted to conceptualize the Escape room game experience by using netnography and automated research analysis on Trip Advisor reviews provided by customers of selected Escape rooms in the USA and Europe. He found that customers exhibited strong positive emotions while playing the game and linked their experience to perceived authenticity and flow.

The absence of research on Malaysian Escape room players' experience thus calls for the need for this study. To address this gap, this paper aims to discuss the theoretical underpinnings of customer experience and subsequently identify elements that are central to the conceptualization of Escape Room game experience in Malaysia.

## 2. Literature Review

### 2.1. Evolution of customer experience foundations

Early literature on customer experience stems from psychological and consumer behaviour studies in the 80s, where the experience was highlighted as an important aspect of human consumption (Holbrook & Hirschman, 1982; Mehrabian & Russell, 1974; Rokeach, 1964). These authors' seminal works attempt to conceptualize the nature of human consumption at an abstract level. Rokeach (1964) posits that humans are creatures with an unrestricted degree of freedom that chase after their beliefs. Similarly, Holbrook and Hirschman (1982) supported this and challenged the then conventional information processing model that assumes men are rational decision-makers and proposed an alternative view on contemporary consumption, one which is based on



symbolic, hedonistic, and esthetical elements. In contrast, Mehrabian and Russell (1974) believed that human's behavioral responses, in particular, emotional responses such as pleasure, dominance and arousal are stimulated by environmental stimuli. These concepts were later applied in service design and marketing in an integrative manner, resulting in trailblazing concepts such as experiential marketing (Schmitt, 1999) and services cape (Bitner, 1992).

The subsequent discussion in the later years (the 1990s) revolved around finding the perfect form of customer experience. Towards this end, Csikszentmihalyi and Csikszentmihalyi (1991) introduced the concept of flow experience, a mental state of immersion triggered when surroundings is "right" and inducing. Being in the flow is described as a subjective experience where one loses consciousness over time and is worked at full capacity. Arnould and Price (1993) posited that interactive exchanges between the guide and customer will result in extraordinary experience to the customer, leading to higher satisfaction and positive emotional outcomes. Pine and Gilmore (1999) further suggested the need for experiences to be memorable in nature, a pre-condition for effective branding articulated by modern marketing practitioners. As opposed to the single moment experiences, Carù and Cova (2003) contested that customer experience may not need to be exclusive at each encounter, rather manifest itself in different levels of intensity depending on the context in which the interaction takes place. Their view received theoretical backing of service-dominant logic proposed by Vargo and Lusch (2008) which suggested that service and relatable experience are fundamental to determine the value of an offering.

The recent discussions revolved around ways to sustain customer experience creation. Berry, Carbone, and Haeckel (2002) suggested that businesses should look at total customer experience or customer journey in developing their business strategy. They posited that understanding the value at each stage of the customer's journey is vital in designing appropriate clues that would guide the customer's purchase experience. This notion is also supported by Verhoef et al. (2009) and Lemon and Verhoef (2016) who explained that customer experience might be affected by customers' experience which moderates the effectiveness of services delivered, hence level of satisfaction. Literature to date also suggested collaborative efforts between the company and customers to augment customer experience (Gentile, Spiller, & Noci, 2007; Prahalad & Ramaswamy, 2004). This had resulted in various innovative solutions offered by businesses to enrich the quality of their purchase experience, from better customer engagement (Carlson, Rahman, Voola, & De Vries, 2018; Lee, Chan, Chong, & Thadani, 2019) to technology enhancement on delivery mechanisms such as self-service technology (Collier et al.,

2018; Scherer, Wunderlich, & Von Wangenheim, 2015), customer care services (Bleier, Harmeling, & Palmatier, 2019; Lee et al., 2019) and big data analytics (Grover, Chiang, Liang, & Zhang, 2018).

In summary, customer experience is a complex multi-dimensional structure with an indefinite time horizon that is subjective to the context at multiple points of interaction between the customer and business. Therefore it is imperative to understand what makes customers tick and align their expectations to the value proposition offered by the businesses. This is more pertinent to reality escape room games, of which business owners have minimal intervention in determining customer experience. In contrast with typical forms of entertainment (e.g., concert and theme parks) where consumers experience is fully staged (e.g., watching concert performance, attending cultural shows, enjoying theme park rides), the Escape Room customers are also solely responsible for their own experience.

## 2.2. Model of Goal-Directed Behaviour

The model of goal-directed behaviour (MGB) by Perugini and Bagozzi (2001) has been acknowledged as a useful model to explain human intentions. The MGB is an extended model based on the Theory of Planned Behavior (TPB) and the Theory Reasoned Action (TRA). MGB model introduced three new elements in part of the extension, namely: 1) the role of desire as in determining behavioral intention 2) role of anticipated emotions (both positive and negative) as part of the decision-making process and 3) the role of past and frequency of behaviour affecting behavioral intention. In this revised model, attitude, subjective norm, perceived behavioral control and anticipated emotions are deemed to affect behavioral intention indirectly through desire (Meng & Choi, 2016; Perugini & Bagozzi, 2001; Shin, Kim, & Severt, 2018). Anticipated effective reactions to the performance or non-performance of a behaviour is prominent in MGB. They act as a self-regulated process where emotions implied assessment of success or failure during decision making (Chiu & Choi, 2018) particularly in times of high uncertainty (Li, Ashkanasy, & Ahlstrom, 2014; Tanovic, Pruessner, & Joormann, 2018). Past behaviour is used to proximate habits and has been empirically proven to be able to predict behaviour (Tong, 2016).

MBG model is generally adopted in studies with the objective of understanding addictive behaviors such as drug use (Ersche et al., 2016; Esumi et al., 2013) and drinking (Gabbadini, Cristini, Scacchi, & Monaci, 2017). These studies revealed a strong correlation between anticipated emotions in combination with other TPB components

in determining desire. MBG application is also expanded into management studies, particularly in determining revisit intention in the tourism industry. Based on the survey conducted on 423 visitors attending the Sancheong Herbal Festival in South Korea, attitude, subjective norm, and positive anticipated emotion influenced visitors' desire to attend the festival, and subsequently influenced their behavioral intentions (Song, You, Reisinger, Lee, & Lee, 2014). In a separate study, Park, Lee, and Peters (2017) found that residents who displayed a positive attitude towards Iowa wetlands and frequently visit to the wetlands tend to have stronger desire to revisit as compared to non-residents.

The application of MGB in analyzing Escape Room is suitable following the challenges faced. Escape room business owners struggle to retain a reliable customer base due to low barriers to market. The game structure is vulnerable to imitation and high utility erosion, as mentioned previously. While redesigning rooms seems to be the intuitive thing to do, it is very costly for business owners and prone to operational flaws if not carefully thought through. Unless Escape room business owners can decrypt what is on their customers' minds, the odds of running a successful establishment in the long term are very low. Ultimately, what matters to the business owners is to ensure players continuously revisit the room, in which MGB can provide some guidance.

### 3. Methodology

Customer experience investigation requires in-depth insights into the customers' thoughts and perspective. In this regard, this paper employs a sequential incident technique, a qualitative research approach used to build a holistic understanding of the subject matter based on extensive analysis of customers' reflection. This method is typically used to study customer experience (Becker, 2018) and has been applied widely in service marketing (Pöppel, Finsterwalder, & Laycock, 2018; Randhawa, Kim, & Cichy, 2017) and operations management (Wahyuni-Td & Fernando, 2016). Past literature suggests that customer experience is a culmination of distinctive episodes spanning across a period. By capturing moments which trigger customers' emotions and cognition, marketers and service designers can craft better experience which would, in turn, appreciate perceived value offering of the businesses (Abu & Alexander, 2018).

### 3.1. Sample Selection

This study employs a purposive sampling technique to gather the needed information while ensuring informants are well-represented (Huberman & Miles, 2002). The approach is compatible with the aim of this research, whereby researchers strive to identify and select information-rich cases given limited resources (Patton, 2015). To qualify for this study, informants are required to have attempted at least one room at any Escape Room establishment in Malaysia. For this study, the samples are selected from two Escape Room establishments in Kuala Lumpur where permission is granted by the operator. In order to gain fresh insights, informants were interviewed immediately after they had completed their game.

### 3.2. Data Collection

The sequential incident technique (SIT) is an interviewing technique intended to extract collective incidents from interviewees during the entire tenor of a process (Stauss & Weinlich, 1997). SIT approach is a derivation of the critical incident technique, which involves “a set of procedures for collecting direct observations of human behaviour in such a way as to facilitate their potential usefulness in solving practical problems and developing broad psychological principles.”(Flanagan, 1954, p.327). Through its storytelling approach, SIT enables researchers to detail out distinctive phenomena and appreciate non-critical incidents at the same time when identifying significant themes (Decker & Meissner, 1999). Informants are free to use their own words to describe their experience and are guided through their purchase journey, which is pre-purchase purchase and post-purchase. In the context of this study, informants were asked on their impression when they first came to know about Escape Room, their experience while playing the room, and their feelings after completing the game.

Before the study, a literature review was conducted relating to customer experience in general, including synonymous terms such as service experience and consumption experience to frame the state of study in this area. Open-ended standardized interview questions were used during the interview to “allow the participants to contribute as much detailed information as they desire and it also allows the researcher to ask probing questions as a means of follow-up” (Turner III, 2010, p.765). Based on the recommendations of McNamara (2009), the questions were ensured to be worded in an open-ended manner and crafted with a neutral tone to avoid interviewer bias. The questions were given to marketing experts to assess the wording and flow of the

interview questions and pre-tested with a sample of interviewees to ensure there were understandable. Technical jargons related to customer experience was avoided as this has been reported to confuse (Patton, 2015).

At the beginning of the interview, informants were asked to briefly explain their thoughts on their experience in the Escape Room. The informants were asked to describe their experience and motives behind steps taken at each stage of purchase (i.e., pre-purchase phase, during the game and after the game) and what they were trying to achieve during the experience (i.e., to make a purchase, search for information, browse, etc.). In line with the SIT technique, informants were asked to recall distinctive episodes to the best of their abilities and detail them out in their own words. We also enquired on the informants' level of familiarity with the Escape Room gaming concept. The informants were probed for further insights into their encounters to ensure richness in context (Kallio, Pietilä, Johnson, & Kangasniemi, 2016).

We discovered when responses produced in group interview tend to be influenced largely by one or two dominant respondents. In the first interview we conducted, we noticed that respondents mainly conformed to answers provided by the lead discussion. Phrases like "...like what he/she said..." and "he/she know better..." were examples of this behaviour. This was immediately rectified by conducting separate individual interview sessions.

A sum of 30 narratives was extracted from 20 semi-structured interviews. The interview process was halted at 15<sup>th</sup> interview upon reaching saturation point, i.e., themes gathered are repeated post-cross-case analysis (Eisenhardt & Graebner, 2007). However, five more interviews were conducted to ensure that no information was missed out. Time conducted for the interviews were on average, 35 minutes. The demographic profiles of the informants are presented in Table 1.

### 3.3. Data Analysis

First, the interview recordings were transcribed using a free audio transcribing software, OtterAi. The translated copy is emailed to interviewees for accuracy check. Once this is completed, the transcript is imported to Nvivo Software version 11 to be analyzed. An inductive approach was adopted in analyzing the informants' responses (guided by the research questions) to identify critical incidents. Critical incidents are chosen based on the comprehensiveness of description given by the respondents which comprised antecedents and outcome of the selected incidents. Ambiguous descriptions were treated as to be insignificant and are excluded from the analysis. Flanagan (1967)

TABLE 1: Summary of Informants' Demographic Profile.

| No. | Gender | Age | Relationship   | Frequency of play |
|-----|--------|-----|----------------|-------------------|
| 1   | Male   | 21  | Friends        | First time        |
| 2   | Male   | 21  | Friends        | First time        |
| 3   | Female | 35  | Colleague      | First time        |
| 4   | Female | 33  | Colleague      | Repeated          |
| 5   | Female | 31  | Colleague      | First time        |
| 6   | Male   | 19  | Friends        | First time        |
| 7   | Female | 22  | Friends        | First time        |
| 8   | Male   | 55  | Family         | First time        |
| 9   | Female | 45  | Family         | First time        |
| 10  | Male   | 14  | Family         | First time        |
| 11  | Male   | 16  | Family         | Repeated          |
| 12  | Male   | 12  | Family         | First time        |
| 13  | Female | 23  | Colleague      | First time        |
| 14  | Male   | 25  | Colleague      | First time        |
| 15  | Female | 22  | Colleague      | Repeated          |
| 16  | Female | 23  | Colleague      | First time        |
| 17  | Female | 22  | Colleague      | First time        |
| 18  | Male   | 16  | Friends        | First time        |
| 19  | Male   | 17  | Friends        | First time        |
| 20  | Female | 19  | Not applicable | First time        |

**Source:** Author's own work

explained that this step is critical to ensure the credibility of the data extracted, which is used to frame customer experience in the Escape Room in this study.

Next, the emerged themes were reviewed through a cross-case analysis to identify the frequency of repeated themes across informants. The wording of themes identified was refined by make comparison with past literature to check if themes are incongruent to terms used in scholarly articles. Maxwell (1992) described this step is required to achieve theoretical validity. The extracted themes were subsequently compared with assessment coded by two independent coders who were given access to voice recordings of the interviews. Their expertise in this field enhances the reliability of the analysis. After extensive deliberation, 15 themes have been identified. Details on the finalized themes and operational definition of each theme can be found in Table 2 and 3 in the Appendix.

## 4. Results

Fifteen themes surfaced in the thematic analysis, of which six are newly discovered elements that were not mentioned in the MGB. There are skill, challenge, flow, involvement, relational experience, and authenticity. A discussion of each of these themes is presented below.

### 4.1. Perceived authenticity

In general, perceived authenticity reflects the perception of the informants on the novelty of the Escape Room idea as a gaming concept. This element appears to be prominent amongst first-timers, which sparks interest for most of them to participate, as shown below:

I have never heard of this before...This is very new to me. I would have mistaken it as some sort of haunted house or arcade game. Never for the life of me would I think to escape from a prison as “fun”. Definitely a novel idea.

[Informant no.3, Female]

In contrast, customers who have played the game described perceived authenticity as the accuracy of room depicting the intended theme.

I love the props in the M&M's Big Escape. They gave out the Night in the Museum vibe...some which chills you down your bones. Some of the decorations looked legit.

[Informant no. 15, Female]

### 4.2. Attitude

It is observed that customers who are playing the Escape Room for the first time tend to have preconceived notions about the Escape Room game. In order to make sense of the concept, players draw attributes from relatable items to construct a preliminary image, which in turn, builds up the player's expectation. For instance:

I have a vague idea from my conversation with my boys. When I actually tried it out, it was totally not what I expected. Took me quite a while to process the mechanics behind the game. There is no comparison to what Escape Room is akin to therefore making its value proposition attractive.

[Informant no.9, Female]

I have never heard of Escape Room. This is my first time experiencing such a thing. I thought it was an arcade game or funfair of some sort. The group of people posing in front of a huge backdrop gave me that impression. At that time I were chilling out at a café opposite the Escape Room shop. Since I had nothing better to do, I drag my friend to the counter to find out more about what is was all about.

[Informant no.1, Male]

When probed further, first-time players recalled having positive emotions when they interacted with other players and marketing collateral of the Escape Room and subsequently aroused their desire to try out Escape Room.

I felt a strong urge to try it out when I saw the marketing video. I believed I would enjoy the Escape Room as much as the people do in the video.

[Informant no.13, Female]

I was very scared to try out Escape Room until I spoke to one of the players. He convinced me that I got nothing to worry about. He said I don't need to be a genius to play the game, which is comforting to a certain extent... I was very worried that I would waste my money and time playing.

[Informant no.17, Female]

Repeated players, on the other hand, have a tendency to exhibit a more goal-oriented attitude that moderated their perception of Escape Room.

I always to keep my expectations grounded to the level of difficulty. It is good to start off with the room with the least difficult one before going to the next level. I believe beating this game do not require high IQ as long as you are somewhat familiar with the way Escape Room works. Having said that, a big chunk of the game is dependent on your luck as well...As long as you persevered, you won't be too affected by the outcome.

[Informant no.11, Male]

Interesting to note is that repeated players who have strong goal orientation can maintain a positive attitude, despite playing the same room. These findings differed from Nicholson (2015), where players who repeated Escape Room game have their interest diminished.



### 4.3. Subjective norm and relational experience

It is no surprise for this theme to be the most cited element amongst the informants, especially new players. Due to the lack of knowledge of the Escape Room concept, new players placed heavy emphasis on their peers' recommendation in picking the game of choice as illustrated below.

I'm not sure...I played the room my friend recommended.

[Informant no.5, Female]

My friend played this room before...probably in the last two months. Heard great feedback from him.

[Informant no.18, Male]

I don't have any preference. I just follow my friend.

[Informant no.13, Female]

A few informants cited that they were being influenced by other customers in the Escape Room.

I came here alone. I chose the room that most visited by others.

[Informant no.20, Female]

The group that just came out managed to complete the game on time. I thought to myself, if they can finish it perhaps I could to. I immediately signed up for the room they went.

[Informant no.6, Male]

Relational experience elements are strongly exhibited in repeated players, where they could draw a sense of belonging to high achievers who had broken the completion time records of the rooms. This, in turn, creates a strong desire for them to go all out in achieving their goals.

This is my fifth time playing this room. I wanted to prove to myself that I can beat Campers' record.

[Informant no. 4, Female]

#### 4.4. Perceived behavioral control

Self-efficacy appears to be the second most cited component by most informants. New players seemed to display low self-efficacy caused by the lack of comprehension on the Escape Room game. Uncertainty arising from players' low self-efficacy reduced their expectations at the purchase stage, steering them into choosing a less difficult option. For example:

I was not confident that I finish the game. After all, this is my first attempt. I played the room that has the least stars.

[Informant no.7, Female]

I think I was smart in making my choices. I picked the room with the highest success rate. This way, I am sure I could finish it.

[Informant no.3, Female]

Players with low self-efficacy tend to rely heavily others (e.g. the Game Master and team members) during gameplay. Players who are less knowledgeable tend to rely a lot on the Game Masters, who provide occasional tips in solving the puzzle. This is very apparent in groups where members are totally new to the Escape Room experience. For example:

Lucky for me, I have the support of my team members and guidance of the Game Master. If it weren't for them I would have been able to escape the room.

[Informant no.9, Female]

I can't thank the Game Master enough for helping us. If we were left alone, we definitely would not have escaped the Room, let alone solve the puzzle. He did a great job in facilitating our experience in the room as well as post game. His instructions were clear and he had a knack improvising the situation when it became too awkward.

[Informant no. 8, Male]

New players also reported adopting multiple approaches to solve a given puzzle.

To be honest, I don't really know what I am doing in there. I can't differentiate between what clues are useful and what are not. It was purely trial and error. I literally mangled the room searching for clues... I bet the Game Master was laughing behind the camera. Probably that the reason why he interrupted us in the middle of the game and I am very thankful for it.

[Informant no.2, Female]

Conversely, repeated players are generally more inclined to remain independent in their gameplay. Reasons cited are

I didn't ask any help from the Game Master. I feel like I'm cheating if I asked.  
You can't very well do that if you are really trapped in real life, can you?

[Informant no.15, Female]

All informants showed some degree of involvement during the game. If the team comprised entirely of new players, the amount of effort exerted by each player seemed to be more or less equal. However, if there were repeated customers present in a team, the said player was seen to take a leading role in coordinating team members' actions. When asked about the effect on the group dynamic, new players do not feel undermined by their more experienced members as the goal of the game was a cooperative one.

#### 4.5. Positive and negative anticipated emotions

Similar to the previous study (Kolar, 2017), positive anticipated emotions such as fun, exciting, and satisfied were the most cited emotions. Majority of first-time players drew this from marketing materials on Escape Room, in particular, the promotional video. Negative anticipated emotions such as uncertainty also played a role in hyping up the excitement, illustrated as follows:

I was experiencing this emotional roller-coaster during the briefing session by the Game Master. I do not know what to expect and that makes me want to look forward to play the game.

[Informant no.16, Female]

#### 4.6. Flow, skill and challenge

Generally, it is observed that all informants expressed having experienced an immersion state, described as follows:

I was so focused on the game that I lose track of time.

[Informant no. 12, Male]

I felt like I was transported to the Avatar world. The dramatic soundtrack and echo of the time clock made it possible. I was so focused on the task that I forget everything else.

[Informant no. 14, Male]

The level of difficulty was just right for me. Or else I will feel bored.

[Informant no. 17, Female]

#### 4.7. Desire and revisit intention

All informants expressed their desire to replay the room, which leads to revisiting intention. Amongst popular reasons cited were beating personal scores and dissatisfaction on the outcome of the game. At the time of the interview, some informants had already booked for the next slot and signed up for membership cards.

### 5. Discussion

The results detailed above highlight key perspectives of Escape Room customers in determining their revisit intention. This study provides in-depth insights that complement the broad concepts proposed by Kolar (2017). Examination of the results revealed that while the customer experience differed greatly between new and repeated players, both shared similar determinants in predicting their revisit intention, which mirrored elements of Model of Goal-Directed Behaviour.

We discovered that players' experience was largely influenced by the subjective norm. This is not surprising given the lack of knowledge possessed by players, especially for first-timers. As such, to conduct an internal benchmark, players tend to depend on their peers or family members as sources of reliable information. Our findings are aligned with previous studies where subjective norm influenced visitors' desire to visit (Chang, Kim, & Kim, 2018; Song et al., 2014). The authors found that reference groups played a pertinent role in shaping the evaluation of potential festival visitors. This perception is further enhanced using social media tools such as travel blogs, Twitter and Facebook as word-of-mouth marketing tools.

Perceived control behaviour, which postulates players' perception of his or her ability to achieve the desired goal is also prominent in this research. We inferred that the uncertainty which arises from the lack of knowledge on the process of an Escape Room game indicated a certain degree of risk to players, in particular, first-time players. They were worried that they would not be able to derive the maximum value from the paid-for experience. This concern can be related to previous studies on customer experience, in particular researches on technology use intention (Izquierdo-Yusta, Olarte-Pascual, & Reinares-Lara, 2015; Rose, Clark, Samouel, & Hair, 2012).

Our research also shows that immersion is the key to achieve the optimal level of experience, and the recipe is achieving the state of flow as well as the balancing of skill and challenge. Harmat et al. (2015) describe the flow state as a presence of mind in which users can effortlessly conduct a task given, which is reflected in players that were more skilled. Perceived authenticity is shown to differ from new player to repeated player, where the latter exhibited object authenticity rather than constructive authenticity.

## 6. Conclusion and Implications

In this study, we illustrated the integral elements of customer experience in the under-researched study of Escape Rooms in Malaysia. It has been widely acknowledged that customer experience is contextual, subjective, and perceptual, and is thus a challenge to be assessed and monitored. Towards this end, our study was able to capture the dynamic and diverse nature of the customer experience through insightful descriptions by employing a sequential incident technique. Such a rich understanding will enable business owners not only to identify pain points experienced by Escape Room players but will also provide clues on how to optimize their experience. This research offers business owners rich insights to improve the state of reality escape room games in Malaysia, highlighting different elements prioritized between novice and experienced players.

## Acknowledgement

We would like to thank Yayasan Bank Rakyat for the financial support by sponsoring this paper to be presented in the FGIC 2<sup>nd</sup> Conference on Governance and Integrity 2019.

## Appendices

TABLE 2: Themes from Data Analysis.

| No. | Themes                 | Code                           | Examples   |
|-----|------------------------|--------------------------------|--|
| 1   | Perceived authenticity | Original - True representation | <ul style="list-style-type: none"> <li>• The room setting accurately reflects the intended theme and genre.</li> </ul> |
|     |                        | Original- Unique concept       | <ul style="list-style-type: none"> <li>• Game masters personify their characters/roles well.</li> </ul>                |

| No. | Themes                        | Code                      | Examples   |
|-----|-------------------------------|---------------------------|--|
|     |                               |                           | <ul style="list-style-type: none"> <li>• Props are well crafted to the extent they look like the real thing.</li> </ul>  |
|     |                               |                           | <ul style="list-style-type: none"> <li>• Emotions displayed by players in the marketing video appeared genuine.</li> </ul>   |
| 2   | Attitude                      | Beliefs                   | <ul style="list-style-type: none"> <li>• The Escape Room game is challenging.</li> <li>• The Escape Room game is a good avenue to test my skills.</li> <li>• I will have a good time with my friends/family/peers in the Escape Room.</li> </ul>   |
|     |                               | Affection                 | <ul style="list-style-type: none"> <li>• The Escape Room game is attractive.</li> <li>• The Escape Room game is interesting.</li> </ul>  |
| 3   | Subjective norm               | Recommendation            | <ul style="list-style-type: none"> <li>• My friends/family/peers told me I should try out Escape Room.</li> <li>• My friends/family/peers said I would enjoy the game.</li> <li>• My friends/family/peers invited me to play with them.</li> </ul> |
|     |                               | Peer pressure             | <ul style="list-style-type: none"> <li>• I felt pressure to beat my friend/family/peers score in the next game.</li> </ul>   |
| 4   | Positive Anticipated Emotions | Thrilled                  | <ul style="list-style-type: none"> <li>• If I complete the game on time, I will feel satisfied.</li> </ul>   |
|     |                               | Satisfied                 | <ul style="list-style-type: none"> <li>• If I escape the room, I will feel happy.</li> </ul>   |
|     |                               | Delighted                 | <ul style="list-style-type: none"> <li>• If I solve the puzzle, I will feel motivated.</li> </ul>  |
|     |                               | Happy                     |  |
|     |                               | Motivated                 |  |
| 5   | Negative Anticipated Emotions | Disappointed              | <ul style="list-style-type: none"> <li>• If I cannot complete the game on time, I will feel unsatisfied.</li> </ul>  |
|     |                               | Demotivated               | <ul style="list-style-type: none"> <li>• If I cannot escape the room, I will feel disappointed.</li> </ul>   |
|     |                               | Upset                     | <ul style="list-style-type: none"> <li>• If I cannot solve the puzzle, I will feel demotivated.</li> </ul>   |
|     |                               | Sad                       |  |
| 6   | Perceived Control Behaviour   | Self-efficacy – resource  | <ul style="list-style-type: none"> <li>• I have what it takes to finish the game on time.</li> </ul>   |
|     |                               | Self-efficacy – knowledge | <ul style="list-style-type: none"> <li>• I am confident I can beat the highest score for this game.</li> <li>• I am able to lead my team to victory.</li> </ul>  |
|     |                               |                           | <ul style="list-style-type: none"> <li>• Solving the puzzles with two people will be challenging.</li> </ul>   |
| 7   | Desire                        | Personal motivation       | <ul style="list-style-type: none"> <li>• I hope to beat the clock the next time I visit the Escape Room</li> </ul>   |
|     |                               | Wishes                    | <ul style="list-style-type: none"> <li>• I wish I could do better in the next game.</li> <li>• I hope I can solve the puzzles quicker/complete the game in the next level.</li> </ul>  |
| 8   | Frequency of Past Behaviour   | Number of rooms           | <ul style="list-style-type: none"> <li>• I have played similar to this Escape Room game recently.</li> </ul>   |
|     |                               | Number of establishments  | <ul style="list-style-type: none"> <li>• This is my second time playing this game.</li> </ul>  |

| No. | Themes                | Code                               | Examples   |
|-----|-----------------------|------------------------------------|--|
| 9   | Revisit Intention     | Replaying room                     | <ul style="list-style-type: none"> <li>• I will visit this Escape Room again with my family/friends/peers.</li> </ul>  |
|     |                       | Frequent visit                     | <ul style="list-style-type: none"> <li>• I intend to visit another escape room from this establishment.</li> <li>• I intend to replay this room in my next visit.</li> <li>• I have booked a slot for my next visit.</li> </ul>  |
|     |                       |                                    | <ul style="list-style-type: none"> <li>• I do not mind spending time and money to play Escape Room.</li> </ul>   |
|     |                       |                                    |  |
| 10  | Skill                 | Time management                    | <ul style="list-style-type: none"> <li>• I know how to leverage on my teammates' strength to solve the puzzle.</li> </ul>  |
|     |                       | Problem-solving                    | <ul style="list-style-type: none"> <li>• I know which clues to use to unlock each puzzle or stage.</li> </ul>  |
|     |                       | "Think-out of the box"             | <ul style="list-style-type: none"> <li>• I successfully complete the game with minimal intervention from the Game Master.</li> <li>• I can easily complete the task within/less than given time.</li> </ul>  |
|     |                       |                                    |  |
| 11  | Challenge             | Difficulty                         | <ul style="list-style-type: none"> <li>• Being forced to solve multiple puzzles challenges me to perform to the best of my ability.</li> <li>• Escape Room game tests my ability to work with a team.</li> <li>• Escape Room game challenges me to think out of the box</li> <li>• Escape Room is a good avenue to test of my problem-solving skills.</li> </ul> |
|     |                       |                                    |  |
|     |                       |                                    |  |
|     |                       |                                    |  |
| 12  | Flow                  | Lost consciousness of surroundings | <ul style="list-style-type: none"> <li>• I felt like time passed very fast in the room.</li> <li>• I was too focused on solving the puzzle that I lost track of time.</li> <li>• I feel like I'm in another world when I play Escape Room.</li> </ul>  |
|     |                       |                                    |  |
|     |                       |                                    |  |
| 14  | Involvement           | Engaged with players               | <ul style="list-style-type: none"> <li>• I was dependant on my other teammates to figure things out.</li> </ul>  |
|     |                       | Information-seeking                | <ul style="list-style-type: none"> <li>• I attempt to find out more information before visiting Escape Room.</li> </ul>  |
| 15  | Relational experience | Feel the same                      | <ul style="list-style-type: none"> <li>• My action with other players in the team are in sync.</li> </ul>  |
|     |                       | Unspoken connection                | <ul style="list-style-type: none"> <li>• The winners' pictures on the scoreboard inspired me to try my best.</li> <li>• I shared a common goal with the rest of the players.</li> </ul>  |

**Source:** Author's own work

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TABLE 3: Operation definition.

| No  | Themes                        | Operational Definition  |
|-----|-------------------------------|---|
| 1.  | Perceived authenticity        | Subjective evaluation on the genuineness of subject matter.   |
| 2.  | Attitude                      | The degree to which an individual has a favourable/unfavourable evaluation of performing a specific behaviour.                                |
| 3.  | Subjective norm               | The perceived social pressure to perform or not to perform the behaviour.   |
| 4.  | Positive Anticipated Emotions | Positive affective appraisal arising from subjective evaluation of an individual on the likelihood to achieve intended outcome.               |
| 5.  | Negative Anticipated Emotions | Negative affective appraisal arising from subjective evaluation of an individual on the likelihood to achieve intended outcome.               |
| 6.  | Perceived Control Behaviour   | Individual's perception of the ease or difficulty in achieving intended outcome.  |
| 7.  | Desire                        | Degree of compulsion which drives a person to action.   |
| 8.  | Frequency of Past Behaviour   | Number of times action/behaviour has occurred within a year.  |
| 9.  | Revisit Intention             | Willingness to revisit destination or other similar destinations.   |
| 10. | Skill                         | The ability to undertake certain/task proficiently.   |
| 11. | Challenge                     | Level of difficulty faced in undertaking an action.   |
| 12. | Flow                          | State experienced by an individual where there is a loss of the sense of time and reflective self-consciousness in undertaking a task/action. |
| 14. | Involvement                   | Willingness to commit and show effort in undertaking a specific action/task   |
| 15. | Relational experience         | Sense of belonging of an individual to a social group.  |

**Source:** Author's own work

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## Conference Paper

# Ethical Leadership, Ethical Climate and Unethical Behaviour in Institutions of Higher Learning

Nurul Khair Ishak, Hasnah Haron, and Ishak Ismail

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

Issues related to unethical behaviour is not common nowadays; and they are also the problem of higher learning institutions. This study is conducted to find out the factors that influence the intention to perform unethical behaviour in higher learning institutions in Malaysia. This paper provides some insights into the issues of unethical behaviour, specifically the behaviour of lecturers. Ethical leadership and ethical climate are identified to be the variables that might influence the intention to perform such behaviour. It then discusses the importance of ethical leadership and ethical climate in shaping the ethical conduct in higher learning institutions.

**Keywords:** unethical behaviour, higher learning institution, ethical leadership, ethical climate.

Corresponding Author:

Hasnah Haron  
hasnaharon@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

The problem of unethical behavior continues to be a concern in the workplace, inclusive of higher learning institutions. There is an increasing interest in problems related to academic integrity in higher education and it has become a topic that is being discussed continuously by various parties.

Unethical scandals can be in the form of corruption, bribery and fraud. These three prevalent malpractices can occur in any industry, although the degree may differ from industry to industry. Previous studies have shown that the education system can be as corrupt as other components of government and the economy. The universal characteristics that can be found in the university systems are now being distorted by the interest of specific individuals in the institutions (S. Heyneman, 2015).

Previous studies have examined many forms of academic dishonesty and cheating in education. Academic dishonesty or unethical behaviour in academic has also been part of the problems faced by higher education in various parts of the world. It can include problems such as cheating and plagiarism, bias, false research, abuse of power, abuse of authority and many more. As of now, the level of integrity practiced in the academic

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area is still declining and not improving (Sabli et al., 2016). Academic institutions need to investigate academic dishonesty proactively and develop solutions to counter this trend, or the problems will exist on an ongoing basis.

This paper identifies some of the factors that influence the academicians/lecturers on the intention to commit unethical practices in higher learning institutions. It then concludes with the proposed conceptual diagram for this study. Maintaining high academic integrity is essential to ensure the achievement of a high-income economy as aspired by the government, which is also in line with Vision 2020 and also to produce an ethical society.

## 2. Academic Integrity

The issues of organizational misconduct have been attracting many researchers inclusive of the public showing their concern. They have also looked at how the organization and their members (academicians, administrator and students) get themselves entangled in the issue and they are trying to find out the best way to overcome this problem. The statistics given by the Malaysian Anti-Corruption Commission in March 2018 shows the involvement of students, lecturers and administrative staff of higher learning institutions in Malaysia for the period of 2013-2017. It can be seen that the number of lecturers who are involved in bribery cases has increased from 14 cases in 2016 to 16 cases in 2017; and there were five people arrested in 2017. Meanwhile, for the administrator, the number is quite high in 2016, whereby 23 people were arrested in 2016 and three were arrested in 2017. There are also other cases reported in institutions of higher learning. Recently, three individuals were arrested for allegedly involved in a syndicate producing fake degree certificates inclusive of masters, degree and diploma bearing few IPTS names. They only take one week to produce all the certificates with a cost ranging from RM2,000 to RM16,000 depending on types of certificate and IPTS. (The Star Online, April 15, 2018). Malaysian Anti-Corruption Commission (MACC) is now trying to identify whether there are IPTS employees who abetting in the syndicate.

An ex-lecturer of USM was caught for presenting false PhD certificates and documents in order to be accepted as a lecturer, and the university has to pay a sum of RM195,081.38 for his salary during his two-year service for the university before he resigned in 2010 (TheSun Daily, March 9, 2018).

Another case involving a managing director of a private college who allegedly have taken bribes from the college students. It was reported that he managed to get RM2,500 from every 20 students, in order for him to issue certificates that allowed

them to further their medical studies abroad. (NST, October 4, 2017). Two lecturers from Universiti Teknikal Malaysia (UTeM) who are also husband and wife was remanded on 6 September 2017 on the allegation of abuse of power, suggesting to the faculty's management to choose their company to buy lab equipment together with service for research amounting to RM52,000 in Mac 2015 and Jun 2016. (NST, September 6<sup>th</sup> 2017). Thus this paper will discuss the different types of unethical behaviour in a higher learning institution and will attempt to identify some of the factors that could influence the unethical behaviour in higher learning institutions.

### 3. Literature Review

The occurrences of faculty misconduct which consist of plagiarism and fraud, unfortunately exist (Elliott, Marquis, & Neal, 2013). Transparency International, has conducted several studies on corrupt practices in the academic institutions of different countries. Their monitoring exercises on corruption in the Middle East shows that 70% of respondents described that educational systems in their countries are either corrupt or extremely corrupt, and corruption perception in the region was very high (S. P. Heyneman, 2013). Meanwhile, Georgia also faces the same problem with their higher education institutions as students were found to have bought their admissions, including grades and diplomas (Mier & Griffin, 2005). Transparency International found the most common forms of corruption in institutions of higher learning as follows: (i) bribes for passing the examination, (ii) compulsory purchase of textbooks written by lecturers and (iii) purchase and selling of diplomas.

In the US, the reported misconduct is about several research papers found with similar content, followed by duplication, falsification and plagiarism. Some lecturers in higher institutions in Nigeria engage in unethical practices (Abanobi 2017). Among perceived factors to the situation is desperation for promotion, greed for money, and lack of commitment to the profession. This is in line with the study of Archibong 2012, which is also in Nigeria stating that the reason why lecturers commit the unethical practices, due to desperation for promotion, stagnation in career and many other causes. McCornac (2008) explains that corruption in higher education in Vietnam is uncontrolled following a survey conducted on students, faculty and administrator. The information from students, faculty, and administrators provides clear indications that corruption in higher education in Vietnam is both rampant and institutional.

### 3.1. Unethical Behaviour in Higher Learning Institutions

Unethical behaviour is an action that falls outside of what is considered morally right or proper for a person. This kind of behaviour may occur among students, lecturer and administrative staff of institutions of higher learning. The types of corruption in higher education can range from illegal procurement of goods and services, cheating in admission, grading, graduation, housing and academic product, professional misconduct such as favouring family members, sexual exploitation, bias in grading, research plagiarism, cheating in paying taxes and the use of university property (S. Heyneman, 2015). Examples of such behaviour among students are cheating in examination, plagiarism, fraud, unacceptable assistance. Students involved in cheating such as cheating on homework or assignment, cheating in the examination, the individual assignment is done in a group and plagiarizing from printed materials in order to assist them in their study. (Balbuena & Lamela, 2015). Examples of misconduct among academicians can be in terms of the claim, the bias in grading, research plagiarism and abuse of authority. Other examples are fake study and did not properly acknowledge the original resource. The study conducted by (Keith-Spiegel, Tabachnick, & Allen, 1993) shown that lecturers did not take action when the student cheat, giving false information in a student recommendation letter, giving higher marks to students without considering the quality of the assignment and preparing examination questions other than that have been discussed in class. De Russy (2003) shows that lecturer comes to class late, using harsh words when dealing with students, abusing research grant, plagiarism, having sex with student, refuse to teach and do research and not being able to carry out the administrative work given. Meanwhile, (Saat, Jamal, & Othman, 2004) shown that lecturer's academic misconduct involves plagiarism, having a relationship with students and not following the universities' rules and regulation. As for the administrative staffs, such behaviour could include the abuse of power for private and material gain, illegal procurement of products and services, exploitation of university assets and corruption (S. Heyneman, 2015). Table 1 shows examples of unethical behaviour involving lecturers.

### 3.2. Factors Influencing Unethical Behaviour

This research will look into the factors that influence the intention to perform unethical behaviour among lecturers in the higher learning institution. Lecturers are human resources that have an important role in all activities in universities and colleges. Promoting the role of lecturers as one of the main contributors to the success of the



TABLE 1: Cases of Unethical Behaviour by Lecturers.

| Authors                     | Examples of unethical behaviour   |
|-----------------------------|---|
| Keith-Spiegel 1993          | Lecturers did not take action when the student cheat, giving false information in a students recommendation letter, giving higher marks to students without considering the quality of the assignment, including examination questions not following the syllabus |
| De Russy 2003               | Lecturer come to class late, using harsh words when dealing with students, abusing research grant, plagiarism, having sex with student, refuse to teach and do research and not being able to carry out the administrative work given                             |
| Saat, Jamal, & Othman, 2004 | Plagiarism, having relationship with students and not following the universities' rules and regulation  |
| Elliot, Marquis & Neal 2013 | Fake research and not able to give proper acknowledgement to the original author  |
| Chapman 2014                | Embezzlement, misappropriation of funds, changing students grade for money or favours, selling admissions, selling examination scores or grade, falsifying data, gift authoring, ghost authoring  |
| Abanobi 2017                | Desperation for promotion, greed for money and lack of commitment to the profession   |

organization is essential to be explored. Schulte, Brown, & Wise, (1991) mentioned that it is important to look at the ethical conduct of the faculty, whereby they are the one who can influence the ethical climate of the university environment, and at the same time being of special concern to the public. Generally, the job of academicians/lecturers ranges through teaching, research, supervision, consultancy, and contribution to the faculty, university, and society. Performance expectation of the faculty member is quite clear, even though it might differ by academic rank or by the institution (comprehensive universities, research universities, private universities, colleges, etc.). Teaching workloads can be around four courses a year, publish 1-2 articles in the top-tier journal (senior faculty are expected to publish more) supervision, consultancy and involvement in community outreach (Wan et al., 2017). Higher education institutions have to follow the academic workplace evolving nature. The focus now is more on the ranking of the universities, which is also the main expectation of the government on the higher education system. Huge investment has been made to produce an educated workforce as well as attracting international investment. One of the easiest ways is to encourage faculty members to actively involved in research and publication. The measure of higher education excellence is also based on the ranking of universities. The whole system of the universities and colleges were being evaluated, which at the same time consider the publication rates as one of the important elements in the most ranking system. Thus to get higher ranking means the universities and colleges must ensure that their faculty are actively involved in research and publication. Currently, there are intensified pressures for the faculty member to carry out research and publish. The push for more

research somehow affects the work of the academician, created tensions together with the need to fulfill other expectation. It will further give impact to the academic integrity, by putting names to the work of other lecturers, or putting names to the work of students (Wan et al., 2017). Student needs to understand the importance of academic integrity. Lecturers need to instill in students the desire to be ethical and be more vigilant in ensuring proper recognition of intellectual property (Cheah, 2016). There are many factors that might influence the unethical behaviour of lecturers in the higher learning institution. As for this study, the factor of ethical leadership and ethical climate have been identified to be variables to be measured. First, the factor of ethical leadership in higher learning institutions.

### 3.2.1. Ethical Leadership

Leaders are considered as “tone at the top” that shapes the direction and ethical culture of an organization. Leaders are responsible for the conduct of the organization. Brown & Treviño (2006) explained the relationship between ethical leadership and employee unethical behaviour. The ethical leadership is known as moral manager who considers ethics as important. They will ensure the importance of ethics is communicated well to their subordinates. This ethical leaders show a good example and modeling ethical behavior; and at the same time using the reward system to ensure the followers be responsible for their ethical conduct. (McCabe, Butterfield, & Treviño, 2006). Leaders are responsible for the conduct of the organization (Wan et al., 2017). Kanungo (2001) definition of ethical leadership as ethical leaders who engage in acts and behaviours that benefit others, and at the same time, control their own behaviour. In Brown, Treviño, & Harrison, (2005) paper, they mentioned that ethical leadership always promote ethical conduct by practicing and managing, and at the same time making sure that everybody are accountable for their conduct. Furthermore, it is important for the leaders to ensure that the combination of integrity, ethical standards, and fair treatment becomes their main priorities (Brown, Trevino and Harrison 2005). As for Suar & Khuntia (2004), ethical leaders are those leaders who can incorporate moral principles in their beliefs, values, and behaviours. Leaders who have high integrity, they can be the trustworthy source of information and guidance to the followers (Rosenbach, Kouzes, & Posner, 2018, Kouzes & Posner, 2011, Brown & Treviño, 2006, Suar & Khuntia, 2004,) which further leads to commitment and confidence to the leaders and the organizations (Ng & Feldman, 2015). Leaders who have high moral character and consistently uphold ethical principles are more likely to be followed by subordinates (Mayer, Nurmohamed, Treviño, Shapiro, &

Schminke, 2013). Leaders always are the source of guidance, whereby people will pay attention and follow their good attitudes, values and behaviour (Walumbwa, Hartnell, & Misati, 2017) points out that ethical leaders able to inculcate acceptable behaviour among the employees through group learning behaviour which leads to a conducive working environment. In institutions of higher learning, the academic leaders need to strategize to promote ethical conduct. The Deans and the Head of Departments are faculty administrators who are responsible to lead their respective units of education. They are the primary source who can influence the faculty and the way they interact. In particular, they are well-positioned to provide leadership in creating an inclusive and supportive culture for faculty, staff, and students (Seagren 2000; Bystydzienski, Thomas, Howe, & Desai, 2017). A recent study by Bystydzienski et al. (2017) mentioned that leaders who are aware of the organization culture and have the knowledge to implement changes were more likely to report culture transformation. Further work behaviour of managers can ensure current performance and organizational effectiveness. The organization can discourage unethical practices by reducing individual centered approach by its member and promote work behaviour through caring and professional climate (Suar & Khuntia, 2004). The type of leaders that lead the organization can show either positive or negative influence and power to their employees (Lunenburg, 2012). It is vital to create a favorable working environment so that the employees can carry out their duties efficiently. Leaders again can be the main factors that can contribute to the kind of environment (Meriläinen & Kõiv, 2018). Table 2 shows previous studies conducted on the relationship of ethical leadership to unethical behaviour.

### 3.2.2. Ethical climate

The organization's ethical climate is a shared knowledge of what good behaviour is among the employees and how the organization resolved the problem associated with it. The climate may substantially modify personal values, attitudes, and behaviours through instructions received in the workplace. Previous research identified that the behaviour of employees is always under the influence of the organizational value system (Victor and Cullen 1988, Vardi, 2001). It is further described in terms of the perceptions of employees on organizational practices and procedures and the right or wrong behaviour within the organization. The ethical climate is developed within the organization through a code of ethics, ethical policies, implementation, and management procedures. Much has been done by the organization to ensure that their climate is appropriate. Good workplace ethics are important to ensure the success of the organization. It can facilitate

TABLE 2: Relationship of Ethical Leadership to Unethical Behaviour.

| Author (s)  | Independent Variables   | Methodology   | Findings   |
|---|---|---|--|
| Brown 2006  | Leadership – transformational, spiritual, authentic               | Conceptual paper  | Ethical standards must be effectively communicated to the employees. Performance management system is important to hold employees accountable for their conduct. |
| Elliot 2013   | Leadership (tone at the top)<br>Organizational climate<br>Culture | Conceptual paper  | Leadership plays an important role in ensuring the ethical culture in the organization through formal ethical standard and reduce unethical act.                 |
| Mayer et al. 2013   | Ethical leadership  | Three studies with varying methodologies  | Ethical leadership is significant in encouraging ethical behavior among co-workers   |
| Jill Bystydzienski, Nicole Thomas, Samantha Howe & Anand Desai 2016 | Transformational leadership                                       | 38 item leadership inventory (multifactor leadership questionnaires) & interview coded using NVIVO software | Leaders must understand the culture of the organization. Proper training can shift administrator attitudes.  |
| Matti Meriläinen, Kristi Kõiv 2018                                  | quality of leadership   | E-mail questionnaire 864 staff of universities  | Quality of leadership are part of factors that affect working environment.   |

members to be aware of what kind of behaviour is ethically correct together with the consequences following such behaviour. It is important to provide a clear policy of what is acceptable and unacceptable behaviour and such an important policy should be made known to all employees. Any form of unacceptable behaviour should be reprimanded and addressed quickly. Managers had a significant role in ensuring the right ethical climate exist in their organizations. When employees operate in good ethical climate, they are less likely to engage in misconduct. Organization can invest in ethic training for leaders so that the leaders can help in reducing employee misconduct. They can emphasize the value of being an ethical employee through human resource practices, policies, and procedures. Universities must set a formal ethical standard, must ensure their leaders are acting and involvement which lead to an ethical culture and reduce unethical act (Elliott et al., 2013). The climate of the department affects the attitudes and activities of department members. (Bruhn, 2008). The ethical climate helps the employees to understand what is expected from them in terms of values and behaviour at the workplace. If the employees fully understand the group norms regarding the appropriate behaviour, employees will be less likely to show or act unethically. Therefore, if an ethical climate is higher in emphasizing ethical actions, employees will be less likely to perform unethical behaviours. Previous research has

examined the consequences of ethical work climate on specific ethical outcomes, such as unethical and deviant behaviours. A meta-analysis on ethical climates conducted by Martin & Cullen (2006) suggests that positive ethical climates are negatively related to dysfunctional organizational behaviour. In addition, it is found that ethical climates were negatively related to misbehaviour in a non-western sample (Vardi, 2001). Thus, the more positively viewed the organization is the less reported misbehaviour. (Peterson, 2004) found that organizational deviance was lower in ethical caring climates. Overall, there is strong support that ethical climates have an effect on misbehaviour in organizations

Many organizations inclusive of institutions of higher learning have responded to ethical scandals in part by creating the Ethics and Compliance Officer (ECO) role in addition to their structure to help ensure employees ethical behavior. The ethics officers have an essential role to help the organization manage ethical issues. They are the person who manages the policies, integrates the corporate ethics and organization's culture, maintain good relationships at all levels, and supporting those who make ethics reports. One way that the ethic officer can boost their credibility is by enhancing their knowledge of their function and its importance and suitability in the organization (Treviño, den Nieuwenboer, Kreiner, & Bishop, 2014).

Rothman (2017) study on ethics in higher education has shown that both administrators and full-time faculty in the studied higher education institution have chosen the deontological climate as the perceived ethical climate. They believe that when they follow and comply with the universities policies, professional standards, and applicable regulations can influence their decision making and behavior and will help them to be successful. A deontological ethical climate is positively related to good ethical behaviour. Shafer (2008) shows that egoistic climates can show employees intention to commit the unethical act, while the principle climate can reduce such intention. Table 3 shows previous studies conducted on the relationship of ethical climate to unethical behaviour.

## 4. Theory Used

This study uses Hunt and Vitell General Theory of Marketing Ethics (1993; 1986) as its underpinning theory. General Theory of Marketing Ethics or Hunt and Vitell's Theory of Ethics is proposed by Hunt and Vitell (1993; 1986). The theory shows that personal characteristics, culture, organizational, and professional environment influence perceived ethical problems, which in turn affect intention and behaviour. The theory broadly evaluates ethical behaviours based on how individual factors interact with cultural,

TABLE 3: Relationship of Ethical Climate to Unethical Behaviour.

| Author (s)   | Independent Variables  | Methodology   | Findings   |
|--|--|---|--|
| Damodar 2004   | Ethical climate (individual centred climate and caring & professional climate) | questionnaires 340 middle level executives Manufacturing industries | Individual centred climate is positively related to unethical behaviour Caring and professional climate is negatively related  |
| John G Bruhn 2008  | Value dissonance   | Five vignettes – actual cases of ethics failure                     | When the value dissonance of employee is high, the chances that they will perform unethical behaviour is high. The climate of the department affects the attitudes and activities of department members. |
| Mayer 2011   | Ethical leadership Mediator: Ethical climate                                   | Survey packets – Inclusive of five employee and one supervisor      | Ethical climate was negatively related to employee misconduct  |
| Elliot 2013  | Leadership (tone at the top) Organizational climate Culture                    | Conceptual paper  | Leaders of universities have big responsibilities in setting ethical standard, ensuring the practice of ethical culture and manage to reduce unethical act.  |
| Linda Klebe Treviño, Niki A. den Nieuwenboer, Glen E. Kreiner, Derron G. Bishop 2015 | Ethics officer   | interview   | The role of Ethics and Compliance Officer (ECO) is important to ensure the employees are ethical and legal behaviour.  |
| Shafer 2008  | Ethical climate  | Questionnaires and vignettes  | Egoistic climates are significant to employee intention to commit unethical act, while benevolent and principle climate reduce such intention.   |
| Philip Rothman 2017  | Ethical climate egoistic, deontological, and utilitarian                       | survey instrument   | The deontological climate (correlates to good ethical behaviour) was accepted as the ethical climate for both administrators and full-time faculty in the studied higher education institution.          |

organizational, and industrial factors to shape perception and later impact judgement, intentions and behaviours. The Hunt and Vitell model was proposed in looking at how individual who faced with ethical dilemma go through the thought processes. The two main processes are deontological and teleological evaluation. The outcome of each of these processes is a cognitive evaluation of a specific action which is then used in developing an intention to act. The model's purpose is to more fully explain how ethical actions are considered and how that consideration impacts eventual behaviors

## 5. Conceptual Framework

This study proposes the exploration of factors leadership and ethical climate towards the intention to perform unethical behaviour among lecturers in the higher learning institutions in Malaysia. The framework of the study shall function as what is portrayed in Figure 1.

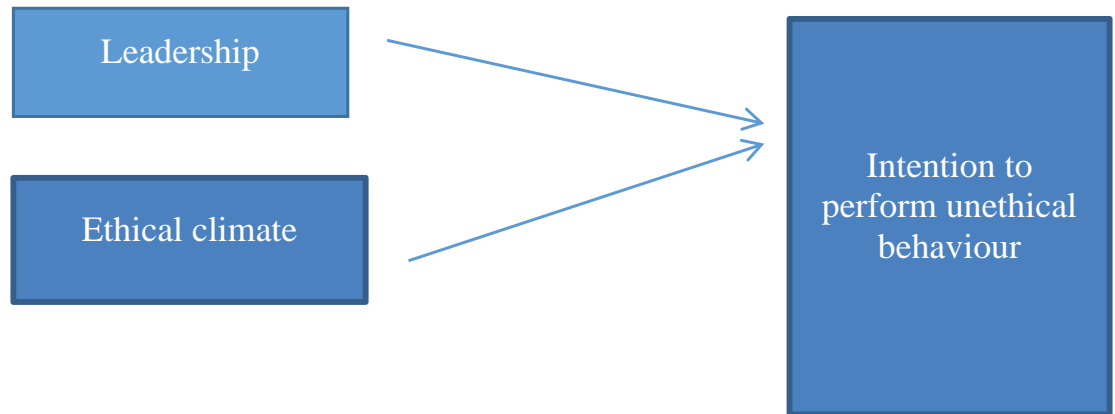


Figure 1: Conceptual Framework.

### 5.1. Hypotheses Development

(Walumbwa et al., 2017) points out that ethical leaders can inculcate acceptable behaviour among the employees through group learning behaviour, which leads to a conducive working environment. Elliot (2013) and Jill Bystydzienski, Nicole Thomas, Samantha Howe & Anand Desai (2016) shows that ethical leaders will result in lower intention to perform unethical behaviour. According to the theory of Hunt and Vitell, personal characteristics, such as leadership will influence the intention to perform unethical behaviour.

Thus based on findings from previous studies, this study hypothesises that,

H1: There is a significant negative relationship between leadership and intention to perform unethical behaviour in institutions of higher learning

Damodar (2004) shows that caring and professional climate is negatively related to unethical behaviour. Mayer (2011) found that ethical climate was negatively related to employee misconduct. In another study, Shafer (2008) found that egoistic climates predicted employee intention to commit unethical act while benevolent and principle climate reduce such intention. According to the theory of Hunt and Vitell, professional environment, such as ethical climate will influence intention to perform unethical behaviour.

Thus based on findings from previous studies, this study hypothesises that,

H2: There is a significant negative relationship between ethical climate and the intention to perform unethical behaviour in institutions of higher learning

This conceptual framework suggests that leadership and ethical climate are expected to be the explanatory variables that will explain the intention to perform the behaviour. The framework shows the relationship of the independent variables (leadership and ethical climate) with the dependent variable (unethical behaviour), indicating the existence of significant relationships between them.

## 6. Conclusion

It can be seen that there are different types of unethical behaviour found in higher learning institutions. The factor that influences such behaviour is also well identified, which is the importance of having an ethical leader that could lead to better ethical conduct in the institution together with a good and manageable ethical climate. It is hoped that the problem of unethical behaviour found can be managed to ensure the proper functioning of the institutions.

## Acknowledgement

We would like to thank Yayasan Bank Rakyat for the financial support by sponsoring this paper to be presented in the FGIC 2<sup>nd</sup> Conference on Governance and Integrity 2019.

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## Conference Paper

# Quality of Chief Integrity Officer, Ethical Climate and The Level of Ethics and Integrity in The Malaysian Public Sector

Asmawati Sajari<sup>1</sup>, Hasnah Haron<sup>1</sup>, Ishak Ismail<sup>1</sup>, and Andrew Chambers<sup>2</sup>

<sup>1</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

<sup>2</sup>Cas Business School, London, United Kingdom

### Abstract

The purpose of this quantitative study is to examine the relationship between the level of ethics and integrity with Quality of Chief Integrity Officer (independence, competence, work performance) and ethical climate in the Malaysian public-sector organizations. Out of 128 questionnaires that were emailed to CIOs in the Federal level, 83 questionnaires were received and usable. The results of this study showed that the Quality of CIO (competence, work performance) and ethical climate is significantly related to the level of ethics and integrity of the public sector in Malaysia. CIO need to perform their roles such as coordinating and monitoring programs and report any breaches of integrity without fear and favour. To nurture a good ethical climate in the organization, clear policies, guideline and code of conduct should be established in all government ministries, department and statutory body in the public sector. Non-ethical conduct should be reprimanded, good ethical behavior should be rewarded accordingly and should be evident to all in the organization.

**Keywords:** chief integrity officer, ethical climate, level of ethics and integrity, public sector.

Corresponding Author:

Asmawati Sajari  
 watiku049@gmail.com

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

The success of implementing ethics and integrity in the public sector will reduce the ethical scandals such as corruption, bribery, fraud, governance inefficiency, misappropriation of assets, poor internal control, misconduct of behavior and avoiding an adverse effect on government and economy in the future. Thus, ethics and integrity have to be translated into good governance and efficient services delivery by government agencies to prevent issues of integrity in the public sector. In addition, ethics and integrity are two of the key mechanisms of good corporate governance and have become benchmarks for assessing the development of the nation. Without good corporate governance, no reasonable sustainability can be achieved from the part of the country inhabitants and

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the country itself (Ali, 2015). Thus, a case study from Mass Rapid Transit (MRT) committee has been stated that good governance can ensure completion of the massive project ahead of schedule at a lower cost than original estimate budget (Malaymail, 2017).

This is one of the steps to increase towards the level of ethics and integrity in the public sector Malaysia organization. There are several ways to determine the level of ethics and integrity in the public sector. Such as the Public Integrity Index established by Global Integrity is to help control or reduced current corruption, prevent abuse of power, and promote more effective of good governance (Camerer, 2006). Also, there is a comprehensive strategy study to enhance integrity, especially in combating corruption. Among them are studies done by international institutions such as Organizations for Economic Cooperation and Development (OECD). Transparency International (Corruption Perception Index), and Global Integrity (Global Integrity Report). At the national level, there are studies the conducted by Malaysian Institute of Integrity (MII), Malaysian Anti-Corruption Commission (MACC), Public Complaints Bureau and integrity units established in each of the government department, ministry, and statutory body (Siddique. 2010).

The government acknowledged that ethics and integrity in the public sector are important as it is needed to manage and administer an organization and contributes to better deliver services and national development. Thus, Table 1.1 shows the initiatives undertaken by the Malaysian government to enhance ethics and integrity in the Malaysian public sector. Amongst the initiatives include the appointment of the Chief Integrity Officer (CIO) and the implementation of the Certified Integrity Officer (CeIO) programme by the Malaysia Anti-Corruption Academy (MACA).

In the public sector, ethical behavior and integrity are important functions in ensuring accountability and transparency. Thus, the Malaysian government had implemented ethics and integrity initiatives even before it gained independence in 1957. In 1950, for example, a commission report on the "Integrity of the Public Services," focusing on corruption offenders was shaped following the enactment of the Corruption Prevention Ordinance 1950 (UKM, 2007). The Corruption Prevention Act 1961 later ensued. Besides, in 1967, the Anti-Corruption Agency was established to eliminate bribery and against the action of unethical in the public sector various departments. Malaysia has been effectively transforming the country from one that is developing into one that will be developed. Before that, the government introduced the strategy known as "Clean, Efficient and Trustworthy" in the 1980s to replace the 1950 Prevention of Corruption Ordinance and the 1961 Prevention of Corruption Agency Act with the aim of ensuring

TABLE 1: Initiatives taken by Malaysia Government to Promote Ethics and Integrity in the Malaysian Public Sector.

| Year        | Milestone  |
|-------------|--|
| 1950        | Prevention of Corruption Ordinance   |
| 1961        | Prevention of Corruption Act   |
| 1967        | Anti-Corruption Agency (ACA) – Anti-Corruption Act 1967  |
| 1980        | Introduced “Clean, Efficient, Trustworthy”   |
| 2004        | Establishment of the Malaysian Institute of Integrity (MII) Launching of the National Integrity Plan (NIP)   |
| 2006        | Establishment of the Malaysia Anti-Corruption Academy ((MACA)  |
| 2008        | Establishment of the Corporate Integrity Development Center (CIDC) * Putting the Chief Integrity Officer (CIO) from ACA “Kader” at ministries, departments, agencies in high risk unethical scandal.                       |
| 2009        | Transformed: Anti-Corruption Agency (ACA) to Malaysia Anti-Corruption Commission (MACC’s) – MACC Act 2009 Implementation of the Certified Integrity Officer (CeIO) Programme Establishment of Committee on Integrity (CIG) |
| 2013        | Established of the Agency Integrity Management Division (AIMD)   |
| 2014        | Establishment of Integrity and Governance Committee - Chief Integrity Officer (CIO) have a certificate of integrity officer as its Head Integrity Unit   |
| 2019 - 2023 | National Anti-Corruption Plan (NACP)   |

the prevention of corruption and increasing the practise of integrity in the public sector various departments (Lokman. A & Talib T. A, 2015).

In the public sector, the government also established several control mechanisms to introduce accountability in spending to organizations. In 2004, the Malaysian Institute of Integrity (MII) was established as an initiative by the government to create a nation with a high level of integrity which would be resilient and embody the universal good value. In the same year, the National Integrity Plan (NIP) was introduced as a major effort made by the government to promote a culture of integrity. MII provides a framework that would support the effective coordination and implementation of NIP. Chaired by the Chief Secretary to the government and governed by a Board of Directors, MII is responsible for monitoring and coordinating and implementation particularly devising appropriate indices to measure performance in achieving NIP targets, preparing annual reports to Malaysia Integrity system and organizing conventions of stakeholders to debate integrity issues seeking new and innovative ways to move forward (Siddique, 2010).

In 2006, the Malaysian government established the Malaysia Anti-Corruption Academy (MACA) to provide trainers and experts to formulate and conduct, training, seminar, and workshop in fighting corruption. In 2008, the government established the Corporate Integrity Development Centre (CIDC) that is responsible for developing course modules for the Certified Integrity Officer program. The course modules were developed with the cooperation of government agencies and government-linked company (GLCs). In August 2008, MACC placed their Chief Integrity Officers as “kader” at ministries, department and agencies governments that have a high risk of corruption. There are three levels of risk in the public sector, and they are at high risk, medium risk, and low risk. The federal government was said to have a moderate to high risk, and the state government was said to have a low risk in Circular No.6 (2003).

On 1<sup>st</sup> January 2009, ACA was transformed to become the Malaysian Anti-Corruption Commission (MACC) whose main function was to enforce the law to prevent corruption. There are three pillars of integrity which are (i) education and awareness (ii) prevention and government, and (iii) detection and consequence management (Norazlan M.R, 2013). In 2009, the Committee on Integrity Governance (CIG) was established. The purpose of CIG is to improve the administration of the government, enhance governance, reduce bureaucratic, and prevent corruption. The Certified Integrity officer programme requires a CIO to undergo a six-months training by MACA This programme expectations to be able to curb unethical issues at various levels of the organizations. The objectives of the programme are (i) promote compliance in terms of laws and regulations, system and procedure, (ii) foster zero tolerance towards fraud, corruption, and abuse of power, and (iii) consult and advise the organisation’s management on awareness and preventive measure (NKRA E-Newsletter, 2013). This is one of the efforts initiated by the government to increase ethics and integrity in the public sector. Upon the recommendation by MACC in 2013, Unit Integrity was established to further enhance integrity in all federal and state government agencies. This will prevent criminal misconduct and violations of the code of conduct and ethics in the civil services organization. As a Head of the Integrity Unit who has a certificate as an integrity officer, the CIO will manage and implement active initiatives in integrity, managing complaints, prevention, compliance, detection disciplinary actions in governments agencies

Currently, in 2019, the Malaysian government has promoted a new initiative to combat corruption which is the National Anti-Corruption Plan (NACP) and will be launched by the Prime Minister of Malaysia, Dato’ Seri Dr. Mahathir Mohammed. The National Anti-Corruption Plan (NACP) is an anti-corruption policy in Malaysia that reflects the people’s

expectations for a greater corrupt-free nation that promotes transparency, accountability and integrity culture in every Malaysians and will be replacing the National Integrity Plan. With the establishment of NACP, it is hoped that the ranking of corruption will decrease, and Malaysia will become an inspiration for other countries thus become a benchmark to combat corruption in the public sector (GIACC, 2019).

## 1.1. Problem Statement

This study will determine the level of ethics and integrity in the public sector. Quality of CIO and ethical climate are hypothesized to be a factor that will influence on the level of ethics and integrity. Based on the Transparency International (TI) Corruption Perception Index (CPI), there are cases of allegations of corruption in the newspapers and social media that highlighted unethical behavior and integrity as the main problem in the public sector. Even though the Malaysian government has implemented various initiatives to reduce the occurrence of unethical scandals in the public sector, but statistics reports still show an increase every year (Siddiquee, 2010). Previous studies show that having a corporate integrity system in an organization, will lead to a good level of ethics and integrity in the workplaces. However, the research has been conducted in listed companies. Meanwhile, the study of this research would assist the government in identifying the factors that would assist in nurturing and promoting the value of integrity in the government sector.

According to the Asia Pacific Fraud Survey Report Series 2013, it has been noted that the highest level of bribery and corruption is from Malaysia and China. A survey by Transparency International – Malaysia (TI-M) on Corruption Perceptions Index in the public sector, also shows the “scores” and “ranking” dropped in 2016, 2017 and 2018. Example due to drop such as 1 Malaysia Development Berhad (1MDB), SRC International Sdn. Bhd case, and Federal Land Development Authority (Felda) scandal (Theedgemarkets, 2018). This is indicating that graft-fighting measures efforts are still inadequate to fighting corruption, even though the government is on the right way to restore public confidence. Numerous steps should be taken to improve public awareness, mainly towards public sector accountability (Said, Alam, & Khalid, 2015). However, the issue of corruption and unethical conduct remains critical. Table 2 shows the annual statistics on arrests up to July 2016, which comprised of 588 cases whereby 296 cases involved public sector officials.



TABLE 2: Annual Statistics on Arrest as of July 2016 (n=588).

| Month                       | Jan | Feb | Mac | Apr | May | Jun | Jul | Total           |
|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----------------|
| Top Management              | 0   | 0   | 1   | 0   | 0   | 0   | 0   | Public Official |
| Professional and Management | 15  | 6   | 7   | 7   | 5   | 23  | 5   |                 |
| Support Staff               | 38  | 39  | 31  | 25  | 42  | 33  | 19  |                 |
| Total                       | 53  | 45  | 39  | 32  | 47  | 56  | 24  | 296             |
| Private Sector              | 30  | 8   | 44  | 28  | 14  | 9   | 6   | Civilian        |
| General Public              | 23  | 14  | 21  | 30  | 36  | 14  | 13  |                 |
| Local Councillor            | 0   | 0   | 0   | 0   | 0   | 0   | 0   |                 |
| Politician                  | 0   | 0   | 1   | 0   | 0   | 1   | 0   |                 |
| Total                       | 53  | 22  | 66  | 58  | 50  | 24  | 19  | 292             |

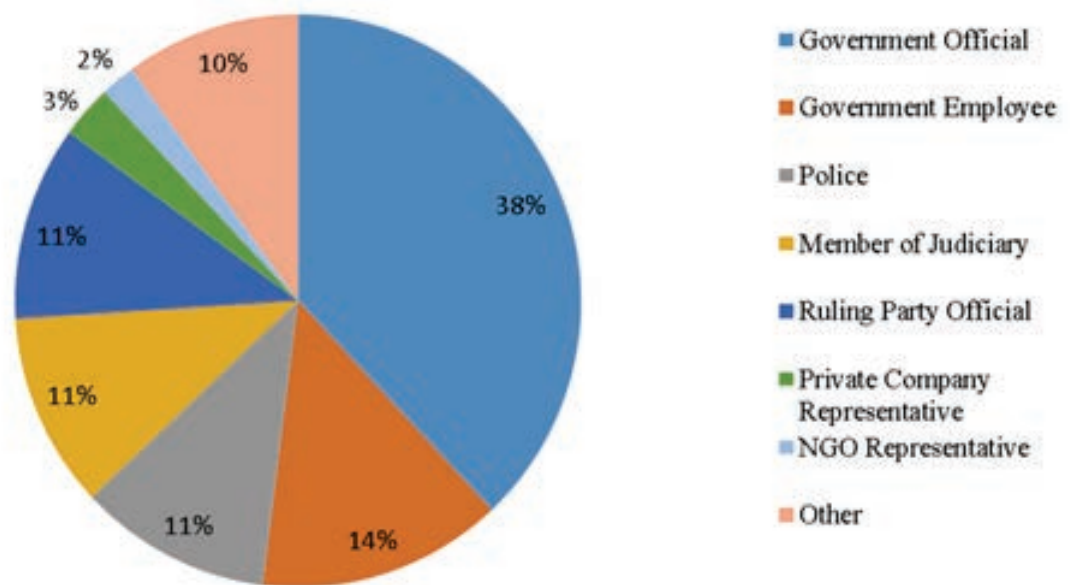
Table 3 shows the percentages of fraud cases based on the different number of government agencies. Research conducted by Kamaliah, Marjuni, Mohamed, Mohd-Sanusi & Anugerah (2018), shows that the higher percentages are fraud cases namely, misappropriation of assets, followed by theft, procurement fraud, bribes, payroll fraud and, financial statement fraud in the federal government agencies. Meanwhile, a percentage of fraud cases misappropriation of assets in local government agencies is the lowest percentage compared to the federal government agencies. Therefore, having a Chief Integrity Officer and a good ethical climate at the workplace will help to enhance ethical practices among employees and as a result, will reduce misconduct in the public sector organisation.

TABLE 3: Percentage of Fraud Cases Based on The Type of Government Agencies.

| Fraud                      | Federal (%) | Local (%) | Others (%) |
|----------------------------|-------------|-----------|------------|
| Bribery/kickbacks          | 24.18       | 10.99     | 12.09      |
| Theft                      | 36.26       | 14.29     | 17.58      |
| Misappropriation of assets | 37.36       | 16.48     | 17.58      |
| Procurement Fraud          | 35.16       | 14.29     | 15.38      |
| Payroll Fraud              | 14.29       | 4.40      | 9.79       |
| Financial statement fraud  | 7.69        | 0.00      | 2.20       |

Source: Kamaliah, Marjuni, Mohamed, Mohd-Sanusi & Anugerah (2018)

A research conducted by Accounting Research Institute (ARI, 2016) found that the government-related parties request for bribe more than the others, as shown in Figure 1. In this study, questionnaires were distributed to both technical and non-technical employees in both the public and the private sector. The questionnaire asks the respondents to rate which party requests for consultbribe the most when dealing with business transactions with them. Findings show that the most party that requests for a bribe is the government official (38%).



**Figure 1:** Who Requested the Bribe? (Source: Accounting Research Institute (2016)).

Thus, Prime Minister Directive No. 1 of 2009 has taken a vital step to encourage further on integrity. This directive is a mandate establishment of a committee on integrity governance in all government ministry and departments. The Certified Integrity Officer (CeIO) is an accredited officer that plays an integral role within an organization to inculcate integrity and ethical values. A prepared CeIO would have a decent comprehension of Integrity Management, the required Legal Framework and Compliance, and Monitoring System just as the capacity to build up an Integrity Action Plan. One of the mechanisms to push companies to follow ethical conduct is through the appointment of an ethical and compliance officer. Similar terms used for ethical and compliance officer includes Compliance Officer (CO), Ethics and Compliance Officer (ECO), Chief Ethics and Compliance Officer (CECO) and Chief Integrity Officer (CIO). This officer is expected to guide and protect an organisation from unethical behaviour that will harm the organisation's reputation. They are also expected to formulate and review corporate integrity strategy and action plan to promote integrity and set up personnel and integrity committee at the

board level. This position is one of the most important positions in the company because he/she is responsible for creating and maintaining organization environments that aim to produce ethical and law-abiding employees and leaders (Treviño, den Nieuwenboer, Kreiner, & Bishop, 2014). Furthermore, the Malaysian Anti-Corruption Academy (MACA), through its Corporate Integrity Development Centre (CIDC) conducted a CeIO program for this purpose. All CeIOs will be awarded a certificate by MACA. This CeIO program has been implemented for more than five (5) years. In Malaysia, a CIO is a Senior Officer from MACC that acts as an advisor in their agency. This position was created to ensure that there is an improvement in the level of ethics and integrity in the public sector, as corruption and bribery are getting more severe by the day. Malaysia views this issue unethical and lack of integrity in the public sector seriously. Therefore, government has emphasised that the public sector in Malaysia needs to be effective, efficient, and ingrained with the highest level of ethics and integrity. This is so that Malaysia will be able to move towards achieving a high-income economy status in 2020. Thus, the importance of a good quality CIO and ethical climate in the organizations will help to ensure the achievement of this objective.

In this study, CIO is perceived as a person who has an important role and responsibility to ensure that ethics and integrity is implemented in the organization. However, there is no latest research conducted with the knowledge of the researcher, to evaluate the effect of CIO on the level of ethics and integrity in Malaysia's public sector. Therefore, one of the objectives of this research is to examine this issue. The research will examine the relationship of CIOs on the level of ethics and integrity in Malaysia's public-sector organizations. If CIO's relationship is positive on the level of ethics and integrity in an organisation, then this programme would be recommended to be continued otherwise, an intervention or improvement is needed to relook at other alternatives to improve the level of ethics and integrity of an organisation. Previous research has shown that having a quality CIO (Chandler, 2015; Treviño et al., 2014) and a good ethical climate (Kolthoff, Erakovich & Lasthuizen, 2010) will enhance the level of ethics and integrity in an organisation. Therefore, this study will examine the issue in the Malaysian context. The findings of this study may help the public sector to increase the level of ethics and integrity in their organisations and assist in preventing unethical conducts. If the problem of ethics and integrity is resolved, it will encourage investors from abroad to come and invest in this country. This will help to increase economic growth and develop Malaysia to achieve a high-income economy status in 2020.

## 1.2. Research Objectives

The objectives of this study are as follows:

1. To examine the relationship between Quality of Chief Integrity Officer (CIO) i.e independence, competence, and work performance with the level of ethics and integrity in the Malaysian public sector.
2. To examine the relationship between ethical climate with the level of ethics and integrity in the Malaysian public sector.

## 2. Literature Review

Previously, the Malaysian public sector is known as the Malaysian Civil Service (MSC). It is divided into three tiers governments, namely, i) federal government ii) state government iii) local government (Azleen & Nurul, 2013). The Federal Government is the Central Government with 25 Federal Ministries headed by Ministers, administrative heads and the Secretaries-General. Meanwhile, 13 of State Governments implementing state functions with Federal Department. Also, generates own revenues and incur their own expenditures even though the Federal Government undertakes projects at the state level agreed upon in the Concurrent List and Federal List in the Constitution of Malaysia. There are federal statutory bodies and state statutory bodies. The complexity of structure requires the Malaysian government to adopt a comprehensive procedure and guidelines especially related to planning and control on the financial management matters (Ali, 2015). Malaysia is no exception towards promoting integrity and curb of corruption has become a significant component of government reforms such as many countries. Economic Transformation Program (ETP) is a system of Malaysia government to become a high-income nation by the year 2020. The Anti-Corruption Agency was established in 1967 with clear mandates, it was reformed and revitalized subsequently to make it more effective in containing corruption and all forms of maladministration in the society. Since the year 2003, fighting corruption has been steadfast in the government agenda. The variety of new initiatives and strategies have been planned and implemented ever since. In addition, Malaysia also has an elaborate anti-corruption framework. However, Malaysia presents an interesting case where the level of corruption has remained high and the plethora of strategies and recent campaigns appear to have made hardly any difference in containing and combating corruption in the society (Siddiquee, 2010).

## 2.1. Theory

This study applies the Hunt and Vitell Theory of Ethics (1986). This theory examines of ethical dilemma and ethical decision-making on individual arrive at the level of ethics and integrity in the organizations. Hunt and Vitell Theory, explain that behavioural consequences impact future deliberations regarding ethical issues, presupposing that the decision-maker reaches a “right” or a “wrong” decision that informs subsequent ethical decision making (Pimental et al., 2010). Thus, personal characteristics (e.g., attitudes, and knowledge) will explain the relationship between of Quality of CIO (Independence, competence, work performance) with the level of ethics and integrity. Meanwhile, organizational environment will explain the relationship between ethical climate with the level of ethics and integrity.

## 2.2. Quality of Chief Integrity Officer (CIO)

Despite growing research in behavioral ethics, little is known about one of the most important ethics-related roles in organizations. There are numerous names given for the ethics-related role such as Ethics and Compliance Officer (ECO) (Chandler, 2015; Treviño et al., 2014), Compliance Officer (CO) (David Chandler, 2015), Ethics Ambassador (Irwin & Bradshaw, 2011), Ethics Officer and Chief Ethics Officer (Guten et al., 2004). In Malaysia, Chief Integrity Officer (CIO) was introduced (Circular No. 6, 2013). Prior to that, MACA had conducted specialized training programme of Certified Integrity Officer (CeIO) to prepare these CIUs for their role and responsibility. In this study, the quality of CIO (Chief Integrity Officer) will use the measurement of independence, competence and work performance as a factor that influence the level of ethics and integrity in public sector organization.

### 2.2.1. Independence

Independence is the freedom from a condition that threatens the objectivity or the presence of objectivity (IIAM, 2008). According to Qun (2013), independence for internal audit is an important characteristic that must be involved to confirm that internal audit is adequately effective. His study measures the independence based on reports for administrative report purposes, in most situations, the CAE should report straight to the chief executive officer of the organization. Administrative reporting is the reporting

related in the organization's management structure that facilitates the daily procedures of the internal audit such as, human resources administration, including, budgeting, administration of the organization's policies and procedure. In the case of CIO, reporting operationally refers to reporting within the organization's management structure that facilitates the day-to-day operations of the internal activity, for example, to coordinate and monitor integrity programs of the CIO that requires reporting to Head of Department.

### 2.2.2. Competence

According to Thomson (1995), competence is defined as "attributes needed by an individual to perform work. An individual becomes competent through a combination of education, training and work practices. Competence has been classified to have four facets which are professional, methodological, social and self-competence (Kauffeld, 2006). Measuring professional competence addresses the skills, knowledge and all employees have to have in order to practice his or her occupation. It is also to identify potential for improvement within the company and develop a relevant technical solution (Kauffeld, 2006, Heinen, 2013). Competence methodologies are the cognitive skill of an individual to learn new working methods independently or gain new expertise (Erpenbeck and Michel, 2006). These skills should be used across any setting and applied to any particular situations (Heinen, 2011; Kauffeld, 2006). Social competence involves the experience, knowledge and ability to cope with various social interaction situations (Frey and Ruppert, 2013; Kauffeld, 2006). Self-competence is the ability for self-assessment and for the independent creations of conditions in which an individual, as well as their value and attitude towards their own work, are developed (Frey and Ruppert, 2013, Kauffeld, 2006). Competence is one of the important characteristics of an employee and employer in an organization. It is important because this criterion will show in their work outcome whether it be good or bad in all tasks done. Individual competence can be described as a set of skills and knowledge that an individual need in order to perform a specified job effectively (Baker et al., 1997).

According to Qun (2013), the definition of competence is the quality of being adequately or well qualified physically and intellectually. Meanwhile, the measurement of competence also looks at years of experience and educational qualification level. He conducted the study on the competence of internal auditors based on the sum of mean educational qualification level among audit staff, which an internal auditors' average score of four will be awarded for "PhD," three for "master," two for "degree" and one

for “diploma”. The mean of educational qualification is the sum of the score divided by the maximum score given to the number of staffs. For experience work, based on the average of the year, the more experienced staff usually have accumulated extra knowledge and skills, therefore the score of six will be awarded for “more than 15 years”, five for “12 to less than 15 years”, four for “9 to less than 12 years”, three for “6 to less than 9 years”, two for “3 to less than 6 years” and one for “Less than 3 years”. The mean of experience is derived by dividing the sum of the score by the maximum score. Similarly, in this study, the measurement of CIO competence will be based on the educational qualification level and working experience.

### 2.2.3. Work performance

The definition of work performance is the behaviors or actions that contribute to the goals of the organization (Campbell's, 1990). There are three views of on different definitions of work performance namely: (i) in terms of behavior rather than results, (ii) includes only those behaviors that are relevant to the organization's goals and (iii) is multidimensional. Meanwhile, Viswesvaran and Ones (2000) defined work performance as accessible activities, behavior, and results that employees engage in or bring about, that are related to and contribute to organizational goals. Besides that, the definition of work performance (IIAM, 2008) is a process of procedures that includes audit planning, performing engagement and communicating audit results. According to studies done by Qun(2013), work performance is the responsibility of the internal audit to ensure the achievement of objective effects and quality of work performance. This ensures that entirely planned work is a priority and that audit resources are applied in a good possible method. The IIA Performance Standard 2200 (IIAM, 2008) deals with engagement planning and states that internal auditors should develop and record a plan for each engagement, including the scope, objective, timing and resource allocations. Engagement planning involved the adequacy of the scope of work and related programs whether it is, performed by people having adequate technical training and expertise. His studies were used as a measurement of work performance in engagement planning, an accomplishment the engagement and communicating results of the engagement. In this study, work performance is defined as the role that the CIO must ensure the level of ethics and integrity of an organization. The roles are as listed in Circular Series 1 No.1 (2011) which are the CIOs' roles.

### 2.3. Ethical Climate

The stories of collapse companies such as Enron, Tyco, and World Com proven that ethics and integrity are the most of important elements in governance that affect not only organizational effectiveness but also survival skills. (Bartels et al., 1998; Buller and McEvoy, 1999; Hunt et al., 1989). The ethical climate is important in the organization because one of the factors influencing the employees' perception in emphasize the ethical guideline of organizations and encourage employees' ethical work behaviour at the workplace. (Martin and Cullen, 2006; Schminke et al., 2007) as cited in the study done by Kwon Choi et al., (2013). Based on previous research, Victor and Cullen (1988) defined ethical climate as "the prevailing perceptions of distinctive organizational follows and procedures that have ethical content" or "those aspects of work climate that determine what creates ethical behaviour at work. Ethical climate can be measure with four-item subscales which follows nine theoretical dimensions of ethical climate and they are self-interest, company profit, efficiency, friendship, team-interest, social responsibility, personal morality, rules, and standard operating procedures and laws and professional codes. The ethical climate is the perception of what constitutes the right behaviour. Ethical climate influences both decision-making and subsequent behaviour in response to ethical dilemmas (Martin and Cullen, 2006). The concept of ethical climate is powerful and according to Sims (1992) as cited in Laratta (2008) whereby the ethical climate of an organization is the shared set of identifications about what correct behaviour is and how ethical issues will be handled. This climate sets the tone for decision making at all levels and in all circumstances. In their paper, Abdullah, Sulong, and Said (2014) used the term ethical climate interchangeably with the ethical culture. Ethical climate/culture measurement is implemented from the scale developed by Victor & Cullen (1988) and Suar & Khuntia (2004). This is based on ten-item that measures management perception on ethical climate in the present organization. This research used the ethical climate questionnaire (ECQ) developed by Victor and Cullen (1998).

### 2.4. Level of Ethics and Integrity

Corporate Integrity Assessment Questionnaire (CIAQ) is a tool introduced and made available by the Malaysian Institute of Integrity (IIM) to measure the level of corporate integrity in late 2010. Thus, organizations will be using CIAQ as a tool to assess the



improvement in making a transparent assurance to ethics and integrity in the workplace. As shown in Table 4, studies by Rosli et al., (2015) have used these twelve dimensions of corporate integrity system. According to Said and Omar (2014) using the Corporate Integrity System questionnaire (CIAQ) studies on two giant government-linked companies shows that finding found that the level of ethics and integrity on the average is 50%. Company A's level of ethics and integrity is 67.7% (Utility Company) which is higher than Company B's level of ethics and integrity of 59.7% (Healthcare Company). Company A scored higher than Company B in terms of Vision and Goals, Legal Compliance, Policies and Rules, and Corporate Social Responsibility. The score for Corporate Social Responsibility is highest for both companies, however, for infrastructure both companies had the lowest score. Infrastructure is the way that organization structures, organizes its ethics and integrity function so that it can convey out its goals effectively. The lowest score shows that these two leading GLCs placed less emphasis on integrity infrastructure to support the companies to convey out its integrity's goals effectively (Said & Omar, 2014).

## **2.5. Relationship between Quality of CIO (Independence, Competence, Work Performance) and Ethical Climate to Level of Ethics and Integrity**

### **2.5.1. Quality of CIO**

To further examine this area, this study examines the existence of quality of Chief Integrity Officer (CIO) that might influence the level of ethics and integrity in the public sector Malaysia. Meanwhile, based on Hunt and Vitell's Theory of Ethics (1986), it is more positive rather than normative approach (Torres, 2001). In other research by Zakaria, Haron, and Ismail (2010), they cited that Hunt and Vitell's (1986) theory of ethics states that personal characteristic influences perceived ethical problems, which in turn influences the formation of ethical judgement. Therefore, using this theory best solves the problem and to find out the level of ethics and integrity in public sector organizations. Malaysians need to attain the most beneficial outcome. As cited in Chandler (2015), the existence of the Ethics and Compliance Officer (ECO) position represents the enactment of values in relation to ethical behaviour (Weaver et al., 1999a). This means that through resource commitments, what is the implementation and the response of stakeholders to these commitments. This is important because, in order to remain relevant, institutions must be actively maintained (Dacin, Munir, & Tracey, 2010; Lok & de Rond, 2013). It is

believed that the contacts that the employees have with their ECO via helpline are a direct reflection of the ECO's ability to generate an "ethical culture," which is connected to the ethical behaviour of its employees. Therefore, based on the previous studies the hypotheses as follows:

H<sub>1</sub>: There is a significant relationship between the Quality of chief integrity officer with the level of ethics and integrity.

*Independence* of this studies is supporting the view of audit committee contributes positively to ethical reporting relation between audit committee independence, which unethical reporting without interference from other parties. Blue Ribbon Committee (1999) state that audit committee independence is positively related to the number of its outside directors who have no personal or financial relations with the firm or its executives. Chandler (2015) cited that ECO implementation captures both the scale and scope of organizational resource commitments to the ECO position. Access to both tangible and intangible resources is understood by management researchers to be a source of power and legitimacy within the firm (Cyert & March 1963). Besides that, Abbott et al. (2004) and Persons (2005) find a negative association between the audit committee independence and the probability of financial reporting restatement and financial reporting fraud. Therefore, based on the previous studies the hypotheses as follows:

H<sub>1a</sub>: There is a significant relationship between the independence of the chief integrity officer with the level of ethics and integrity.

Nabila (2008) found that *competence* has a significant relationship with organizational commitment. Zahariah, et al., (2009), Sethela and Rosli (2011), Mujeeb, et al (2011), Selma (2011), Simpson (2012), which indicated that there is a direct and indirect relationship between competence (ability), motivation and organizational culture on organizational commitment. Ulrich (1998), stated that the success of organizations will not be achieved if commitment without competence is not implemented to maintain a sustainable in the organization. Hsiang Wu (2010), the analysis result that competency training was positively related to organizational commitment. Competence plays a significant relationship with ethic and integrity in a few significant ethical judgment models by Hunt & Vitell Theory of Ethics, (1986). According to Hunt & Vitell, competence influence ethicalness on organizations. Therefore, based on the previous studies the hypotheses as follows:

H<sub>1b</sub>: There is a significant relationship between the competence of the chief integrity officer with the level of ethics and integrity.

Studies (Koopmans et al., 2011) found that *work performance* is a behavior or action that is relevant to the organization. Whereby, the dimension of work performance that comprises namely task performance which are work quantity and quality, job skills and knowledge and context performance which are showing responsibility, communicating effectively, job-scope and cooperating with others. These two elements have a relationship with the outcome of good performance towards the goal of the organization. Meanwhile, Qun (2013) stated that a relationship on work performance might affect the internal audit and its efficiency. The significant relationship shows that the quality of work performance which are planned, performed, reviewed and suitability of audit is vital to ensure the objective is accomplished and engaged effectively and efficiently in the organization. Therefore, based on the previous studies the hypotheses as follows:

H<sub>1b</sub>: There is a significant relationship between the competence of the chief integrity officer with the level of ethics and integrity.

### 2.5.2. Ethical Climate

Meanwhile, organizational *ethical climate* refers to a few models of ethical judgment support that has a significant relationship with a perceived ethical problem. Hunt and Vitell's Theory of Ethics (1986) also posits that the organizational environment influences people in perceiving ethical problems. Similarly, prior studies indicate that the more ethical the employees perceived the climate in their organization, the higher their ability to perceive ethical problems (Marta, 1999; Patterson 1994). Hence, the less likely an unethical judgment can occur. In addition, Shafer (2015) studies the ethical climate of professional accountants in Hong Kong and results show that an ethical climate has a significant relationship with ethical judgements in the organizations. This result is in line with his previous which examines local and international CPA firms in China (Shafer, 2008). It looks that there is a significant relationship between perceived ethical climate and the intention to conduct questionable actions (Haron, Ismail, & Na, 2015). Haron et al. (2015) found that the level of perceived ethical climate has a positive effect on the ethical conclusions made. This result is also consistent with the findings of Ghazali and Ismail (2013) whereby the accountants who are attached to corporations with higher ethical standards are stricter in making results in questionable ethical conduct. Therefore, based on the previous studies the hypotheses as follows:

H<sub>2</sub>: There is a significant relationship between ethical climate with the level of ethics and integrity.

All the above relationships mentioned above can be related to the level of ethics and integrity in the organization. In other words, the quality of CIO namely independence, competence, work performance and ethical climate of the organization influences the ethical decision making and eventually gives an impact on the level of ethics and integrity.

## 2.6. Theoretical Framework

Figure 2 shows the Theoretical Framework; this study utilizes the principle of Hunt and Vitell’s Theory of Ethics (1986). As stated in the theory, personal characteristics and environment of organization influence the perceived the level of ethics and integrity. Following this theory, this study posits that Quality of CIO and ethical climate has a significant relationship with the level of ethics and integrity in the organizations.

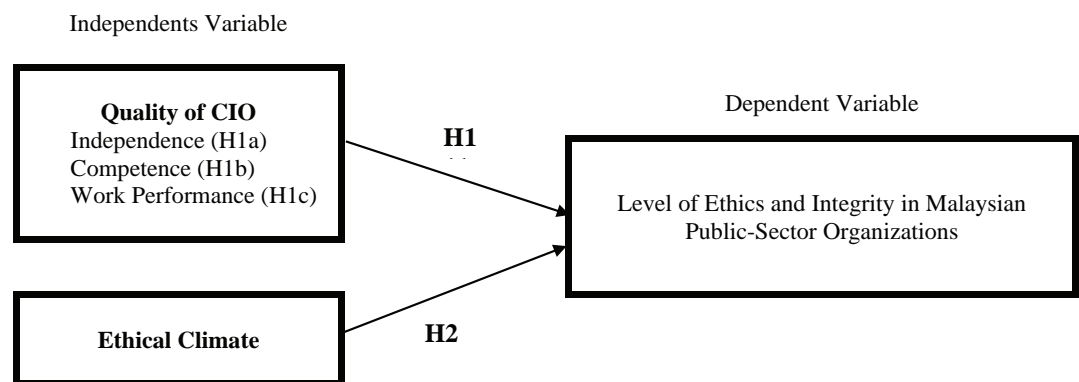


Figure 2: Theoretical Framework.

## 3. Methodology

### 3.1. Research Design

The research design of this study is exploratory research. Exploratory research helps to determine the best research design, data collection methods, and selection of subjects. This research was also analysed with the help of statistical tools to find the answer for the research questions.

### 3.2. Population and sampling technique

The population of this research is 128 officers in charge of ethics and integrity in their organisation. It is confined to the Federal Government as it has moderate to a high level of risk as compared to the State Government which has a low risk. The names of CIOs have been provided to the researcher by the Corporate Integrity Development Centre (CIDC) and all 128 officers have completed in taking the training modules offered by CIDC of MACC as of August 2017. The total of 128 officers includes CIOs, compliance officer, assistant director, investigation officer, secretariat department, director of integrity unit, senior compliance, governance and integrity centre. By using 4 variables and the Sekaran's rule of thumb. To calculate the sample size, 4 variables and the Sekaran's rule of thumb were used. Sample size of 40 to 50 officers would be enough for this study. This study used the sampling method that selected 128 officers of CIO who have been attending the CeIO programme at federal territory were included.

### 3.3. Measurement of variable

#### 3.3.1. Quality of CIO will use measurement of independents, competence and work performance as factor influences the level of ethics and integrity in public sector organization.

*Independence* is based on the level of functional reporting and administrative reporting (Qun, 2013). Whereby CIO should report functionally to the General Secretary of Ministry with a score of "5", score "4" for Ministry, score "3" for Chief Executive Officer, score "2" to Head of Department and score "1" to other bodies in the organization. However, independence of CIO in administrative reporting which is the daily reporting to the Head of Department is important and should be done.

*Competence* of Chief Integrity Officer is measured based on the sum of mean educational qualification level with experience. Whereby, an educational score of "4" was for Ph.D., "3" for master, "2" for degree and "1" for the diploma. For experience on average, the further experienced staff usually have accumulated more knowledge and skills, whereby the score was "6" for more than 15 years, "5" for "12 to less than 15 years", four for "9 to less than 12 years", three for "6 to less than 9 years", two for "3 to less than 6 years" and one for "Less than 3 years". The mean of experience is derived by dividing the sum of the score by the maximum score (Qun, 2013).

*Work performance*, CIO must identify, analyse, evaluate, and record sufficient information to achieve the engagement's objectives. Also, had better identify sufficient, consistent, relevant, and useful information to use in analysing and evaluating the engagement before drawing conclusion and engagement in making a decision (Qun, 2013, IIAM 2008). Thus, the measurement work performance of CIO is self-developed based on the roles Certified Integrity Officer in Circular No. 1 2009 and Series 1, No. 1 2011. The CIO has ten roles, and they are. 1) Coordinate and monitor integrity program, 2) Report any breach integrity, 3) Coordinate the actions taken on breach of integrity, 4) Implement the recovery program on integrity 5) Publication of integrity-related article, 6) Assist and support of Committee on Integrity, 7) Advice management on integrity matters, 8) Monitor the system services delivery system, 9) Act as a liaison Officer organization to corporate and 10) Ensuring compliance to directive /regulations issued by organization. The respondent is required to rate the level of agreement from scale 1 (strongly disagree) to scale 5 (strongly agree), which shows the measurement items for the work performance of CIO.

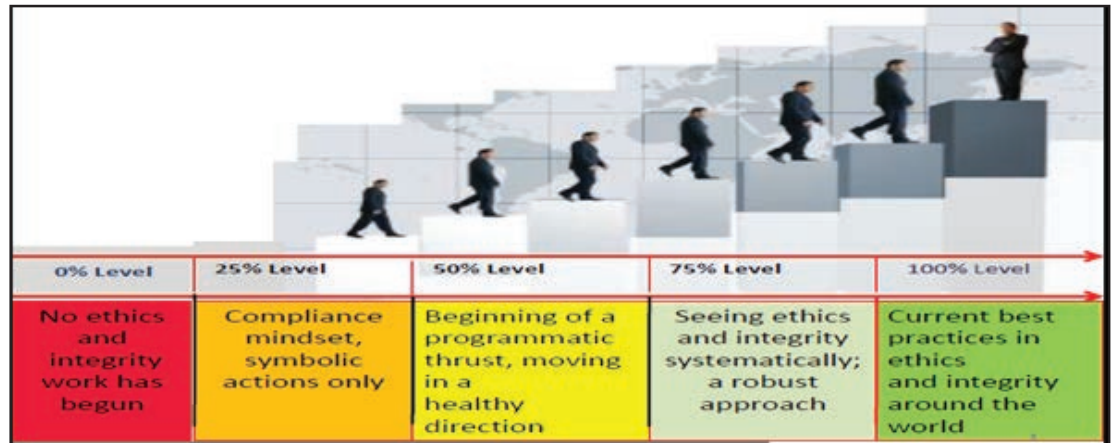
### 3.3.2. Ethical Climate

Measurement of *Ethical climate* of this study based on the *Ethical Climate Questionnaire (ECQ)* developed by Victor and Cullen (1987, 1988) and further confirmed by Cullen and Bronson (1993). There are nine dimensions to measure the ethical climate, and they are employee-focused climate, community-focused climate, obedience to authority, code implementation, self-interest climate, efficiency climate rules and procedures climate, personal ethics climate and law, and professional climates. Respondents are required to indicate the degree of agreement using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). In this study, the ethical climate is treated as unidimensional regardless of the dimension based on the concept through (Jaramillo et al., 2006; Schwepker, 2001).

### 3.3.3. Level of Ethics and Integrity

Dependent variables of this study are the *level of ethics and integrity*. This variable is measured by 12 dimensions (See Appendix 1) of CISM developed by Institute of Integrity Malaysia with a total of 208 items statements. It is adapted from Dubinsky and Richter (2008-2009). Global Ethics and Integrity Benchmarks as Figure 3. These benchmarks

reflect emerging successful organizational practices. The respondents are required to rate the statements on a five-Likert scale with “0” Not Sure; “1” Strongly Disagree; “2” Disagree; “3” Agree and “4” Strongly Agree. Mean and frequency will be used in explaining the data during the analysis. Meanwhile, Descriptive of CISM 12 Categories Items for Level of Ethics and Integrity: Refer **Appendix 1**



**Figure 3:** Five Ethics and Integrity Benchmarks Level of CISM (Source: Malaysian Institute of Integrity (IIM)).

## 4. Results

A total of 128 online questionnaires (Google form) were emailed to the Chief Integrity Officer (CIO) and the officers of Integrity Unit (IU) in the Malaysian public sector organization at the federal territory. Details of respondents such as name, contact number, address, position, and email address were obtained from the Agency Integrity Management Division (BPIA) of Malaysian Anti Corruption Commission (MACC) on August 2017. Data were collected within three months period starting from the second week of August 2017 until the end of October 2017. Eighty-three (83) officers responded to the survey; which made up 65% rate of response. Summary of the response rate is illustrated in Table 5. Profile of respondents is discussed in the next section.

TABLE 4: Summary of Response Rates.

|                                |       |
|--------------------------------|-------|
| Details                        | Total |
| Questionnaires mailed          | 128   |
| Questionnaire answered         | 83    |
| Rate of Response (83/128) *100 | 65%   |

Table 6 indicates the personal detail of the respondent such as gender, race, religion, and the level of education. The results showed that more than half whereby, 53 respondents (63.9%) were male, while the remaining 30 respondents (36.1%) were female. The respondents were represented by four racial compositions that were Malay (91.6%), Chinese (2.4%), Indians (3.6%), and others (2.4% including Siamese and *Orang Asli*). Most of the respondents were Muslims (95.2%), followed by Buddhism (2.4%) and Christians (1.2%). Most of the respondents (43.3%) were in the age range of 35 to 44 years old, followed by 45 to 55 years old (22.9%), 25 to 34 years old (18.1%) and the least 55 years old and above (15.7%). Almost half of the respondents possess a bachelor's degree (49.4%), followed by a master's degree (39.8%), diploma (8.4%) and others (2.4%).

For the working place type of organization consists of seven departments namely Jabatan Kemajuan Orang Asli, Jabatan Hal Ehwal Khas (Unit Integriti), Jabatan Perangkaan Malaysia, Jabatan Bantuan Guaman, Jabatan Wakaf Dan Haji, Jabatan Pertanian Semenanjung Malaysia, and Jabatan Taman Laut Malaysia. The existence of the integrity unit for any breach of ethics and integrity in the past five years, whether the respondent is the head of the integrity unit or not. The next category inquires more details on the respondent's related matter with the integrity unit which include the full designation of respondents, either they obtain any professional certificate or qualification related to ethics and integrity program. Their working experience related to ethics and integrity portfolio, the operational and functional reporting level as well as the existence of other officers' responsibility for managing the ethics and integrity programme independently are important.

In the descriptive statistics of the principal construct, the mean was applied as a measure of central tendency, which showed that all variables were above their midpoint level (Sekaran, 2003). Table 7 shows a summary of descriptive statistics for all independent variables. The highest mean of 4.21 is recorded by work performance (one of the Qualities of chief integrity officer dimensions) with standard deviation (SD) of 0.79, followed by ethical climate (mean value 4.10, SD 0.32). This indicates that the respondents strongly agree with all items regarding the work performance and ethical climate in the organisation.

Table 8 shows the descriptive statistics for dependent variable such as level of ethics and integrity which comprises of twelve dimensions. Overall, it shows that the mean score of the twelve components range from 3.30 to 4.20, indicating that respondents rated the items in each dimension as above average or at least scale 3 (neutral).



TABLE 5: Summary of Profile Respondents.

| Demographic                         | Characteristic | Frequency (N:83) | Percentage (%) |
|-------------------------------------|----------------|------------------|----------------|
| Gender                              | Male           | 53               | 63.9           |
|                                     | Female         | 30               | 36.1           |
| Race                                | Malay          | 76               | 91.6           |
|                                     | Chinese        | 2                | 2.4            |
|                                     | Indian         | 3                | 3.6            |
|                                     | Others         | 2                | 2.4            |
| Religion                            | Muslim         | 79               | 95.2           |
|                                     | Buddhism       | 1                | 1.2            |
|                                     | Christianity   | 1                | 1.2            |
|                                     | Others         | 2                | 2.4            |
| Age                                 | 25-34 Years    | 15               | 18.1           |
|                                     | 35-44 Years    | 36               | 43.3           |
|                                     | 45-54 Years    | 19               | 22.9           |
|                                     | 55 and above   | 13               | 15.7           |
| Highest Qualification               | Master         | 33               | 39.8           |
|                                     | Degree         | 41               | 49.4           |
|                                     | Diploma        | 7                | 8.4            |
|                                     | Others         | 2                | 2.4            |
| Working Place: Type of Organization | Ministries     | 63               | 75.9           |
|                                     | Department     | 7                | 8.43           |
|                                     | Statutory Body | 13               | 15.7           |

TABLE 6: Summary of Descriptive Statistics for Independent Variables.

| Item             | Min  | Max  | Std. Deviation | Mean |
|------------------|------|------|----------------|------|
| Work Performance | 1.67 | 5.00 | .79            | 4.20 |
| Ethical Climate  | 3.33 | 4.83 | .32            | 4.10 |

Meanwhile, the standard deviation of the twelve dimensions ranges from 0.37 to 0.75, which shows not much of a variation between the respondents' answer. Out of the twelve components, infrastructure showed the lowest score with a mean of 3.30 and standard deviation of 0.37, indicating that the respondents view the way organization

organizes ethics and integrity on function structure, staff, resources, formal or informal reporting as average. The dimension of legal compliance, policies, and rules scored the highest mean of 4.20 with a standard deviation of 0.56, indicating that the respondents agree the organizations that adopted laws, policies, rules, and guidance, ethics, and integrity system with the best practices in the organization.

TABLE 7: Summary of Descriptive Statistics for 12 Dimensions of Ethics and Integrity.

| Item                                  | Items | Min  | Max  | Std. Deviation | Mean |
|---------------------------------------|-------|------|------|----------------|------|
| Legal Compliance, Policies and Rules  | 14    | 3.00 | 5.00 | .56            | 4.20 |
| Disciplinary Measure and Rewards      | 11    | 2.55 | 5.00 | .63            | 4.11 |
| Vision and Goals                      | 12    | 3.00 | 4.75 | .47            | 4.08 |
| Leadership                            | 14    | 1.93 | 5.00 | .68            | 4.07 |
| Accountability                        | 5     | 3.00 | 5.00 | .64            | 4.05 |
| Whistleblowing                        | 9     | 2.78 | 5.00 | .67            | 4.04 |
| Organizational Structure              | 12    | 2.58 | 5.00 | .61            | 4.04 |
| Ethics Communications                 | 14    | 2.21 | 5.00 | .72            | 4.04 |
| Confidential Advices and Support      | 8     | 2.75 | 5.00 | .68            | 3.92 |
| Ethics Training and Education         | 9     | 1.33 | 5.00 | .75            | 3.87 |
| Measurements, Research and Assessment | 11    | 2.09 | 5.00 | .70            | 3.86 |
| Infrastructure                        | 5     | 2.40 | 4.20 | .37            | 3.30 |
| Overall Mean: 47.58/12 = 3.97         |       |      |      |                |      |

Table 9 illustrates each of the independent variables included in the model contributed deeper to the prediction of the dependent variable. This was done by analysing the Coefficients output for hypotheses study. The largest beta coefficient is 0.32 was scored by work performance (WP). This means that this variable makes the strongest unique contribution in explaining the level of ethics and integrity, whereby the variance explained by all other variables in the model is controlled. The Beta value for ethical climate (EC) was slightly lower 0.27, indicating that it made less of a unique contribution.

TABLE 8: Summary of Hypotheses Testing of Coefficients (Relationship between Independence, Competence, Work Performance and Ethical Climate with the Level of Ethics and Integrity).

| Hypo | Independent Variables | Unstandardized Coefficients |            | Standardized Coefficient | t-value | Sig.   | Collinearity Statistics |       | Decision        |
|------|-----------------------|-----------------------------|------------|--------------------------|---------|--------|-------------------------|-------|-----------------|
|      |                       | Beta                        | Std. Error | Beta                     |         |        | Tolerance               | VIF   |                 |
|      | (Constant)            | .973                        |            |                          | 1.486   | .141   |                         | 5.089 |                 |
| H1a  | Independence          | .233                        | .655       | .095                     | .941    | .050   | -0.43                   | 1.444 | Not Significant |
| H1b  | Competence            | .456                        | .248       | .162                     | 1.684   | .096** | -0.65                   | 2.291 | Significant     |
| H1c  | Work Perform          | .204                        | .066       | .315                     | 3.093   | .003*  | 0.01                    | 0.711 | Significant     |
| H2   | Ethical Climate       | .426                        | .167       | .270                     | 2.577   | .012*  | 0.15                    | 1.550 | Significant     |

Dependent Variable: Level of Ethics and Integrity

Significant:(P < 0.05)\* and (P < 0.10)\*\*

## 5. Discussion

*Independence* was found not to have a significant relationship with the level of ethics and integrity. This result is consistent with Qun (2013), where he found that independence was not significant in determining internal audit effectiveness. In this study, independence was also found not significant in determining the level of ethics and integrity. This implies that the reporting level used as the proxy of the independence dimension does not affect the quality of Chief Integrity Officer. In addition to that, it was found that both operational and functional reporting level in this current study was to their head of department. One of the possible reasons is because, unlike previous studies, this study focused on the public sector entities where the culture of reporting is directly referred to the immediate superior for any issues that raised.

The second dimension of the quality of chief integrity officer (CIO) was *competence*. It was found to have a significant and positive relationship with the level of ethics and integrity in the Malaysian public sector organizations studied in this research. Competence in this study refers to the working experience and the level of education. The finding in this study is in line with the previous research by Irwin and Bradshaw (2011). They also found that the more competence officer will influence good ethics programs to be in place. Hunt and Vintel (1986,) had also discussed the significance of competence in some ethical judgment models explained in their Theory of Ethics. Indirectly, previous research conducted by Mihret and Yismaw (2007), Rai (2008) and

Qun (2013) had found that the competency of the personnel is a critical factor in determining the overall quality of their expert field. These researchers agreed upon the finding on which competence internal auditors are required to ensure they performed their audit works properly and at the highest quality. Similarly, if the officers in this current study possess the competency such as work experience related to ethics and integrity, the skills and knowledge regarding the ethics and integrity, it is most likely that they will contribute to the overall quality of Chief Integrity Officer which subsequently influence the level of ethics and integrity in the organization. For instance, the competency level of CIO in this study is quite high where almost 90% of the respondents have either master's degree or a bachelor's degree qualification with 42% of the respondents have an average year of services related to ethics and integrity for more than 12 years. Moreover, more than 80% of respondents own a professional certificate or qualification related to ethics and integrity program. These had contributed to the high percentage score level of ethics and integrity obtained in this study. Hence, it can be concluded that the concern of engaging the right person with suitable skills especially the Chief Integrity Officer would be portrayed through the improvement on the level of ethics and integrity in their respective organizations. This can also be supported by recent quotes in the local online newspaper stating that the certified integrity officers during their five-year service, had taken down 4,000 complaints and pursued to the end 1,600 of the complaints including those classified as "misconduct" (News Strait Times, 2018).

The dimension of Quality of CIO, *work performance* has the highest mean score of 4.21, indicating that respondents mostly agreed with the job description of the chief integrity officer. Work performance also scored the largest beta coefficients (0.32) in the multiple regression analysis indicating that this dimension has the strongest contribution in explaining the variance of the level of ethics and integrity. This finding is in line with the research paper published by Treviño et al. (2014) where they found that the efforts of ethics and compliance officer to initiate and manage a variety of ethics and integrity-related programs can be beneficial in terms of improving employees' perceptions and decreasing inappropriate conduct. The work performance as the dimension of the personnel's quality is also supported by the previous research conducted by Qun (2013). He found that the work performance of the internal auditors contributes to the overall quality of internal auditors. Respondents perceived that they are responsible to coordinate and monitor the ethics and integrity programme as well as implementing a recovery integrity program, monitoring the services delivery system in the organization, and assisting the Integrity and Governance Committee. Moreover, they are also in

charge of coordinating the actions taken on the breach of ethics and integrity. Integrating all these work scope responsibilities, it ensures the quality of chief integrity officer and eventually contributes in the higher percentage score level of ethics and integrity as discussed in the previous section.

*Ethical climate* was found to have significant and positive relationship with the level of ethics and integrity (Beta coefficient 0.27;  $p < 0.05$ ; confidence interval 95%). This is supported by the Hunt and Vitell's Theory of Ethics (1986,) where apart from personal characteristics which are the quality of CIO, the organizational environment also plays crucial factors in influencing the level of ethics and integrity in the organization. In this study, this organizational environment is represented by the ethical climate. In other words, the ethical climate of the organization may influence the ethical decision and attitude or behaviour making, which eventually gives impact to the level of ethics and integrity. This finding is also consistent with research conducted by Chouaib and Zaddem (2013) which suggested that the ethical climate have an impact on the effectiveness trust of work and consequently, increase the level of ethics and integrity within the organization. The ethical climate was also found to be a critical factor in influencing the employees' perception of how their organization emphasizes the ethical aspect of business and encourages employees ethical work behaviours (Kwon et al., 2013). Similarly, Shafer (2015) analysed the ethical climate of professional accountants in Hong Kong and reported that there is a significant relationship with ethical judgment on an organization. The mean score obtained for this variable is also quite high which is 4.09. The high mean value indicates that the respondents perceived their organization practices a high ethical climate in the public sector. This study also found that the public sector organizations promote a transparent ethical surrounding, implements a strict code of ethical rules and enforces mechanism to prevent unethical behaviour. These are essential factors in creating an awareness of ethical and integrity among public servants.

## 6. Contribution

Thus, the contributions made by this study is useful for raising awareness, especially among the public employee to adopt good governance in various ways to ensure the organization is more influenced by an ethics and integrity environment in the public sector. Thus, an office of integrity should be set up with full authority to implement ethical activities. The organizations in the ministry department and statutory body can be

headed by a Chief Integrity Officer with sufficient funding given to carry out their duties and promote and disseminate on ethics and integrity. And, through competence which is through experience and education level and work performance which is the job scope of quality of CIO become significant to increase the level of ethics and integrity in the public sector. CIO with these attributes will contribute insights and can help to improve the integrity unit in the organizations so that the level of ethics and integrity can be increased higher and consequently, reduce the unethical scandals in the organization. The competence level of the CIO is measured based on their experience and level of education. With regards to that, by appointing a highly experienced and skilled CIO, it could help in solving the unethical scandal effectively. To increase the competency level of the CIO, they are highly advised to enroll in more professional qualification courses related to ethics and integrity. All CIO should have graduated with the Certified Integrity Officer course provided by the Malaysian Anti-Corruption Academy (MACA). The government can also improve the existing ethical climate by implementing the control and monitoring procedure of the employee at various departments of the public sector to enhance the ethical behavioural practices. This is so that, employees at the public sector are expected to perform high integrity and high ethical values consistently during the undertaking of their tasks with transparency and responsibility. Other than that, top management should look at the procedure, code of conduct, legislation, and guideline as these plays a major role in influencing the level of ethics and integrity in public sector organisations. Despite many efforts taken to increase the level of integrity, the number of complaints and the number of arrested people remains high. To create the culture and climate of integrity, the civil servants are encouraged to participate in seminars on integrity, forums, and dialogues organized by relevant agencies and organizations. Besides that, these initiatives are concurrently strengthened with compliance constructs such as the national pillars (*Rukun Negara*), code of ethics, integrity pledge, general circulars and many other formal documents expounding good values.

## 7. Limitations and Suggestion for Future Research

The limitations and suggestion of this study for future research on a similar topic to make an improvement in this study field. Firstly, the number of samples should be increased and could be focused on the Chief Integrity Officers who have graduated the Certified Integrity Officer course conducted by Malaysian Anti-Corruption Academy, in other words, the future study focuses on CeIO (Chief Integrity Officers). Therefore,

the effectiveness of those in charge of integrity, who has gone through the certification process can be examined. Furthermore, the sample studied can be extended to include the ethics officers from the State Government and a comparison can be made between the ethics officers at the Federal Government. Future research may also include an analysis of gender and the focuses on the integrity unit in public sector organizations all over Malaysia for both states departments and government link agencies along with the federal departments. Interviews can also be done to enable a more in-depth explanation of issues studied. Moreover, on the issue of the distribution of the questionnaire, the researcher should deliver it personally to the respondents personally, so that the researcher may take the opportunity to conduct a briefing session on explaining the questionnaire to the respondent rather than using online questionnaire. By doing so, this could avoid any potential conflict or misunderstanding among the respondents. In addition to that, the number of questionnaires for the respondent needs to be reduced and analyzed by using PLS-SEM. It is strongly suggested that the research approach could possibly be utilized by a qualitative research approach such as an in-depth interview with the Chief Integrity Officers with case studies approaches in combination with survey questionnaires.

## Acknowledgement

A special thanks is dedicated to all research group members, Institute of Integrity Auditor Malaysia (IIM), Mrs. Rasidah Binti Abdul Karim who is the Head of Corporate Integrity Development Centre in the Malaysian Anti-Corruption Academy (MACA), Mr Alan Kirupakaran who is the Governance Officer of Minister in the Prime Minister's Department, Institute of Internal Auditor Malaysia (IIAM), National Audit Department (NAD) of Malaysia and associate members of FIM's Governance and Integrity Centre (FGIC). The usual disclaimer applies.

We would like to thank Yayasan Bank Rakyat for the financial support by sponsoring this paper to be presented in the FGIC 2<sup>nd</sup> Conference on Governance and Integrity 2019.

## Appendix 1

## Descriptive of CISM 12 Categories Items for Level of Ethics and Integrity

| Dimension                            | Items  | Description  |
|--------------------------------------|--------|--|
| Vision and Goals                     | Q1-Q19 | This section covers the organization's overall concept of and approach to ethics and integrity, including its formal articulation of the organization's underlying philosophy about ethical and moral conduct, and how these expectations are embedded in the fabric of the organization. This benchmark includes how organizations identify and define their core ethical values or principles, as well as how organizations integrate those values into everyday business conduct.   |
| Leadership                           | Q1-Q21 | This section covers the responsibilities of the organization's leadership in shaping, guiding, and supporting the organization's ethics and integrity initiatives. It examines how leaders and managers are held accountable for promoting ethics and integrity. This category includes an assessment of the organization's "Tone from the Top" at both the senior executive and governance levels.  |
| Infrastructure                       | Q1-Q17 | This section explores the way the organization structures or organizes its ethics and integrity function so that it can carry out its goals effectively. This category covers how the ethics function is structured, staffed, and resourced, as well as its formal and informal reporting relationships. This category also includes the roles and responsibilities of those individuals who are assigned to implement the ethics and integrity function.  |
| Legal Compliance, Policies and Rules | Q1-Q17 | This section includes core laws, policies, rules, and guidance that comprise the legal framework for the organization's ethics and integrity systems. This section assesses the internal framework that provides the floor for ethical behaviour. It also includes compliance with the external legal frameworks within which the organization operates. This section includes the systems and controls used to ensure and demonstrate that employees and the organization are legally compliant. Essentially, the organization has translated its legal commitments into concrete actionable guidance that is enforceable.  |
| Organizational Culture               | Q1-Q20 | This section deals with the overall organization culture and how it promotes ethical conduct in the context of the organizational mission, vision, structure, and strategy. This section explores the degree to which an organization focuses on shaping its organizational culture (both written and unwritten rules that dictate how work is performed and goals reached) and whether that culture actively promotes ethical conduct. This section addresses how culture is defined (the history and traditions of the organization), who "owns" and shapes culture, how culture is measured, and the degree to which employees find the culture supportive of ethics and integrity. |
| Disciplinary and Reward Measures     | Q1-Q17 | This section attempts to examine how the organization sets and enforces its standards for ethical conduct and behaving with integrity. This section also addresses rewards and punishments, incentives that promote ethical behaviour, and disciplinary action taken to limit or punish unethical work conduct. This section includes how the organization promotes ethical conduct through its performance appraisal process, and whether ethical conduct is linked to compensation and/or other types of non-monetary benefits.  |



| Dimension                            | Items  | Description  |
|--------------------------------------|--------|--|
| Measurement, Research and Assessment | Q1-Q17 | This section evaluates how ethics and integrity are measured, whether your organization undertakes research to support ethics strategies that create a culture of ethics and integrity, and the organization's assessment processes around ethics, integrity and organizational culture. This category includes the organization's commitment to continuous improvement, based on benchmarking and other evaluation methodologies.   |
| Confidential Advice and Support      | Q1-Q16 | This section covers describes how the organization provides confidential, neutral, professional and independent ethics advice to employees, supervisors, managers, executives, members of the governing bodies and other stakeholders.   |
| Ethics, Training and Education       | Q1-Q18 | This section explores ethics and integrity awareness, skill-building training and education, and the integration of such training into the overall development of all employees. This category includes the provision of ethics-related training and skill building throughout the life cycle of staff members, and the degree to which these initiatives are integrated into other organization-wide training commitments.  |
| Ethics Communication                 | Q1-Q18 | This section describes how the ethics and integrity initiative is articulated and promoted, both internally and externally. This category covers how the organization defines its stakeholders and how it gears its key messages to distinct audiences.  |
| Whistleblowing                       | Q1-Q18 | This section explores how organization encourages individuals (both internal and external to the entity) to speak up and make reports of questionable conduct. This category explores the methods and protections offered to individuals who wish to make the organization aware of possible unethical behaviour, misconduct or any illegal actions. It includes the making of both confidential and anonymous reports, and the systems used by the organization to protect whistle-blowers from retaliation or retribution. |
| Accountability                       | Q1-Q10 | Respondents are required to indicate the level of agreement to each statement.   |

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## Conference Paper

# The Passage of Time to Develop Ethical Business Environment Through Malaysia's Competition Act 2010 and Competition Agenda: Post World War II to Present Days

Sasikala Sankaran<sup>1</sup>, Hasnah Haron<sup>2</sup>, Teoh Ai Ping<sup>1</sup>, and Yuvaraj Ganesan<sup>1</sup>

<sup>1</sup>Graduate School of Business, Universiti Sains Malaysia, 11800 Penang, Malaysia

<sup>2</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

This article seeks to reflect on the background of Competition Act 2010 of Malaysia by taking a step by step view on the many initiatives undertaken by various world bodies from post-World War II era in reviving and rebuilding the world economy to present days involving the competition agenda of the nation. In doing so, this article intends to emphasize on the perseverance and continuous efforts made over the decades in ensuring the nation finally had established the Act and the unceasing continuous efforts in forming ethical business environment with healthy competition stay as part Government of Malaysia's initiatives.

**Keywords:** competition act 2010, Malaysian competition commission, world trade organization, Asian pacific economic cooperation, mid-term review of the eleventh Malaysia plan.

Corresponding Author:

Hasnah Haron

hasnahharon@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Significant growth in terms of the number of competition law regimes in ASEAN. Currently, there are five fully functional countries that have a Competition Act in place, namely Vietnam, Thailand, Malaysia, Singapore, and Indonesia. Other countries like Cambodia and Laos are drafting their competition laws while Brunei and Myanmar are in preparation of offering it meanwhile the Philippines does not have a Competition Law but has Acts addressing competition issues. In Malaysia, the first comprehensive competition law was gazette on 10 June 2010 and come into force on 1 January 2012 as the Competition Act 2010. The Act is intended to enhance consumer welfare, business practices, and economic development. Further, competition forces enterprises to be more efficient, innovative, and responsive to consumer demand. The responsibility to enforce the competitive law given to the Malaysia Competition Commission (MyCC).

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The mission of MyCC is to execute their mandate efficiently and effectively, with a commitment to ensure a conducive competition culture to make markets work well for consumers, businesses, and the economy. The enforcement of the law will result in an ethical business environment which will benefit business and consumers in term of lower prices, better products, wider choice for consumers and greater efficiency of enterprises and the economy as a whole. The Act is undeniably a significant effort undertaken by the Government of Malaysia to set a level playing field for enterprises and in regulating anti-competitive behavior in the marketplace for the betterment of the nation. Thus, the rest of the article will discuss the journey of the development of Competition Act 2010 and competition agenda.

## 2. Post-World War II Initiatives on the World Economy

In an effort to revive and rebuilt the world economy after World War II, The Economy and Social Council of United Nation through its resolution dated February 18, 1946, called for an International Conference on Trade and Employment that was held in Havana from 21 November 1947 up to 24 March 1948 to conclude on the Havana Chapter with 53 governments around the world. The Havana Chapter is a comprehensive rule governing the Employment and Economic Activity, Economic Development and Reconstruction, Commercial Policy, Restrictive Business Practices, and Inter-Governmental Commodity Agreements (WTO, 1948). The Charter was founded on the 'Proposals for the Expansion of the World Trade and Employment' (USA Department of State, 1945) initiated by the government of the United States with its origins dating back to Hull Trade Agreement Legislation 1934, Atlantic Charter 1941, the Mutual Trade Agreement 1942 and Bretton Woods Agreement 1944 (Wilcox, 1947). Following suit, in London Preparatory Meeting of 1946, the "Suggested Charter for an International Trade Organization" was adopted and later revised during the Geneva Meeting of 1947 (USA Department of State, 1950). It was adopted for the proposed International Trade Organization (ITO), a multilateral trade organization, alongside; International Monetary Fund (IMF) and World Bank, as the means for restructuring and developing the world economy. However, ITO never materialized. While waiting for Havana Chapter to be effective which never did, a Protocol of Provisional Application was developed by contracting parties of 23 nations based on Chapter IV – Commercial Policy of Havana Chapter together with some additions to protect and implement the tariff concessions negotiated in 1947 — known as the General Agreement on Tariff and Trade (GATT), which came into effect on 1 January 1948 (WTO, 1986).

| Year      | Place/ name            | Subjects covered  | Countries |
|-----------|------------------------|---|-----------|
| 1947      | Geneva                 | Tariffs   | 23        |
| 1949      | Annecey                | Tariffs   | 13        |
| 1951      | Torquay                | Tariffs   | 38        |
| 1956      | Geneva                 | Tariffs   | 26        |
| 1960-1961 | Geneva (Dillon Round)  | Tariffs   | 26        |
| 1964-1967 | Geneva (Kennedy Round) | Tariffs and anti-dumping measures   | 62        |
| 1973-1979 | Geneva (Tokyo Round)   | Tariffs, non-tariff measures, "framework" agreements  | 102       |
| 1986-1994 | Geneva (Uruguay Round) | Tariffs, non-tariff measures, rules, services, intellectual property, dispute settlement, textiles, agriculture, creation of WTO, etc | 123       |

Figure 1: The GATT Trade Rounds (Source: WTO – Understanding the WTO, 2007).

Over the years, as shown in Figure 1, there were eight trade rounds of GATT with the basic legal text remained the same as of 1948 with some additions. The success of GATT's was undisputable, especially in the 1950s to 1960s, where world trade growth was at 8% on average, as indicated in Table 1 (WTO, 2007 & 2008).

TABLE 1: Globalization Waves in the 19<sup>th</sup> and 20<sup>th</sup> century.

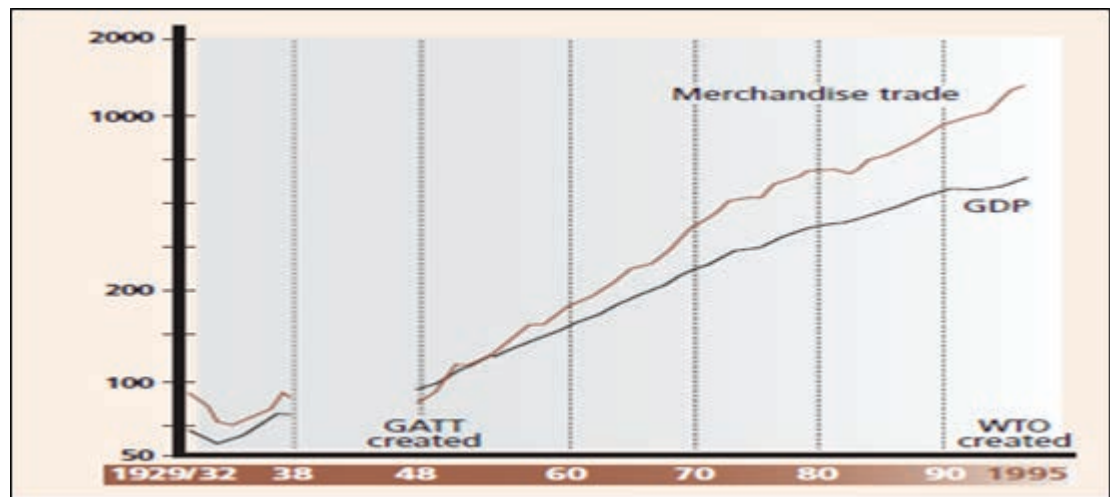
| World  | 1850-1913         | 1950-2007 | 1950-73 | 1974-2007 |
|--|-------------------|-----------|---------|-----------|
| Population growth                              | 0.8 <sup>a</sup>  | 1.7       | 1.9     | 1.6       |
| GDP growth (real)                              | 2.1 <sup>a</sup>  | 3.8       | 5.1     | 2.9       |
| Per capita                                     | 1.3 <sup>a</sup>  | 2.0       | 3.1     | 1.2       |
| Trade growth (real)                            | 3.8               | 6.2       | 8.2     | 5.0       |
| Migration (net) Million:                       |                   |           |         |           |
| US, Canada, Australia, NZ (cumulative)         | 17.9 <sup>a</sup> | 50.1      | 12.7    | 37.4      |
| US, Canada, Australia, NZ (annual)             | 0.42 <sup>a</sup> | 0.90      | 0.55    | 1.17      |
| Industrial countries (less Japan) (cumulative) | -                 | -         | -       | 64.3      |
| Global FDI outward stock, year                 |                   |           | 1982    | 2006      |
| FDI as % of GDP (world)                        | -                 | -         | 5.2     | 25.3      |

a Refers to period 1870-1913

Source: WTO World Trade Report, 2008 (cited in Madison, 2001; Lewis, 1981, UNCTAD, 2007 and WTO, 2007)

### 3. World Trade Organization (WTO) Urges for Malaysia's Competition Legislatures

However, during the economic recession of the 1970s to 1980s, governments of many nations had started to form other methods to safeguard sectors facing foreign competition such as bilateral agreements. GATT's started to lose its relevance in the modern times evidenced by its inability to cope with fundamental issues such as farm trade and emergency import measures that aroused during the Seventh Round known as the



**Figure 2:** World Trade and Production & GDP (Source: WTO – Understanding the WTO, 2007).

Tokyo Round of 1973 to 1979. The growing complexity of the world trade and under-way globalization of the world economy with accelerated world trade and production outpacing GDP over time as shown in Figure 2, coupled by the need for expansion of the service trade not covered by the GATT rules were among some of the pushing factors for a new reformation. The Eighth round, known as the Uruguay Round of 1986 to 1994 is the most ambitious of them all, which led to the formation of the World Trade Organization (WTO). Under the Marrakesh Agreement (WTO, 1994), WTO was formed on 1 January 1995 with Malaysia as one of its members. WTO is to serve as a foundation of a rule-based transparent, predictable, and stable multilateral trading system for its member countries. WTO works through councils and committees. The highest authority is the Ministerial Conference that meets every two years. Daily functions are handled by The General Council, The Dispute Settlement Body and the Trade Policy Review Body and other councils, subsidiary bodies and head of delegations (HODs).

The first Ministerial Conference was held in Singapore from 9 to 13 December 1996. It included the predetermined WTO provision on investment, competition policy, and anti-competitive practices, further encouraged close cooperation with United Nations Conference on Trade Development (UNCTAD) as provided in the UNCTAD's Midrand Declaration (UNCTAD, 1996) recognizing the challenges in introducing effective nation competition policies for both developed and developing countries as one of its agenda (WTO, 1996). UNCTAD (1997) presented a thorough study on the benefits gained by the application of competition law and policy through the experiences of the developed countries which may benefit the developing or least developed countries.

Malaysia's trade policies and practices had been reviewed by WTO Trade Policy Review Body since 1993, then in 1997, 2001, 2006, 2010 and 2014. Consecutively in

each of its review starting from 1997 up to 2010, Malaysia has been reminded for not having a comprehensive competition law. The 1997 Trade Policy Review acknowledged that the nation's growth during the period of 1993 to 1996 was capital based rather than on efficiency allocation, further, the ongoing foreign restrictions on service trade sector had reduced competition and efficiency at the domestic level, encouraged by the nation not having any competition laws (WTO, 1997). According to 2001 Trade Policy Review, the trade, and foreign investment policies remained relatively open from 1997 to 2001, and with only sectoral based competition guidelines in telecommunications without a comprehensive competition law (WTO, 2001). The 2006 Trade Policy Review indicated that from 2001 to 2005, the nation continued to liberalize its relatively open trade and foreign investment and the review also mentioned the fact that Malaysia not having a comprehensive competition law but had set to draft it by 2005 (WTO, 2006). For the period between 2005 to 2008, the 2010 Trade Policy Review marked Malaysia relaxing its restrictions on foreign investment especially its services sector and again mentioned Malaysia without a comprehensive competition law yet in the drafting mode (WTO, 2010). Mateus (2007) highlighted the need for competition policy enforcement during the liberalization of market power for a democratic society to function well. Finally, in the 2014 Trade Policy Review covering the period from 2009 to 2013, the Competition Act was given good coverage by the Review Body (WTO, 2014).

#### 4. Connecting with Asian Pacific Economic Cooperation (APEC) on Competition Policy

Meanwhile, in 1989, Malaysia became a member of the Asian Pacific Economic Cooperation (APEC) formed in Canberra, Australia, with 11 other nations. APEC through its 1994 Bogor Declaration of "free and open trade and investment in the Asia-Pacific by 2010 for developed economies and 2020 for developing economies" fully supported the formation of WTO (APEC, 1994). The implementation framework to achieve the Bogor Declaration goals known as 1995 Osaka Action Agenda (OAA) includes Competition Policy as one of its specific areas of action (APEC, 1995) and APEC's Competition Policy and Law Group (CPLG), formerly known as Competition Policy and Deregulation Group was created. CPLG contributed towards the 'APEC Principles to Enhance Competition and Regulatory Reform' by conducting competition-related meetings. Training programs and workshops attended by Malaysia and other nations (APEC, 2002). During 2009 CPLG Meeting in Singapore, Malaysia's representative shared the Eight Malaysian Plan 2001 – 2005 in which one of its objectives was to boost the nation's competitiveness to

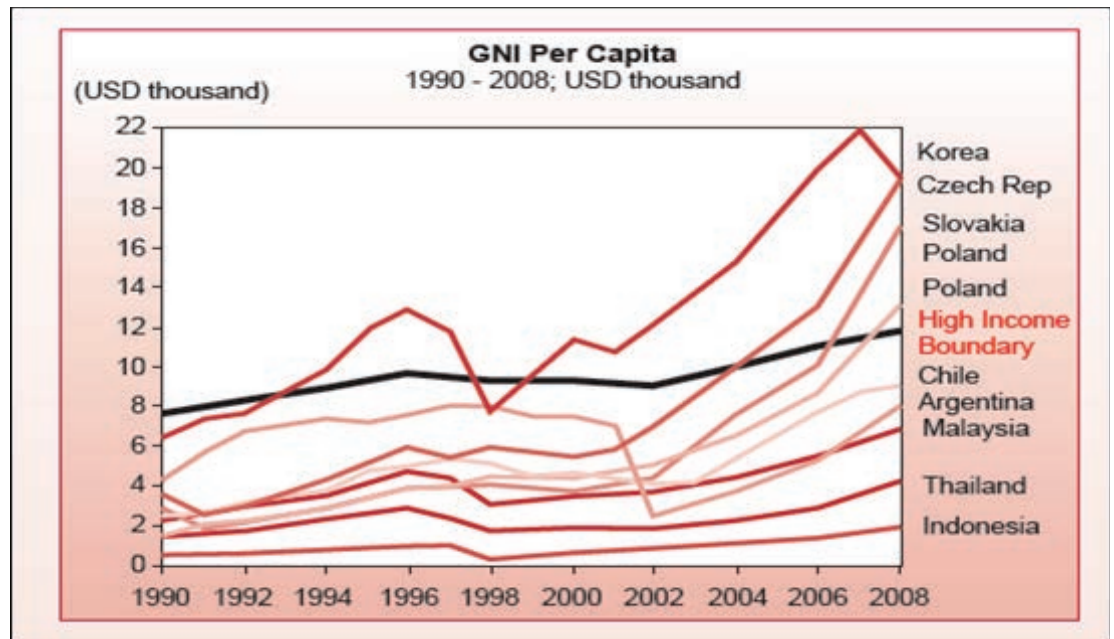
handle globalization and liberalization (EPU, 2001-2005), thus, this was to be carried out by formulating a fair trade policy and law (APEC, 2009). However, Competition Act 2010 (CA 2010) became a reality only during the 10th Malaysia Plan when it was enforced on 1st January 2012 after decades of being called out for it by world bodies (Law of Malaysia, 2010a). In order to regulate and enforce the provision of the Act, the Malaysian Competition Commission (MyCC) was established under the Competition Commission Act 2010 (law of Malaysia, 2010b).

## 5. Malaysia's Present Days Challenges and Continuous Effort in promoting Competition

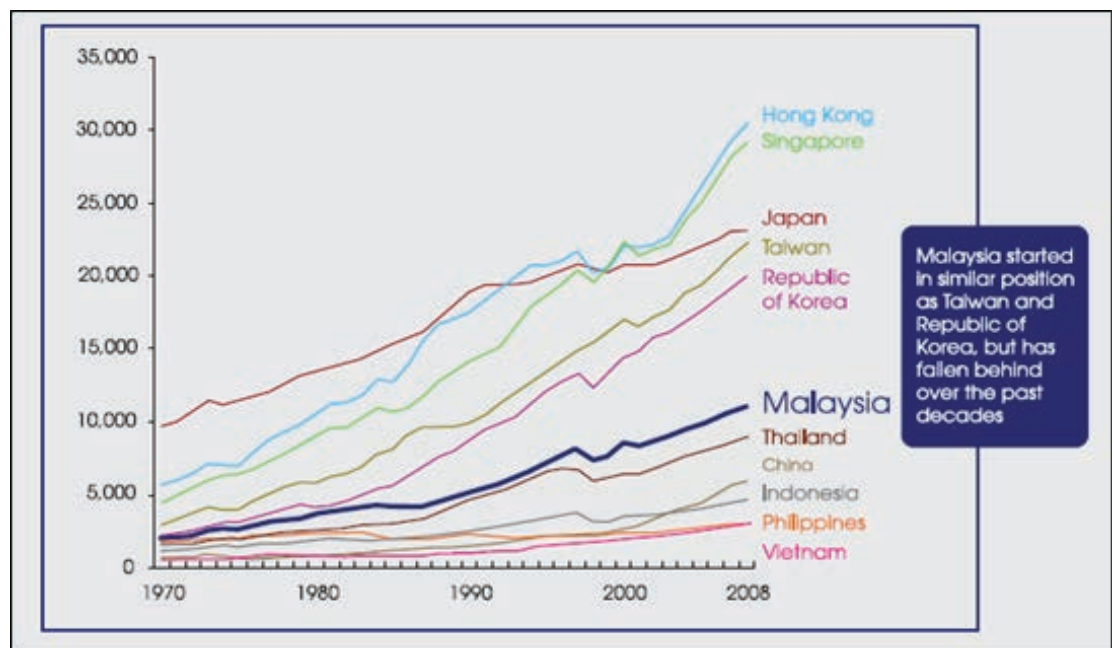
Malaysia can achieve upper-middle-income status. However, the nation's economic progress had slowed since 1992 and entangled in a middle-income trap, as shown in Figure 3. Malaysia's gradual upward GNI per capita trend as seen in Figure 3 is far below the 'high income' level, and Malaysia is at risk of being trapped and stagnate at this position when compared to Taiwan, for example, which started at a similar position yet had outshined and progressed forward over the years depicted in Figure 4. To achieve the high-income nation by 2020, therefore, to achieve the Vision 2020, a framework of four pillars known as the New Economic Model initiative of the National Economic Advisory Council (NEAC) as shown in Figure 5 was rolled out in the 10th Malaysia Plan in totality.

*"The Tenth Malaysia Plan houses the aspirations of both the Government Transformation Programme and the New Economic Model, premised on high income, inclusiveness, and sustainability. It charts the development of the nation for the next five years, anchored on delivering the desired outcomes for all Malaysians. The Tenth Plan sets the stage for a major structural transformation that a high-income economy requires. The Plan contains new policy directions, strategies, and programmes that enable the country to emerge as a high-income nation..."* - Prime Minister, Malaysia

As presented in Figure 5, the first and the second pillars are to unite Malaysians under the 1Malaysian, People First, Performance Now to undertake a change through the Government Transformation Programme (GTP) by reinforcing the public services through National Key Result Areas (NKRAs). The critical third pillar, New Economic Model to be attained through the Economic Transformation Programme (ETP) driven by eight Strategic Reform Initiatives (SRIs) The fourth pillar is the 10<sup>th</sup> Malaysia plan covering a period from 2011 to 2015 for the nation to operationalize the concerned policies and achieve the targeted programmes (EPU, 2009a).



**Figure 3:** GNI Per Capita (Source: EPU-NEAC New Economy Model, 2009b (also cited Nationmaster, UN, World Bank)).



**Figure 4:** GDP Per Capita (Source: EPU, 2009a (also cited The Conference Board and Groningen Growth & Development Centre, Total Economy Database January 2009)).

The eight SRIs set forth as the basis for possible measures of ETP, also known as the enablers are as follows: (i) Re-energising Private Sector, (ii) Developing Quality Workforce, (iii) Competitive Domestic Economy, (iv) Strengthening Public Sector, (v) Transparent and Market Friendly Affirmative Action, (vi) Building Knowledge Base



Figure 5: Four Pillars of National Transformation (Source: EPU, 2009a).

Infrastructure, (vii) Enhancing Sources of Growth and (viii) Ensuring Sustainability of Growth as shown in Figure 6.

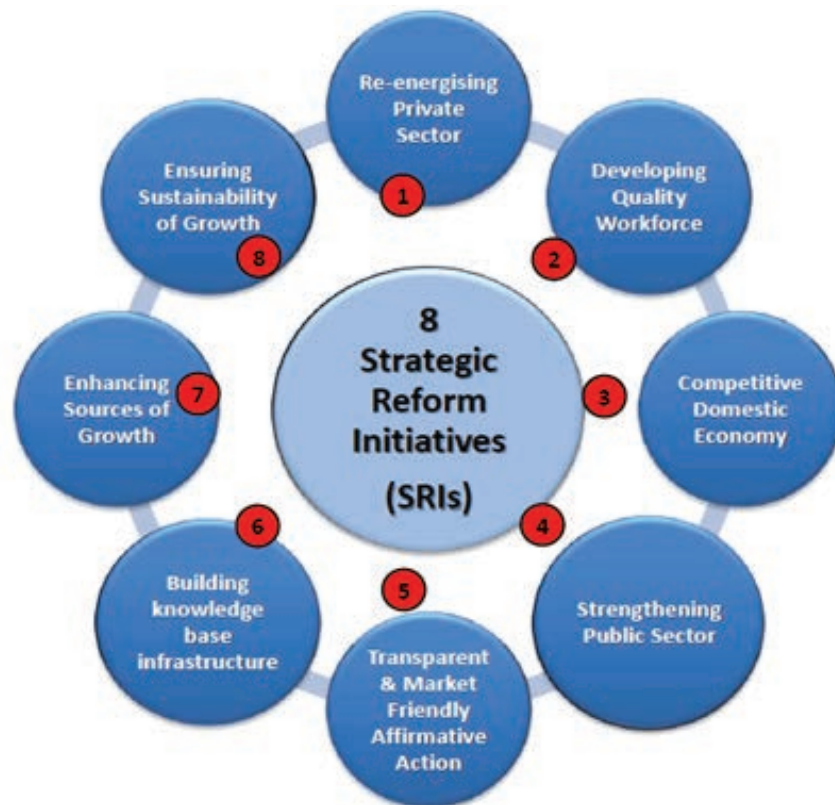


Figure 6: Eight (8) Strategic Reform Initiatives (SRI) (Source: EPU, 2009b).

Under the first SRI, Re-energize Private Sector as indicated in Table 2, Competition Law is recognized as one of the possible policy measures to contribute towards

competitive and healthy competition environment, alongside transparent government procurement process and transparent standard settings for the private sector.

TABLE 2: Private Sector Re-energizing.

| Policy Purpose  | Possible Policy Measures   |
|---|--|
| Target high value-added product and services          | <ul style="list-style-type: none"> <li>• Aligned incentives to foster investment in high value-added activities which generate spill-over effects.</li> <li>• Tailor incentives to meet the needs of each firm.</li> <li>• Facilitate FDI and DDI in emerging industries/sectors</li> </ul>  |
| Remove barriers and costs to doing business           | <ul style="list-style-type: none"> <li>• Remove distortions in regulations and licensing, including replacement of Approved Permit System with a negative list of imports.</li> <li>• Introduce a 'Single-Window' licensing process through e-Government portals to include local and state governments.</li> </ul>                          |
| Create eco-system for entrepreneurship and innovation | <ul style="list-style-type: none"> <li>• Reduce direct state participation in the economy.</li> <li>• Divest GLCs in the industries where the private sector is operating effectively.</li> <li>• Economy-wide broadband roll-out.</li> <li>• Ensure GLCs operate on a strictly commercial basis free of government interference.</li> </ul> |
| Encourage efficiency through healthy competition      | <ul style="list-style-type: none"> <li>• Implement an efficient and transparent process for government procurement at all levels.</li> <li>• Level the playing field for the private sector through transparent standard settings.</li> <li>• Support a stronger competitive environment with competition law.</li> </ul>                    |
| Promote SME growth                                    | <ul style="list-style-type: none"> <li>• Provide support for SMEs in innovative and technologically advanced areas.</li> <li>• Facilitate timely access to funding for business activities.</li> </ul>   |
| Creating regional champions                           | <ul style="list-style-type: none"> <li>• Encourage GLC partnerships with private sector companies.</li> <li>• Pursue aggressive regional networking – ASEAN, China, India, Middle East.</li> <li>• Improve the leverage of FTAs.</li> </ul>  |
| <b>Source:</b> EPU, 2009a, New Economic Model         |  |

Under the third SRI Creating a Competitive Domestic Economy, an improved Competition Law is seen as a possible policy measure to remove distortions in the marketplace, as shown in Table 3.

The Eight SRIs were compressed into six SRIs comprise as follows: (i) Competition, Standards and Legislation (CSL), (ii) Public Finance Reform (PFR), Public Service Delivery (PSD), (iii) Narrowing Disparity (ND), (iv) Reducing Government's Role in Business (GRIB) and (vi) Human Capital Development (HCD) as shown in Figure 7.



TABLE 3: Markets and choices – Better and Greater.

| Policy Purpose  | Possible Policy Measures   |
|---|--|
| Improve economic efficiency through competition                   | <ul style="list-style-type: none"> <li>Strengthen the competitive environment by introducing fair-trade legislation.</li> </ul>  |
|   | <ul style="list-style-type: none"> <li>Improve competition law to safeguard the interest of domestic firms before the liberalisation of sectors to foreign firms.</li> </ul> |
|   | <ul style="list-style-type: none"> <li>Set up an Equal Opportunity Commission to cover discriminatory and unfair practices.</li> </ul>                                       |
|   | <ul style="list-style-type: none"> <li>Review remaining entry restrictions in products and services sectors.</li> </ul>  |
| Build entrepreneurship  | <ul style="list-style-type: none"> <li>Adoption of international best practices and standards for local industries to become highly competitive.</li> </ul>                  |
|   | <ul style="list-style-type: none"> <li>Revamp the seed and venture capital funds to support budding entrepreneurs.</li> </ul>  |
|   | <ul style="list-style-type: none"> <li>Simplify bankruptcy laws pertaining to companies and individuals to promote vibrant entrepreneurship.</li> </ul>                      |
| Remove market distortions leading to a misallocation of resources | <ul style="list-style-type: none"> <li>Provide financial and technical support for SMEs and micro businesses, to move them up the value chain.</li> </ul>                    |
|   | <ul style="list-style-type: none"> <li>Phase-out price controls and subsidies that distort markets for goods and services.</li> </ul>  |
|   | <ul style="list-style-type: none"> <li>Apply government savings to a wider social safety net for the bottom 40% of households, prior to subsidy removal.</li> </ul>          |
|   | <ul style="list-style-type: none"> <li>Create a Transformation Fund to assist distressed firms during the reform period.</li> </ul>  |

**Source:** EPU, 2009a, New Economic Model

|   |  |  |
|---|--|--|
| <b>Competition, Standards, and Liberalisation (CSL)</b> | <b>Public Finance Reform (PFR)</b>                   | <b>Public Service Delivery (PSD)</b>   |
| <b>Narrowing Disparity (ND)</b>                         | <b>Reducing Government's Role in Business (GRiB)</b> | <b>Human Capital Development (HCD)</b> |

Figure 7: Six (6) Strategic Reform Initiatives (SRIs) (Source: EPU, 2009b).

Under the Competition, Standards and Liberation (CSL), three significant ministries; Ministry of Domestic Trade, Cooperatives and Consumerism for Competition, Ministry of Science, Technology and Innovation (MOSTI) for Standards and Ministry of International Trade and Industry (MITI) combine effort with the aim of developing a competitive and efficient environment for businesses and consumers of Malaysia by SRIs such as implementation of competition legislation, adoption of standards and best practices and continuous liberalization of service sectors.

Further energizing efforts are being made in the Eleventh Malaysian Plan by placing 'the rakyat' as the focal point to benefit economic prosperity on its way to achieve the advance economy status by 2020. These efforts detailed out in six strategic thrusts and six-game changes aim to 'unlock productivity', 'unleash innovation', 'transition to

high-skilled workforce' and 'develop cities as a source of competitiveness' which shall benefit 'the rakyat'.

The recent Mid-Term Review of the Eleventh Malaysia Plan continuously emphasizes promoting fair competition, improving regulatory and trade practices under Pillar IV Strengthening Economic Growth. Such effort driven by good governance upheld by strong and well-principled institutions will enable Malaysia to achieve its intended goal of a developed and inclusive nation within the remaining period of 2018 – 2020 (EPU, 2018).

## 6. Conclusion

Continuous initiatives and efforts by various parties in establishing CA 2010 over the decades had proven that time and tide wait for no nations, but the competition agenda is essentially a must for Malaysia to be competitive within and on the international level. Continuously promoting fair competition in the present days, which indirectly cultivate ethics culture in doing business among corporate entities. However, undeterred efforts needed to ensure innovations simultaneously being emphasized to ensure the nation is at a competitive edge coupled with the Industrial Revolution 4.0 for the coming days.

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## Conference Paper

# An Analytic Hierarchy Process Approach in Decision-Making for Material Selection in an Automotive Company: A Case Study

Cheng Jack Kie, Ahmed Khalif Hassan, Norhana Mohd Aripin, and Rafiuddin Mohd Yunus

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Kuantan, Pahang

## Abstract

This study is an approach to investigate and to choose the suitable material for the fabrication of tools trolley to ensure the good quality of the product. The project team of an automotive manufacturing company is planning to fabricate 100 sets of tools trolley in the assembly shop. This study was developed to describe an approach based on Analytic Hierarchy Process (AHP) that can assist decision-makers and continuous improvement engineers in determining the most suitable material to be employed in fabrication process at the early stage of the product development to reduce the cost. The selected main criteria are Material Strength, Material Cost, Procurement Lead Time and Duration of Fabrication Process while the four materials that will be considered in this study are Aluminium, Steel Tube, and Square Tube. Finally, the results show that Square Tube is recommended as the most suitable material for the in-house tools for trolley fabrication.

**Keywords:** analytic hierarchy process, decision-making, continuous improvement, fabrication process.

Corresponding Author:

Cheng Jack Kie  
jackkie@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Material process selection is a method to determine the most suitable material to fabricate a product. Many researchers have agreed on the importance of material selection process, especially during the early stage of the product development phase. Determining the most suitable and appropriate material in the early stage can avoid additional cost if changes are needed to be carried out after the early stage of the product development process (Ravisankar, Balasubramanian & Muralidharan, 2004). However, it is a difficult task with a complex decision because various factors have to be considered during the process.

Analytic Hierarchy Process (AHP) is a tool that can be used at the conceptual design stage in the product development process (Hambali *et al.*, 2010; Subramanian &

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Ramanathan, 2012). According to Vaidya and Kumar (2006), AHP is widely implemented for selection and evaluation based decision-making, usually in the area of manufacturing, engineering, healthcare, education, and many more. AHP has been used to solve multi-criteria decision-making problems based on experience and skills of the experts by determining the factors that impacted the decision process (Subramanian & Ramanathan, 2012). The tools trolley which acts to transport tools and small parts safety is generally made from few materials such as stainless steel, carbon steel, aluminum, iron, and copper. Each material has different material strength, material lead time, and the price of the material can be very expensive to manipulate the cost. In the fabrication process, there are many processes involved with different amounts of costs of material and equipment, quality of material, and fabricating time (Kalpakjian and Schmid, 2014). In an automotive manufacturing industry, the fabrication process gives the Continuous Improvement (CI) Engineers different types of problems, where the selection of appropriate material is one of the critical issues. By doing this study, the problem faced by the engineers is solved using AHP. This technique will assist in determining the most appropriate material to fabricate the tools trolley, which will meet the product's specifications and requirements. Thus, the main focus of this study is to explore the potential use of AHP in assisting CI projects to evaluate and determine the most appropriate material for producing tools trolley in an automotive company. Besides that, this paper briefly reviews the concepts and applications of multiple criterion decision analysis.

This paper is organized into five sections where after the broad introduction was firstly discussed in Section 1. The literature of past studies related to AHP and Continuous Improvement are presented in Section 2. Next, the chosen methodology, which is AHP, will be elaborated in Section 3 while Section 4 encompassed results and discussion. Then, a conclusion with the point of discussion on limitations and suggestion for future studies are provided in the last section of this paper.

## 2. Literature Review

In order to make a good decision, the decision-maker must be able to first define the problem, the need, and purpose of the decision, then using this information to develop criteria that can be used to evaluate the potential alternative actions to take. The beauty of Analytic hierarchy process and continuous improvement are discussed in the following section, respectively.

## 2.1. Analytic hierarchy process

Dweiri and Al-Oqla (2006) mentioned that the Analytic Hierarchy Process (AHP) is one of the multi-criteria decision-making tools that incorporated the behavior of its decision-maker in the decision model. Professor Thomas L. Saaty developed AHP techniques in the 1970s to improve the decision-making process when multiple criteria are involved in the process. Since then, the method is widely used, refined, and studied. AHP technique is one of the most commonly used multi-criteria decision methods in decision making (Subramanian & Ramanathan, 2012). The main flexibility of this method is AHP considered a systematic approach that includes both the tangible and intangible factors and finally provides a structured solution to problems in the industries.

The advantages of AHP method is the technique uses both qualitative data collected from judgment values which based on experience and intuition apart from quantitative data of a problem (Subramanian & Ramanathan, 2012; Vaidya & Kumar, 2006). Besides that, the application of AHP allows the investigated problems to be broken down hierarchically where a set of criteria will be arranged in a hierarchy order so that it can be evaluated subjectively based on the importance according to scores or weights. To develop an AHP model, there are three important phases which are problem structuring, judgments comparison, and analyzing priorities. In the structuring phase, a decision-making model is developed and then is transposed to a hierarchy form. Then, for each alternative obtained will be evaluated according to the criterion's weight in the judgment phase.

A hierarchy can be used to study the interaction of its components and how these interactions impact the whole system. Therefore a hierarchy is one form of abstraction or representation of a system's structure (Hambali *et al.*, 2010). Hierarchies work by separating the reality of human thinking into several sets and subsets. The decision making alternatives can be rated once weights are assigned to the developed hierarchy. Weights are assigned through expert comparison using judgment scale. These scales are usually ranged from 1 (equally preferred) to 7 (extremely preferred). These numerical values represent the intensity of the alternatives compared to criteria.

Due to the mathematical elements used in AHP, researchers are keen to adopt the technique (Dweiri & Al-Oqla, 2006; Hambali *et al.*, 2008). With the properties of using multi-level objectives, criteria, sub-criteria, and alternatives, AHP is suitable to be used to solve decision problem. Through pairwise comparison, data are obtained using weightage of the importance of the criteria and the alternatives in terms of each decision criteria.

AHP is also commonly applied in task selection where the method is used not to find the correct answer but to aid decision-makers finding the best answer. Not only for academic studies, but AHP is also widely used in organizations, especially for an organization to explore their strategies and their competitors (Vaidya & Kumar, 2006). AHP is suitable to be used to groups of decision-makers who shared common objectives, worked in a cooperative environment and of the same status.

## 2.2. Continuous improvement (CI)

Currently, the implementation of sustainable improvement is gaining increase attention (Bhasin, 2008; Hassini, Surti & Searcy, 2012). With that, several guidelines were developed to support continuous improvement implementation (Sundar, Balaji & Kumar, 2014). Strategic Management, Kaizen, Six Sigma, and Total Quality Management are some of the well-known methods used in continuous improvement (Garcia, Rivera & Iniesta, 2013). Each of these methods uses different tools for improvement.

One way for the continuous improvement to be successful, there is a need to include staff involvement. With that, Total Quality Management adopts tools and plan of doing, check, act approach (Moeuf *et al.*, 2016) that are capable of integrating learning culture to drive organization change (Amirteimoori, Despotis & Kordrostami, 2014; Moeuf *et al.*, 2016). On the other hand, Six Sigma approach aims at reducing variability in organizational processes through the defining, measuring, analyzing, improving and controlling improvement cycle are used to support this approach (Garcia, Rivera & Iniesta, 2013). As for Kaizen, this tool adopted scenario that allows continuous improvement in personal, family, social, and work-life (Anand & Kodali, 2008) which aimed to change for the better (Bhasin, 2008; Gupta & Jain, 2013). However, there are researchers that mentioned that Kaizen is not only a continuous improvement tool, but it also serves as the means and result of human and non-human resources management in the pursuit of business excellence (Hassini, Surti & Searcy, 2012).

As such, a vast literature argues that characteristically the tools that support Kaizen are process-oriented and human-based, as Kaizen is incremental, continuous, and participatory (Anand & Kodali, 2008; Moeuf *et al.*, 2016; Zhang *et al.*, 2012). Therefore, Kaizen, as a continuous improvement tool, stressed that efforts of all people involved in the organization are important to achieve the improvements that can contribute to the achievement of superior results (Hassini, Surti & Searcy, 2012; Sundar, Balaji & Kumar, 2014), while understanding management as the maintenance and improvement of working standards (Amirteimoori, Despotis & Kordrostami, 2014).



### 3. Methodology

This case study was done in an automotive manufacturing company in Pahang. Moving forward towards the lean manufacturing concept, the company is encouraging continuous improvement projects and activities. In a lean manufacturing concept, reducing waste and increasing value-adding operation time is the main target. To reduce the waste of walking in the production time, fabrication of tools trolley was proposed to increase the efficiency rate. The project team is planning to fabricate 100 sets of tools trolley (shown in Figure 1) in the assembly shop for the used in the assembly line.



**Figure 1:** Tools Trolley in an Assembly Shop (Source: Authors' own work).

As the company, in-house Continuous Improvement (CI) Workshop has the capacity of fabricating the trolley. Therefore CI-engineers need to plan on the design and choose the correct material for the trolley. All fabrication tools and machine such as cutting machine, tightening tools, welding machines, and measuring devices are available in the workshop. The material for the fabrication must be strong to withstand the weight of the tools, equipment, and some fittings parts. Project lead time is short. Therefore the procurement and fabrication lead time must be minimized to ensure the project completion is on schedule. Material cost should also be within the budget allocation. The data collection phase is crucial in any research. Several aspects come into play in the data

collection process. The three most crucial aspects are the cost of the selected data collection method, the accuracy of data collected, and the efficiency of data collection. In this study, data were collected via structured, face-to-face interviews. The interview session was conducted with the participation of Project Engineers, Project Leaders, Continuous Improvement Operators, and Assembly Operators. All the participants are involved in the tools trolley project. A pilot test to validate the questionnaires was conducted with two Managers, and some amendments have been made based on the given feedback. Besides that, the researcher also reviewed a few products' catalogs that describe in details about each material specification to developed comprehensive criteria and alternatives. Information collected from the participants via interview is gathered to determine which criteria are the most important in deciding which material to select for tools trolley fabrication. With the information gathered, the AHP method can be performed. AHP is a decision-making tool that involves structuring criteria into a hierarchy and the relative importance of these criteria is then assessed. Alternatives for each criterion are compared, that relies on the judgment of the interviewed participants. An overall ranking scale of the alternatives is determined.

The AHP selection method follows the following steps. Firstly, define the objective of selection, follows by developing a hierarchical framework based on the collected information on criteria and alternatives, construction of pairwise comparison set matrix, calculation of preferences against criteria of pairwise comparison, ranking the criteria, developing an overall priority ranking, performing a consistency check on the result and finally selection of the best alternatives.

## 4. Results and Discussion

The main purpose of this study is selecting the most suitable material for the fabrication process of the tool trolley in order to produce a good quality product. From the interview conducted with the Project Engineers, Project Leaders, Continuous Improvement Operators, and Assembly Operators, information on criteria and alternatives are successfully gathered. The selected main criteria are Material Strength, Material Cost, Procurement Lead Time, and Duration of Fabrication Process. According to the participants, these four criteria are the most important and needed to be considered when considering which material to use in the fabrication process of the tool trolley. As for the alternatives, Aluminium, Steel Tube, and Square Tube are chosen by the participants as the potential materials that can be considered in order to construct the tool trolley. The defined objective, four different criteria, and three possible alternatives are shown in Figure 2.

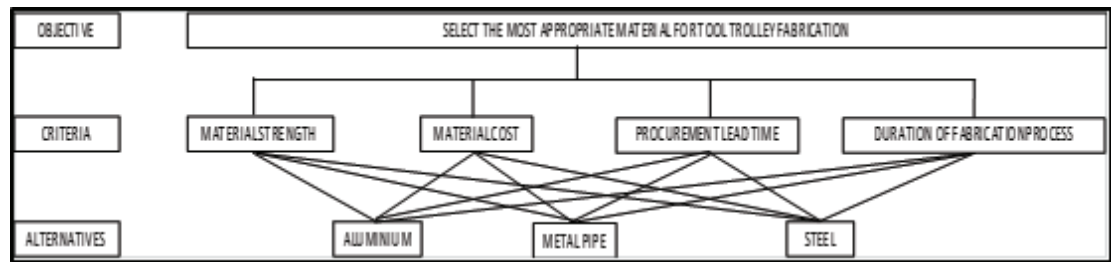


Figure 2: Hierarchy Structure of the Criteria (Source: Authors' work).

### 4.1. Pairwise comparison

The score of each criterion was calculated using pairwise comparison. The decision was done by comparing two alternatives against one criterion, and then the indicated preferences will be recorded. The pairwise comparison scale measurement that was used is shown in Table 1.

TABLE 1: Pairwise Comparison Scale.

| Preference Level        | Numeric Value |
|-------------------------|---------------|
| Equally Preferred       | 1             |
| Moderately Preferred    | 2             |
| Strongly Preferred      | 3             |
| Very strongly Preferred | 4             |
| Extremely Preferred     | 5             |

Source: Taylor (2019)

Table 3 depicted the pairwise comparison of alternatives (Aluminium, Steel Tube, and Square Tube) against criteria (Material Strength, Material Cost, Procurement Lead Time and Fabrication Lead Time). The data collected are based on the expert judgment of the participants during the interview.

| Material strength |          |            |             | Procurement lead time |          |            |             |
|-------------------|----------|------------|-------------|-----------------------|----------|------------|-------------|
|                   | Aluminum | Steel Tube | Square Tube |                       | Aluminum | Steel Tube | Square Tube |
| Aluminum          | 1        | 3          | 1/4         | Aluminum              | 1        | 1/4        | 1/5         |
| Steel Tube        | 1/3      | 1          | 1/5         | Steel Tube            | 4        | 1          | 1/2         |
| Square Tube       | 4        | 5          | 1           | Square Tube           | 5        | 2          | 1           |

| Material cost |          |            |             | Fabrication lead time |          |            |             |
|---------------|----------|------------|-------------|-----------------------|----------|------------|-------------|
|               | Aluminum | Steel Tube | Square Tube |                       | Aluminum | Steel Tube | Square Tube |
| Aluminum      | 1        | 1/4        | 1/5         | Aluminum              | 1        | 3          | 5           |
| Steel Tube    | 4        | 1          | 1           | Steel Tube            | 1/3      | 1          | 4           |
| Square Tube   | 5        | 1          | 1           | Square Tube           | 1/5      | 1/4        | 1           |

Figure 3: Result for All Criterion (Source: Authors' own work).

### 4.2. Calculation of preferences

The next step in AHP is to prioritize the decision alternatives within each criterion. This will assist the CI-engineers in determining the most suitable material based on the criteria provided. Preference score result and normalized matrix with row average were calculated as shown in Figure 4.

From Figure 4, the calculated results showed that for the criteria of Material Strength, Square Tube is the most preferred alternative with the score of 0.67, followed by Aluminium and Steel Tube with the score of 0.23 and 0.10 respectively. For the second criteria, Procurement Lead Time, Square Tube scored the highest at 0.57, followed by Steel Tube with 0.33 and Aluminium with 0.09. The third criteria, Material Cost shows that the participants agreed that Square Tube with the score 0.47 is the most cost-effective as compare to Steel Tube and Aluminium with the score of 0.43 and 0.10. For the Fabrication Lead Time, as the last criteria are chosen by the participant, Aluminium was ranked first with 0.62, followed by Steel Tube and Square Tube with 0.28 and 0.096 respectively.

| Material strength |          |            |             |          |
|-------------------|----------|------------|-------------|----------|
| Material          | Aluminum | Steel Tube | Square Tube | average  |
| Aluminum          | 0.1875   | 0.3333     | 0.1724      | 0.231082 |
| Steel Tube        | 0.0625   | 0.1111     | 0.1379      | 0.103847 |
| Square Tube       | 0.7500   | 0.5556     | 0.6897      | 0.66507  |
|                   |          |            |             | 1.000000 |

| Procurement lead time |          |            |             |          |
|-----------------------|----------|------------|-------------|----------|
| Material              | Aluminum | Steel Tube | Square Tube | average  |
| Aluminum              | 0.1000   | 0.0769     | 0.1176      | 0.09819  |
| Steel Tube            | 0.4000   | 0.3077     | 0.2941      | 0.333937 |
| Square Tube           | 0.5000   | 0.6154     | 0.5882      | 0.567873 |
|                       |          |            |             | 1.000000 |

| Material cost |          |            |             |          |
|---------------|----------|------------|-------------|----------|
| Material      | Aluminum | Steel Tube | Square Tube | average  |
| Aluminum      | 0.100    | 0.111      | 0.091       | 0.100673 |
| Steel Tube    | 0.400    | 0.444      | 0.455       | 0.432997 |
| Square Tube   | 0.500    | 0.444      | 0.455       | 0.46633  |
|               |          |            |             | 1.000000 |

| Fabrication lead time |          |            |             |          |
|-----------------------|----------|------------|-------------|----------|
| Material              | Aluminum | Steel Tube | Square Tube | average  |
| Aluminum              | 0.6522   | 0.7059     | 0.5000      | 0.619352 |
| Steel Tube            | 0.2174   | 0.2353     | 0.4000      | 0.284228 |
| Square Tube           | 0.1304   | 0.0588     | 0.1000      | 0.096419 |
|                       |          |            |             | 1.000000 |

Figure 4: Comparison of Criteria against Alternatives Normalize Matrix (Source: Authors' own work).

After determining the preference of materials against the chosen four criteria, next is to determine among the four criteria, which criteria is the most important to the least important where these criteria will be the major reason which material will be chosen for the fabrication of tools trolley. With the relative importance or weight of the criteria used to rank the criteria from the most important the least important, the result of the ranking and normalize matrix of the chosen four criteria are shown in Figure 5. Results in Figure 5 indicated that among the four criteria, Fabrication Lead Time with the score of 0.44 is considered the most important criteria in determining which material to choose for tool

trolley fabrication. The second most important criteria are the Material Cost (score of 0.24). Material Strength and Procurement Lead Time scored 0.19 and 0.13, respectively.

| Criterion             | material strength | material cost | Procurement lead time | Fabrication lead time |
|-----------------------|-------------------|---------------|-----------------------|-----------------------|
| Material strength     | 1                 | 2             | 1/2                   | 1/4                   |
| Material cost         | 1/2               | 1             | 2                     | 1/2                   |
| Procurement lead time | 2                 | 1/2           | 1                     | 1/3                   |
| Fabrication lead time | 4                 | 2             | 3                     | 1                     |

| Criterion             | material strength | material cost | Procurement lead time | Fabrication lead time | average |
|-----------------------|-------------------|---------------|-----------------------|-----------------------|---------|
| Material strength     | 0.1333            | 0.3636        | 0.0769                | 0.1200                | 0.1869  |
| Material cost         | 0.0667            | 0.1818        | 0.3077                | 0.2400                | 0.2432  |
| Procurement lead time | 0.2667            | 0.0909        | 0.1538                | 0.1600                | 0.1349  |
| Fabrication lead time | 0.5333            | 0.3636        | 0.4615                | 0.4800                | 0.4351  |
|                       |                   |               |                       |                       | 1.0000  |

Figure 5: Criteria Normalize Matrix (Source: Authors' own work).

### 4.3. Overall ranking

As the preference of materials (alternative) against the chosen four criteria (Figure 4) and the preferable criteria (Figure 5) are determined, the next step is to determine given all the preferences calculation and ranking, ultimately which material should be chosen to fabricate the tools trolley. Hence, an overall score of each criterion is computed by multiplying the values in the criteria preference vector by the preceding criteria matrix and summing the products as in Figure 6.

Figure 6 showed the overall ranking of the three materials. Based on the result, Square Tube ranked the highest with 0.36 as compared to Aluminium with a score of 0.35 and Steel Tube with a score of 0.29. As Square Tube scored the highest, Square Tube should be selected as the most suitable material for the in-house tools trolley fabrication, followed by Aluminium and Steel Tube.

### 4.4. Consistency check

The last step in AHP is to check the level of consistency of the developed pairwise comparison matrixes so that the results are reliable and can be recommended to the management for decision making. The degree of consistency for the pairwise

| Material Strength | Material Cost | Procurement Lead Time | Fabrication Lead Time |   | Criterion |
|-------------------|---------------|-----------------------|-----------------------|---|-----------|
| 0.23108           | 0.10067       | 0.09819               | 0.61935               | X | 0.18685   |
| 0.10385           | 0.43300       | 0.33394               | 0.28423               |   | 0.24317   |
| 0.66507           | 0.46633       | 0.56787               | 0.09642               |   | 0.13492   |
|                   |               |                       |                       |   | 0.43506   |

| Material    | Score   |
|-------------|---------|
| Aluminium   | 0.35036 |
| Steel Tube  | 0.29341 |
| Square Tube | 0.35623 |

Figure 6: AHP Overall Ranking (Source: Authors' own work).

comparison in the decision criteria matrix is determined by computing the ratio of Consistency Index (CI) to Random Index (RI).

$$CI/RI = 0.06593/0.90 = 0.07326$$

In this case study, the consistency result is 0.07326, which is <0.10. Therefore, the results obtained are correct and efficient.

## 5. Conclusion and Recommendation

Table 2 shows the comparison of material selection alternatives of tools trolley concerning weight and ranking. It is found that Square Tube is the best material to be considered from the factors of Material Strength, Material Cost, Procurement Lead Time, and Fabrication Lead Time.

TABLE 2: Comparison of Materials, Weight, and Ranking.

| Material    | Score/Weight | Ranking |
|-------------|--------------|---------|
| Aluminium   | 0.35036      | 2       |
| Steel Tube  | 0.29341      | 3       |
| Square Tube | 0.35623      | 1       |

Source: Authors' work

Selecting the appropriate material in the fabrication process is a crucial decision. The use of AHP is proved to assist CI Engineers to evaluate and select the best material based on the criteria aspects of a decision. It is proved that the AHP is a useful method in solving the material selection for the fabrication process problem

during the conceptual design stage. The imprecise decision can cause the product to be remanufactured and not in an optimized condition. Having developed the objective functions and constructed the AHP, the specific objectives were achieved. From the interview session with the respondents, there were some limitations on the data collection. The fabrication lead-time scoring was measured only based on the interview result with the CI Operator. The data was typically based on the judgment and experience of the evaluation scores. Another limitation is on the validity of procurement lead time. This limitation happened due to the unavailability of procurement personnel during the interview session. Therefore, the data was obtained from the Project Leader based on previous experience. Also, it was challenging to gather the entire participants in one sitting session due to the schedule constraint.

To improve the accuracy of the scoring on the fabrication lead time, an alternative approach to obtain the data could be used. It is recommended to have measurable data based on the actual cycle time of tools trolley fabrication using Aluminium, Steel Tube, and Square Tube. Another recommendation is to have an interview session with the procurement personnel to get more accurate and feasible data. Also, it is recommended to set an appointment with the involved parties at the same time and get the full commitment. As a recommendation for future study, researchers can explore more alternatives to catch up with the latest technology in the lean manufacturing concept.

## Acknowledgement

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

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## Conference Paper

# An Analysis of Internal Audit Investment Among Top Malaysian Listed Companies

Mohamad Naimi Mohamad Nor and Suhaimi Ishak

Tunku Puteri Intan Safinaz School of Accountancy, Universiti Utara Malaysia, 06100 Sintok, Kedah, Malaysia

## Abstract

The importance of internal audit function in improving the company's internal control risk management and corporate governance has been emphasized in the Malaysian Code of Corporate Governance (MCCG) and Bursa Malaysia Listing Requirements. Based on the Listing Requirements, Malaysian listed companies are required to establish the internal audit function, which is independent and this function must be supervised by the audit committee. Although the importance of internal audit function has been highlighted in various code of corporate governance, little is known about the investment made by the company in internal audit activity. This study capitalizes the publicly available data on internal audit cost and the type of internal function provider in Malaysia setting. The primary purpose of this study is to describe internal audit practices, especially on the internal audit budget in Malaysia for the year 2017 for top 300 companies. Based on the descriptive analysis, it is found that the internal audit fee is relatively lower than the cost of external audit and most of the companies' internal audit function was carried out by in house teams. Also, the benefit from economies of scale is less pronounced in internal audit as compared to external audit services. Some further analyses were also conducted, and the article is ended recommendations for future research to be undertaken in investigating the internal importance audit in Malaysia.

**Keywords:** internal audit function, budget, in-house, outsourcing, corporate governance.

Corresponding Author:

Mohamad Naimi Mohamad Nor  
naimi@uum.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under  
the responsibility of the  
FGIC2019 Conference  
Committee.

## 1. Introduction

The auditor plays a vital role in minimizing and detecting various types of fraud and other accounting malpractices. There are two types of audit, namely, external audit, and internal audit. An external auditor statutory audit is the examination of a company's financial statement to ensure that the statement gives true and fair view. In Malaysia, under Section 169 (4), the Companies Act 2016 asks the company's financial statements to be audited before presented in annual general meeting. This is will enhance the credibility of financial statements, thus, help the users to make sound business or investment decisions.

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As compared to the external audit, internal audit practices are not compulsory for all types of Malaysian companies. The need for internal audit practices is not specified in the Companies Act 2016.

However, the establishment of internal audit function is conventional in Malaysia corporate landscape, especially for big size companies. Under the Malaysian Code on Corporate Governance or MCCG (2007), the role of the internal audit has been emphasized and highlighted. MCCG has called on big companies to create an internal audit function. Furthermore, the issue of internal audits is being addressed by Bursa Malaysia Listing Requirements. Based on these two significant guidelines, the internal audit also has a specific role in improving the quality of corporate governance.

The Institute of Internal Auditor defines internal audit as:

*“Internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization’s operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes”* (Institute of Internal Auditors, 2019).

Based on the above definition, apart from the audit committee function, internal audit is one of internal governance mechanism that serves to improve the company’s efficiency and effectiveness. Further, the audit committee and internal audit function are closely related, and the committee is responsible for monitoring internal audit activity. Among the functions of the audit committee on internal audits, based on MCCG (2017) in Guidance Practice 10.1, are to decide on the: (i) selection and termination of internal auditor, (ii) area need to be covered (iii) assessment of performance (iv) the cost allocation.

As one of the functions of the audit committee is to decide the budget for internal audit function, it is implied that the successfulness of internal audit operation will be partly determined by the audit committee. In general, higher cost allocation on internal audit activity allowed the internal audit team to properly discharge their duties. The investment in internal audit function also will determine the extensity of internal audit activity. The arisen questions are how much the allocation is provided by the audit committee for internal audit activity and did Malaysian companies willing to allocate high investment for this internal monitoring cost?

Previous studies have revealed the amount of budget for internal audit activity (Barua, Rama & Sharma, 2010; Wan Husin, Bamahros & Shukeri, 2018). However, the disclosure

and analysis of internal audit fee in those studies are limited, and it is hard to determine the importance of internal audit as an internal monitoring tool in Malaysia. The analysis is vital to enhance the understanding of the internal audit market structure and how the company perceives this internal governance as compared to external monitoring mechanism (e.g., external audit). Several studies on Malaysia external audit market structure have been carried out before (Che Ahmad, Houghton & Mohamad Yusof, 2006; Mohamad-Nor & Abidin, 2015); unfortunately none of the studies explain the structure of local internal audit fee. This finding also helps shareholders to assess how well companies are willing to invest in this activity, and this can illustrate the extent of the company's seriousness to protect the rights of the shareholders.

Therefore, the main objective of this study is to (i) evaluate the amount of the allocation of internal audit activities; (ii) compare the internal audit investment against the size of the company, and (iii) analyze the internal audit cost based on the type of internal audit function provider.

This study will use the 300 largest companies in Malaysia in 2017. In order to answer the research objectives, the collected data will be analyzed using descriptive analysis.

## 2. Literature Review

Internal auditing is one of the critical elements in corporate governance ecosystem. Internal audit plays a role in ensuring that internal control, risk management, and corporate governance aspects are effective and efficient. The internal audit function provides consultation services and assists the company in offering independence assurance to the organization (Pickett & Pickett, 2005).

There are several theories that can explain the importance of internal audit to the company. Among the most commonly used theories is Agency theory. The establishment of an internal audit function by a company is to ensure that financial, internal control, and risk management activities are always in place. In doing so, internal audits function able to ensure that the business process executed is appropriate and complied with relevant rules and regulations. Also, internal audit functions act as a monitoring mechanism for internal business functions and would reduce business malpractice within the company. Thus, the internal audit can assist in enhancing the governance process, and the business entity is properly managed as well. By doing so, the interests of shareholders as owners of the company will be preserved.

The internal audit function/unit is accountable to the audit committee. Accordingly, any internal audit activity, including matters relating to the provision for internal audit

investment, will be monitored and determined by the audit committee. The establishment of an internal audit is one of the forms of agency cost that has to be incurred to ensure that the relationship between the agent (company management) and the principal (company holder) is aligned and the agent (management of the company) always prioritizes the principal's interest.

In Malaysia, there are several rules and regulations that have been enacted in relation to the internal audit function. The Malaysian Code on Corporate Governance (2017) paragraph 10.2 states that:

*“The board should disclose:*

- *whether internal audit personnel are free from any relationships or conflicts of interest, which could impair their objectivity and independence;*
- *the number of resources in the internal audit department;*
- *name and qualification of the person responsible for internal audit; and*
- *whether the internal audit function is carried out by a recognised framework.”*

Further, in MCCG (2017) paragraph 10.1, it is stated that:

*“In developing the scope of the internal audit function, the Audit Committee should satisfy itself that:*

- *the person responsible for the internal audit has relevant experience, sufficient standing, and authority to enable him to discharge his functions effectively;*
- *internal audit has sufficient resources and can access information to enable it to carry out its role effectively; and*
- *the personnel assigned to undertake internal audit have the necessary competence, experience, and resources to carry out the function effectively.”*

Apart from MCCG (2017), the importance of internal audit function also highlighted in Bursa Malaysia Listing Requirements. Paragraph 15.27 of Listing Requirements mentioned that:

1. *“A listed issuer must establish an internal audit function which is independent of the activities it audits*
2. *A listed issuer must ensure its internal audit function reports directly to the audit committee.”*

Based on the above provisions, it is clear that authorities in Malaysia regard the existence of internal audit function as an essential matter, and public listed companies must always abide by it. However, when compared to the MCCG (2017) and Bursa Malaysia Listing Requirements (BMLR), it is found there is little guidance given by BMLR to the company to run its internal audit activity. This will give the flexibility to a listed company to carry out their internal audit activities. On the other hand, there will be inconsistencies in the internal audit practices, and the various forms of practice in the internal audit activity may be observable.

There are few studies carried out in investigating internal audit activity, especially on the investment in internal audit. For example, Barua et al. (2010) examine the relationship between the characteristics of the audit committee and the internal audit cost in the USA. Their study finds that there are complementary or substitute effects between internal audit function with the characteristics of the audit committee.

Working in the same line, Al-dhamari, Almagdoub, and Al-Gamrh (2018) investigate the relationship between the characteristics of the audit committee and the internal audit cost in Malaysia. Based on the 96 companies from the year 2012 to 2014, their results suggest that audit committee characteristics have a significant influence on internal audit costs. They also show that the average internal audit cost is RM3.986 million, the minimum is RM15,000, and the maximum is RM65 million. Approximately 17% of the sample survey has outsourced the internal audit function.

Meanwhile, using a sample of 651 Malaysian listed companies in the year 2013, Wan Hussin, Bamahros and Shukeri (2018) show that the average internal audit cost is RM436,560 with the minimum fee is RM2,000, and the maximum is RM39.7 million. Also, about 39% of companies have carried out an internal audit function internally. The reported mean is lower than disclosed by AL-Qadasi, Abidin, and Al-Jaifi (2019). Based on the observation for 2,176 companies from 2009 to 2012, AL-Qadasi et al. (2019) reveal that the mean for internal audit fee is RM329,587.

Based on the studies mentioned above, the internal audit plays a dominant role in enhancing corporate governance practices. Nevertheless, the quality of internal audit practices should be further studied, and it is partly determined by the type of internal audit function provider and the cost of internal audit (AL-Qadasi et al., 2019). This two information found to be missing in current internal audit literature and warrant further examination.

### 3. Methodology

The study employed a sample of the top 300 companies (excluding related financial companies) based on market capitalization listed on Bursa Malaysia. Data is obtained from the company's annual report and Datastream database. The year 2017 was selected since it is the latest data available. The collected data consist of internal audit costs, types of internal audit function providers, external audit costs, and company size (total assets). Data were then analyzed using descriptive analysis. Three primary analyses were performed namely: (i) determining the average internal audit cost rates against company's size; (ii) analyzing internal audit cost based on the type of internal audit provider; and (iii) analyzing internal audit cost based on the type of external auditors.

### 4. Results and Discussion

#### 4.1. Descriptive statistics

Table 1 presents total internal audit (IA) cost, external audit (EA) costs, and the differences between these two costs.

TABLE 1: Total Internal and External Audit Fee.

|            | IA fee (a)     | EA fee (b)     | Difference (a-b) |
|------------|----------------|----------------|------------------|
| Total Fees | 323,450,693.80 | 409,083,000.80 | -85,632,307.00   |
| Mean       | 1,078,168.98   | 1,363,000.13   | -284,831.15      |
| Minimum    | 7,500          | 28,000         | -20,500.00       |
| Maximum    | 44,200,000     | 33,300,000     | 10,900,000.00    |

The above table shows descriptive statistics on the cost of internal and external audit. Based on 300 samples, the total internal audit cost in 2017 is about RM323.450 million. This figure is lower than the external audit cost incurred by the company amounted to RM409 million. On average, the company spends RM1.07 million on the internal audit activity and RM1.36 million for the audit of the financial statements. Concerning the mean of IA fees, the reported figure is lower than earlier study as disclosed by Al-dhamari et al. (2018) (i.e., RM3.986 million). The minimum amount for internal (external) audit costs is RM7,500 (RM28000). However, for maximum rates, the expenditure on internal audit is higher than the external audit activity of RM10.9 million.

### 4.2. Rate of audit fees per unit of size

Further analysis is conducted to determine the effect of the company size on the internal audit cost rate. This analysis explains the influence of the company’s size on the internal audit investment. Based on the previous studies (Abidin, Goodacre & Beattie, 2010, Mohamad-Nor & Abidin, 2015), the size of the company is commonly referred to the total assets. Besides, total assets indicate the complexity of the company’s operations. In the present study, the total number of sample size (i.e., 300) are divided into ten groups, based on the total assets of a company. Size 1 represents the smallest size, and size 10 is the largest size of the company. The internal audit cost per RM1,000 of total assets is calculated for each company, and the results are shown in the following tables and graphs.

TABLE 2: Mean Internal Audit Fee per RM'000 Total Assets.

| Year/Size | Small |      |      |      |      |      |      |      |      | Large |
|-----------|-------|------|------|------|------|------|------|------|------|-------|
|           | 1     | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10    |
| 2017      | 0.31  | 0.23 | 0.27 | 0.31 | 0.22 | 0.38 | 0.26 | 0.20 | 0.16 | 0.20  |



Figure 1: Mean IA Fee per RM'000 Total Assets.

Table 2 shows the mean of internal audit fee per RM'000 total assets. The graph in Figure 1 demonstrates that the mean rate of internal audit is inconsistent against the size of the company. The rate shows a decreasing pattern from size 1 to 2 but starts to increase from size 2 to 4. The fee rate is lower for middle size companies (size



5). However, the rate has increased dramatically to almost RM0.40 for companies size between 5 to 6. Interestingly, the rate shows a declining pattern from size 6 to 9. After that, the average internal audit fee rate per RM'000 total assets was found to be higher (RM0.20) for big size companies (size 10).

The following table demonstrates the rate of external audit fees against the company's size.

TABLE 3: Mean EA Fee per RM'000 Total Assets.

| Year/Size | Small |      |      |      |      |      |      |      |      | Large |
|-----------|-------|------|------|------|------|------|------|------|------|-------|
|           | 1     | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10    |
| 2017      | 0.82  | 0.51 | 0.58 | 0.36 | 0.38 | 0.50 | 0.33 | 0.29 | 0.26 | 0.21  |

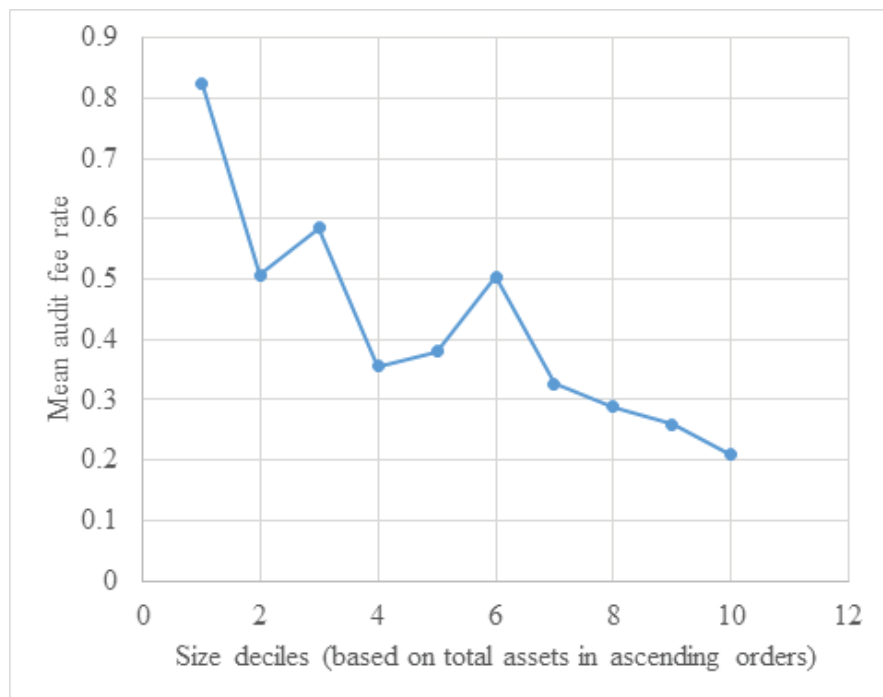


Figure 2: Mean External Audit Fee per RM'000 Total Assets.

Figure 2 shows the mean of external audit fee per RM'000 total assets. Based on Figure 2, the mean rate is inconsistent between size 1 to 6. However starting from size six onwards, the rate has started to decline. The rate has decreased from RM0.50 (size 6) to RM0.20 (size 10). The reduction is in line with the findings of Mohamad-Nor and Abidin (2010), where the larger the company size, the lower their external audit fee rates. This suggests that after size six, the effect economies of scale is more pronounced. Indirectly, this explains that the benefits of economies are generally only enjoyed by a very large company.

The above tables (Table 2 and 3) indicates that the rates for internal audit fees are lower (between RM0.10 and RM0.40) than the rates for external audit (0.20 to RM0.80) against the total assets of the company. Based on Figures 2 and 3, the pattern of graphs for both types of audit services are different. As for internal audit cost, the pattern of the graph is unstable where there is fluctuation rate of the mean from one size to another size of companies. Meanwhile, for external audit cost, the pattern is slightly stable, and there is a reduction in the cost of the big size of companies. The fee reduction suggested that an economy of scale is achieved.

### 4.3. Audit function as a service provider

The following section analyzes the internal audit cost based on the type of audit service provider (internal and external audit services). Table 4 reports internal audit investment based on the type of internal audit function provider.

TABLE 4: Internal Audit Investment based on the Type of Internal Audit Function Provider.

| Type of IA provider | Number of companies (%) | Total IA fees (RM) | Mean IA fees (RM) | Mean size of companies (RM) | % auditee of Big 4* firms |
|---------------------|-------------------------|--------------------|-------------------|-----------------------------|---------------------------|
| In-house            | 187 (62%)               | 310,181,090.40     | 1,658,722         | 7,540,838,000               | 78%                       |
| Outsource/co-source | 113 (38%)               | 26,138,756.91      | 117,430           | 1,075,930,000               | 42%                       |

\* type of external auditor; consist of Deloitte or Ernst & Young or KPMG or PricewaterhouseCoopers.

Based on Table 4, more than 60% of the sample carried out the activity internally as compared to almost 38% of companies that outsources internal audit function to the third party. The high number of companies carried out internal audit function internally in line with the finding revealed by Al-dhamari et al. (2018) that many of the big companies have their own in-house internal audit teams. The costs incurred for internally conducted internal audit activities are RM310 million, and on average the company allocates RM1.66 million for internal audit activity. It is higher than companies which outsource their internal audit activity (RM0.12 million). In terms of the company's size, the company that conducting its internal audit function is larger than the company that has appointed external firms. Meanwhile, most of the companies with their own in-house internal audit department hired Big Four firms as their external auditor (78%).

Table 5 displays internal audit costs analysis based on the type of auditee (i.e., auditee of Big Four Firms vs. non-Big Four firms

The result displayed in Table 5 divided companies into two categories; auditee of Big Four firms and non Big Four firms. A total of 201 companies audited by Big Four

TABLE 5: Internal Audit Investment based on the Type of External Audit Firms.

| Type of EA provider | Number of auditees (%) | Total IA fees (RM) | Mean IA fees (RM) | Mean EA fees (RM) | Mean size of the auditee (RM) | % companies outsource/co-source IA function |
|---------------------|------------------------|--------------------|-------------------|-------------------|-------------------------------|---|
| Non Big 4           | 99 (33%)               | 30,400,608         | 307,077           | 511,000           | 2,385,106,000                 | 66%   |
| Big 4               | 201 (67%)              | 293,050,086        | 1,457,961         | 1,783,000         | 6,445,727,000                 | 24%   |

firms and the total internal audit fee amounted to RM300 million. The fee is about ten times higher than the amount of internal audit fee involving a sample of non-Big Four firms. The company, which has appointed the Big Four, also allocated higher budgets for internal audit activity (RM1.4 million) compared to companies that have appointed non-Big Four firms. In terms of company size, companies audited by Big Four firms are almost three times bigger than non-Big Four firms, and it is in tandem with finding by Mohamad-Nor & Abidin (2015). Also, only 23% of Big Four auditee appointed external firms to carry out internal audit activities. This is lower than the non-Big Four auditees; which 65% of the company has outsourced the internal audit function.

The findings of this study and reviews from prior literature indicate that internal audit has become a mandatory and routine activity for every Malaysian listed company. The existence of an internal audit function will further strengthen the company’s internal monitoring activities. Despite its existence, the effectiveness of the internal audit function and its contribution to the company’s operations still requires further research. The present study shows that the allocation of costs for this activity is relatively low compared to external audit costs. Low provisions will affect the nature, scope, and quality of the audit conducted by the internal auditors. This can lead to the purpose of the establishment of an internal audit function challenging to be achieved, i.e. to ensure the effectiveness of risk management and good governance practices. It is argued that the internal audit activity is still carrying out the traditional internal audit function which is to assist external auditor activities, emphasizing on a fault-finding mission, focus on audit processes and ensure rules and regulations comply. Such activities will limit the contribution of internal audit function as a strategic partner and a provider of quality assurance providers to various critical risks within the company. Lack of attention to risk monitoring and management activities could lead to business risks not being well-managed, effective risk management strategies can not be applied and increased risk governance factor. As a result, the company’s governance structure and the process will be weak and might affect the company’s performance and sustainability.

## 5. Conclusion and Implications

This study investigates internal audit function activity in Malaysian, especially on the internal audit investment. The sample of the study comprised of the top 300 companies listed on the Bursa Malaysia in 2017. The findings show that the company's total investment in internal audit costs is RM323 million. Meanwhile, the average internal audit cost is RM1.08 million.

The study revealed that the average cost of internal audit cost per RM1,000 of company's assets is between RM0.10 to RM0.40. The audit fee rate is inconsistent with the size of the company. There is an increase and decrease for each internal audit rate for a particular size of the company. This may be due to the fact that the stock exchange regulations merely require the setting up of internal audit function among companies and no specific direction is given on the how the cost of internal audit needs to be allocated. Besides, the company has the discretion to decide who is their internal audit function provider. Thus, it is not surprising that more than half of the sample carried out their internal audit function internally.

Also, the study reveals that the internal audit function carried out by an in-house audit team is higher than outsourced to firms. Again, this might reflect the Bursa Malaysia Listing Requirement, which is silent on whom should or which party should perform this function; either in-house or outsource to the third party. The current audit practice indicates that many of the companies prefer to carry out this function internally. This can be explained by the sufficient internal audit resources available oned by big companies, and this activity is performed by skilled and experienced staff. The staff are familiar and well versed in dealing with specific business issues. Appointment of external consulting firms could delay the internal audit process since the firms need longer time to understand the background and business issues faced by a company (i.e., steep learning curve).

The findings of this study may draw some theoretical and practical implications. As internal audits are conducted by in-house internal audit teams, it will raise the question on quality of internal audit especially the aspect of the service provider's objectivity. It is perceived that the level of independence of external firm is higher than the in-house internal audit providers. This is because the in-house internal audit function is part of the company, and this potentially result in auditor's judgment will be biased. The issue of internal audit independence among outsourced firms is less pertinent since they are not salaried employed, and this would reduce the economy of a dependency problem. The issue of internal audit function objectivity is less relevant if the service provider has

a large customer base. As internal audit practices become more critical in the Malaysian corporate governance setting, relevant authorities have to formulate a comprehensive internal audit standard and procedures. This is evidenced by the average mean rate on different assets for each company size. Based on the comprehensive internal audit guideline, the internal auditors will have a better understanding of the procedures involved and the quality of the work performed both by in-house or outsource firm is comparable. Finally, the use of the term internal audit quality is a debatable issue. The indicator used to measure internal audit quality is still unresolved, and it is too early to emphasize that internally performed internal audit activity is better than outsourced firms.

The current study, however, suffers some limitations. Since the study examined listed companies on one financial year, it is suggested for future research to use the more extended study period. Thus, the pattern of internal audit cost can be clearly seen. This study also relies heavily on secondary data sources to determine the nature of internal audit practices. It is recommended that future study incorporate data from the company's annual report and interviews to gain a better understanding of the procedures involved in determining the cost of internal audit. Also, it is interesting for future research to examine the effect of this internal governance cost towards the quality of corporate practice and financial reporting. Future studies may also be carried out to determine the appropriate method for measuring internal audit quality by employing relevant theories of corporate governance.

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## Conference Paper

# The Intention to Enroll among Students of Private Higher Learning Institutions

Nazlan Mohamed Nazidin<sup>1, 2</sup>, Ishak Ismail<sup>2</sup>, and Hasnah Haron<sup>2</sup>

<sup>1</sup>Faculty of Management, Universiti College of Yayasan Pahang, Jalan Tanjung Lumpur, 26060 Kuantan, Pahang, Malaysia

<sup>2</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

Higher education hub in Malaysia has become intense in the form of competition. Private Higher Learning Institutions (HLIs) has to work harder to win the competition between the education services in the marketplace. Thus, with the total numbers of Private HLI and programmes available for choice, it is a complex situation to investigate the way students select Private HLI. Due to that, it is a key issue for Private HLI owners to understand what are the determinant factors that influence the students' intention to enroll in Private HLI. This conceptual paper discusses the influence of promotional efforts, the role of family and attitude on the intention to enroll in private HLIs. Theory of Reason Action is used as the underpinning theory for this conceptual paper. The outcome of this study from the findings will be able to assist Ministry of Education and Private HLIs on how to increase the enrolment of Private HLIs and thus to assist them on how to meet the objective of the Malaysian Education Blueprint 2015-2025.

**Keywords:** intention to enrol, marketing of higher education, education sector, private higher learning institution

Corresponding Author:  
Nazlan Mohamed Nazidin  
nazlan@ucyp.edu.my

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

According to the Malaysian Education Blueprint 2015 -2025 (Higher Education), Malaysia has increasing enrolment rate of 48% in 2012. The data showed that a 70% increase in enrolment over the last decade to reach 1.2 million students in the Public and Private HLI. From the analysis, the environment of the Malaysian education sector has changed over the past few years which aimed to introduce accountability for Higher Learning Institutions' services and efficacy in offering the academic programs in the educational hub. Back in the early 1990s, there were only two hundred private colleges and seven public universities. During that time, there were none of the private universities open in Malaysia. Unfortunately, the nation starts to focus on the development of HLIs, starting in 2001. The impact from that, there were eleven public universities, five conventional private universities and branch campuses of three foreign universities. By 2005, Malaysia

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had 72 public and 559 private institutions. In 2007, the number of the educational institution had further increased and keep moving, but currently, the data in 2018 shows that there is a reduced statistic of Private HLI in Malaysia. Table 1 shows the statistic of Private HLI in 2014 and 2018. In 2014, the number of private University was 70 but reduced to 53 in 2018. For University College, it was slightly increased from 34 in 2014 and 38 in 2018. There are 410 College in 2014, and it was reduced to only 362 College in 2018. This data represents that many Private HLI struggling to survive in the industry.

TABLE 1: Number Private HLI in Malaysia.

| Year  | University | University College | College |
|-------|------------|--------------------|---------|
| 2014  | 70         | 34                 | 410     |
| 2018* | 53         | 38                 | 362     |

**Note:** as at 31 October 2018

**Source:** Malaysian Education Blueprint 2015 – 2025 (Higher Education) and Website Jabatan Pendidikan Tinggi, Kementerian Pendidikan Malaysia

This data shows that the education hub in Malaysia will face significant changes in terms of the sustainability of education tertiary, especially for Private HLI. This is not in line with the Malaysian Education Blueprint 2015 – 2025. According to the Malaysian Education Blueprint 2015 – 2025, in order for Malaysia to be considered amongst the top higher education provider in ASEAN, Private HLIs should obtain an enrolment of about 867,000 students and Public HLIs should obtain an enrolment of about 764,000 students in 2025. In order to achieve the projected number of students, Private HLIs should play their role to increase their student's enrolment to ensure that the government's objective is achieved as well as to ensure the sustainability of their institutions. As the growth of the industrial sector in Malaysia, Private HLI begins to emerge along the path. These Private HLI begin to collaborate with foreign universities to offer diploma and degree program using the franchise strategy. One of the main focus of Private HLI is to have a return on investment, and this is not in line with the objectives of Public HLI's (Zain et al., 2013). Therefore, the public starts asking the quality of education from both sectors of higher education hub and the expectation that the quality of education of Private HLIs should match the Public HLIs or even better since they are paying more for education. Thus, Private HLIs need to be innovative and more strategic in motivating the students to enroll in their institutions. Meanwhile, from many successful Private HLIs, there are also many Private HLIs struggling to survive (Hay and Fourie, 2002). The government encourages establishing Private HLI to ease the burden of overcrowding at Public HLI. In order to assist the growth of Private HLI through students' enrolment, the government provides education loans.



Table 2 shows the number of students' enrolment from 2013 to 2017 for Public and Private HLI. The data shows that the number of students' enrolment for public HLI has increased in 2014 and start to decrease between 2015 and 2016. Compared to Private HLI, it shows the increasing number of students' enrolment from 2014 until 2016 and a decrease in 2017. Although Private HLIs have performed well from 2014 to 2016, a slight decrease of 5% in 2017. As can be seen in Table 3 on students' intake, this could be due to the changes in the number of students' intake in 2017 to be reduced. This data has shown that Private HLIs need to understand the reasons for the decrease and improve on it. By referring to Table 1: Number Private HLI in Malaysia, it shows that the decreasing number of private HLI from 2014 to 2018. The study from Geoffery and Paul (2015) concluded that 45% of private HLI has insufficient assets to cover their current liabilities, 64% have debts exceeding their paid-up capital and these are mostly due in the short term and around 120,000 students are affected.

TABLE 2: Number of Students' Enrolment for Public and private HLI.

| HLIs    | 2013    | 2014    | 2015    | 2016    | 2017    |
|---------|---------|---------|---------|---------|---------|
| Public  | 560,359 | 563,186 | 540,638 | 532,049 | 538,555 |
| Private | 484,963 | 493,725 | 580,928 | 695,026 | 666,617 |

**Source:** Ministry of Education Malaysia

Table 3 shows a decreasing of students' intake for Public HLIs in 2015 but for Private HLI, it shows a growing number of students' intake. However, similar to students' enrolment, a slight decrease of 5% intake can be seen in 2017 from 2016.

TABLE 3: Number of Students' Intake for Public and Private HLI.

| HLIs    | 2013    | 2014    | 2015    | 2016    | 2017    |
|---------|---------|---------|---------|---------|---------|
| Public  | 178,418 | 185,067 | 168,127 | 164,989 | 175,771 |
| Private | 134,420 | 181,410 | 292,217 | 251,487 | 238,889 |

**Source:** Ministry of Education Malaysia

In addition, according to Sami and Sree Rama (2017), the sustainability of higher education institutions is the capability to remain in the industry with the operation that includes the ability to achieve their goals and value to stakeholders. The continuity is a part of the sustainability, but it should link with the ability to fulfill and achieve the desired goals for higher education institutions. At present, higher education institutions in the industry no matter which levels face astonishing challenges, including inadequate resources and the cost of operation of higher education (Lapovsky, 2014). Hence, financial sustainability is becoming a major concern to the national higher education system, which would have a significant relationship with the number of students' enrolment. Savanov et al. (2015) summarize that only higher education institutions with positive

and maintaining income can stand and fulfill their objective from providing the best education to maximizing shareholder's wealth.

Furthermore, the common problems faced by Private HLI are to be seen as a reliable and convincing institution in order to attract people. So, another problem arises when certain Private HLI failed to control and oversee their marketing strategy effectively (Ross et al., 2007). Same goes with Loh (2011), where the researcher reported that market leadership amongst the Private HLI not only focus on outstanding revenue sales or students' enrollment but also need to take into consideration image and branding of the institution as perceived by their markets. Referring to Tan and Raman (2009), the intense competition has gone to private colleges lacking the competitive edge to sustain their operations. It created a challenging situation where the Government's interference and legislative changes the demand with great flexibility and an even greater opportunity from an entrepreneurial mindset from private colleges.

This conceptual paper is expected to recognize the main factors that significantly influence students to enroll at Private HLI. With the situation of higher education in Malaysia, it is relevant to discover the perspective of decision making by the students as they made a decision to further study and will contribute to the roles that assist the Private HLI to strategies, plan and develop their marketing activities and strategy in promoting the institutions that lead to the increasing students' enrolment.

## 2. Literature Review

### 2.1. Factors influencing students' intention

Previous studies have found that tertiary education is arguably a high-involvement product. In students and parents point of view, this signifies a substantial investment in money. Hence, the prospective students and their financial supports need to consider looking wisely into the various choices offered available in the market. The institution itself must, therefore, try to answer some fundamental questions; students choose a particular college or university from the huge number of options for what? How students and also their financial supports would make a purchase decision based on the many options available? On what standards would they evaluate their decision making? These issues parallel to a common marketing question: how do consumers come into the decision to buy or use a particular product or service? Education institutions often accomplish this function without recognizing it as a marketing application (Md. Sidin et al., 2003).

These questions have created a competitive environment among Private HLI in Malaysia. This situation makes up a new challenge in ensuring the future survival of HLIs in this country. Zalina (2003) reported that this highly competitive environment has resulted in an estimated reducing the total numbers of student enrolment by approximately 20% across the board, particularly among the smaller Private HLI with student enrolment ranging between 400 – 500 students.

The students' opinion about the status and image of the institution are formed from word of mouth, past experience and the marketing strategies of the institution (Ivy, 2001). Gradually, students are becoming more critical and analytical in making a decision to continue to study in which educational institutions (Binsardi and Ekwulugo, 2003). The institution which has a good status and image can strongly persuade the prospective students to attend an educational institution (Gutman and Miaoulis, 2003). The institution selection is defined by several factors such as the academic reputation and status of the institution (Soutar and Turner, 2002).

In addition, the students entering institutions of higher education today are not the same compared to those of previous generations (Abrahamson, 2000). In the process of choosing which institution to enter, they consider taking into account the factors which can influence and attract them to choose that particular institutions differently than previous generations. Therefore, Private HLI marketers should strategies their marketing campaign in regards to the underlying factors that contribute to the students' intention to enroll at Private HLI. Furthermore, the study of intention to enrol in Private HLI is an area of rising research interest, primarily because Private HLI has been converted from a domesticated, centrally funded non marketed entity to a high and competitive environment (Soutar and Turner, 2002).

Most of the Private HLIs have paid more attention to quality in teaching and learning (Zain et al., 2013). This assertion was also endorsed by Lawrence et al. (2009) with the study that competition with public universities is the major challenge faced by private colleges. The newly established Private HLI are at a disadvantage in the competition area. Private HLI needs to look for their financial assistance and operate by themselves with limited resources.

There are various research models available that can be referred to recognize the factors that will affect the students to further their studies in colleges. Joseph Sia (2011), in its literature, has identified two models of students' choice of Higher Education Institutions. The first model is by Chapman (1981); he acknowledged the longitudinal nature of the college selection decisions. Specifically, the model looks at the impact of students' characteristics and external influences on the universal outlook of college

life. Also, Joseph Sia (2011) pointed out that this model should be used in characterized as a conceptual model in identifies the connections and influences along the college choice process.

On the other hand, the second model identified by Joseph Sia (2011) in his literature, cited by Ismail (2009) explains the mediating variable, information satisfaction that mediates external influences and the student's choice of Higher Education Institutions. The finding concluded that in mediating the association between outside influences and students' choice of Higher Education Institution, the information must be tolerable.

Meanwhile, Furukawa (2011) found that the literature on the institution decision-making process provides a theatrical performance of several stages that a student went through in their option of institutions. Furukawa (2011) in his literature has found that Kolter (1976) which produced a theoretical account of college choice by exploring marketing theory to show levels of selection. Furukawa (2011) pointed out that Kolter (1976) separated the process into seven stages: a decision to attend; information searching and receiving; specific college inquiries; applications; admission; college choice; and registration.

Indeed, Andrean (2010), through his study, also found models for the theory of university choice. This model, known as Jackson's Model by Andrean (2010) in his literature suggested that a student passes through three phases before making selections. Jackson (1982) defined combined sociological and economic influences before dividing the operation into three phases: (i) preferences; (ii) exclusion; and (iii) valuation. In this model, the phase of preferences includes areas of influence such as folk, friends, personal dreams, and academic accomplishment. The second form of elimination utilizes more economic factors of monetary value that cause students to exclude institutions from their list of possible colleges. The tertiary form of evaluation is where students assess their choices and ultimately reach a concluding determination.

In looking at the students' choice process, the use of multiple-choice models can provide a comprehensive model to track a student's influence in choosing the private college. The integration of all models can be a bit overpowering. This work looks at the college choice by applying the models from Chapman (1981) and modified by Joseph Sia (2011) for the items in each variable. Model from Chapman (1981) has been applied by many researchers who studied the student's option. Chapman (1981) figured out four independent variables that led to the student's choice of Higher Education Institutions. Meanwhile, for this study, the model that adapted from Chapman (1981) only used three variables which are: external influences; colleges fixed colleges characteristics and

college effort to communicate with students. Student characteristics have been rejected because it is not suitable for a private college in Malaysia.

### 3. Theory of Study

The Theory of Reasoned Action is used to support the framework of the study. The factors that influence students' intention to enroll in Private HLI is one of the elements that needed to be analyzed and deeply comprehended by all Private HLI in Malaysia in order to market their product broadly and achieve the targeted numbers of students' enrolment. Due to that, the Theory of Reasoned Action is used to investigate further students' intention to enroll in Private HLI. Figure 1 shows the Theory of Reasoned Action:

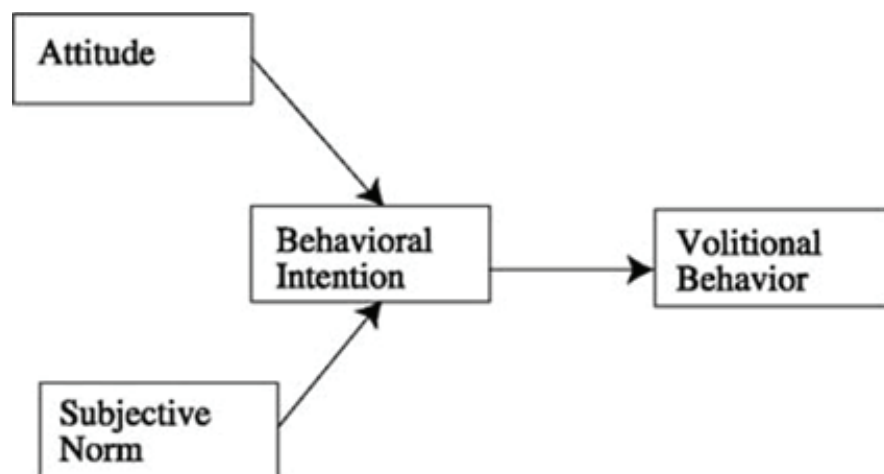


Figure 1: Theory of Reasoned Action.

The Theory of Reasoned Action was presented by Fishbein & Ajzen in 1975. The main function of TRA is to appreciate the motivational influences on behaviour. According to Ajzen (1991), behavioral intent is the most imperative determinant of a person's behavior. The first variable to explain intention is the attitude towards the behavior. It refers to the degree that a person was a positive or negative valuation towards the behavior. People tend to have a positive attitude forward performing that behavior when they perceive the outcomes of their performing are favorable (Auto et al., 2001). The second antecedent of intention namely subjective norms are defined as the perceptions about how people would judge a person for performing the behavior. This would include the family's influence, colleagues' influence, and individuals that the person looked up to. A positive subjective norm is expected when others perceived the performing behavior is favorable, and individuals are encouraged to meet the exceptions of relevant others (Armitage and Conner, 2001).

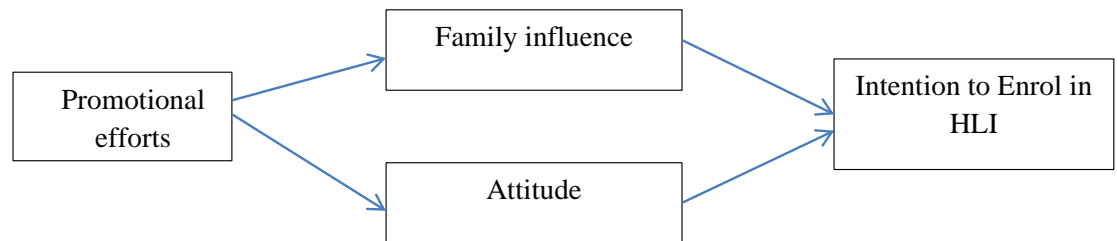
TABLE 4: Summary of Literature Review.

| Author (s)            | Location               | Independent Variable   | Methodology  | Findings  |
|-----------------------|------------------------|--|--|---|
| Gonca T.Y. (2006)     | Istanbul, Turkey       | - Personal preference<br>- Family influence<br>- Promotional materials | Questionnaire (153 respondents)<br>Frequencies analysis                                      | Personal preference has positive relationship in university selection. Families were found to be significant. They have an active role in selection and enrolment. Promotional material was found to be significant. Web pages should be developed according to the needs of the market |
| Perna L.W. (2000)     |                        | -Parent involvement<br>-Financial aid<br>-Peer encouragement           | Descriptive analysis (chi-square & one way ANOVA)<br>Regression analysis                     | Financial aid has no significant relationship to enrollment. Parents has significant relationship in decision making of their children<br>Peer encouragement affect the student choice of decision to continue study  |
| Vrontis et al. (2007) |                        | -Marketing communications<br>-Attitude                                 | Conceptual Paper   | Marketing communications have a positive effect on consumer decision process<br>Attitudes relating to personal freedom appear as primary factors  |
| Radzol et al. (2017)  | Klang Valley, Malaysia | - Brand equity<br>- Involvement<br>- Advertising                       | Purposive sampling 394 respondents (parents who have the intention to enroll their children) | All constructs used in this research have significant relationship with parents' enrollment   |
| Kusumawati, A. (2013) | Indonesia              | - Cost<br>- Reputation<br>- Parents                                    | Purposive sampling technique 48 respondents<br>Thematic analysis                             | Cost, reputation and parents have significant relationship with the students' choice  |
| Pimpa N. (2005)       | Thailand               | - Family<br>- Finance  | Focus group interview (3 group with 9 participants each)                                     | Family financial support most important factors<br>Information from family members with personal experience also as a factor of influence   |

## 4. Conceptual Framework

The factors mentioned in the literature include promotional efforts, family influence, and attitude that will influence a student's intention to enroll in HLIs. The proposed framework is as shown in Figure 2.

The proposed framework of the study is as follows:



**Figure 2:** Proposed Conceptual Framework.

## 5. Hypotheses Development

According to Vrontis et al. (2007), HEIs should concern the capability of the institutions to influence perceptions through traditional means such as quality and differentiation. Marketing communications have a comparatively greater effect on “need recognition,” which arises subsequently to these higher needs in the consumer decision process. Owing to technological accessibility, the intensity of marketing communications and increased options, “search for information” is more complex, more efficient, and more effective. Similar causes and effects occur in relation to “pre-purchase evaluation of alternatives” though here branding appears to play a vital role in decision-making.

Thus, it is hypothesised that:

*H1: Promotional efforts have a positive influence on attitude*

*H2: Attitude has a positive influence on the intention to enroll in HLIs*

Joseph Sia (2011) concluded that the program and career information is the most important items of promotional efforts when promoting the higher education institution to persuade prospective students to join the institutions. Marketer of private education should focus on promoting parents' involvement to attract prospects. Advertising by private education has a significant influence on parents' satisfaction towards the intention to enroll. When parents feel satisfied, it might increase the probability of the next action (Radzol et. al, 2017).

Thus, it is hypothesised that:

*H3: Promotional efforts have a positive influence on family influence*

Radzol et al. (2017) found that when parents are highly involved in selecting private education, this might shape positive feelings towards the institution. It is supported by Kusumawati (2013) which found that the parents would be the key influential stimulating students' choice of an institution. Interestingly, in the study, most of the respondents mentioning parental influence were one of the factors that play a role, in terms of making a decision which institution to study further. This data due to the respondents which still need financial support from their family. Financial support was the most frequently mentioned parental influence and was directly related to the decision to study at an institution, choice of the city, and choice of an academic course. Some students voiced out that they need to take into consideration of their parents' proposals because they still have to rely on their parents because it is the only sources they can get in terms of financial supports. The data exposed that if when the students rely on their parents in terms of financial support, then, the parents had authority in influencing their children to choose an institution.

According to Pimpa (2005), the strongest family influencing factors on intention to enroll in higher education is a financial influence. The family expectation is almost as related as family financial support. The analysis in the study indicate that financial support and expectation from the family are the only two factors that reach statistical significance.

Thus, it is hypothesised that:

*H4: Family influence has a positive influence on intention to enroll in HLIs.*

## 6. Conclusion

The expected outcome of this research is that through the promotional efforts, family influence and attitude will have a positive influence on students' intention to enroll in HLIs. Findings of the study will be able to assist the Ministry of Education and HLIs on how to improve their efforts to ensure an increase in enrolment of students in HLIs. If family influence is found to have a positive influence on intention to enroll in HLIs, for example, more engagement is needed with the families of the students by mailing the program pamphlets which includes information on the availability of financial assistance, the reputation of universities and career path of the students. At the end of this research,



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## Conference Paper

# Leadership and Innovation on Performance of Private Higher Education Institutions in Malaysia

Nor Aishah Hashim, Hasnah Haron, and Daing Mohd Nasir bin Ibrahim

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

The contribution of private higher education institutions (PHEIs) in Malaysia is important to the higher education industry. Among the roles of PHEIs are providing a pathway to local and international students to the tertiary level of education, contributing towards making Malaysia an international and highly reputable hub for higher education as well as limiting the flow of our intellects to foreign countries. However, there has been a major concern over the performance of PHEIs. Due to the volatility of the higher education landscape, many local PHEIs are facing with serious issues and challenges which affect their organizational self-sustainability. If the issues and challenges are not seriously addressed, it could impede the growth of PHEIs as well as become the barriers to PHEIs to serve their roles in Malaysia higher education sector. This conceptual paper provides some insights into the issues and challenges of PHEIs in Malaysia. It also identified leadership and innovation as the critical success factors for PHEIs organizational self-sustainability and proposed that these two independent variables are tested in future research.

**Keywords:** higher education self-sustainability, higher education performance, leadership, innovation.

Corresponding Author:

Hasnah Haron

hasnaharon@ump.edu.my

Daing Mohd Nasir bin Ibrahim

daing@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Higher Education Institutions' performance has been a major concern by many countries, as it will ensure the sustainability of the institutions in the long run. In the USA, as reported by Dretler & Jeff (2012) from Sterling Partners, Bain and Company, more than thirty percent of its higher learning institutions have shown discouraging financial position with increased in liabilities, high debt service (interest), escalating expenses as well as poor liquidity position and inadequate revenue reserve to support the increase in financial obligations. The economic recession has added to this financial issue whereby the amount of endowment fund channeled to support the colleges and universities operation is stagnant.

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In Europe, it was observed that the continuous decrease in public funding to support the public universities, deregulation of higher education which led to new market entrant of private universities and globalization have put pressure to the public universities in expanding its promotional activities as part of the strategy to ensure their organizational self-sustainability (Pucciarelli & Kaplan, 2016).

The issues of PHEIs in Malaysia's organizational self-sustainability, which is mainly due to the weak financial position is not new in the higher education sector. In 2005, it was reported that 123 Bumiputera owned PHEIs were closed down and another 30 were in critical stage. The contributing factor was due to poor number of students' enrolment (Utusan Online, May 2005).

According to the Presiden Persatuan Kebangsaan IPTS Bumiputera Malaysia, Datuk Dr. Ismail Md. Salleh, the decrease in students' number was the consequence relating to the limited amount of sponsorship provided by Perbadanan Tabung Pengajian Tinggi Negara (PTPTN) and Mara to PHEIs students. PHEIs which have an enrolment of more than 80% of sponsored students were financially affected due to their failure to obtain the targeted number of new students' intake (Press release, 30th January 2005).

This study aims to determine the issues and challenges that PHEIs in Malaysia are facing, which could become the barriers to growth and organizational survival. Further, this study will also identify two critical success factors for PHEIs performance and self-sustainability. Based on the present highly competitive Malaysian higher education environment, it is vital to explore these important elements to assist management of PHEIs in their managerial and business strategy to enhance performance.

## 2. Literature Review

### 2.1. Roles and contribution of PHEIs in Malaysia

Bajunid & Wong (2016) highlighted that the roles and contribution of Malaysian PHEIs are relevant and important in the development of the national higher education system for the last thirty years. Among the contribution are helping our country to be recognized as highly reputable higher education international hub, offering more places for tertiary education to a local student, providing significant net savings in foreign exchange through enrolment of international students and reducing the brain drain of Malaysians intellectuals to foreign countries.

The contribution of PHEIs in Malaysia continues to be relevant such as increasing accessibility to tertiary education (Grapragasem, Krishnan, & Mansor, 2014). Due to the

limited place available at public universities and the stringent entry requirement, PHEIs can accept students who are not able to enter public universities. This justifies the numbers of PHEIs available in Malaysia. As of 31st December 2018, the total number of PHEIs in Malaysia are 53 full- fledged universities, ten foreign universities branches, 38 University colleges, and 351 colleges. PHEIs role is not only as a compliment but also a substitute for public universities in Malaysia (Da, 2007). PHEIs provide academic programs which are unavailable at the public universities such as foreign university programs offered through private colleges collaborative arrangements or offered by foreign university branches in Malaysia.

According to Tan Sri Dr. Noorul Ainur Mohd Nur, the Secretary-General at the Ministry of Higher Education, the number of students enrolled in PHEIs has exceeded the amount in public higher education institutions since 2015. In becoming an international hub, Malaysia expects to accept 200,000 international students in the year 2020 and 250,000 in 2025 (MOHE at Going Global Conference 2018).

Thus, the issue of PHEIs performance is important, and if it is not seriously addressed, it could affect Malaysia position as an international higher education hub and the number of students' enrolment in the future.

Table 1 shows total students enrolment in higher education institutions (HEIs) in Malaysia from 2013 to 2017.

TABLE 1: Students' Enrolment at HEIs in Malaysia.

| Year           | 2013    | 2014    | 2015    | 2016    | 2017    |
|----------------|---------|---------|---------|---------|---------|
| <b>Public</b>  | 560,359 | 563,186 | 540,638 | 532,049 | 538,555 |
| <b>Private</b> | 484,963 | 493,725 | 580,928 | 695,026 | 666,617 |

**Source:** Ministry of Education/ Ministry of Higher Education

## 2.2. Issues and challenges faced by PHEIs in Malaysia

Many local PHEIs are going through difficulties to remain to sustain in the industry. The decrease in revenue has affected their overall organizational performance (Basu, Jeyasingam, & Habib, 2016). It was reported that from 2012 to 2017, a total of 79 colleges had been shut down by the ministry. Several contributing factors to PHEIs casualties are in compliance with the specification required by Act 555 (Private Higher Educational Institutions Act 1996), an inadequate number of teaching staff, lack of students' enrolment, failure to renew college license and discontinuation of operation (Minister of Higher Education, 2017).

Previous researchers have identified many challenges faced by the PHEIs in Malaysia, which affect their sustainability in the education sector. A research conducted by Anis, Islam & Abdullah (2015) on challenges of private HLIs in Malaysia discovered that the top three ranked challenges faced in providing quality higher education are i) managing financial capabilities ii) meeting the requirements of related regulatory and professional bodies and iii) rendering teaching and learning facilities for excellent education.

In another exploratory research conducted by Anis, Islam, & Abdullah (2018), various stakeholders of PHEIs identified eight dimensions of challenges which are teaching staff, facilities, students, programs and curriculum, a threat by other PHEIs, recognition of programs by quality assurance body, financial matters and research. Among the issues relating to these challenges are recruiting and keeping highly committed lecturers, meeting requirements of respective regulatory bodies, ability to outperform the competitors, improving the financial condition for their survival, providing programs that meet the industrial and national needs, encouraging lecturers' involvement in research activities and educating below-average students with necessary soft skills. From the perspective of academic leaders, it was discovered that the top five work challenges faced by PHEIs academic leaders are employee management, time management, financial management, strategic alliances and achieving objectives, KPIs and standards (Ghasemy et al., 2018). This study also revealed that the first four challenges are similar in Malaysian public focus HEIs and Malaysian public research & comprehensive HEIs, which indicate that these challenges are common in Malaysian higher education sector.

In an earlier study focusing on academics of PHEIs, issues on academics career development have been highlighted such as career promotion, use of latest technologies, multi-tasking - performing research, teaching & social work, uncertain structure, funding, improper research facilities and remunerations which contributed to the challenges of PHEIs in the area of human resource development and management (Arokiasamy, Ismail, Ahmad, & Othman, 2009). The issues and challenges faced could affect PHEIs resources, the activities, outcomes, and impede the growth as well as become the barriers for PHEIs to serve their roles in Malaysia higher education sector. This will eventually influence their long term performance and organizational self-sustainability. Thus, the challenges need to be addressed adequately to control the damages as well as the adverse impact they could bring to respective PHEIs in the long run.

TABLE 2: Challenges of PHEIs in Malaysia.

| Author(s)               | Type of Challenges                        | Areas  |
|-------------------------|---|--|
| Ghasemy et al (2018)    | Academic Leadership                       | Employee management<br>Time management<br>Financial management<br>Strategic alliances<br>Achieving objectives, KPIs and standards  |
| Islam et al (2015)      | Qualitative Providing Quality Education   | Financial Capabilities<br>Compliance to Regulatory Bodies<br>Facilities for Quality Education  |
| Anis et al (2018)       | Providing Quality Education               | Teaching staff<br>Facilities<br>Students<br>Programs and curriculum<br>Threat by other PHEIs<br>Recognition of programs<br>Financial matters<br>Research                             |
| Arokiasamy et al.(2009) | Human Resource Development and Management | Career promotion<br>Technology training<br>Multi- tasking and workload (performing research, teaching & social work)<br>Structure<br>Funding<br>Research facilities<br>Remunerations |

### 2.3. Higher education performance for organizational self-sustainability

Organizations, including those in the higher education sector, need to maintain their competitiveness and viability, by continuously adapting to changing circumstances; otherwise, they will face the risk of being out of the industry. Generally, the concept of self-sustainable higher education is understood as the ability of the higher education institutions to survive in the long run, which is related to its economic viability as well as to effectively implement strategies to progressively adapt in the current uncertain environment (Aleixo, Leal, & Azeiteiro, 2018). Performance of HEIs determines their ability to sustain in the higher education sector Volchik & Maslyukova (2017). There are many frameworks for organizational performance measurement, such as Balanced Scorecard (Kaplan & Norton, 1996) and The Baldrige Excellent Framework. Previous studies and research have also proposed the dimensions and measurement of organizational performance. Morin & Audebrand (2014) argued that organizational performance measurement should not be focusing on financial aspects only and proposed that other dimensions such as the people, the process, and the environment. Extending the organizational performance measurement shall enhance employee’s motivation and



effectiveness in other work areas other than financial. The Baldrige Excellence Framework is well known all over the world and use by many organizations. The framework is established to empower organizations to achieve stipulated goals, enhance results, and become more competitive. The Baldrige Education Criteria for Performance Excellence (ECPE) promotes a systems perspective, which means that all the components of an organization should be managed as a unified whole to achieve ongoing success. The criteria for performance measurement include (i) leadership, (ii) strategy, (iii) customers (iv) measurement analysis and knowledge management, (v) Workforce, (vi) Operations and (vii) Results. However, Asif, Raouf, & Searcy (2012) argued that ECPE Baldrige education criteria for performance excellence (ECPE) does not have theoretical underpinning and is too generic as it is based on the experience and knowledge of quality expert and practitioners. Thus, the study proposed on the enhancement of ECPE and suggest that performance measures for academic institutions should consist of related academic processes including strategic direction, program development, enrolment, faculties' staff recruitment and management, learning and development, support service processes as well as financial portfolio. In the context of PHEIs sector in Malaysia, Ministry of Education (MOE) has established rating systems for higher education institutions to intensify the competition and accelerate the improvement of PHEIs performance. PHEIs which fall in the university, university colleges, and foreign university branch categories are rated under Rating for Higher Education Institutions in Malaysia (SETARA) whereas PHEIs in the college category are rated under the Malaysian Quality Evaluation System for Private Colleges (MyQuest).

#### **2.4. Factors influencing PHEIs' performance and self-sustainability**

Areas of challenges discovered in previous research provide guidelines for PHEIs in Malaysia to identify the root cause of the challenges as well as to determine the catalyst and related strategy to improve their organizational performance.

The current higher education landscape is competitive and dynamic that PHEIs can be disrupted by the changes as well as affecting the PHEIs organisational performance and organisational sustainability. Previous research has identified many factors which could influence HEIs organizational performance, which then contributes towards their organizational self- sustainability.

Among the factors are leadership, direction and strategy, organisational culture (Kok & McDonald, 2017) (Barnard and Van der Merwe 2016) (Pucciarelli & Kaplan, 2016), innovativeness (Al-harthy, 2017) (Barnard & Van der Merwe, 2016a), networking with

TABLE 3: Proposed Organisational and HEIs Performance Measurement Dimensions.

| Author/Source                        | Model / Framework   | Dimension   |
|--------------------------------------|---|---|
| Kaplan & Norton (1996)               | Balanced Scorecard  | Financial<br>Customer<br>Internal Business Process<br>Learning & Growth   |
| Morin & Audebrand (2014)             | Organizational Effectiveness Model                              | Sustainability<br>Personnel worth<br>Process efficiency<br>Organizational legitimacy  |
| Asif, Searcy, Asif, & Searcy (2016)  | Composite Index for Performance Measurement in Higher Education | Financial<br>Service<br>Research<br>Teaching  |
| Baldrige Excellence Framework (2015) | Education Criteria for Performance Excellence                   | Leadership<br>Strategy<br>Customers<br>Measurement analysis and knowledge management<br>Workforce<br>Operations<br>Results  |
| Abubakar, Hilman, & Kaliappen (2018) | New Tools for Measuring Global Academic Performance             | Academic reputations<br>Employability of graduates<br>Faculty students ratio<br>Research Output<br>Internationalisation<br>Nobel prizes and fields medals<br>Research grant<br>Abundant resources<br>Infrastructure and facilities<br>Community Service |
| MOE / MOHE (2017)                    | SETARA  | HEIs General Profile<br>Teaching & Learning<br>Research Capacity<br>Services and Income<br>Generation   |
|                                      | MyQuest   | Students<br>Quality Management System (QMS)<br>Resources<br>Program Recognition<br>Graduate Recognition   |

external stakeholders (Abdullah, Razman, and Muslim 2018) (Pucciarelli & Kaplan, 2016), quality assurance practices (Tang & Hussin, 2013) and infrastructure & technology (Barnard & Van der Merwe, 2016a).

This study focuses on two success factors, which are leadership and PHEIs innovativeness.

### 2.4.1. Leadership

Previous researchers have identified that one of the most critical factors in HEIs performance and sustainability is governance and leadership. Abdullah, Razman, & Muslim (2017) provide evidence that effective and supportive university governance is crucial in ensuring the campus operation sustainability. Further, the research by Anis, Islam, & Abdullah (2015) identified that one of the solutions to address the top three ranked issues and challenges faced by PHEIs is top management support and commitment.

Radinger-Peer, Pflitsch, Radinger-Peer, & Pflitsch (2017) conducted a study to identify the roles of higher education providers to spur regional transition paths towards sustainability (RTPS) in Austria via three different channels; teaching, research contribution, and outreach activities. This study discovered that higher education providers as a whole entity did not contribute to RTPS, but the effect is dependent on committed employees and the leadership of the university.

Organizational success is highly contributed by an important variable that is leadership skills. Almatrooshi, Kumar Singh, & Farouk (2016) suggested a framework to enhance leadership traits through the application of cognitive, social, and emotional intelligence. These three elements serve as a guide to identify effective leaders.

An exploratory study conducted by Kok & McDonald (2017) to determine the leadership, governance and management behaviour which contribute towards the success of academic department revealed that the leaders were participative and highly involved in their work, showing the desired departmental and university objective, mission and vision, having high thrust on staff and democratic. These leadership behaviours have encouraged staff to feel empowered in exercising their roles and responsibilities.

HEIs leaders' top priorities are achieving target and meeting requirements to achieve excellent quality, followed by teaching & learning activities and conducting research work as well as producing research outputs (Ghasemy et al., 2018). This finding explains that leaders in HEIs are concerned with the achievement of their HEIs.

Osseo-Asare, Longbottom, & Murphy (2005) conducted a gap analysis study on the importance and effectiveness of quality management practices on leadership and policy & strategy for teaching and research continual quality enhancement. The findings revealed that the policy & strategy practices showed a higher score (with higher importance and effectiveness score) as compared to the leadership practices. However, this study suggests that the implementation of strategy and policies for sustained improvements in higher education will show a better result if it is combined with the appropriate leadership style.

In examining the relationship of leadership to organizational performance in the hotel industry, Samuel, Siagian, & Octavia (2017) discovered that i) the hotels sales growth rate and return are influenced by the leadership both directly and indirectly via intervening variables which are innovation and differentiation ii) differentiation strategy is not influenced directly by leadership but indirectly through innovation.

Bakar & Mahmood (2014) conducted a quantitative study at public higher learning institutions (PHLIs) to identify the relationship between transformational leadership with the performance of academic leaders and the relationship of corporate entrepreneurship with the performance of academic leaders. The findings showed that (i) Transformational leadership and corporate entrepreneurship strongly influenced the performance of academic leaders. (ii) Corporate entrepreneurship mediated the effect of transformational leadership on performance in which corporate entrepreneurship act as a conduit to enhance the effect of the relationship between transformational leadership and performance. Further, this study suggests that Public HEIs should consider selecting and transformational leadership qualities among academic leaders for the potential of an increase in HEIs performance.

#### 2.4.2. Innovation

Innovation is defined as introducing and producing new inventions or rejuvenating previous concepts into improved service or products. Innovation is regarded as one of the essential elements of organizational growth and development. Gupta & Barua (2018) discovered there are fourteen enablers for small and medium enterprises (SMEs) organizational innovativeness with four most important enablers which are entrepreneur attributes, knowledge management, organizational support resources for innovation, and strategic alliance initiatives.

Hussein, Mohamad, Noordin, & Ishak (2014) identified from previous empirical studies that learning organization has a positive relationship with organizational performance and organizational innovativeness. Thus, it was proposed that PHLIs need to adopt a learning organization culture to enhance organizational performance and promote organizational innovativeness for long term success.

Barnard & Van der Merwe (2016) revealed the strategies on innovative management implemented at the University of Johannesburg (UJ) in the effort for the university's sustainability. It was proposed that the conditions to promote innovation among the staff in higher education are outcome oriented, and firm leaders on strategic direction, effective and staff involvement planning, regular culture climate surveys, continuous

progress follow up; and strategic flexibility. This study also highlighted the areas of innovativeness strategies implemented at UJ which include brand strategy, organizational culture transformation, new research work, facilities for technology transfer and students experience which have proven to be successful in transforming UJ to a state of progression and stability.

Previous empirical research has confirmed that different dimensions of firm innovativeness influenced performance. Hilmi & Ramayah (2011) studied the relationship of product, process, behavioural, and strategic innovativeness on Malaysian SMEs financial and non-financial performance. This study discovered that three independent variables, except for strategic innovativeness, have a significant relationship with SMEs performance.

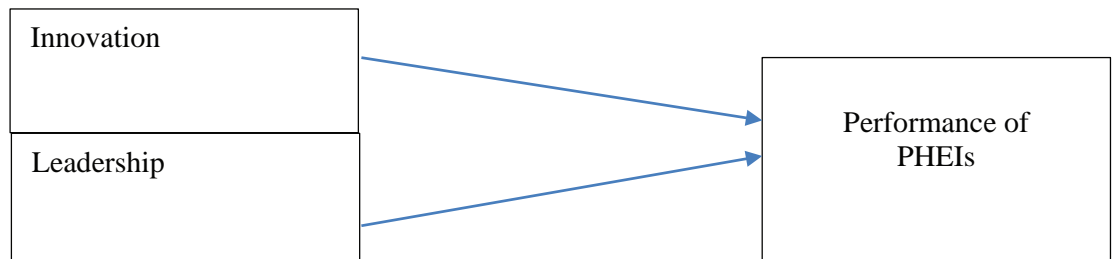
Investigating the effect of innovation capabilities on the business performance of SMEs in Mexico, Maldonado-Guzmán, Garza-Reyes, Pinzón-Castro, & Kumar (2018) revealed that products, processes, marketing, and management innovativeness are positively and significantly correlated to the SMEs return. These findings proposed that the implementation and practices of innovation activities within SMEs will enhance their level of business performance.

In a research conducted by Dabić, Lažnjak, Smallbone, Švarc, & Smallbone (2018), important elements such as intellectual capital, innovation, and organizational culture are found to be crucial for a company's achievements with positive and significantly correlated. Higher business performance has a positive relationship to higher levels of both intellectual capital and innovation culture, but high business performance does not rely solely on organizational culture.

A study on the relationship of strategic alliance, product life cycle and innovation (product development & design, process and services) revealed that (i) strategic alliance between firms has a positive and significant relationship with product life cycle and innovation, (ii) innovation in product development & design, process and services has a positive and significant relationship on organizational sustainability (Islam, Hossain, & Mia 2018). This finding explains that the strategic alliance between firms produce a more innovative product than a single firm. The significant and positive relationship that was found between innovation and organizational sustainability indicate that businesses need to introduce and upgrade new products, redesign the present ones and explore new opportunities through research and development to ensure the business long term success.

### 3. Conceptual Framework

The proposed conceptual framework of the study is visualized in Figure 1. The framework shows the relationship of the independent variables leadership and innovation with the dependent variable, the performance of PHEIs.



**Figure 1:** Proposed Conceptual Framework of the Study.

This conceptual framework suggests that leadership and innovation are expected to be the explanatory variables which contribute to the performance of PHEIs. The framework shows the relationship of the independent variables (leadership and innovation) with the dependent variable (performance of PHEIs), indicating the existence of significant relationships between them.

### 4. Hypotheses Development

Anis, Islam, & Abdullah (2015) identified that one of the solutions to address the top three ranked issues and challenges faced by PHEIs is top management support and commitment. Kok & McDonald (2017) found that high performance in the academic department is due to leaders who were reported as being participative and highly involved in their work, showing the desired departmental and university objective, mission and vision, having high thrust on staff and democratic. These leadership behaviours have encouraged staff to feel empowered in exercising their roles and responsibilities.

Osseo-Asare, Longbottom, & Murphy (2005) suggests that the implementation of strategy and policies for sustained improvements in higher education will be more successful if closely coupled with the appropriate leadership style.

Semuel, Siagian, & Octavia (2017) discovered that leadership affect the performance of hotels growth rate and return on sales. Bakar & Mahmood (2014) found that there is a significant and positive relationship of transformational leadership and corporate entrepreneurship to the performance of academic leaders.

Based on the review of previous literature on leadership, the following hypothesis is developed.

*H1: Leadership has a positive relationship to PHEIs performance*

Hilmi & Ramayah (2011) studied the relationship of product, process, behavioural, and strategic innovativeness on Malaysian SMEs financial and non-financial performance. This study discovered that three independent variables, except for strategic innovativeness, have a significant relationship with SMEs performance.

Maldonado-Guzmán, Garza-Reyes, Pinzón-Castro, & Kumar (2018) revealed that innovation in products, processes, marketing, and management has a positive and significant effect on the business performance of Mexican SMEs. Dabić, Lažnjak, Smallbone, Švarc, & Smallbone (2018) found that higher business performance is positively related to higher levels of both intellectual capital and innovation culture.

Islam, Hossain, & Mia (2018) found that there is a significant and positive relationship between innovation and organizational sustainability, which indicate that firms need to innovate new products, redesign existing ones and invest in research and development in order to be successful over the long run.

Based on the review of previous literature on innovation, the following hypothesis is developed.

*H2: Innovation has a positive relationship to PHEIs performance*

## 5. Conclusion

This paper has highlighted some of the challenges faced by PHEIs in Malaysia which affect their resources and activities. Leadership and innovation have been identified as the influencing factors for organisational performance. Thus, PHEIs need to appoint credible leaders with relevant competencies who could manage and provide clear direction to ensure the institutions' long term success and achievements both in financial and non-financial aspects. PHEIs should also pay serious attention to organizational innovativeness for example, the programs offered and services provided must be continuously relevant to the current needs of this dynamic and competitive higher education sector as well as the demanding industrial requirements. Besides, PHEIs must consider providing relevant resources to encourage their staff to be innovative and able to contribute to the institutions long term sustainability.

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## Conference Paper

# Factors Influencing the Intention of Recipient to Pay Back Education Loan in State Foundation

Nurul Farhanah Mohd Idres, Hasnah Haron, and Hanafiah Ahmad

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

This paper explores the factors that influence the intention to pay back the education loan among students in a state foundation. Education loan is the primary source for the student in order to pursue their studies. The government has introduced many forms of financial assistance such as scholarship, grants and education loan. However, the loan recipients have faced difficulties in repaying the loan, which will affect the provider and future recipients. This is because, the loan provider will not be able to sponsor future students if they are not able to collect the loan from the loan recipients. This paper identifies attitude, parental influence, media awareness and perception of loan agreement towards the intention to pay back the education loan. Theory of Planned Behavior (TPB) is suggested to be the underpinning theory of this study. Findings of the study can assist the state foundations on setting strategies to collect payment from the loan recipients.

**Keywords:** theory of planned behavior, repayment loan, education loan, intention to pay back loan, attitude, parental influence, media awareness, perception of loan agreement.

Corresponding Author:  
Nurul Farhanah Mohd Idres  
nurulfarhanah2018@gmail.com

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Higher education in the world has become increasingly important not only for individuals, to enrich their lives and improve their status, but also for the greater society for economic prosperity, and the progress of good governance. Higher education improves the status and produces greater individual and community power through economic wealth, democratic progress and social justice. (Macmillan P. 2006). The Malaysian government has done many of initiatives in which to help the community especially the young generation to have a better education. As stated in the Budget 2018, that was presented by the 6th Prime Minister YBhg. Dato' Sri Najib Tun Razak, totaling RM 250 million is allocated for the educational purpose as overall to develop a Science, Technology Engineering and Mathematics (STEM) Centre which required the latest

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learning methods, enhance the module of Computer Science in secondary school and allocate about RM 190 million to upgrade almost 2,000 classes into to Century Smart Classroom.

Several studies have researched the impact of giving financial assistance. One of the studies of state and federal scholarship programs by Dynarski, (2008); Sjoquist & Winters (2012) found sizable effects on college enrolment but less evident effects on college completion. Therefore, the government has provided various type of financial assistance such as scholarship and loan, grants and work-study program in order to encourage the student to further studies and graduated from college. Scholarships are offered to students based on students' talents, skills and academic achievements. Grants are basically given to students who need financial assistance, but the grant is almost replaced by recent student loans. According to Feng (2009), the number of student loans must be sufficient to ensure students can rely on them. The student will be able to complete the study if there is an adequate amount of loans given (Liu, Cheng & Zhang, 2007) while if there is inadequate loan given, the students need to work as part-time to support their education or drop out of school during their studies. Therefore, financial aid program such as PTPTN, State Foundation, MARA, JPA, and MyBrain15 is needed so that they can pursue into the higher institution from an undergraduate level to a doctorate or professional courses. Malaysian Finance Minister mention that the budget allocation for education is one of the main financial sources for the students is by taking an education loan. Shen & Ziderman (2009), said that an about 70 countries across the world are offered educational loan's scheme to the students who would like to pursue higher education and the education loan is different for each country in term of their objectives, the firm structure, source of funding, targeted students, amount of loans allocated to each of recipients, disbursement process and the collection process (Ziderman, 2004). Even there is a difference, most of the educational assistance across the countries have similarities in term of given a higher subsidized from the government itself. The National Higher Education Fund Corporation (PTPTN) is one of the main contributors to financial assistance. As of February 2019, as allocated RM56 billion as of February this year to help more than three million students to pursue their studies at institutions of higher learning (World Time News, 2019). State foundation also helping the student to pursue their education by giving the loan to the higher education level that more focus on their state residents. However, the issue of education loan repayment becomes a growing problem. As the number of borrowers increased, the concern towards the ability of loan repayment also increased in which Educational institutions around the world today still struggle to cope with the education debt problem. This is

because in the study of Baum and O'Malley (2003), reported that most of the student feel burdened on education debt which leads to the repayment issue. According to Sarah & Rich (2018), 20% out of 8 million of the federal student loan borrowers in America are having difficulties in making the loan repayment. US Federal and state officials from both major political parties, researchers, advocates, and student loan provider acknowledge that the repayment and servicing systems have serious problems. In Malaysia, the Perak State Government are in debt of about RM17.5 million for education loan. In 2017, the former Chairman of Education, Science, Environment and Green & Technology of state government mentioned that about 4,632 recipients have failed to pay back their loan and 20 loan recipients (less than 1%) have been taken to court for action. It could be due to the low percentage of action taken against the loan defaulters that have made the issue of debt repayment a significant issue to be addressed. Most of the previous research studied the factors on why the recipient is not paying back the education loan but, the study on why the recipient intends to do the repayment still needs to be studied. Thus, this study will benefit to state foundation in term of knowing the right attitude that can influence the recipient to pay their loan while can keep maintaining the consistent payment by existing recipient.

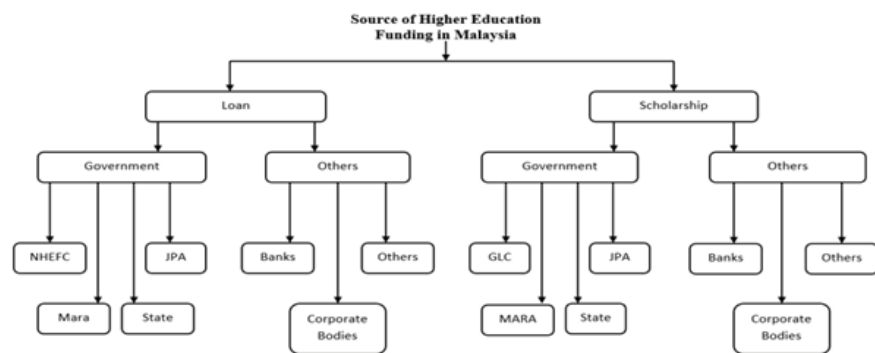


Figure 1: Sources Funding in of Higher Education at Malaysia (Source: Ismail S. (2011)).

## 2. Literature Review

The theory that is widely been used in the attitude study that explains the relationship of the factors influencing intention to payback loan is the Theory of Planned Behavior. TPB illustrates that a person's performance on behavior is determined by his intention towards that behavior. This study will use TPB to explain the relationship of the factors that influence intention among the recipient which measure students' attitude. If the individual has more favorable attitudes toward a particular behavior, he will have the

intention to make his/her loan repayment. Unlikely, for unfavorable attitudes of individuals towards a particular behavior, he will not more likely intend to perform his behavior. Subjective norms refer to the perceptions of the person and influence whether his behavior is affected by others or not. (Ajzen, 2006). This study will measure subjective norms through parental and awareness whether it influences the student intends to make a loan repayment. Perceived Behavioral Control (PBC) is a measurement of the people perceptions of performing a behavior of interest' Ajzen (2011). The extent that individuals could successfully transform their behavioral intention into actual behavior much depends on their perception. Perceived behavioral control in this study refers to a perceived agreement.

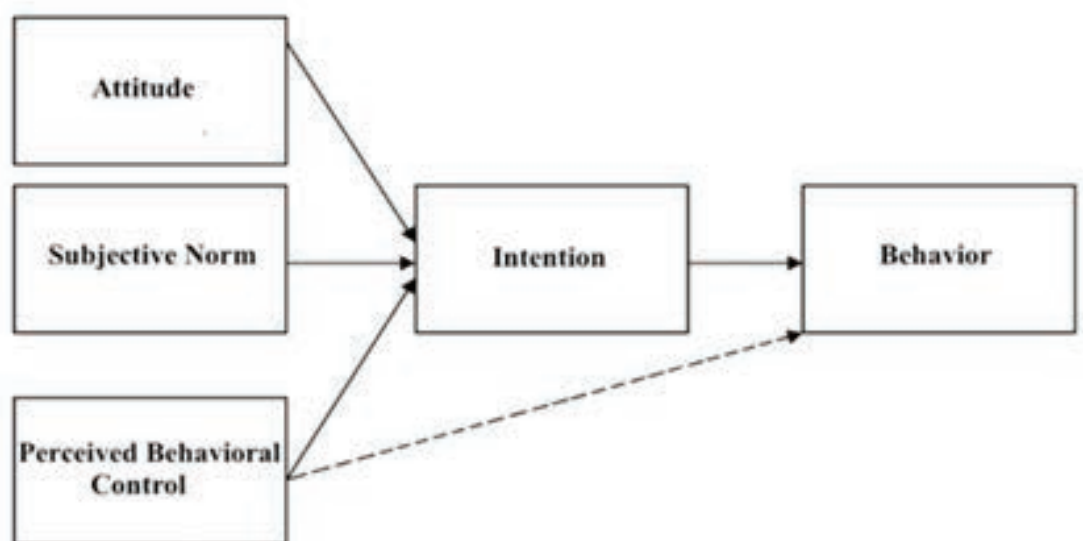


Figure 2: Theory of Planned Behavior (TPB).

## 2.1. Factors influencing the intention to pay back education loan

Several studies have examined attitudes toward educational loans and student debt in general (Chudry, Foxall, & Pallister, 2011; Davies & Lea, 1995; Haultain, Kemp, & Chernyshenko, 2010). A qualitative study, Chudry et al. (2011) explores the factors that influence the attitude of borrowing scholars and finds that students consider educational loans to improve their future, rather than the form of debt. Parents play a role in shaping student attitudes towards general debt (Chudry et al., 2011) and credit card debt (Norvilitis & MacLean, 2010). A study using a British sample found that students' debt levels rose sharply between the second and third years of college, and once students incurred debt, their attitudes toward debt became more tolerant (Davies & Lea, 1995). Although attitudes toward debt had been either positive or negative, a

psychological structure of attitudes toward debt and higher education was suggested to be multidimensional (Haultain et al., 2010). In three studies on New Zealand tertiary students, Haultain et al. found that two dimensions, fear of debt and debt utility, were associated with how debt was described. Zainal et al. (2012) has conducted a study and found that the student predicted to have negative attitudes on paying back their education loan. This is because most of the recipient does not take the education loan as their priority, but it was ranked at fifth after other types of expenses listed. Another study by O’Loughin et al. (2006) that tries to explore current perspective on the way of behaving related to student credit and debt consumption between the United Kingdom (UK) and Irish students found that students who are living in credit led environment to have effects on student’s perceptions and behaviors concerning credit and debt consumption.

TABLE 1: Factors affecting intention to do loan repayment.

| Authors   | Independent Variable  | Methodology   | Findings   |
|---|---|---|--|
| Edward Wong Sek Khin, Ahmad Nasharuddin & Kamisah Binti Ismail (2015) | Attitude<br>Awareness<br>Perception of Affordability<br>Perception of loan agreement  | A questionnaire distributed to 300 participants who graduated from one of the public universities in Malaysia               | Attitude towards education loan repayment has a positive relationship with the intention to repay PTPTN loan.<br>Awareness of PTPTN issues created by the media has a positive relationship with the intention to repay PTPTN loan.<br>Perceived affordability of repayment after graduating has a positive relationship with the intention to repay PTPTN loan.<br>Perception towards loan agreement has a positive relationship with the intention to repay PTPTN loan |
| Safinar Ismail (2011)   | Student Attitude<br>Parental Influence<br>Perception that loan repayment will affect quality of life after graduation<br>Perception towards loan agreement is positively influence<br>perception that loan repayment will affect quality of life after graduation | Mixed-Method<br>Qualitative Approach<br>Semi-Structured Interviews<br>Purposive Sampling<br>Quantitative Approach<br>Survey | Students’ attitude has been found in this study to have a significant impact on the intention to repay the loan.<br>Parental influence is associated significantly with the intention to repay loan.<br>The relationships between perceived quality and the intention is significant<br>Hypothesizes the relationship between perceived agreement and perceived quality, which is found to be significant  |



| Authors  | Independent Variable   | Methodology  | Findings  |
|--|--|--|---|
| Siti Zulaikha Zolkeplee, Abu Bakar Hamed & Ahamad Faosiy Ogunbado (2018)   | Anxiety, Parental Influence, Media awareness, Religiosity                    | The data was collected 359 from Universiti Utara Malaysia (UUM) Muslims' undergraduate students who had taken the National Higher Education Fund Corporation (NHFEC) financing during their studies. | the anxiety variable is not significant to the dependent variable of student's perception towards educational loan repayment. The parental influence variable recorded positive influence on student's perception towards educational loan repayment, but the relationship is not as strong as religiosity. Media awareness variable also showed a positive influence on student's perception towards educational loan repayment religiosity is the most influential variable on student's perception towards educational loan repayment. |
| Ahmad Harith Ashrofi Hanafi, Wan Rozima Mior Ahmed Shahimi, Muhammad Ashraf Anuar, Kuah Yoke Chin, & Shum Shen Hwei (2018) | Awareness created by media Human Interaction Attitude Repayment Alternatives | A total of 500 questionnaires were distributed to academic and non-academic staffs in the whole of Malaysia by using convenience sampling technique out of which 215 responses were collected.       | The findings showed that the borrower's attitude, awareness from media and repayment alternatives but not human interaction were the factors that influenced the borrower's intention to repay PTPTN loan.  |

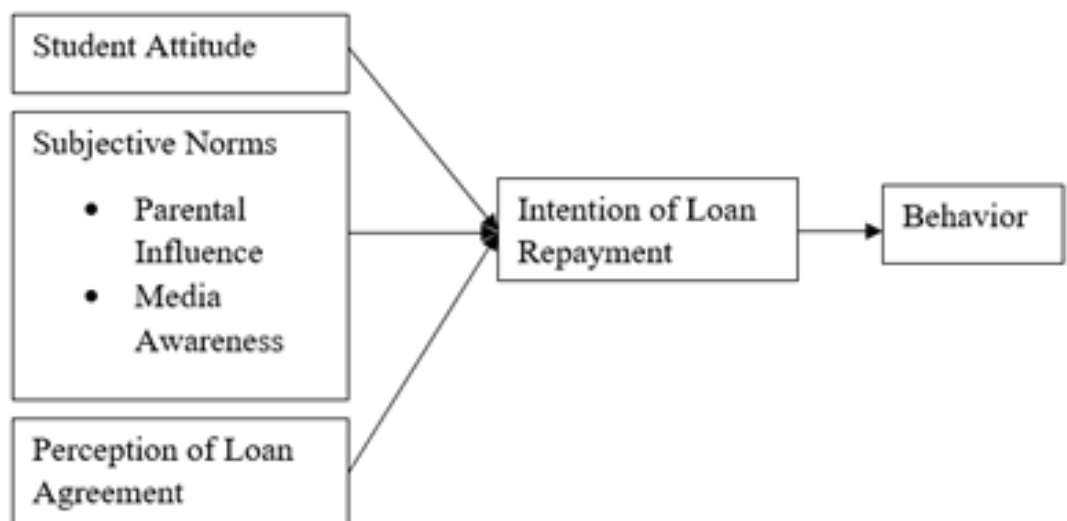


Figure 3: Conceptual Framework.

## 2.2. Hypotheses Development

A study by Khin E.N.S., Nasharuddin K., & Ismail K. (2015) stated that attitude towards education loan repayment has a positive relationship with the intention to repay PTPTN loan. Another study by Ismail S. (2011) also found that students' attitude has been found in this study to have a significant impact on the intention to repay the loan. The findings are also supported by studies from Hanafi A.H.A, Ahmad Shahimi W.R.M., Annual M.A, Chin K.Y & Hari S.S. (2018). Thus, it hypothesized that:

H1: There is a significant relationship between student attitudes towards intention to pay back education loan.

In many studies conducted in Malaysia (Ramayah et al., 2003, 2004; Yulihisri, 2004; Gopi and Ramayah, 2007) it has been shown that subjective norm is a significant predictor of intention to use in the Malaysian context. As found in Zolkeplee S.Z., Hameed A.B & Ogunbado (2018) study, it showed that parental influence variable recorded positive influence on student's perception towards educational loan repayment. Ismail S. (2011) also found that parental influence is associated with significantly repay a loan. Thus, it hypothesized that:

H2: There is a significant relationship between parental influences towards intention to pay back education loan.

Hanafi A.H.A, Ahmad Shahimi W.R.M., Annual M.A, Chin K.Y & Hari S.S. (2018) found that awareness from media influenced the borrower's intention to repay PTPTN loan. Thus, it hypothesized that:

H3: There is a significant relationship between media awareness towards the intention to pay back education loan.

A study carried out by Abu Bakar et al. (2006) stated that group of students who manage to get good results in their studies for example cumulative grade point average (CGPA) above 3.0 has better knowledge concerning loan agreements than those who obtained poor results or a CGPA lower than 3.0. Several studies in the USA found that senior students have better knowledge compared to first-year students regarding certain aspects of their education loan (Hira et al., 2000).

H4: There is a significant relationship between knowledge on loan agreement towards the intention to pay back education loan.

### 3. Conclusion

The past studies have shown that many factors can measure an individual's intention. Therefore, this study proposes to use TPB to explain the relationship of student's attitude, parental influence, media awareness and perception on loan agreement to measure students' intention to pay back their loan. Findings of the study will assist the state foundations on strategies to collect the loan.

### Acknowledgement

We would like to thank Yayasan Bank Rakyat for the financial support by sponsoring this paper to be presented in the FGIC 2<sup>nd</sup> Conference on Governance and Integrity 2019.

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## Conference Paper

# Factors Influencing Employee Perception on Performance Management System

**Fatimah Mahmud and Nik Anis Nik Azemi**

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

**Abstract**

Without the employee feedback, the developed performance management system (PMS) cannot be assumed as an effective system that able to stimulate their workers to achieve the company's objectives and targets. This paper aims to identify the implementation of performance management system in the company, to analyze the factors that affect employee perception on PMS, and subsequently to determine the relationship between factors influencing employee perception and PMS. 119 questionnaires were distributed to employees in Company X. The response rate is 43% of the total sample. The finding shows that the respondents strongly agreed on the implemented PMS in the company. Also, employee participation was the highest factor that influencing employee perception of PMS, followed by employee knowledge and skills, and rating techniques. Overall, each of the factors had a significant relationship with the PMS. This study may assist managers in improving their communication with employees on their work performance. Therefore, this will increase the employee understanding of how they have been assessed and feel that the process is fair. Later, this will ensure a positive employee perception of the implemented PMS.

Corresponding Author:

Fatimah Mahmud  
fatimahm@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E**Keywords:** performance management system, employee perception, employee participation, employee knowledge and skills, rating techniques.

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Based on Kohli (2008), the terms of performance management were established by Beer and Ruth in 1976. The weight of these terms has changed from control, command, and cautious system to a commitment-based system. A complete cycle of PMS consists of the goals and objectives, feedback, coaching, advice, and motivating employee to perform at a high level of performance (Storey, 2005). Asaju and Kayode (2008) stated that the objective of PMS in an organization is aligned with the process of the objective set for each of the employees. As time passed, PMS has developed Performance Pyramid (Tangen, 2004), Balanced Score Card (Kaplan & Norton, 2001b) and Performance Prism (Neely & Adams, 2000) which can be used for appraising different aspect of performance.

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The effectiveness of PMS can be seen when the organization's objectives are achieved (Boland & Fowler, 2000). A performance management model recommended by (Murphy & DeNISI, 2008) explained that the recognition of PMS by employees is an important factor for the effectiveness of the system. Moreover, PMS cannot be assumed to be effective without employees' respond (Sharma, Sharma, & Agarwal, 2016)

This research focuses on exploring factors influencing employee perception of PMS. Perceptions are related with PMS to understand the purposes of the system, implement the evaluation in a certain frequency and improve managers' knowledge about the responsibility of the employees (Landy, Barnes, & Murphy, 1978). Companies should hold a formal assessment regularly regarding their PMS and consider a radical effort to deal with the lacks (Seotlela & Miruka, 2014). According to Sharma et al. (2016), a complete investigation is needed to acknowledge the effectiveness of PMS in the companies, particularly from the perspective of their employees. Besides, according to previous researchers, they express that PMS is a value of an organization's plan towards its employees and will be clarified by individual employees (Rousseau & Greller, 1994). However, employees do not always recognize that value the same as how the organization wants it to be. This can be concluded that the employee's perception gives an impact on PMS practices (Guest, 1999). Perceptions may intrude the link between PMS practices (Miruka, 2014).

Based on research conducted by Jamali, El Dirani, & Harwood (2015) found that there are still arise the not satisfied employees on the implementation of PMS even though it used the right method to measure employees' performance, there are issues of arising regarding the implementation of the system. Employee perception is hardly considered in organizations. However, it is essential that needs attention when implementing PMS (Prasetya & Kato, 2011). An employee with a positive perception is more likely to be more encouraged to complete their task while an employee with a negative perception tends to reflect that system is not correctly implemented and somehow bias towards them (Gabris & Mitchell, 1989).

Participation of employees in several aspects of a system is needed because it can lower the rate of dysfunctions of company PMS (Roberts, 2003). Therefore, employee participation is crucial to achieving organizational change (Mikkelsen, Saksvik, & Landsbergis, 2000). High positive perceptions of justice can be achieved with a high level of employee participation (Hopkins & Weathington, 2006). Employee participation also can achieve a positive result on the effects of work-related stress and the perceptions towards the system (Nytrø, Saksvik, Mikkelsen, Bohle, & Quinlan, 2000). Consequently, issues arrive when employees refuse to participate.

Lastly, according to Gabris and Mitchell (1989), employees who have a positive perception towards the system become more inspired to perform their work compared to employees who have a negative perception that believe the system is biased, not applied in good order, and in an improper way to evaluate employees' perception towards work performance. Employee perception is controlled by employee knowledge (Onyango, 2013). Furthermore, another research confirmed that employee knowledge about the criteria used when setting goals for a system gives a positive perception of the system (Erdogan, Baker, & Tagg, 2001). After that, issues arise when employees lack of knowledge and skills give negative perception towards the system.

## 2. Literature Review

### 2.1. PMS

Definition of performance management is a collection of actions involved in the company to enrich the performance of employees in all departments of a company which is important to improve the effectiveness of the company (DeNisi & Kluger, 2000). According to previous research, the success of a company depends on the performance of employees (Dissanayaka & Hussain Ali, 2013).

PMS is needed to influence employees to assist their strategy (Rudman, 2004). Thus, it should be appropriate for the culture of the company. This system is focused on continuous improvement of the company's performance, which can be achieved by improving the performance of individual employees (Johnson, 2000). With properly designed PMS in organization able to create perceptions of fair treatment among employees, boost the employee motivation and satisfaction and consequently improve their work performance (Idowu, 2017)

### 2.2. Factors Influencing Employee Perception

According to Miruka (2004), perception influences and moderates the link between practices of PMS and employee performance which related to behavior. The difference in employee perceptions of PMS may exist (Seotlela & Miruka, 2014). With this object in mind, employees usually stick on their beliefs based on experience.

The employee should take part during the development of performance standards, creation of rating format, and their measurement scales (Robert, 2003). He mentioned



that employee participation is more effective when the working environment encourages trust, open communication, and equality of employee treatment. Participation of employee shows the negative result in resistance to change, but it shows a positive result in accomplishment report of intervention goals and commitment towards the organization of employees (Lines, 2004). Therefore, employees who are involving themselves in the plan of the company tend to act less negatively than those who are not involving themselves. According to Onyango (2013), employee perception is controlled by employee knowledge. For instances, clarity about the function of a system, understanding, and acceptance of performance objectives is possible to give a positive perception of PMS. Furthermore, another research confirmed that employee knowledge about the criteria used when setting goals for a system gives a positive perception of the system (Erdogan et al., 2001). Behavioral observation scale which is used to decrease the mistake in PMS (Murphy, 2008). The rater, such as manager or supervisor needs to report the frequency of the certain behavior done by the employees. The advantages of these techniques are improving the level of satisfaction of employee with the system, identifying the exact action to improve performance, and reducing the barriers in the communication process of employees within the company.

### **2.3. Relationship between Employee Perception and Performance Management System**

There is a strong relationship between employee perception and PMS (Brand & Pretorius, 2003). Firstly, this relation involves communication between the management of a company and their employees regarding the vision and objectives of the company and employee perception of their participation in the development of PMS and those implementations in the company. This communication is an effort to change emotions, beliefs, values, and attitudes of employees by increasing knowledge about the process of the system to employees, explaining clearly about the policies when they need to settle a task, organizing meetings with the employees and allowing a further discussion with employees. Next, employee's empowerment during the training in a company is capable of defining jobs and performance standards effectively about PMS. This training guides the manager to give proper feedback on performance areas that need improvement, perceptions about the commitment of the management, and participation in the successful implementation of the PMS. Lastly, the training also allows the manager to speak out about the problems face by the performance management and how well the manager takes advantage of the PMS as a resource to develop performance in the

company. Thus, the managers are allowed to practice their skills and power to state the performance problems during training. The scope of the training provides managers an opportunity to practice their skills and employee perception of the extent to which managers learn to find out how well employees use their skills in the workplace.

### 3. Methodology

The questionnaire used was related to the research objectives, independent variables, and the dependent variable of this research. The questionnaire was developed in extensive research review which from several sources such as Sharma et al. (2016), Razack and Upadhyay (2017), and Onyango (2013). Besides, it was written in simple English to help employees understand the questions much better. For this research, the questionnaire used closed format questions, which means this tool required respondents to select an answer from the option provided (Sincero, 2012). A five-point Likert scale was used to assess the standpoint in which respondents responded to items in multiple levels of strength. For instances, the scale was from one to five, which from strongly disagree to agree strongly. The questionnaire consists of three sections, which were Section A, Section B, and Section C. Section A touched on the respondent's general information. Respondents need to answer each question regarding the gender, department, and employment period. Meanwhile, Section B asked about the dependent variable of this research, which is PMS. The first research objective is to identify the implementation of PMS in the company. It can be achieved by using questions in Section B. Section C involved questions regarding the independent variables includes employee participation, employee knowledge and skills, and rating techniques. The questions in this section were used to achieve the second and third research objective that aim to analyze the factors that affect employee perception on PMS and to determine the relationship between factors affecting employee perception and PMS. The population of this research is the employees of Company X. A sample of 119 employees used as the sample size for this research. Furthermore, the sample size was decided by using a GPower software, which is a general power analysis program for determining the sample size of a known population. However, only 51 employees responded to the questionnaire. This research used the method of drop and picked later to collect data, so that, the time can be saved. Besides, the questionnaires hand over to the respondents only with the consent and willingness of the respondents. Hence, all the collected data only be used for this research, so that, the data were not being disclosed to any party

for other use. A follow up to the human resources officer was done by using phone calls to make sure all the data collected in the time given.

## 4. Results

This section presents the background of respondents, implementation of the performance management system, and factors that affect employee perception on the performance management system.

### 4.1. Background of Respondents

Table 1 presents the demographic of respondents include gender, department, and working experience with a response rate of 43% from the total sample. There are about 60.8% of the respondents are male, and 39.2% are female. Next, the randomly chosen of departments in Company X. and the total of respondents from each department participated in this survey. Thus, this sample is representing the population because respondents came from various department. According to the findings, 29.4% of the respondents are working in the company for less than two years. Meanwhile, the employment period between 2 and four years is 33.3%. The highest part of employee period of the respondents is 37.2%, which for respondents who are working over five years. This can be concluded that the respondents are more reliable to answer the questionnaire.

### 4.2. Implementation of Performance Management System

Table 2 presents the finding of the first research objective, which is to identify the implementation of PMS in the company. It shows the mean and rank for the implementation of PMS in Company X. The levels of agreement consist of strongly disagree, disagree, neutral, agree, and strongly agree. Thus, the implementation of PMS can be identified through the answered questionnaires.

Based on the findings, the implementation of PMS was sorted in ascending order, which is from less implemented to highly implemented. The first implementation of PMS is that the manager updates the employee's goals as business goals change. Thus, this activity in performance planning accuracy considered the least implemented in the company. Next, there is a mean of 3.824 for both implemented activities of performance review and outcomes accuracy. Those activities are annual feedback

TABLE 1: Demographics of the Respondents.

| Demographic           |                         | Frequency         | Percent |
|-----------------------|-------------------------|-------------------|---------|
| Gender                | Male                    | 31                | 60.8    |
|                       | Female                  | 20                | 39.2    |
|                       | Total                   | 51                | 100.0   |
| Departments           | Finance                 | 4                 | 7.8     |
|                       | Human resources         | 6                 | 11.8    |
|                       | Materials               | 5                 | 9.8     |
|                       | Operations              | 1                 | 2.0     |
|                       | Production              | 5                 | 9.8     |
|                       | Project design engineer | 7                 | 13.7    |
|                       | Quality                 | 5                 | 9.8     |
|                       | R&D                     | 5                 | 9.8     |
|                       | Shipping                | 5                 | 9.8     |
|                       | Stores                  | 4                 | 7.8     |
|                       | Warehouse               | 4                 | 7.8     |
|                       | Total                   | 51                | 100.0   |
|                       | Employment period       | Less than 2 years | 15      |
| Between 2 and 4 years |                         | 17                | 33.3    |
| Over 5 years          |                         | 19                | 37.2    |
| Total                 |                         | 51                | 100.0   |

during a performance review is an accurate representation of the ongoing feedback during the performance cycle, and employee outcomes of PMS (compensation/ reward/ recognition) are based on his/her performance rating.

Then, the fourth least implementation is outcome accuracy. It is about the employee annual performance review is directly related to his/her outcomes of PMS (compensation/ reward/ recognition) with a mean of 3.922. The fifth implementation is that the employee updates his/her goals as business goals change, which is considered in the activity of performance planning accuracy.

Respondents also agree that there are retention facilities provided with mean of 3.941. The implementation of ongoing feedback during the performance cycle gives an accurate evaluation of how the employee is performing against planned performance includes in the activity of feedback and coaching has mean 3.961. The eighth implementation of PMS is the areas that employee need to improve are pointed out. Next implementation is that the employee gets the coaching that he/she needs during the year to improve his/her skills to achieve planned performance.

The third and second highest implementation is involving the role of the manager in dealing with employees, which are manager explains employee expected standards

TABLE 2: Descriptive Statistics of Variables.

| Questions  | Mean  | Rank |
|--|-------|------|
| The performance planning helps the employee to pay attention to his/her efforts through the identification of goals which are relevant to meet organizational goals. | 4.118 | 12   |
| Manager updates employee's goals as business goals change.   | 3.784 | 1    |
| Employee updates his/her goals as business goals change.   | 3.941 | 5    |
| The ongoing feedback during the performance cycle gives an accurate evaluation of how the employee is performing against planned performance.                        | 3.961 | 7    |
| The areas that employee needs to improve are pointed out.  | 3.980 | 8    |
| The employee gets the coaching that he/she needs during the year to improve his/her skills to achieve planned performance.   | 3.980 | 9    |
| Annual feedback during a performance review is an accurate representation of the ongoing feedback during the performance cycle.                                      | 3.824 | 2    |
| Employee outcomes of the performance management system (compensation/ reward/ recognition) are based on his/her performance rating.                                  | 3.824 | 3    |
| Employee annual performance review is directly related to his/her outcomes of the performance management system (compensation/ reward/ recognition).                 | 3.922 | 4    |
| The manager explains employee expected standards of performance.   | 4.000 | 10   |
| The manager monitors employee expected standards of performance.   | 4.039 | 11   |
| There are facilities provided for the improvement of the poor performers for retention.  | 3.941 | 6    |
| <b>Note</b> numbers of the respondent, N=51.   |       |      |

of performance and manager monitors employee expected standards of performance. Both have a mean of 4.000 and 4.0392, respectively. Lastly, the performance planning helps the employee to pay attention to his/her efforts through the identification of goals which are relevant to meet organizational goals achieved the highest mean of 4.118. This implementation includes performance planning accuracy.

### 4.3. Factors that Influence Employee Perception on Performance Management System

The analysis of the factors that affect employee perception of the performance management system is shown in Table 3. It shows the mean for the level of agreement from respondents and the average for each of variables which are employee participation, employee knowledge and skills, and rating technique that influence employee perception on PMS in Company X. The levels of agreement consist of strongly disagree, disagree, neutral, agree, and strongly agree. Thus, the factor that affects employee perception on PMS can be analyzed through the answered questionnaires.

TABLE 3: Descriptive Statistics of Factors that Affect Employee Perception.

| Factors                       | Items   | Mean  | Average |
|-------------------------------|---|-------|---------|
| Employee participation        | Employee is willing to participate when developing a new performance management system.   | 3.922 | 4.051   |
|                               | A better performance management system can be created when an employee participating in the development of performance standards. | 4.235 |         |
|                               | Employee participation can help the development of useful performance standards.  | 4.255 |         |
|                               | Employee participation can be enhanced during designing the rating format.  | 4.000 |         |
|                               | Employee participation can be enhanced during the measurement scales.   | 3.843 |         |
| Employee knowledge and skills | The performance management system can be influenced by employee knowledge.  | 4.078 | 4.036   |
|                               | Knowledge of an employee increases fairness.  | 3.922 |         |
|                               | Knowledge of an employee increases rating accuracy.   | 3.922 |         |
|                               | The understanding of performance objectives improved by employee knowledge.   | 4.157 |         |
|                               | The acceptance of performance objectives improved by employee knowledge.  | 4.157 |         |
|                               | Individuals with a high openness prefer the control of their work.  | 3.980 |         |
| Rating technique              | The employee feels comfortable with the rating scales used to evaluate performance.   | 3.804 | 3.416   |
|                               | The employee feels that the scales allow an accurate assessment of various dimensions of performance.                             | 3.784 |         |
|                               | The existing form is too complex.   | 2.941 |         |
|                               | The existing form is too long.  | 2.765 |         |
|                               | The existing form is easy to use.   | 3.784 |         |

The factors that affect employee perception on PMS in term of employee participation, employee knowledge and skills, and rating technique can be analyzed. The highest factor that affected employee perception is employee participation, which has an average of 4.051. This is influenced by the participation of the employee in the development of performance standards, which can create a better PMS.

The second highest factor that affected employee perception on PMS is employee knowledge and skills, which has an average of 4.036. This is due to the understanding and acceptance of performance objectives improve by employee knowledge. Meanwhile, the lowest factor that affected employee perception on PMS is rating technique, which has an average of 3.416. This is due to the existing form is too long.

Table 4 shows the relationship between factors affecting employee perception and PMS by using a Pearson correlation analysis.

TABLE 4: Relationship between Employee Participation and Performance Management System.

|     | PMS    | EP     | EK     | RT |
|-----|--------|--------|--------|----|
| PMS | 1      |        |        |    |
| EP  | .756** | 1      |        |    |
| EK  | .607** | .618** | 1      |    |
| RT  | .537** | .218   | .353** | 1  |

**Note:** N= 51. PMS = performance management system; EP= employee participation; EK= employee knowledge and skills; RT= rating technique.  
Correlation is significant at the 0.01 level (2-tailed) \*\*.

The third research objective is to determine the relationship between the factors that affect employee perception and performance management system. The hypotheses for this relationship are:

*H<sub>1</sub>: There is a significant relationship between employee participation and PMS*

*H<sub>2</sub>: There is a significant relationship between employee knowledge and skills and PMS*

*H<sub>3</sub>: There is a significant relationship between rating techniques and PMS*

These relationships were identified by using the Pearson correlation analysis. To measure the strength of a linear association between two variables, which are the factors that affect employee perception and PMS, this Pearson correlation is used.

There was a strong positive correlation between employee participation and PMS, which was statistically significant,  $r = 0.756$ . Thus, at  $\alpha = 0.01$ , there was enough evidence to support that there was a significant relationship between employee participation and PMS. Therefore, the hypothesis was accepted. This finding similar to Onyango (2013), the researcher states that aspects of employee participation that affects employee perception and PMS have a strong positive correlation. The aspect of employee participation that affects employee perception includes the willingness of an employee to participate in developing a new performance standard.

Meanwhile, there was a strong positive correlation between employee knowledge and skills and PMS, which was statistically significant,  $r = 0.607$ . Thus, at  $\alpha = 0.01$ , there was enough evidence to support that there was a significant relationship between employee knowledge and skills and PMS. Therefore, the hypothesis was accepted. This finding similar to Onyango (2013), the researcher states that employee knowledgeable to increase the fairness and rating accuracy, improve the understanding and acceptance

of performance objectives. Erdogan et al. (2001) also supported that there was a positive effect between employee knowledge and skills and performance management system.

The relationship between rating technique and performance management system also shows a positive correlation with  $r = 0.537$ . Thus, at  $\alpha = 0.01$ , there was enough evidence to support that there was a significant relationship between rating technique and performance management system. Therefore, the hypothesis was accepted. This finding similar to Onyango (2013), stated that employees are comfortable with the rating scales used to evaluate their performance, and the scales allow an accurate assessment of different dimensions of performance.

Overall, the finding supported all hypotheses that have been developed. The summary of hypotheses result is shown in Table 5.

TABLE 5: Summary of Hypotheses Status.

|    | Hypotheses  | Status    |
|----|---|-----------|
| H1 | There is a significant relationship between employee participation and performance management system        | Supported |
| H2 | There is a significant relationship between employee knowledge and skills and performance management system | Supported |
| H3 | There is a significant relationship between rating technique and performance management system              | Supported |

## 5. Conclusion and Implications

Most of the respondents agreed that all identified items in the performance management system had been implemented in their company. Employee participation is the highest factor that affecting the employee perception on the implementation of PMS, followed by employee knowledge and skills, and rating techniques. The result found that there is a significant relationship between all factors affecting employee perception and implemented PMS. Therefore, all developed hypotheses for each relationship were accepted. Furthermore, the significant relationship identified among all factors affecting employee perception of PMS.

Based on the findings obtained, the company should give awareness and encourage effective communication between managers and their subordinates related to their work performance. This will ensure that individuals understand how their work performance being assessed. It will also ensure that managers give truly differentiated performance ratings based on an objective review of performance plans. Then, the participation of employee during the development of new performance standards should be improved, so that, employee participation that affecting employee perception on PMS can turn



into a positive perception. It is also recommended to the company, to apply several methods in helping poor performers to improve such as counseling and job rotation should be put in place and strengthen.

## Acknowledgement

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

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## Conference Paper

# QR Code Payment in Indonesia and Its Application on Mobile Banking

Ruslan<sup>1</sup>, Gusti Made Karmawan<sup>3</sup>, Suharjito<sup>1</sup>, Yudi Fernandoand<sup>2</sup>, and Anderes Gui<sup>3</sup>

<sup>1</sup>Computer Science Department, BINUS Graduate Program – Master of Computer Science, Bina Nusantara University, Jakarta, 11480, Indonesia

<sup>2</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

<sup>3</sup>Information Systems Department, School of Information Systems, Bina Nusantara University, Jakarta, 11480, Indonesia

## Abstract

The technology innovation makes it easy for us to connect to various services. Banking transactions that previously could only be served only at Branch Offices, ATMs (Automatic Teller Machines) and EDC (Electronic Data Capture), now they can be accessed online. Balance information, fund transfers, credit purchases, PLN tokens, payment of PAM and BPJS bills, all can be done through Mobile Banking application from smartphones. This study aims to find out how QR Code on Mobile Banking provides convenience in making payment transactions and how it can be used safely. The research was conducted through literature study, observation, and distribution of questionnaires to 30 respondents to identify the system acceptance. Payment Model QR Code on Mobile Banking can be widely used as an alternative of cash payment through a smartphone. The developed system does not only for merchant payment but can be used for person to person payment. The result of this research is a prototype for QR Code Payment on OCBC NISP Mobile Banking which can be used as an alternative payment system and integrated with fund source account without the need to top up the transfer.

**Keywords:** Mobile Technology, QR Code. Code Payment, Banking.

Corresponding Author:

Anderes Gui  
anderesgui@binus.edu

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

How smartphones and internet technology have changed our lives. They help us connect to various activities including banking service which previously only be served in Branch Offices, ATM machines or through EDC. Banking today can be accessed from a smartphone. We can inquiry the balance, bank transfer, and pay the bills. All those processes can be done through Mobile Banking application. (Robson, Lee, East, Lim, & Chia, 2017). Currently, the global landscape payment system also continues to evolve following the trend of technological improvement.

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The National Non-Cash Movement, which has been initiated by Indonesia's Central Bank in 2014, aimed to build public awareness of non-cash payment instruments. Then continued to launch the National Payment Gateway (NPG) in December 2017, for all domestic payment transactions by card can be processed domestically interconnected and interoperable for all EDC or ATM owned by other banks. NPG is removing the barriers that have been created through the rules of each bank. To support NPG Movement, such as Toll Road Transactions, Transjakarta and Commuter Line Payment have been shifted to the non-cash payment transaction, and now we can pay by e-money. By regulation, according to PBI Number 11/12/PBI/2009, the Financial Services Authority (OJK) has allowed electronic money to be issued by the non-bank institution. Telkomsel as the telecommunication company, also participated in developing e-money through a product called Tcash Wallet that a server-based non-cash payment system which can be used for payment at the merchant. Online transport modes such as GoJek and Grab by using mobile applications have implemented server-based non-cash payment systems (Robson, Lee, East, Lim, & Chia, 2017).

In the Digitalization Age, smartphones are ubiquitous and have become a primary requirement. We can find various services and get the benefits in every activity. Including the payment process, it is becoming easier with a smartphone. Payment through a mobile application is also known as mobile payment. Here is the type of mobile payment based on technology (Stiphout & Nausea, 2017):

1. Proximity Payments also called Contactless Payments or Close Payments. We can use Near-Field Communications (NFC) technology and QR Codes (Quick Response Code). NFC needs the contactless reader to communication between devices. QR Code does not require a reader but needs a smartphone camera to scan the QR Code for communicating between devices;
2. Remote Payments, also known as Distant Payments, for example, SMS Banking and USSD (Unstructured Supplementary Service Data). The SMS format sent, and the USSD instruction (e.g., \* 141 \* 28 #) from the smartphone will be processed on the server.

PCI Security Standards Council as one of the official security agencies recommends to secure the online transaction have to use the Multi-Factor Authentication method from 2 (two) different channel authentication or more. This process will prevent, if one of the authentication sources is not available or provides an incorrect response, then the transaction cannot be processed (PCI Security Standards Council, 2017). NFC, QR

Code or Biometric are categorized have technology maturity and can be alternative for the authentication process. However, NFC and Biometric require the availability of NFC Reader and Biometric requires Scanner. But not all smartphones support NFC Reader and Biometric Scanner. That is the difference for QR Code, support for all types of smartphones because QR Code only needs of the camera for the scan (Stiphout & Nausea, 2017). This research is focused on QR Code on Mobile Banking. How can provide convenience on payment transactions? How can be secured to use?

## 2. Literature Review

### 2.1. Mobile Banking

It is one of the channels provided by the Bank to make it easier for customers to access online banking services through smartphone applications. The main services available on Mobile Banking are the same as those available at branch offices, ATMs and EDCs (Sachdev, 2014), among others:

1. View Account Balance
2. Transfer Funds
3. View Monthly Statement
4. Locate an ATM or Branch
5. Bill Payments

### 2.2. Mobile Payment Technology

Mobile Payment is the transaction payment through a mobile application or mobile banking. By 2020, multiple devices will be connected to an integrated ecosystem payment with improvised authentication process (Shah, Roongta, Jain, Kaushik, & Awadhiya, 2016). Mobile Banking application has become the flagship channel of banking. Customers can use the banking service without having to come to a branch office. Payment method on Mobile Banking application is divided into 2 (two) categories, namely: Proximity Payment and Remote Payment. Proximity is the payments made without requiring a direct contact (contactless payment). Use NFC sensors to detect the other close objects. Example MasterCard® PayPass <sup>TM</sup> and Visa® payWave <sup>TM</sup>, which enables to make payments through smartphone apps without the need for physical

use of MasterCard cards /Visa. Also, Remote Payment is the payment transactions will be processed on the server. For examples: transaction on a web application with security authentication will directly send the token to a smartphone to authorize payment transactions.

### 2.3. Quick Response Code

Known as QR Code is a two-dimensional barcode type that can be used to represent information into square-shaped patterns that can be read by using QR Scan through a smartphone camera. QR Code stands for Quick Response, which can be decoded with high speed. Designed by a Japanese company called Denso Wave in September 1994 to track inventory vehicle manufacturing in the automotive industry. QR Code consists of a black module arranged in a rectangular pattern that represents a good 2-dimensional information, which can be read from both vertical and horizontal directions. This is what distinguishes the 1-dimensional barcode with only one-way data, which is generally vertical. The advantages of QR Code in addition to having a large data storage capacity of 7,089 for the numbers, 4,296 for the data of both letters and numbers, 2,953 bytes of binary (8 bits) and 1,817 Kanji / Kana Japanese symbols, extensive encoding coverage, can be printed with mini size, hypervelocity / very fast readability, strong error correction capabilities, resistance to damage and can remain legible with 360 degrees conditions (Liu & Liu, 2006). QR code systems are also accepted outside the automotive industry due to the ease of use and speed of the reading process and greater storage capacity compared to standard UPC barcodes. (Dennehy & Sammon, 2015).

Currently, with existing developments, the QR Code has become an effective alternative that can be scanned through any smartphone camera. The error correction ability can facilitate data repair even under conditions with most cases of corrupted code. Smartphones are now equipped with QR Code decoding software. Additionally, QuickMark and i-nigma are cost-free tools available for many models and production devices to decode QR Code. (Chang, 2014).

### 2.4. One Time Password (OTP)

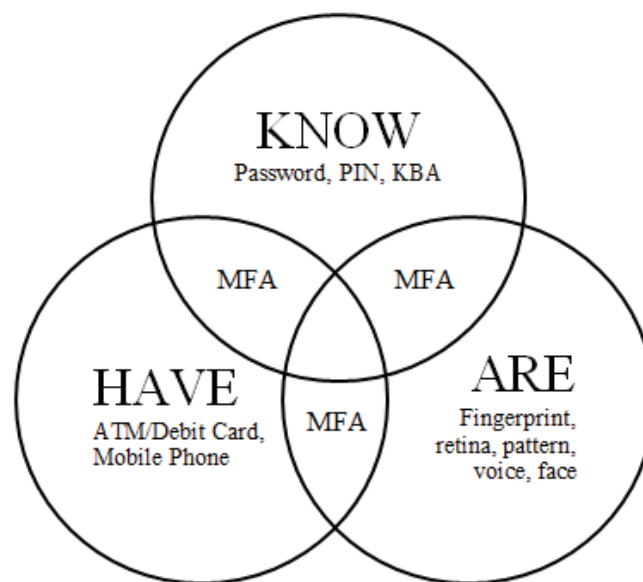
OTP is a mechanism for accessing system services by using a unique password that can only be used once. This mechanism is a powerful form of authentication and offers more effective security to corporate networks, online applications, and other systems

that contain sensitive data. This can prevent identity theft by making sure passwords cannot be used a second time. (Chang, 2014).

## 2.5. Multi Factor Authentication (MFA)

As shown in Fig. 1. a basic concept with a combination of authentication channels can be defined with one of three categories below:

1. Something you know: secret, like password, PIN.
2. Something you are: biometrics, like fingerprint, face, eyes, sound.
3. Something you have: device or object or the like, such as ATM / Debit card, mobile phone.



**Figure 1:** Security Concept Mobile Phones.

This approach can be easily identified when phishing occurs, and the root cause of overreliance in the first category is something you know. The solution is to switch from dependency using static credentials to dynamic credentials. To get strong authentication, we can use in parallel two or more different authentication credentials with different categories. This is a process known as Multi-Factor Authentication (MFA). (Dmitrienko, Liebchen, Rossow, & Sadeghi, 2014). Moreover, if the authentication credential comes from 2 different channels, then it is called Two Factor Authentication (2FA).

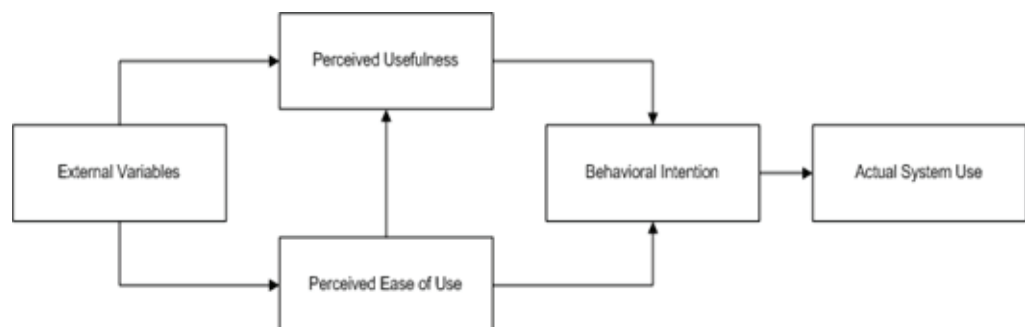
Online Banking is a powerful example of authentication, using the MFA as the standard. In the current application, the first factor uses a PIN or password to log into



the application. So the second factor is obtained from OTP automatically generated as Token which is then sent with SMS format to the registered mobile phone number (if using internet banking, OTP can also be obtained from Hardware Token which then displayed to Token screen). Next, the customer returns OTP to the bank by inputting to the OTP confirmation screen in the application. If appropriate, then this second authentication factor is considered to be successfully verified, and the transaction may proceed. (Gandhi, Salunke, Ithape, Gawade, & Chaudhari, 2014).

## 2.6. Technology Acceptance Model (TAM)

TAM consists of several supporting factors to assess whether the application is acceptable and usable by the user. User Acceptance is the factor that determines the success or failure of an information system project. TAM can be used to find out why a user accepts or rejects a specific information technology or application system and how its acceptance is affected by system characteristics. Supporting factors for assessing user acceptance of the application can be seen in Figure 2:



**Figure 2:** Technology Acceptance Model (TAM).

Here is the explanation of the supporting factors above:

1. External Variables, an external factor of the system that influences Perceived Usefulness (PU) and Perceived Ease of Use (PE), e.g., training system usage, implementation process, user involvement in system development, documentation, support from the consultant and so on.
2. Perceived Usefulness (PU), is the level at which a person believes by using a system to improve the performance of his work. This factor is a major factor that determines a person's desire to use a system. So this factor directly affects the Behavioral Intention of Use (IU). With the increase in job performance, a person

has been using automated systems will instantly increase his desire to continue using the system.

3. Perceived Ease-of-Use (PE), the degree to which a person believes by using a system can reduce the effort required to complete a job. This factor is the second factor after Perceived Usefulness (PU) so that this factor directly affects Perceived Usefulness (PU). With minimal effort in completing the job automatically, the performance of a person's work will increase.
4. Behavioral Intention to Use (IU), the degree to which a person feels a system can have a positive impact on the job and believe using a system can improve performance and reduce the effort in completing its work and have a desire to continue to use it. This factor is influenced by Perceived Usefulness (PU) and Perceived Ease of Use (PE).
5. Actual System Use (AT), is the actual use of the system by the user.

## 2.7. Related Research

Hayashi, et al. (2014), describes the implementation of the QR Code on the Starbucks Prepaid program in 2011 has increased the use of smartphones for Starbucks in-store purchases. Merchants put QR Code on posters and advertisements to inform customers of QR scans via smartphone to get coupons or promotional and product information. In this research, it is submitted that QR Code Technology can be applied with very low cost.

Sachdev (2014) defines the Four Pillars of Mobile Payment to help financial institutions determine mobile payment strategy:

1. Self-Paying: intended for transfer to bank account itself through mobile deposit and funds transfer capabilities feature
2. Paying Other People: uses Person to Person Payment / P2P features for individual or group payments.
3. Paying Biller: making a payment to the biller through a mobile application owned by financial institutions or applications owned by the biller.
4. Paying Merchant / Retailer: is for payment transactions on purchases at merchants using NFC sensors, QR code, cloud, or online.

Zlot Bezhovski (2016), found that the frequency of use of mobile payment for online purchases increased the high number of transactions. The method of payment has shifted through the evolution from the use of cash, debit cards, credit cards, and now Mobile Banking. Changes in consumer behavior from the use of the traditional way into the online payment system are evident in banking and retail services. Bezhovski's research results conclude that the future payment system will be integrated with telecommunications infrastructure and financial institutions for compatibility across a range of services, including its security solutions. (Bezhovski, 2016)

Mobile Payment currently has several payment methods, such as NFC, QR Code, and Online. Security development continues to be adopted to ensure mobile payment security. The results of Wang et al. (2016) stated that there are 4 (four) Security Challenges for Mobile Payment, namely: malware detection, multi-factor authentication, data breach prevention, and fraud prevention. Mobile Payment security issues, both service providers and users require ongoing security measures to ensure data security and prevent data breaches. (Wang, Hahn, & Sutrave, 2016)

In contrast to Hayashi et al. (2014), the QR Code Payment model in this study builds on the Mobile Banking platform and is not limited to certain merchants but can be used generally. Based on the mapping of four pillars of mobile payment strategy from Sachdev (2014), the purpose of QR Code Payment in Mobile Banking builds a non-cash ecosystem that can be used easily and ultimately can reduce the volume of cash withdrawal transactions. In addition to its use as an alternative method of payment transactions offline merchant (Paying Merchant / Retailer), QR Code Payment on Mobile Banking can also be used for service (Person to Person) (Paying Other People). Regarding one of the security challenges, namely: fraud prevention delivered by Wang et al. (2016), in the current study using the method of close payment where QR Code Payment transactions can only be done after the customer and merchant have logged into Mobile Banking. While the authentication of QR Code Payment transactions using Multi-Factor Authentication (MFA) method.

### 3. Methodology

As shown in Figure 2, the stages in this study begin by identifying and formulating problems. Then a literature study and observation were carried out to clarify the problem, understand theories and concepts, and get alternative solutions. The next steps are needs analysis, system design and prototyping, and system evaluation. In the system

design process, a use case diagram is designed, process flow diagrams, and system prototypes. Next, the developed system will be evaluated using Beta Testing, Security Testing, and TAM analysis to measure user acceptance.

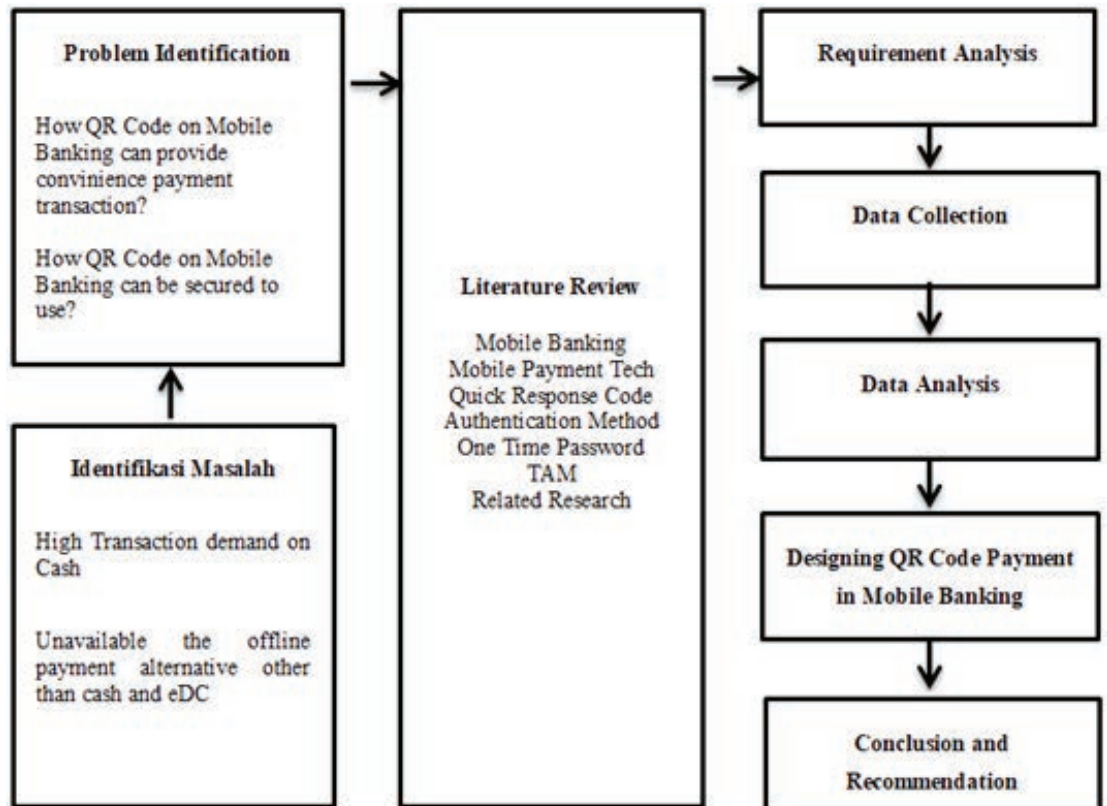


Figure 3: Research Procedures.

## 4. Results and Discussion

### 4.1. Requirement Analysis Results

Currently, payment transaction services from Mobile Banking OCBC NISP still use basic banking service features, namely Purchase and Biller Transactions, Payment, Virtual Account Transfers or Interbank Transfers. The use of Purchase and Biller Payment transactions is still limited to non-retail transactions and is related to regular monthly purchases or payments. Whereas Virtual Account or Interbank transfer transactions are more flexible with the mandatory information, namely the destination account number and the nominal value inputted by the customer. Bank OCBC NISP continuously identifies problems in the customer service process and repairs necessary processes.

At present, one of the problems that arise is how banks can provide a secure and safe way to be able to make payment transactions at merchants through Mobile Banking.

Here are some of the existing mobile technologies that can be used to develop payment systems through Mobile Banking, including Near Field Communication (NFC), Biometric, and QR Code. NFC and Biometric technology requires a mobile device that has a reader and writer feature, while the QR Code only requires a camera and without the need for a reader and writer feature. So that the application of QR Code compared to NFC and Biometric can be achieved more broadly with a smaller investment value than the application of NFC and Biometric. Currently, the camera is an essential feature available on all types of mobile devices. To be able to facilitate payment transactions and provide security, the QR Code feature is an option to add to the Mobile Banking OCBC NISP application as an alternative payment system that is easy to use and can reduce cash withdrawal transactions at ATMs and can be used by merchants not to provide EDC machines.

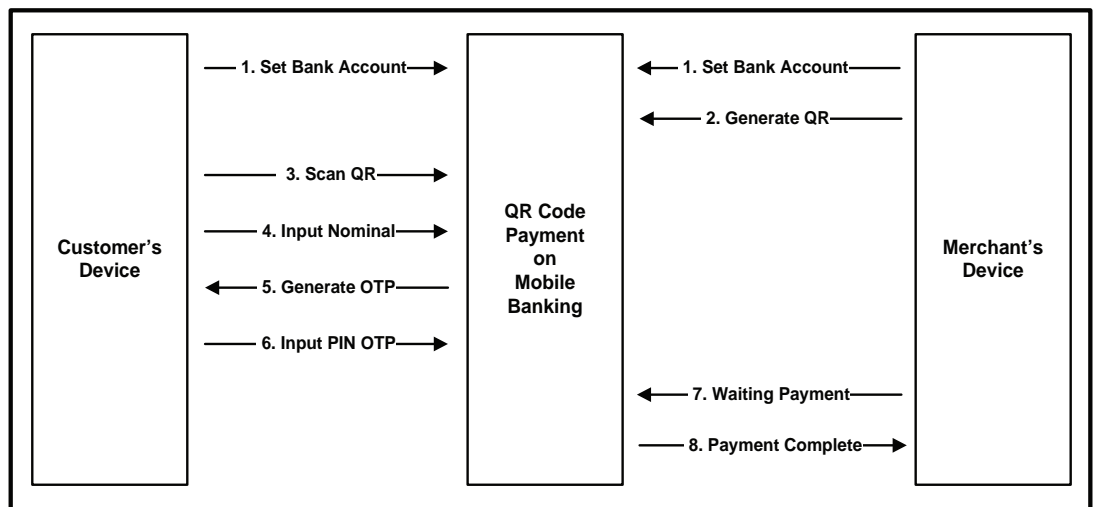
In contrast to some similar applications that have been mentioned above, the system built from this research is integrated with the main data source accounts so that it does not require a top-up of funds through the interbank transfer process. The list of requirements for QR Code Mobile Banking OCBC NISP can be described as follow:

1. QR Code Payment is built on the Mobile Banking platform
2. Customers can determine their source of funds account and can make account changes later.
3. Customers and Merchants are required to log in to Mobile Banking to be able to make transactions.
4. Merchants can display the QR Code generated by the system to be informed to the Customer.
5. The customer scans the QR Code from the Merchant
6. The customer enters a nominal value
7. OTP generate system
8. Customer input OTP PIN and press process instructions.
9. Customers and Merchants receive payment complete notifications from the Mobile Banking application.

### 4.2. Design System

As shown in Figure 4, the system design of the QR code payment consists of 3 entities, namely:

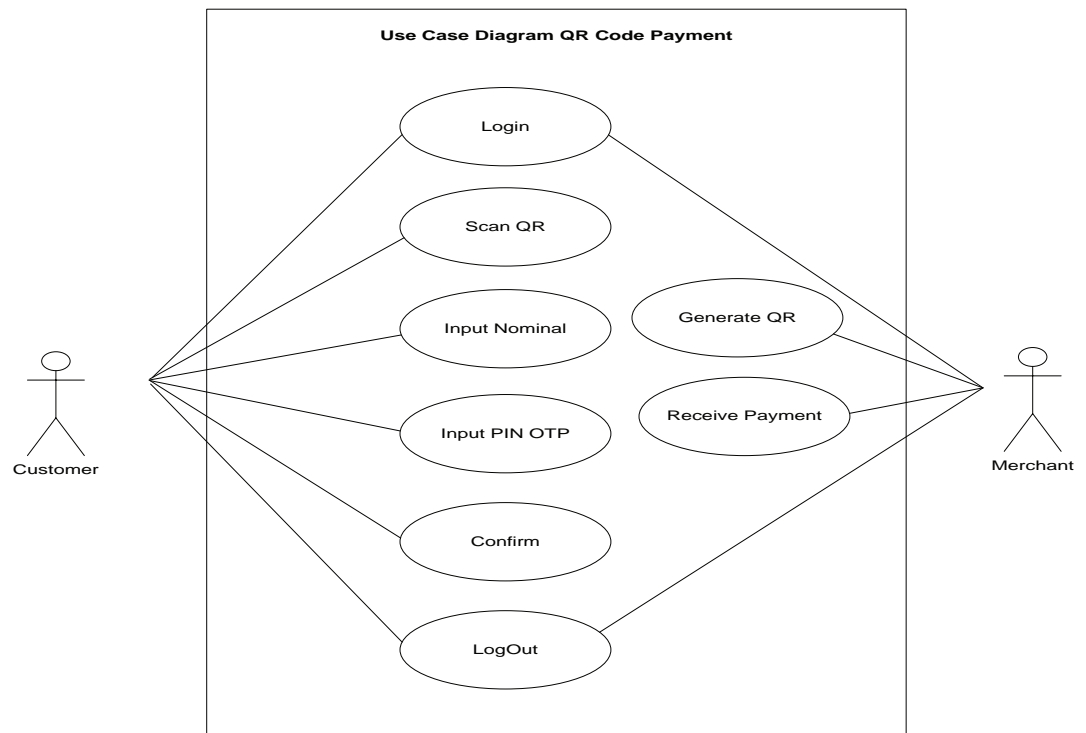
1. Customer’s Device is a customer-owned device that is used as a media scan, input, and confirm with a user interface that is easy to understand.
2. Mobile Banking Application, A banking application that can be run via a smart-phone and used for banking transactions.
3. Merchant’s Device, It is a device belonging to the merchant that is used as a medium to display the QR Code and confirm the payment received.



**Figure 4:** The Proposed QR Code Payment System Design.

Based on Figure 4, for the initial process after the Mobile Banking login, the Customer and Merchant are required to determine the account number of the source of funds to be used. If no account number has been linked, the transaction cannot be done yet. Finished from the process of linking the source fund account number, then when the transaction, the Customer will be asked to scan the QR Code from the Merchant that has been generated by the previous system according to the Merchant’s data. Then proceed with the process of the nominal input paid and the OTP input that the system has sent after the nominal input. At the end of the process, the payment transaction status will be informed to the Customer and Merchant devices.

Figure 5 describes the use case diagram for QR Code Payment Mobile Banking, which shows that there are 2 main types of users interact with the system, namely Customers and Merchants.



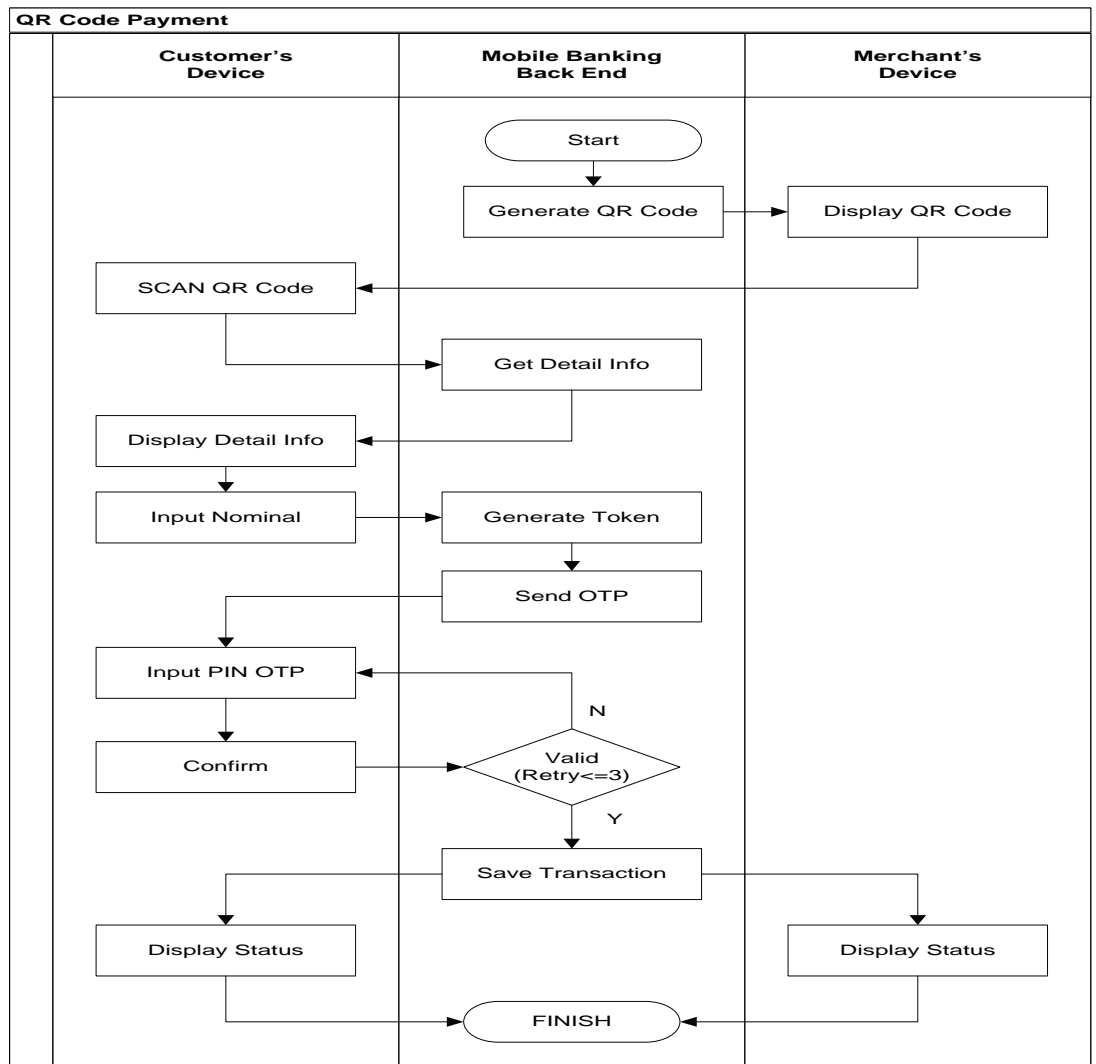
**Figure 5:** The Use Case Diagram of QR Code Payment.

Figure 6 describes a process flowchart for QR Code payment using Mobile Banking.

Based on Figure 6, at the beginning of the transaction with the QR Code, Mobile Banking will generate a QR Code and display it on the Merchant device. The customer will scan the QR Code, and Mobile Banking will send detailed information to the Customer device to display the detailed payment information on the Customer device screen, then enter the nominal value and the input PIN sent separately by the system. The confirmation process, the system will ensure that the inputted PIN is valid and proceed with processing and saving transactions. The process results are displayed on the device belonging to the Customer and Merchant.

Unlike other similar applications that have been submitted before, the system designed is unique based on:

1. Built-in the Mobile Banking application. Strict regulation in the banking industry makes high trust in banks, including every bank-owned system and its development, the rigorous selection of testing processes and periodic review of the application of the system used.
2. Integrated with the main account of the source of funds without the need for a top-up process and if it is still needed later, it can still be changed to another account easily when needed.



**Figure 6:** The Flow chart for the QR Code Payment Process Using Mobile Banking.

Here are some display of the prototype QR Code Payment features on Mobile Banking:

- i. Linking of Fund Source Account
- ii. Generate QR for Fast Transfer

This form is the main form which will appear when the user will use the application for the payment process.

- iii. QR Scan for Fast Transfer

Serves for selection at the time the data input is completed, the user can directly upload data if they feel that the inputted data is complete or can store data temporarily with the later will complete the data.



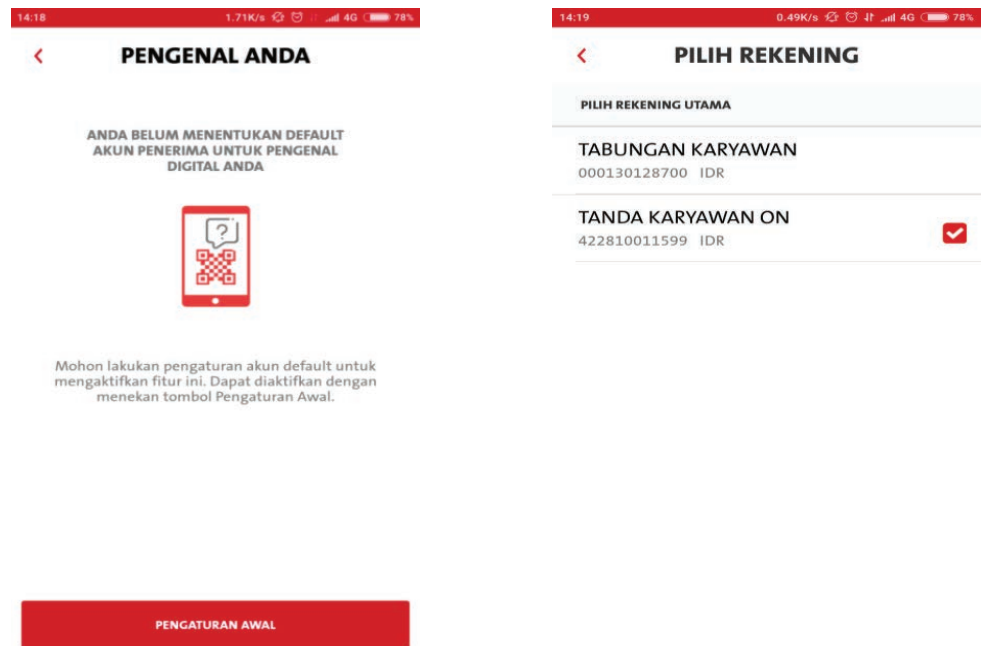


Figure 7: Display Screen of Main Account Linkage.

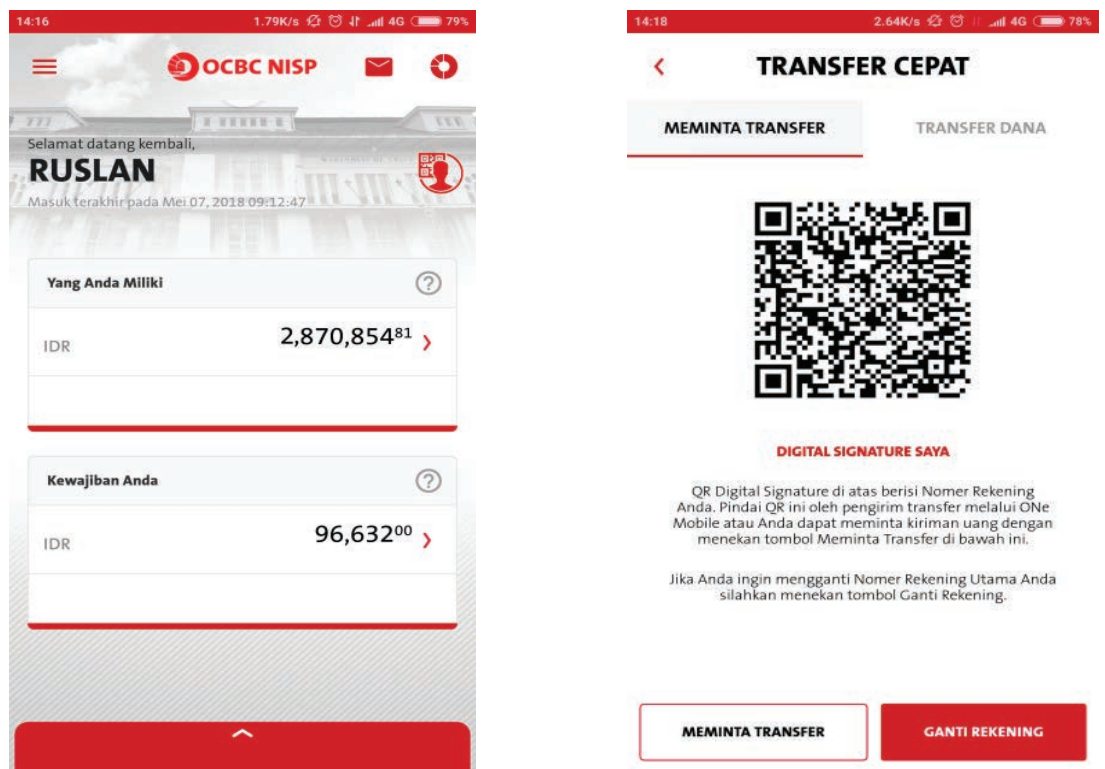


Figure 8: Screen Display of Generate QR for Fast Transfers.

iv. Receive Payment

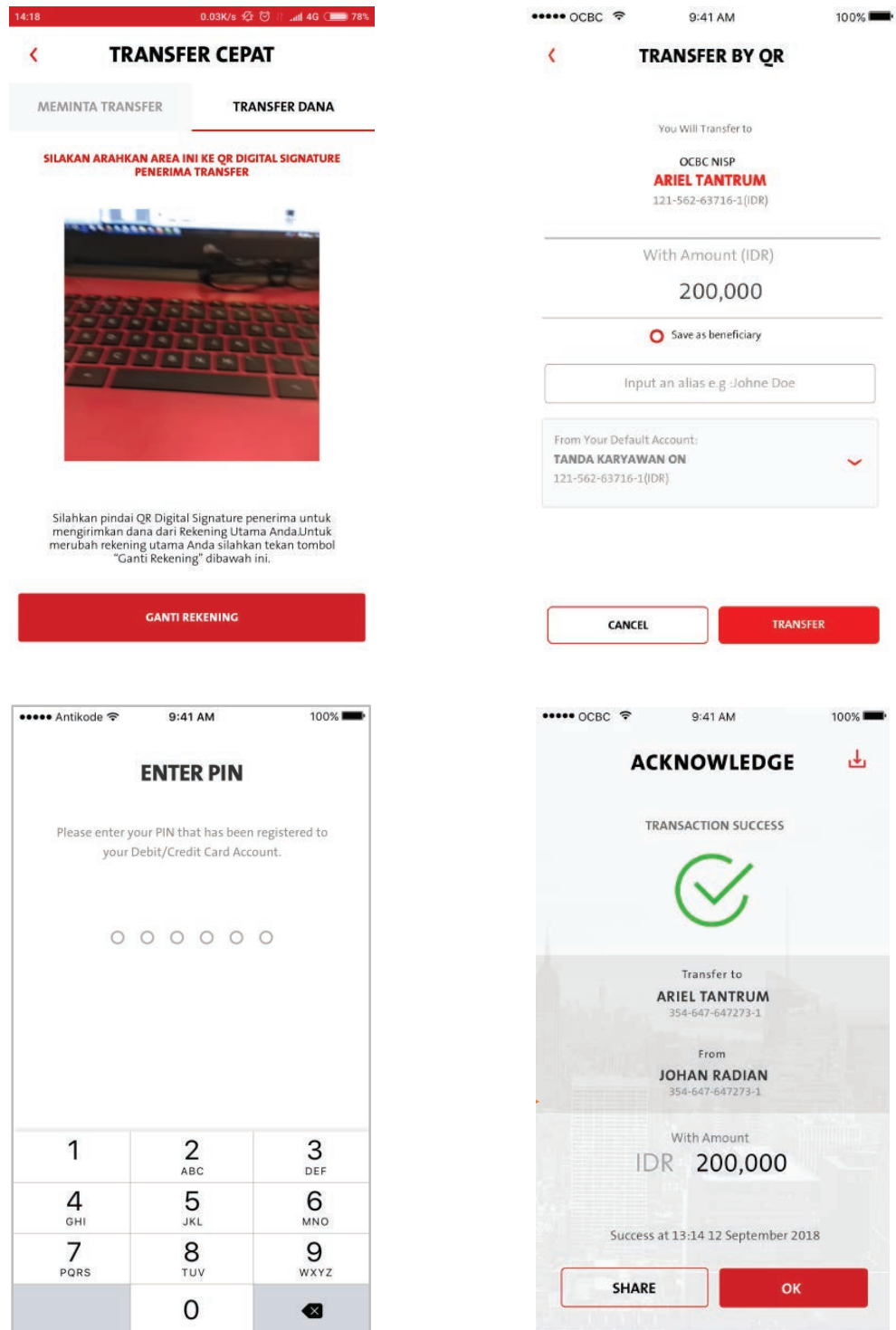


Figure 9: Screen Display to Scan QR code for Fast Transfers.

Serves for selection at the time the data input is completed, the user can directly upload data if they feel that the inputted data is complete or can store data temporarily with the later will complete the data.

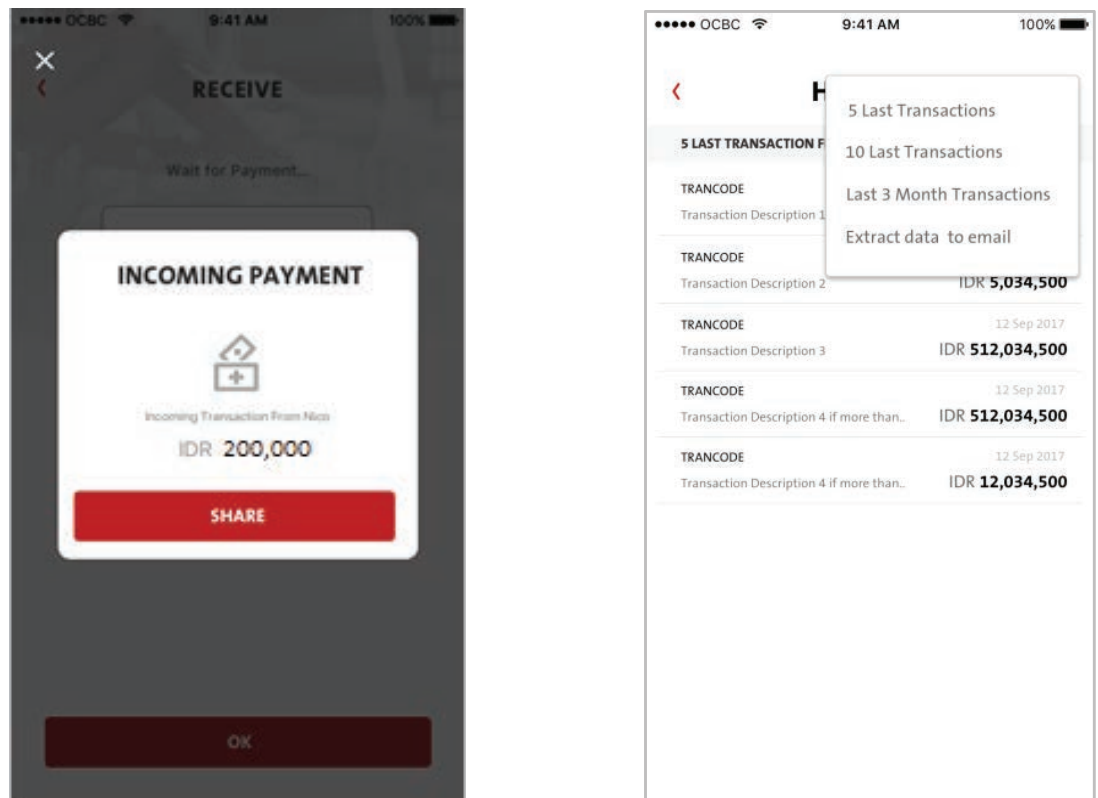


Figure 10: Screen Display Incoming Payment Notification.

### 4.3. Evaluation System Result

The functional testing system is done using beta testing. This test is intended to ensure that each menu and features of the QR Code payment application are running according to user requirements. Based on the results of testing with the Beta Testing scenario, QR Code Payment on Mobile Banking has been functioning properly according to the application requirements.

The QR Code payment on Mobile Banking prototype generated from this research was then tested by the Technology Acceptance Model (TAM) method to measure the influence and acceptance of the QR Code payment system using Mobile Banking. This TAM test is assessed from the variables Perceived Ease of Use (PE), Perceived Usefulness (PU), Attention toward Using (AT) and Intention to Use (IU). The evaluation results on the PE variable show a relatively small data deviation because the value is less than the Mean value. Thus it can be concluded that the variable PE data is useful. This can explain that respondents get the convenience of using the developed QR Code Mobile Banking OCBC NISP feature. The evaluation results in the PU variable show a relatively small data deviation because the value is less than the Mean value. The user's

perception of the benefits of the QR Code Mobile Banking OCBC NISP feature can be represented by variables PU1, PU2, PU3, and PU4. The mean value of the four variables tends to approach the maximum value. Thus it can be concluded that the respondents benefit from the use of the developed QR Code Mobile Banking OCBC NISP system features.

## 5. Conclusion and Implications

The prototype QR Code Payment on Mobile Banking has been able to answer the background of problems and research objectives. These include:

1. The QR Code Payment model on Mobile Banking can be used widely as a non-cash payment alternative through a smartphone. Developed not only for Paying Merchants / Retailers but can be used for Paying Other People (Person to Person).
2. For transaction security, login to Mobile Banking is required to access QR Code, then the QR Code is generated by an application. From the customer side, each transaction using QR will receive OTP according to the Multi-Factor Authentication (MFA) method applied.
3. QR Code on Mobile Banking provides convenience to the customer to make payment in the simplest way possible, namely: Scan, Input Nominal, Input OTP, and Confirm.
4. Customers can determine the source of funds used for transactions using this QR Code Payment, so indirectly also reduces cash withdrawal transactions.

Prototype QR Code Payment on Mobile Banking is still not perfect and is still being developed to improve the ease and security in transacting. Integration with other non-cash ecosystems can be considered. For interconnection and interoperability with other ecosystems, it is possible to have standardized QR Code Payment, so the way it works can follow the flow of interbank or ATM transfer process together. For this, it is awaiting the study and policy of OJK as a regulator in promoting non-cash movement.

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## Conference Paper

# A Concept Paper of Balanced Scorecard for New Product Development

**Aminaimu Zhengxiaoming and Yudi Fernando**

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

**Abstract**

This study aims to review the concept of Balanced Scorecard (BSC) technique to develop a new product. BSC, as a strategic performance tool, has received closed attention from many organizations worldwide. However, the implementation has been limited. The globalization and economic upheaval have increased the challenges to the executive's face and therefore need to find the right tools to overcome the challenges. The current paper focuses on the review of literature on the importance of BSC towards new product development and business performance. This paper suggests that the 4th generation balance scorecard leads the combination of the management system and performance measurement that brings up one big strategy maps, and possibly will use widely to satisfy the customer demands. This paper discusses the current issues and the emerging importance of BSC literature and suggests fruitful areas for further study.

**Keywords:** balanced scorecard, new product development, business performance, manufacturing.

Corresponding Author:  
Aminaimu Zhengxiaoming  
1271210987@qq.com

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
Knowledge E

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the responsibility of the  
FGIC2019 Conference  
Committee.

## 1. Introduction

Balanced Scorecard has attracted many scholars and practitioners' attention for over 20 years. According to Kaplan et al. (2001), BSC is a practitioner-oriented tool that possesses some potential performance-enhancing effects. Other scholars have been more curious and are trying to prove the more clear-cut relationship between BSC and organizational performance. The long use of BSC is strong evidence that it is somehow or somewhat increasing the firm's performance directly or indirectly and its concepts are truly beneficial (Madsen & Stenheim, 2014; Sainaghi, Phillips, & d'Angella, 2019). Over the past two decades, BSC has undergone too many developments regarding its design and practice methods. BSC has evolved into a strong management tool that guides global organizations strategically. Earlier the scorecards failed due to the initial drawbacks due its poor design and understanding. After effectively transforming it into a

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strong performance-enhancing tool, it is helping all organizations to improve themselves strategically (Assaf & Tsionas, 2019; Coe & Letza, 2014).

It has been strongly proved that BSC has become popular in solving issues related to financial and strategic problems through strategic goal setting and performance reporting through four important perspectives: financial, customer, internal business process, and learning and growth (Hamamura, 2019; Sainaghi, Phillips, & d'Angella, 2019). Different companies have different performance measurement systems, and BSC is considered as the backbone for many other strategy-building tools (Sanchez-Marquez et al., 2018; Soderberg et al., 2011).

In the operation of the organization, the new product development is the activity with important strategic significance. The enterprise to find out the existing problems in the new product development management performance, to optimize the new product development strategy management system, and to increase the new product development efficiency and raise the market competitiveness.

## 2. The Balanced Scorecard Concept

According to Kaplan and Norton (2007), BSC is a strategic management system that converts a strategy into a brief set of performance measures that creates a methodology or way to measure strategic management. It can link efforts of individuals and business unit objectives and (Kutsch et al., 2015; Malagueño, Lopez-Valeiras, & Gomez-Conde, 2018) supports this fact that BSC can convert a firm's strategies into measurable business performance and strong operational objectives. BSC establishes the right balance between all the performance-focused perspectives. It provides a strong framework that guides an organization to achieve a strategic measurement and management system that provides a tracking system that can track financial progress. It is now evident that the balanced scorecard is one of the important measurement techniques because due to its ability to include all sets of variables in measuring organizational performance through the four different perspectives (Dincer & Yuksel, 2019; Malgwi & Dahiru, 2014).

## 3. BSC Perspectives Link with New Product Development

### 3.1. Financial perspective and NPD

The successful new product can be measured by its performance in the market under the combination of diverse perspectives (Sainaghi, Phillips, & d'Angella, 2019). Firms

study the financial impact after new product development to design sustainable and dynamically oriented benefits through innovation (Al-Hosaini & Sofian, 2015; Dangelico, Pujari, & Pontrandolfo, 2017). The continuous development and introduction of new products is an important determinant for sustainable performance (Cheng & Yang, 2019). New products tend to fail in meeting the consumer requirements; it is an important managerial challenge in B2C markets to improve the interaction with consumers and reduce failure rates and improve financial status (Bendig et al., 2018; Chang, 2019). In other words, research that has left out new product development as an important mediator may have ignored a key mechanism for RM's ability to improve financial performance (Cheng & Yang, 2019; Ernst et al., 2011). In the new market context, traditional performance evaluation systems have the common weakness which overemphasizes the financial parameters that are responsible for the success (Kalender & Vayvay, 2016). Customer demand drives the development of new products (Liao et al., 2018). Financial perspective has a positive impact on the organization's new product development (Bals, 2019). The development of new products improves the business performance which of the food and beverage companies.

### 3.2. Internal process perspective and NPD

Stringent internal processes and resources with suitable dynamic capabilities can reap strong benefits when strategically resource-interplays incorporated during new-product development (Zhang & Wu, 2017). Internal knowledge and process strengthening can build a cradle-to-cradle value chain and other institutional partners to successfully certify a new product (Cheng & Yang, 2019; Chimhowu, Hulme, & Munro, 2019). A better behavioral perspective supported by the cognitively biased heuristic aspect of the internal process can show ten times radical improvement in new product development (Teleaba & Popescu, 2018). This perspective helps the company achieve Industry 4.0 through product development (Frank et al., 2019).

The core processes in internal business process category focus on makes customer satisfaction and achieve the financial objectives. To achieve the high result efficiency, especially in objectives needs to determine the stronger process in internal business process perspectives. It comprises the short-term and long-term goals related to integrating innovative process improvement in modification. The internal value-driving process of key elements goals of customers and shareholders should be structured efficiently by company, (Kalender & Vayvay, 2016).



Innovation and develop the improvement process to determine and satisfying customer demands, as well as to give the best customer service are the ultimate goals of the internal business process in the BSC. The efficient use of business resources will show the value brought to the customer in Internal business processes (Lee, Park, & Lim, 2013; Morgan et al., 2019). Internal process perspective is one of the frameworks to measure organizational business performance (Lombardi, 2019). The food and beverage company business performance improvement, meanwhile also help to develop the organization's new product development.

### 3.3. Customer's perspective and NPD

Customer's perspective scores high novelty, among other perspectives in implementing new product development procedures (Zahay, Hajli, & Sihi, 2018). The exemplifying nature of new product development procedures broadens only if the customer's point of view is given utmost importance (Yrjölä et al., 2019). Improving product attributes and processes should be the main focus by firm nowadays to enter markets and meet customer requirements for increasing the profits and market share. (Chang, 2018; Wang, Jin, & Zhou, 2019). Most companies face failure in considering the time value of money, and some company ignores the influence of customer behavior. To help firms more sensible and reliable in making decisions on new product development, the new, and comprehensive decision support system needed to prevent shortcomings.

The key to sustaining in strong competitions in the business world is to maximizing customer value in modern management perspectives. Thus, most firm eagerly engages in developing new products. Firm able to satisfy the customer and generate profits by delivering the value of new products. It was proven that customer loyalty could develop through customer satisfaction. (Chang, 2019). Customer satisfaction is driven by new products, and it reflects on achieving business sustainability. The new product development and relationship marketing was interrelationship, which the core relationship marketing tool is customer relationship management. The firms should focus on several areas to improve their new product development, like identifying customer needs for continuous new product development to survive and succeed in this business environment. (Morgan, Obal, & Anokhin, 2018).

The NPD process comprises five stages which are first is identify customer needs, Second is to establish specific targets, Third is generate products concept, while the fourth is select and evaluate the most promising concepts and lastly is design and testing prototypes of new products to launch new products in the market. (Morgan, Obal, &

Anokhin, 2018). The new product based on customer requirements for a new product will be collected using case-based reasoning approach, and customer response about the existing products and some attributes about a new product will lead the changes trends in the market. (Relich & Pawlewski, 2018). Customer keeps demanding new product, which has enabled catering food and beverage companies to continuously develop new products (Morgan, Obal, & Anokhin, 2018). This positive impact on organization performance. Also, supportively improve the food and beverage company new product development (Hou et al., 2019; La Rocca et al., 2016).

### 3.4. Learning and Growth perspective and NPD

The learning and growth category functionally take care of building the necessary long-term growth and improved infrastructure. It concerns the alignment of strategic goals of the organization and routine process of employee skills, training, and administration. (Kalender & Vayvay, 2016). Learning and growth perspective was proven to be one of the crucial intangible components of the BSC model. It also interrelated with internal operations, stakeholders, and sustainability of new product development. (Inayat et al., 2013; Zhu et al., 2019). Learning and growth can guide and assist in alignment of employees, information systems, and organizations in SD. (Bendig et al., 2018; Nejati & Nejati, 2013). These three factors relate to what Kaplan and Norton (2007) argue that the infrastructure that is needed to enable ambitious objectives and improve the customer experience and realize customer objectives. All the employees must be engaged and have good relations so that their minds and creative capabilities can capture the customer and organizational objectives. Most organizations have contributed little effort to measure the outcomes or drivers regarding employee skills, strategic information availability, and organizational alignment. In developing strategic objectives, firms often overlooked to cultivate re-train or re-skill culture in employees. Exposing strategic information can be considered as not well-planned due to it can potentially impact employee job performance. Using the organization's strategy as a guideline to align with individuals, teams, departments, or groups to drive long term objectives will bring inconsistently. (Ringen, Welo, & Østerbø, 2016). It is a must for us to sustain food and beverage company ability to change and improve and include employee training for organizational improvement (Brunoe et al., 2019). Therefore, the food and beverage company's new products successfully go on the market and which can improve the organization's performance.

## 4. A Proposed Theoretical Framework



**Figure 1:** The Theoretical Framework of Balanced Scorecard in New Product Development (**Source:** Authors).

Figure 1 shows the theoretical framework developed based on the review of the literature on the perspectives of BSC and NPD together with the help of theoretical aspects like TRIZ theory and RBV theory. It was expected that this framework could be utilized to predict the BSC to leverage the NPD and business performance in the food and beverage industry.

## 5. Conclusion

The current literature review discusses the strategy aligned to build a good relationship between our shareholders, our customers, and us as well as to improve and create value-added. Therefore, BSC is applied to measure against the target with a small number of strategic objectives, which is the performance measure only a few, easy understanding, and acted upon quickly. “The pulse determines the overall health,” which means measuring after the event will not help. Thus, leading measure only measures that can be influenced and then make a difference. It is better to focus more by decentralizing the task if it has smaller goals, and the process will succeed like a simple case of the law of diminishing returns. The present study shall help us in finding out the relationship or the effect that is experienced between all four perspectives of BSC that can be mediated through new product development for better organization business performance.

## Acknowledgment

The authors convey their appreciation to the Division of Research & Innovation, Universiti Malaysia Pahang for funding this study (RDU grant no: 172207; PGRS grant no: 190379).

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## Conference Paper

# Supplier Sustainable Integrity Using a Split-half Method: Empirical Evidence from Malaysia

Yudi Fernando<sup>1</sup>, Anderes Gui<sup>2</sup>, Ika Sari Wahyuni-TD<sup>1,3</sup>, Yong Won Seo<sup>4</sup>, and Hasnah Haron<sup>1</sup>

<sup>1</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

<sup>2</sup>School of Information Systems, Bina Nusantara University, Jakarta, 11480, Indonesia

<sup>3</sup>Faculty of Economics, Kampus Limau Manih, Universitas Andalas, 25163 Padang, Indonesia

<sup>4</sup>College of Business and Economics, Chung-Ang University, Seoul, 06724, Republic of Korea

## Abstract

The objective of this study is twofold accordingly. First, it aims to explore the measurement items of sustainable supplier integrity drivers. Second, it purports to investigate the relationship between drivers and supplier sustainable integrity. Furthermore, this study collected data from manufacturing firms in Malaysia. The targeted respondents were procurement managers and other decision-makers in the manufacturing companies. This study examined using a split-half method. First half data set was examined using exploratory factor analysis (EFA). The supplier assessment, supplier collaboration, and supplier codes of conduct were identified as drivers of sustainable supplier integrity. The other half of the data set used to develop a theoretical model. It was then established to test the model assessment and hypothesis testing. Thus, this study may shed light on finding answers on the importance of supplier codes of conduct. This is as the strongest driver in the theoretical model of the study. The possible reason behind this is because the manufacturing firms should inform supply chain network on essential of supplier codes of conduct to avoid corporate fraud and leverage business sustainability.

**Keywords:** split-half method; sustainable supplier integrity; supplier assessment; supplier collaboration; supplier codes of conduct

Corresponding Author:

Yudi Fernando  
yudi@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

In the past, it might be worth pointing out that many of supply chain studies mostly focus on how to manage the effective and efficient supply chains (Walters, 2006; Gunasekaran et al., 2004). However, since then, the shifted business paradigm in the supply chain has changed the business focus on the sustainability aspect. This is included on how the environmental and social impacts considered in supply chain management (Shaharudin et al., 2019; Koberg & Longoni, 2019). Environmental and

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social outcomes of business performance are closely associated with the sustainability indicators (Fernando et al., 2019; Fernando & Chukai, 2018). According to Fernando and Saththasivam (2017), EMS ISO 14001 manufacturing firms which adopted green supply chain agility has improved the performance of a firm environmentally and socially. It is also argued that the manufacturing firms' inability to manage ethical standard and integrity will impact to poor product quality, and it will slow the growth of a company.

The manufacturing firms should be able to comply with their entire supply chain with fairness, ethical standard, quality, honesty, and integrity. The ethical compliance should include and closely monitor starts from the first-tier until third-tier level suppliers. If the manufacturing companies unable to monitor their supplier compliance with the ethics and integrity standard, it will impose penalties and will damage company reputation. Ali et al. (2017) postulated that individual, firm certification is never sufficient to compete in the era of the inter-supply chain. All players in the supply chain should ensure the integrity of procurements, manufacturing processes, storage, and distribution. The ethical compliance and integrity should be practiced in daily business operation. There are three domains of risks that face by the manufacturing companies, including human trafficking, forced labour, and slavery. In order to comply with the integrity standard, the supply chain professionals can refer to the Institute for Supply Management (2016); however, standards and guidelines cannot cover every situation in day to day business operations. The right way to select the suppliers is key to manage supplier integrity with business sustainability orientation.

A strategy of manufacturing companies is now more focus towards the triple bottom line, the simultaneous achievement of environmental, social, and financial performance. This is because of the pressure from the regulators, customers, shareholders, and also the supply chain partners. The companies are aware of the compliance of the emissions reporting requirements, which is one of the aspects to be responsible for the environmental and social stewardship. With the increasing cost of energy, the risk of all the rise and shortage of even primary natural resources like water, the companies should have a broad view regarding sustainability as possible. There are three justifications of the novelty of this study. First, the focus is timely to investigate the supplier sustainable integrity, especially in developing countries. According to Hawkins et al. (2014), developing countries are often characterized as a lacking structure to ensure business integrity and a sustainable sourcing strategy in developing nations remains unknown. The green aspects that have been practiced by Asian manufacturing firms attracted scholars' attention as many manufacturing plants have become concentrated in the region (Fernando et al., 2016). Second, existing business scandals of low integrity and

inability to comply with the ethical standard indicate that the current mechanism used is not sufficient enough. It requires an additional manufacturing strategy in ensuring the integrity of the supply chain (Ali et al., 2017). Unethical behaviours in the buyer and supplier relationship are closely related to pressure for achieving success balances of power (Carter 2000). Thirdly, there is a limited study report on examining the impact of ethical behaviour between buyer and supplier. The data should be collected from the management of procurement (Kaynak & Sert, 2012). As a result, this study aims to investigate the drivers of supplier sustainable integrity. Therefore, in an attempt to bridge the gap in the literature, this research proposed the theoretical model of supplier sustainable integrity.

## 2. Literature Review

Seuring and Müller (2008) defined supply chain as the flow material, information, and capital of the supply chain, which can work along with sustainable development. The performance of the supply chain can be measured by using the profit and impact on ecological and social system (Pagell & Wu, 2009). Supplier sustainable integrity should be substantially integrated with the sustainable development concept in the supply chain. Hence, there are three domains that should exist in sustainable supplier integrity, such as social equity, environmental integrity, and economic prosperity. The supplier governance mechanism is between coordination and collaboration, which need to cope with evolving internal and external context. According to Marsh (2009), corporate integrity is a firm awareness of ethical principles and practices. In this study, the definition of supply chain integrity (SCI) was adopted from Castillo et al. (2018). SCI is defined as:

*The dedication to maintaining integrity in supply chain activities and the recognition of the systemic and strategic implications of maintaining integrity in supply chain processes and flows (Castillo et al., 2018).*

Adopting a good concept from the business ethics in the supply chain context will assist companies to maintain the business integrity for along the supply chain activities. The firms need to form a dedicated team to ensure the supply chain comply with the ethical standard and integrity. Castillo et al. (2018) postulate that SCI consists of structural and moral perspectives that support the improvement of sustainable supply chain practices. The firms are suggested to find suppliers who meet the ethics and integrity standards. Castillo et al. (2018) further explain that structural SCI is referred to as the sustainability decision. The business decision should promote the triple bottom line to achieve firms' performance. Meanwhile, moral supply chain integrity can be

described as the attentiveness to ethics and implications for the stakeholders, including the community where the company is located. Those two elements of structure and reliable supply chain integrity are vital as it is consistent and rational with the explanation of corporate integrity.

### 3. Method

This study derived the measurement constructs from a systematic review of the sustainable supply chain (Koberg & Longoni, 2018) and supply chain integrity (Castillo et al., 2018). A Five-Likert scale was utilized in this study (1- Strongly Disagree to 5 – Strongly Agree). The targeted respondents were companies listed in Malaysia External Trade Development Corporation (MATRADE). The electronic survey was distributed to 2800 companies in the manufacturing sector. The unit analysis is organization, and stratified random sampling was utilized as a sampling technique. Stratified random sampling was used based on the strata of decision making in companies (top management) (Fernando & Wah, 2017). Stratified random sampling technique is commonly used in the strategic level of supply chain management studies. There are two statistical techniques that used in this study such as IBM SPSS Version 23 and PLS-SEM version 3.2.8. The data was analyzed into a split test. Half data were analyzed using Exploratory Factor Analysis (EFA) with IBM SPSS 23 and another half for model development and assessment using PLS-SEM version 3.2.8.

### 4. Results

Table 1 shows the profile of respondents. The data were collected from 480 manufacturing firms. More than 500 employees have the highest category participated in the survey, which are 268 respondents, with a percentage of 52.4%. Other than that, this analysis also showed that the highest respondents also came from the company that has been established for more than 20 years, which is 193 respondents and the percentage of 37.8%. In the statistical data also provided the highest respondents came from American owned companies with 219 respondents (42.9 percent).

The data were divided into two sections with the split-half method. The purpose of the split-half method assessment is to examine the internal consistency of a test propose instrument constructs. The proposed instrument constructs are derived from a systematic review of the sustainable supply chain (Koberg & Longoni, 2018) and supply chain integrity (Castillo et al., 2018). The validation of the measurement constructs needs

TABLE 1: Profile of Respondents.

| Profile            | Category                | Frequency | Percent |
|--------------------|-------------------------|-----------|---------|
| Employees          | 100 - 200 employees     | 5         | 1.0     |
|                    | 201 - 300 employees     | 157       | 30.7    |
|                    | 301 - 400 employees     | 81        | 15.9    |
|                    | More than 500 employees | 268       | 52.4    |
| Length in business | Less than 5 years       | 4         | .8      |
|                    | 5 - 10 years            | 141       | 27.6    |
|                    | 11 - 15 years           | 172       | 33.7    |
|                    | 16 - 20 years           | 1         | .2      |
|                    | More than 20 years      | 193       | 37.8    |
| Ownership          | Malaysian jointly owned | 35        | 6.8     |
|                    | Malaysian Owned         | 190       | 37.2    |
|                    | American Owned          | 219       | 42.9    |
|                    | European Owned          | 64        | 12.5    |
|                    | Asia Owned              | 3         | .6      |

a psychometric assessment. The split-half method is assumed to be parallel. It means that the parallel will have equal correct scores and error variances. An estimate of half-test reliability will be obtained if half-test scores are correlated (Bardhoshi & Erford, 2017). There are two types of tests that have been conducted in this study. Firstly, an exploratory factor analysis (EFA) and follow from the structural model and path analysis (N = 240) have been used in this study. The possible reason using this model is as such EFA is to validate the measurement constructs. Also, the objective of using a structural model with path analysis is to examine the link from independent variables to the dependent variable. Table 2 shows that the KMO and Bartlett's test. The value of KMO is 0.822,  $\chi^2 = 2825.900$ , and the degree of freedom equal to 55\*\*\*. It indicates that adequate data for EFA test (Tabachnick & Fidell, 2001).

TABLE 2: KMO and Bartlett's Test for Supplier Sustainable Integrity.

| KMO          | $\chi^2$ | df    |
|--------------|----------|-------|
| 0.822        | 2825.900 | 55*** |
| ***p < 0.000 |          |       |

Furthermore, Table 3 above provides the results of factor analysis for drivers of supplier sustainable integrity. The EFA with Varimax rotation was extracted for drivers of supplier sustainable integrity yielded with three components, namely; supplier codes of conduct (41.560%), supplier collaboration (16.810%), and supplier assessment (14.255%). The Extraction Method was utilized as a principal component analysis, and rotation method has generated Varimax with Kaiser Normalization. Three drivers are explained

TABLE 3: Factor Analysis for Drivers of Supplier Sustainable Integrity.

| Construct                      | Codes | Component          |                    |                    |
|--------------------------------|-------|--------------------|--------------------|--------------------|
|                                |       | X1                 | X2                 | X3                 |
| Supplier codes of conduct (X1) | SCC2  | <b><u>.860</u></b> | .167               | .099               |
|                                | SCC1  | <b><u>.840</u></b> | .186               | .124               |
|                                | SCC3  | <b><u>.820</u></b> | .132               | .239               |
|                                | SCC4  | <b><u>.796</u></b> | .174               | .250               |
| Supplier collaboration (X2)    | SC3   | .102               | <b><u>.840</u></b> | .109               |
|                                | SC2   | .166               | <b><u>.815</u></b> | .048               |
|                                | SC4   | .100               | <b><u>.782</u></b> | .132               |
|                                | SC1   | .249               | <b><u>.753</u></b> | .076               |
| Supplier assessment (X3)       | SA2   | .174               | .124               | <b><u>.857</u></b> |
|                                | SA1   | .158               | .074               | <b><u>.825</u></b> |
|                                | SA3   | .199               | .109               | <b><u>.779</u></b> |
| Eigenvalues                    |       | 4.572              | 1.849              | 1.432              |
| Total variance (71.392%)       |       | 41.560             | 16.810             | 13.018             |

**Note:** Bold and underline loadings indicate the inclusion of that item in the factor

for 71.392% of the total variance. Besides, Table 4 depicts the anti-image matrices to assess the sampling adequacy. The Measures of Sampling Adequacy (MSA) is represented of (<sup>a</sup>) in anti-image correlation. This study found that data is sufficient and complied with the MSA requirement (>.07).

Moreover, the commonality for the model of supplier sustainable integrity is illustrated in Table 5 below. This is because this study uses principal component analysis as an extraction method. As can be seen in Table 5, there are two indicators which are initial and extraction. Initial communities are used to examine the variance in each variable accounted for by all constructs. Furthermore, the aim to conduct extraction communities are to estimate of the variance in each variable accounted for each construct. The initial was consistent for all measurement items, and extraction indicates that all values surpassed the cut-off value (>. 05). There is no issue in the data, and all construct items are fit well with the factor solution.

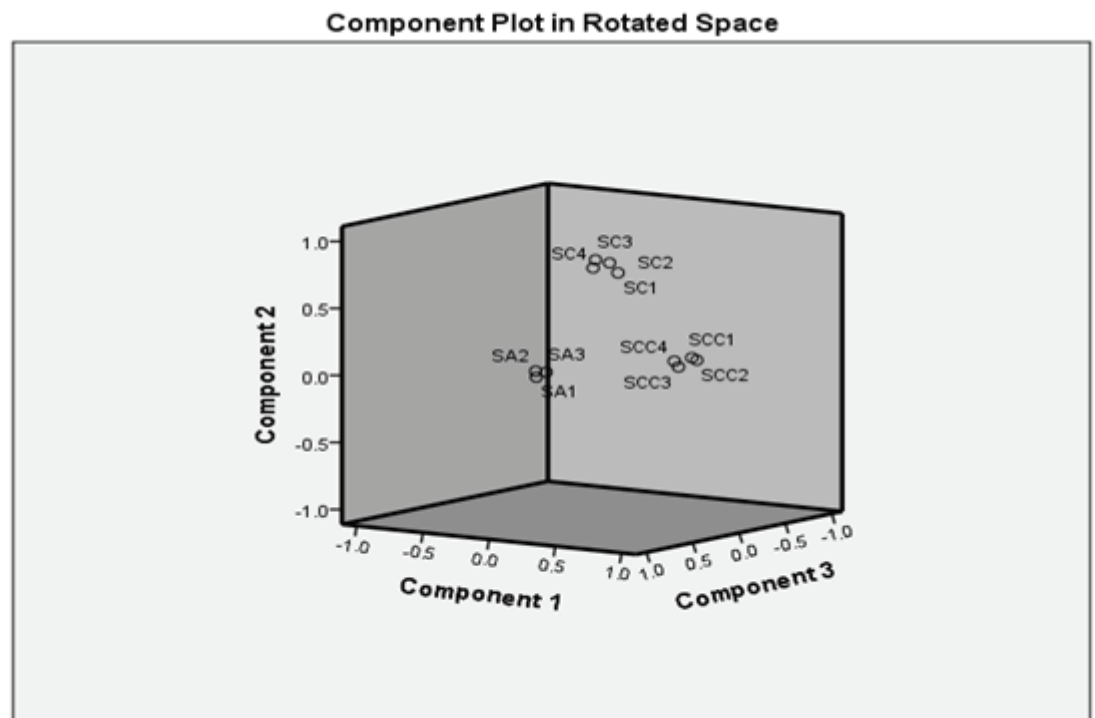
The drivers of sustainable supplier integrity (Figure 1) showed the plot in rotated space, which indicates a visual representation of the loadings plotted in 3-dimensional spaces. Based on the component loadings, the results confirmed the validation of three drivers of sustainable supplier integrity.

TABLE 4: Measures of Sampling Adequacy.

|                       |                        | SA1   | SA2                     | SA3                     | SC1                     | SC2                     | SC3                     | SC4                     | SCC1                    | SCC2                    | SCC3                    | SCC4                    |       |
|-----------------------|------------------------|-------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------|
| Anti-image Covariance | SA1                    | .566  | -.198                   | -.115                   | .029                    | .011                    | -.017                   | -.021                   | .022                    | .014                    | -.032                   | -.052                   |       |
|                       | SA2                    | -.198 | .465                    | -.219                   | .033                    | .021                    | -.068                   | -.002                   | -.030                   | .034                    | -.040                   | -.005                   |       |
|                       | SA3                    | -.115 | -.219                   | .528                    | -.088                   | -.042                   | .087                    | .004                    | -.001                   | -.045                   | .025                    | -.019                   |       |
|                       | SC1                    | .029  | .033                    | -.088                   | .480                    | -.206                   | -.049                   | -.067                   | -.004                   | -.052                   | .035                    | -.047                   |       |
|                       | SC2                    | .011  | .021                    | -.042                   | -.206                   | .452                    | -.143                   | -.022                   | -.062                   | -.002                   | .065                    | -.026                   |       |
|                       | SC3                    | -.017 | -.068                   | .087                    | -.049                   | -.143                   | .416                    | -.231                   | .034                    | -.017                   | -.046                   | .028                    |       |
|                       | SC4                    | -.021 | -.002                   | .004                    | -.067                   | -.022                   | -.231                   | .501                    | -.015                   | .049                    | -.046                   | -.005                   |       |
|                       | SCC1                   | .022  | -.030                   | -.001                   | -.004                   | -.062                   | .034                    | -.015                   | .398                    | -.167                   | -.105                   | -.034                   |       |
|                       | SCC2                   | .014  | .034                    | -.045                   | -.052                   | -.002                   | -.017                   | .049                    | -.167                   | .386                    | -.081                   | -.083                   |       |
|                       | SCC3                   | -.032 | -.040                   | .025                    | .035                    | .065                    | -.046                   | -.046                   | -.105                   | -.081                   | .355                    | -.160                   |       |
|                       | SCC4                   | -.052 | -.005                   | -.019                   | -.047                   | -.026                   | .028                    | -.005                   | -.034                   | -.083                   | -.160                   | .406                    |       |
|                       | Anti-image Correlation | SA1   | <b>.834<sup>a</sup></b> | -.386                   | -.210                   | .055                    | .023                    | -.036                   | -.040                   | .046                    | .029                    | -.072                   | -.108 |
|                       |                        | SA2   | -.386                   | <b>.771<sup>a</sup></b> | -.441                   | .070                    | .046                    | -.154                   | -.003                   | -.069                   | .081                    | -.098                   | -.011 |
| SA3                   |                        | -.210 | -.441                   | <b>.782<sup>a</sup></b> | -.175                   | -.085                   | .185                    | .007                    | -.002                   | -.099                   | .059                    | -.040                   |       |
| SC1                   |                        | .055  | .070                    | -.175                   | <b>.830<sup>a</sup></b> | -.442                   | -.109                   | -.137                   | -.009                   | -.121                   | .084                    | -.107                   |       |
| SC2                   |                        | .023  | .046                    | -.085                   | -.442                   | <b>.792<sup>a</sup></b> | -.329                   | -.045                   | -.147                   | -.005                   | .161                    | -.059                   |       |
| SC3                   |                        | -.036 | -.154                   | .185                    | -.109                   | -.329                   | <b>.754<sup>a</sup></b> | -.506                   | .085                    | -.043                   | -.121                   | .067                    |       |
| SC4                   |                        | -.040 | -.003                   | .007                    | -.137                   | -.045                   | -.506                   | <b>.805<sup>a</sup></b> | -.033                   | .110                    | -.110                   | -.011                   |       |
| SCC1                  |                        | .046  | -.069                   | -.002                   | -.009                   | -.147                   | .085                    | -.033                   | <b>.861<sup>a</sup></b> | -.427                   | -.280                   | -.084                   |       |
| SCC2                  |                        | .029  | .081                    | -.099                   | -.121                   | -.005                   | -.043                   | .110                    | -.427                   | <b>.854<sup>a</sup></b> | -.219                   | -.209                   |       |
| SCC3                  |                        | -.072 | -.098                   | .059                    | .084                    | .161                    | -.121                   | -.110                   | -.280                   | -.219                   | <b>.838<sup>a</sup></b> | -.422                   |       |
| SCC4                  |                        | -.108 | -.011                   | -.040                   | -.107                   | -.059                   | .067                    | -.011                   | -.084                   | -.209                   | -.422                   | <b>.883<sup>a</sup></b> |       |

TABLE 5: Results of Communalities.

|      | Initial | Extraction |
|------|---------|------------|
| SA1  | 1.000   | .711       |
| SA2  | 1.000   | .780       |
| SA3  | 1.000   | .658       |
| SC1  | 1.000   | .635       |
| SC2  | 1.000   | .694       |
| SC3  | 1.000   | .728       |
| SC4  | 1.000   | .639       |
| SCC1 | 1.000   | .756       |
| SCC2 | 1.000   | .778       |
| SCC3 | 1.000   | .747       |
| SCC4 | 1.000   | .727       |



**Figure 1:** Drivers of Sustainable Supplier Integrity Plot in Rotated Space.

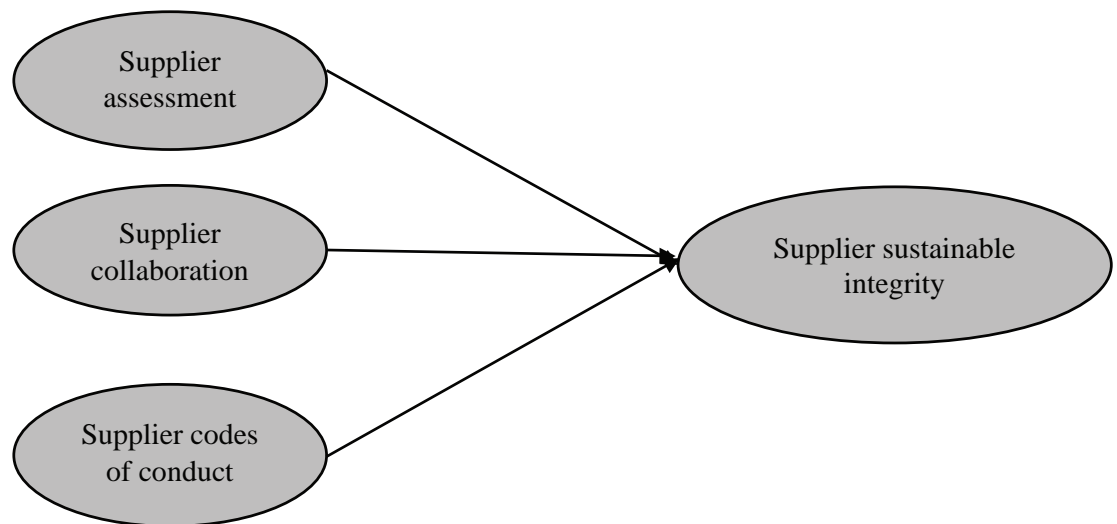
## 5. Hypothesis Development

Based on the EFA findings, this study found that there are three drivers of sustainable supplier integrity. Thus, this study has conceptualized drivers of supplier sustainable integrity based on three drivers in a theoretical model. Figure 2 shows that supplier assessment, supplier collaboration, and supplier codes of conduct are the drivers of supplier sustainable integrity. Firms' ability to comply with supplier sustainable integrity can determine the future of the business itself. This study utilizes the resource-based view (RBV) as the underpinning theory. RBV explains sustained superior firm performance by focusing on the differential ability of firms to develop new capabilities (Barney, 2001). The supplier assessment, supplier collaboration, and supplier codes of conduct will improve firm ability to achieve supplier sustainable integrity. Integrity and business ethics are essentially bringing a positive impact on the entire supply chain. Besides, it is also important for the sake of having a good supply chain information flow as the supplier is the first in the flow of any supply chain business flow and it can affect the other activities if the information given were manipulated or untrusted one. Therefore, the proposed hypotheses are stated as follows:

*H1: The higher level of supplier assessment will be the higher level of supplier sustainable integrity*

*H2: The higher level of supplier collaboration will be the higher level of supplier sustainable integrity*

*H3: The higher level of supplier codes of conduct will be the higher level of supplier sustainable integrity*



**Figure 2:** Theoretical Model.

The results of the measurement model (Table 6) is another half data set was tested using PLS-SEM (N = 240). Loadings and CR have achieved a satisfactory outcome. The average variance extracted (AVE) values have presented at the desired level (>0.50). Thus, all indicators of construct validity are acceptable (Hair et al., 2014).

The output of heterotrait-monotrait (HTMT) analysis was conducted to test the discriminant validity requirement. The cut-off value of HTMT should be higher than the HTMT 0.90 (Gold et al., 2001). Table 7 shows that all values lower than 0.90. The findings show that the discriminant validity is established in the model.

The path analysis was examined to test the hypothesis. This study uses a one-tailed test to decide the significant level of acceptance. The cut-off t-value of acceptance is greater than 1.645. The path from supplier assessment to sustainable supplier integrity is significant and related ( $\beta = 0.082$ ; t-value = 2.250;  $Q^2 = 0.403$ ). Thus, H1 is accepted. The link from supplier collaboration is examined to sustainable supplier integrity. The result provides a significant and positive relationship with p-value less than 0.001. Hence, the H2 is accepted ( $\beta = 0.206$ ; t-value = 5.334;  $Q^2 = 0.429$ ). The H3 is examined to investigate the relationship between supplier codes of conduct and sustainable supplier integrity. The result was a positive and significant related with p-value less than 0.001. Thus, the H3 is accepted ( $\beta = 0.535$ ; t-value = 13.416;  $Q^2 = 0.534$ ). The blindfolding procedure was examined to obtain  $Q^2$  value. The latent variable in the theoretical model shows



TABLE 6: Results of Measurement Model Evaluation.

|      | Loadings | Composite Reliability | Average Variance Extracted (AVE) |
|------|----------|-----------------------|----------------------------------|
| SA1  | 0.854    | 0.883                 | 0.716                            |
| SA2  | 0.857    |                       |                                  |
| SA3  | 0.828    |                       |                                  |
| SC1  | 0.814    | 0.922                 | 0.748                            |
| SC2  | 0.842    |                       |                                  |
| SC3  | 0.832    |                       |                                  |
| SC4  | 0.780    |                       |                                  |
| SCC1 | 0.868    | 0.890                 | 0.668                            |
| SCC2 | 0.870    |                       |                                  |
| SCC3 | 0.865    |                       |                                  |
| SCC4 | 0.856    |                       |                                  |
| SSI1 | 0.864    | 0.872                 | 0.695                            |
| SSI2 | 0.834    |                       |                                  |
| SSI3 | 0.800    |                       |                                  |

TABLE 7: Results of Heterotrait-monotrait Test.

|                                    | (1)   | (2)   | (3)   | (4) |
|------------------------------------|-------|-------|-------|-----|
| Supplier Assessment (1)            |       |       |       |     |
| Supplier Codes of Conduct (2)      | 0.496 |       |       |     |
| Supplier Collaboration (3)         | 0.324 | 0.452 |       |     |
| Sustainable Supplier Integrity (4) | 0.448 | 0.778 | 0.537 |     |

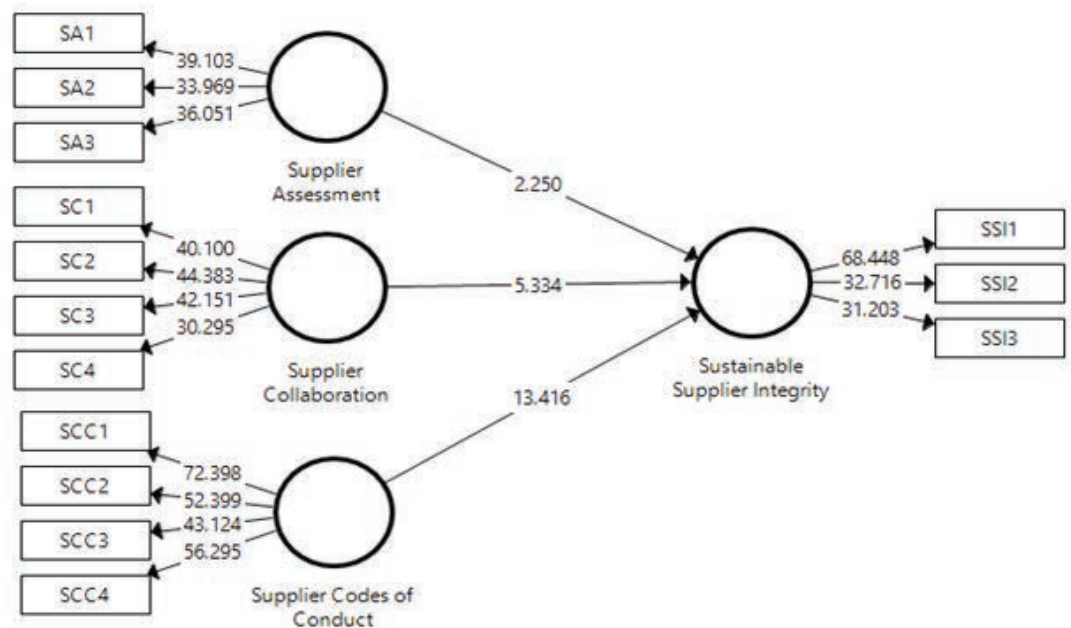
that PLS-SEM has sufficient predictive relevance ( $Q^2 > 0$ ; Hair et al., 2017). The supplier code of conduct is the strongest driver of sustainable supplier integrity. This can be seen from the greater value of standardized beta, t-value, and  $Q^2$ . Thus, three drivers are good predictors of sustainable supplier integrity (Figure 3).

TABLE 8: Results of Hypothesis Testing (One-Tailed).

| Hypothesis | Path       | Std. Beta | SD    | $Q^2$ | T-Value | P-Value     | Remarks  |
|------------|------------|-----------|-------|-------|---------|-------------|----------|
| H1         | SA -> SSI  | 0.082     | 0.036 | 0.403 | 2.250   | 0.012       | Accepted |
| H2         | SC -> SSI  | 0.206     | 0.039 | 0.429 | 5.334   | $p < 0.001$ | Accepted |
| H3         | SCC -> SSI | 0.535     | 0.04  | 0.534 | 13.416  | $p < 0.001$ | Accepted |

## 6. Discussion

In this study, there are substantial drivers of sustainable supplier integrity, which consists of three main drivers, namely; supplier assessment, supplier collaboration and supplier codes of conduct. In term of the method, this study used a split-half method to identify



**Figure 3:** Structural Model with PLS-SEM.

the construct items when the existing measurements are not established. Besides, a split-half method allows scholars to split the data into two sets with a different type of tests and statistical software. The positive relationship between supplier assessment and supplier sustainable integrity is in line with Castillo et al. (2018). Blome et al. (2017) postulated that integrity should be rewarded in the organization. The companies are expected to monitor, control, and evaluate the integrity performance of suppliers to strengthen the positive business outcome of supplier sustainable integrity. Supplier integrity can assist the companies in reducing the uncertain risks in quality of materials. A positive relationship between supplier collaboration and supplier sustainable integrity has an impact on sustainable supply chain integration. The collaboration with integrity among networks in the supply chain can improve best practices and business model. The collaboration with integrity will trigger products and service quality and strong brand positioning. Thus a positive relationship between supplier collaboration and sustainable supplier integrity was supported by Castillo et al. (2018). The collaboration with integrity will come from the supplier collaboration program (Blome et al., 2017). The aim of the supplier collaborative program is to develop a critical part of business ethic and integrity. The relationship between supplier codes of conduct and supplier sustainable integrity was positively significant.

Moreover, the managerial implication for this study concludes that codes of conduct are immensely important in providing the best ethical practices. The result was supported by Castillo et al. (2018). According to the Institute for Supply Management

(2016), understand of principles and standards of ethical supply management, conduct will increase awareness and acceptance of ethical conduct and emphasize the role of ethics when formulating decisions. The significant of supplier codes of conduct can impact regulatory compliance. For example, the supplier sustainable integrity can assist the manufacturing firms to comply with ISO 14001 and ISO 5001 on environmental and energy management practices (Jasmi & Fernando, 2018; Fernando et al., 2018; Fernando & Hor, 2017).

## Acknowledgement

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

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## Conference Paper

# The Influence of Internal Control, Leadership Style, and Teamwork to Information System Project Success

Anderes Gui<sup>1</sup>, Yudi Fernando<sup>3</sup>, Aditya Septiani Wiwoho<sup>2</sup>, Bambang Leo Handoko<sup>2</sup>, and Hasnah Haron<sup>3</sup>

<sup>1</sup>Information Systems Department, School of Information Systems, Bina Nusantara University, Jakarta, 11480, Indonesia

<sup>2</sup>Accounting Department, Faculty of Economics and Communication, Bina Nusantara University, Jakarta, 11480, Indonesia

<sup>3</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

The purpose of this research is to investigate the influence of internal control, leadership style, and teamwork on the success of the information technology projects. The method of data collection is done by studying literature, questionnaires, interviews, and direct field observations. The research methodology used is quantitative method with the primary and secondary data source. Questionnaires were distributed to the project team, and 110 responses of employees at AIT Co. were received. Data were analyzed using IBM SPSS. Findings showed that internal control and teamwork have a significant influence on the success of the information technology projects, but leadership style not significant. It was found that internal control, leadership style, and teamwork simultaneously have a significant and positive influence on the information technology projects success by 80%. The implication of this study is to increase successful project rate, the role of internal control is important to monitor from the earliest stage until project finished, and company needs to arrange program such as watch together, eat together or outing program. For future research is to expand the scope of the study, such as increasing the number of companies involved, with variations in other variables and can add control and moderating variables.

**Keywords:** internal control, leadership style, teamwork, information technology project success.

Corresponding Author:

Anderes Gui  
anderesgui@binus.edu

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Nowadays, globalization is driving the development of technology; thus, Information Technology (IT) is more functional and vitally needed for a company which wants to remain sustainable in their business. According to Whitney and Daniels (2013), the evolvement of technology progress and global expansion has increased the number of

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technology projects. This is supported by Gomes and Romao (2016), which stated that the company had increased its investment in technology. Stoica and Brouse (2013) stated that project failure happens and no industry is immune from project failure. Information technology projects have been proven to be more vulnerable to risk and failure more than in other industries. According to Gartner (2011), the projections of global information technology spending have risen by 5.4% with figures reaching 3.4 trillion US dollars in 2010. Table 1 shows the CHAOS Summary Report from Standish Group, which turns out that information technology failure projects have shown a worrying trend since 2011.

TABLE 1: Successful Project from CHAOS Report by Standish Group.

|            | 2011 | 2012 | 2013 | 2014 | 2015 |
|------------|------|------|------|------|------|
| Successful | 29%  | 27%  | 31%  | 28%  | 29%  |
| Challenged | 49%  | 56%  | 50%  | 55%  | 52%  |
| Failed     | 22%  | 17%  | 19%  | 17%  | 19%  |

According to previous studies, (Atkinson, 1999; Shenhar, Levy & Dvir, 1997; Jugdev and Muller, 2005; Thomas & Fernandez, 2008; Collyer & Warren, 2009, Gomes & Romao, 2016) mentioned that the "iron triangle" or "triple constraint" can be used to measure the success of a project. Project success is measured based on the achievement of project costs, time, and quality. By considering these three factors, it will be easier to measure the success or failure of a project. To be clear, what is meant by failure in an information technology project is if there is a delay in the completion time, the target cost is exceeded, or the project is not following what has been agreed upon. In the management project itself, there are three important elements in project management. The first element is the internal control system of the project. Planning of the project is important to ensure all elements in project management are in accordance to plan. The second element is the project manager, who is the person responsible for planning, directing, and integrating the work effort of the members to achieve the project's objectives. The third element is the project team itself. The project team is a collection of people or team members from different functional areas working together with the aim of completing project work. Team members will have a project manager who will direct the project so that the three elements are interrelated and important. Based on these three elements, this study will examine whether internal control factor, leadership style, and teamwork have a relationship with the success of information technology projects. Previous studies have not examined all three factors in one study.

## 2. Literature Review

Previous research conducted by Schendar, Tishler, Dvir, Lipovetsky, and Lecher (2002), Belout and Gauvreau (2004) shows the relationship between control and project success. Table 2 shows summarize these studies.

TABLE 2: Relationship of Internal Control and Success of Information Technology Projects.

| Researcher   | Research Result  |
|--|--|
| Schenhar, Tishler, Dvir, Lipovetsky, Lecher (2002) | The sampling method used was purposive sampling. Questionnaires were distributed to 127 project manager in Israel. Data were analyzed using canonical correlation and eigenvector analysis. Findings show that there is a relationship between control and the success of the project. |
| Belout, Gauvreau (2004)                            | This research aims to analyze the factors that influence project success. The sampling method used is Stratified Random Sampling. Questionnaires were distributed to 212 project managers. Findings show internal control has an influence on the success of projects.                 |

Previous studies related leadership style and project success by Thite (2000), Jiang (2014), Liphadzi, Aigbavboa, & Thwala (2015), Aga (2016) and Aga, Noorderhaven, & Vallejo (2016) show in Table 3 below:

TABLE 3: Relationship of Leadership Style and Information Technology Project Success.

| Researcher                            | Research Result   |
|---------------------------------------|---|
| Thite (2000)                          | This research aims to identify successful leadership styles of information technology managers. This study analyzes the transformational leadership style (TLS) and its relationship to the success of projects. The sampling method used is random sampling. The questionnaire was distributed to 111 IT organizations in Australia. Findings show that there is a relationship between TLS and ITPS.  |
| Jiang (2014)                          | The research was conducted with a literature review of various sources of project management journals, change management, and other books. It can be summarized that leadership is rarely included in the success factors of the project, but these factors can affect the performance of the project directly and indirectly. The direct influence of leadership is that it can increase the success of the project with the appropriate competencies. |
| Liphadzi, Aigbavboa, Thwala (2015)    | The aim of this research is to explore the relationship between different leadership styles and the success of projects. Questionnaires were distributed to 150 construction managers in South Africa. Findings show the strong relationship between leadership style towards the success of the project.   |
| Aga (2016)                            | The sampling method used was purposive sampling. Questionnaires were distributed to 224 development projects managers at NGOs in Ethiopia. It was found that there is a relationship between transactional leadership and the success of the project.   |
| Aga, Noorderhaven, dan Vallejo (2016) | This research aims to determine the relationship between transformational leadership style and the success of the project and also examine whether team building will moderate the relationship. Questionnaires were sent to 431 NGOs in Ethiopia. Findings show that transformational leadership has a relationship with the success of the project.   |



Previous studies related teamwork and project success by Hoegl and Gemuenden (2001), Yang, Huang & Wu (2011), Cserhati, Szabo (2013), Lindsjorn, Sjoberg, Dingsoyr, Bergersen, & Dybua (2016) Wu, Liu, Zhao, & Zuo (2017) show in Table 4 below:

TABLE 4: Relationship on Team Work and Successful of Information Technology Project.

| Researcher  | Research Result   |
|---|---|
| Hoegl, Gemuenden (2001)                               | Questionnaires were distributed to 575 team members, team leaders, and managers of software companies in Germany. Findings show that the quality of teamwork has a strong relationship with the success of the project.   |
| Yang, Huang, Wu (2011)                                | 200 questionnaires were distributed to the project managers of construction companies in Taiwan. Findings show that leadership style and teamwork have a positive relationship with the performance of projects.  |
| Cserhati, Szabo (2013)                                | Data collection is done by conducting interviews and distributing questionnaires to event managers of selected companies in Europe. The results of the study show that the relationship-oriented project success factors, such as communication, collaboration, and project leadership, play an important role in carrying out organizational projects.   |
| Lindsjorn, Sjoberg, Dingsoyr, Bergersen, Dybua (2016) | This research was conducted to investigate the influence of the quality of collaboration on team performance, learning, and job satisfaction on the team of software developers in Norwegian using the agile method. Questionnaires were distributed to 477 respondents from 26 companies and analyzed using SEM. The result shows that teamwork quality has a relationship with the success of the project. The quality of teamwork is a major factor in improving team performance especially for software development teams that use the agile method. |
| Wu, Liu, Zhao, Zuo (2017)                             | Questionnaires were distributed to construction project managers in Shanghai, Jiangsu and Zhejiang provinces in China. Data analysis was performed using SEM (Structural Equation Modeling). Findings show that desire to communicate and formal communication has a positive relationship with the success of the project, while informal communication does not affect the success of the project.  |

### 3. Methodology

In this research, there are three independent variables, which are internal control, leadership style, and teamwork, and the dependent variable are the success of an information technology project. The population in this research are 150 employees of AIT Co. that are directly involved and is in the information technology application development team. The sampling technique used is purposive sampling technique. Unit of analysis comprise of employees of AIT Co., is in the information technology application development team and has a role as a project manager, business analyst, system analyst, developer, tester, and quality assurance. Using the Slovin formula, a minimum sample of 110 respondents for this study was collected in January 2018. Quantitative research is conducted. The research instrument is a questionnaire. IBM SPSS will be used to test the hypotheses.

## 4. Results

### 4.1. Hypothesis

There are four hypotheses formulated in this study based on the previous literature. The discussion of each hypothesis will be described as follows:

a. Hypothesis 1 (H1)

The purpose of hypothesis 1 is to find out whether there is an influence between internal controls on the successful of information technology projects. H1 states that internal control has a significant and positive influence on the success of information technology projects.

b. Hypothesis 2 (H2)

The purpose of hypothesis 2 is to find out whether there is an influence between leadership styles on the successful of information technology projects. H2 states that leadership style has a significant and positive influence on the success of information technology projects.

c. Hypothesis 3 (H3)

The purpose of hypothesis 3 is to find out whether there is an influence between teamwork on the success of information technology projects. H3 states that teamwork has a significant and positive influence on the success of information technology projects.

d. Hypothesis 4 (H4)

The purpose of hypothesis 4 is to find out whether there is an influence between internal control, leadership style, and teamwork on the success of information technology projects. H4 states that internal control, leadership style, and teamwork has a significant and positive influence on the success of information technology projects.

### 4.2. Data Quality Test

This quality test is done by testing the validity and reliability of the data collected. If there are items that are invalid and reliable, they will be excluded from the question items. The results of the validity test are all items asked in the questionnaire are valid because for all variables, namely internal control, leadership style, teamwork, and success of information technology projects have a calculated  $r$  which is higher than  $r$  table. Furthermore, the results of reliability tests are all question items declared reliable because all variables ranging from internal control, leadership style, teamwork,

and success of information technology projects have a Cronbach’s Alpha value greater than 0.6. Then from the results of the data quality test can be used to disseminate questionnaires to the object of research to be studied.

### 4.3. Classic assumption test

TABLE 5: Classical Assumption Test Results.

| Testing of Classical Assumption Test | Results  |
|--------------------------------------|--|
| Normality                            | The regression model is normally distributed           |
| Heteroscedasticity                   | There is no heteroscedasticity in the regression model |
| Autocorrelation                      | There is no autocorrelation in the regression model    |
| Multicollinearity                    | There is no multicollinearity in the regression model  |

All the assumptions have been met.

### 4.4. Correlation Analysis

In this correlation test, it aims to determine the closeness of the relationship between internal control on the success of information technology projects, closeness between leadership style on the success of information technology projects, and the closeness of the relationship between work team on the success of information technology projects. The following is a summary of the results of the correlation test obtained from data processing using the SPSS program.

TABLE 6: Results of the Correlation Testing Summary.

| Variable  | Value Sig. (2-tailed) | Description  | Standardized Coefficients | Description                                     |
|-----------|-----------------------|--|---------------------------|---|
| IC → ITPS | 0.000                 | < 0.05 = Ho is rejected, meaning there is a significant relationship between IC and ITPS.    | 0.509                     | The relationship between IC and ITPS is strong. |
| LS → ITPS | 0.254                 | > 0.05 = Ho is accepted, meaning there is a no significant relationship between LS and ITPS. | 0.090                     | The relationship between LS and ITPS is weak.   |
| TW → ITPS | 0.000                 | < 0.05 = Ho is rejected, meaning there is a significant relationship between TW and ITPs.    | 0.337                     | The relationship between X3 and Y is strong.    |

From Table 6, it can be seen that there is a strong and direct influence on the success of the Information Technology Project. Furthermore, the Leadership Style has

an insignificant, weak relationship and direct influence on the success of the Information Technology Project. Team Work has a significant and strong relationship and a direct influence on the Information Technology Project Success.

#### 4.4.1. Multiple Regression Analysis

Multiple regression testing is done by regressing all the independent variables on the dependent variable. The independent variables included in this research are three, those are internal control, leadership style, and teamwork, while the dependent variable is the success of an information technology project whose details will be explained as follows. Table 4 shows the test of the internal control Summary Model, leadership style, and teamwork, on the success of information technology projects using the IBM SPSS 20.0 program, so the test results are found as follows:

TABLE 7: Summary of Internal Control Models, Leadership Style, and Team Work on the Success of Information Technology Projects.

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .896 <sup>a</sup> | .803     | .797              | .823                       |

a. Predictors: (Constant), Team Work, Leadership Style, Internal Control

In the Model Summary in Table 7, it shows that there is a relation coefficient column (R) and a coefficient of determination (R Square). In column R, there is a number 0.896, which indicates that the relationship is very strong and in the same direction because the value is positive. Also, in the R Square column, there is a number 0.803 so that it can be concluded that the variables of internal control, leadership style, and teamwork affect the success of information technology projects by 80% while the remaining 20% vitally by other factors outside of the variables studied. Next is the F test or ANOVA test to compare the significance level set for the study with the probability value of the research results.

TABLE 8: Output of ANOVA Internal Control, Leadership Style, and Team Work on the Success of Information Technology Projects.

| Model        | Sum of Squares | df  | Mean Square | F       | Sig.              |
|--------------|----------------|-----|-------------|---------|-------------------|
| 1 Regression | 292.178        | 3   | 97.393      | 143.740 | .000 <sup>b</sup> |
| 1 Residual   | 71.822         | 106 | .678        |         |                   |
| Total        | 364.000        | 109 |             |         |                   |

a. Dependent Variable: ITPS  
 b. Predictors: (Constant), IC, LS, TW

Table 9 shows that Internal Control and Teamwork has a significant and positive influence on information technology project success, and leadership style insignificant.

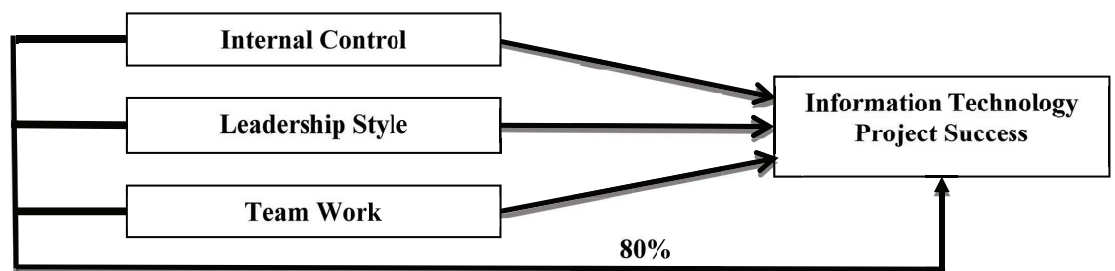
TABLE 9: Regression Equations for Internal Control, Leadership Style, and Team Work on the Success of Information Technology Projects.

| Coefficients <sup>a</sup> |            |                             |            |                           |       |      |
|---------------------------|------------|-----------------------------|------------|---------------------------|-------|------|
| Model                     |            | Unstandardized Coefficients |            | Standardized Coefficients | T     | Sig. |
|                           |            | B                           | Std. Error | Beta                      |       |      |
| 1                         | (Constant) | 1.056                       | .668       |                           | 1.580 | .117 |
|                           | IC         | .416                        | .074       | .509                      | 5.583 | .000 |
|                           | LS         | .046                        | .041       | .090                      | 1.146 | .254 |
|                           | TW         | .196                        | .064       | .337                      | 3.071 | .003 |

a. Dependent Variable: Information Technology Project Success

It can be seen from Table 9 that only internal control and teamwork is significant and positively related to information technology project success. Leadership style is not significant and positively related to Information Technology Project Success.

The following is an overview of the frame of mind that includes the independent variables and the dependent variable examined in this study, along with the percentage of the influence of each independent variable on the dependent variable.



### 5. Discussion

It can be concluded that internal control and teamwork have a significant and positive influence on the success of information technology projects. However, leadership style was not found to be significant because the company using KPI to measure the performance of each member team.

### 6. Conclusion and Implications

Internal control of information technology projects is the most significant influential factor. In accordance with the research conducted by Pimchangthong and Boonjing

(2017), the company needs to establish internal control in guarding the development of information technology projects. Teamwork also has a significant effect on the success of information technology projects, and this is in line with the research conducted by Yang, Huang, and Wu (2011). To improve teamwork, companies need to do outing programs, watch together, and go together so that a sense of togetherness is created between managers and project members. For future researchers who are interested in the topic of internal control, leadership style, and teamwork towards the success of information technology projects is to expand the object of research by increasing the number of companies involved, with variations in other variables and can add control and moderating variables.

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## Conference Paper

# Becoming Lean: The Way towards Sustainability of Higher Educations Institutions

Gusman Nawanir<sup>1</sup>, Mohammed Binalialhaji<sup>1</sup>, Kong Teong Lim<sup>2</sup>, and Mohd Hanafiah Ahmad<sup>1</sup>

<sup>1</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

<sup>2</sup>School of Technology Management and Logistics, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia

## Abstract

Sustainability has become a significant issue in today's business world, including in the education sector. The objective of this cross-sectional study is to examine the implications of lean higher education (LHE) implementation on HEIs sustainability performance. Data were collected from academicians at a technical university in Malaysia. The study found positive relationships between LHE and sustainability performance in terms of environmental, economic, institutional, and social. The finding implies that in order to be sustainable, a university could exert more efforts in implementing LHE practices. This study subsidized to the current literature through bridging the gap of the lacking investigations on the potentials of lean management in the context of HEIs. The Malaysian HEIs could gain benefits through providing alternative solutions and suggestions to improve their business process, moving towards achieving sustainability performance.

**Keywords:** Lean, Sustainability Performance, Higher Education Institutions, Malaysia

Corresponding Author:

Gusman Nawanir

gusman@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by

Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

In Malaysia, sustainable development (SD) initiatives had started while the launching of the new economic policy (NEP) in the 1970s (Government of Malaysia, 2017). Afterward, a new economic model (NEM) was launched in 2009 to pursuit SD pointing high incomes, inclusivity, and sustainability (Government of Malaysia, 2017). These targets are consistent with the 2030 agenda for SD incorporating economics, social, and environmental development. One of the preferred areas in the Malaysian SD goal is the education sector (Government of Malaysia, 2017), especially the HEIs. As stated in the Education Blueprint (Higher Education) 2015-2025 (Ministry of Education Malaysia, 2015), one of the overriding national aspirations is to ensure financial sustainability. Nowadays, evidence indicated that HEIs worldwide is facing some critical issues. As

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highlighted by Montgomery (2017) the issues include the reduction of financial support and resources from governments and donors, struggle against increasing tuition fees, increasing operational costs, low student retention and completion rates, as well as pressure to deliver provision to corroborate economic development. The issues become complicated as the HEIs have a complex network of stakeholders, including students, faculty, parents, research sponsors, taxpayers, and other related educational institutions. At the same time, HEIs also have multifaceted activities done by other institutions, besides some unique HEIs activities. Among the activities are purchasing and procurement, financial assistance for students, immigration and visa operations, finance and related business activities, students admission, human resource-related activities, research and development, community service, and many more. These issues are also faced by HEIs in Malaysia, especially when the Malaysian Ministry of Education had established a rule that inspires HEIs to be independent and leverages their income by giving autonomy status to the institutions. These challenges demand a substantial commitment to embrace SD principles. Today, the sustainability agenda in the HEIs sector in Malaysia constantly magnets attention, such as environmental protection agencies, NGOs, and HEIs stakeholders. Albeit the agenda has been articulated into tactical policies, only a few HEIs have been stirring toward sustainable institutions (Abd-Razak, Abdullah, Nor, Usman, & Che-Ani, 2011). Hussin and Kunjuraman (2017) argued that the lack of understanding on the principles of sustainability within the HEIs context may cause this phenomenon, besides the fact that the concept is new and still in its infancy. Even though some studies addressed the HEIs sustainability issues, most of the studies emphasize limited dimensions of sustainability (i.e., environmental sustainability). For instances, Darus et al. (2009) and Kwami, Che-Ani, Tawil, Tahir, and Basri (2014) reported sustainable planning and strategy for Universiti Kebangsaan Malaysia (UKM). Zen and LatifSaleh (2013) deliberated the approach of institutionalizing HEIs sustainability and sustainable energy management program in Universiti Technology Malaysia (UTM). The implementation strategies for energy sustainability in UTM were also proposed by Low, Abdul, and Weng (2012). In addition, Abd-Razak, Mustafa, Che-Ani, Abdullah, and Mohd-Nor (2011) and Abdullah, Razman, and Muslim (2017) discussed the development, issues, and obstacles towards sustainable campus among four research universities in Malaysia (i.e., UKM, Universiti Sains Malaysia (USM), Universiti Malaya (UM), and Universiti Putra Malaysia (UPM)).

Leal Filho et al. (2018) included environmental, economic, social, and institutional sustainability issues as the significant challenges faced by the HEIs in their operations. In

the operations management perspective, one of the leading root causes of the issues is the existence of “waste” in their operations (Balzer, Brodke, & Thomas Kizhakethalackal, 2015; Montgomery, 2017). In the context of lean management, the waste was commonly defined as non-value added activities in operations or activities. According to Womack, Jones, and Roos (1990), waste may include any activities that absorb resources but generates no value. In order to afford a more unobstructed view on the sustainable idea and to incorporate them into the education, lean practices could be employed by HEIs in order to leverage its sustainability status and become more efficient and leaner in the way higher education operates. Even though some institutions have gained some benefits from its implementation, some institutions are currently facing issues related to its implementation. According to Montgomery (2017), the issues include lack of knowledge and experience on lean implementation, failure to recognize problems where lean is an appropriate approach to use, inappropriate practices and measures, inappropriate documentation, lack of standardization, lack of utilization of skills and talents, departmental politics, and lack of data-driven management system. Along with the issues highlighted in the literature, this study attempts to highlight the implementation of LHE practices in an HEI in Malaysia, quantify the level of its implementation, and investigate its impact on sustainability performance. The HEI in Malaysia is selected because the implementation of this principle has not well-explored besides a lack of investigations to inquiry the successful LHE implementation in the universities from the developing countries. Also, the implementation of lean and its potential effects on sustainability performance are potentially influenced by the national context (Phan & Matsui, 2010). Therefore, it is essential to keep investigating various contexts in order to establish a strong understanding of the effect of lean on sustainability, besides adding new standpoint to the state-of-the-art literature. Also, this study could contribute significantly to HEIs development in Malaysia. This paper starts with the introduction, followed by a review of the existing literature. Subsequently, research design and analysis results will be discussed. The subsequent section will present the research findings. Finally, this paper ends with implications, limitations, and suggestions for future studies.

## 2. Literature Review

### 2.1. Lean Higher Education (LHE) Practices

Lean is a method of continuous improvement in a workplace, which was initiated in Toyota Manufacturing Corporation in the 1980s. Womack et al. (1990) highlighted that lean thinking is the never-ending conversion of waste into value from the customer's viewpoint. Lean is both a methodology and management thinking, using many methods and tools, expected to enhance quality and eliminate waste. Lean can mean "less," and at the same time, "more." Less in term of wastes, cost, design time, fewer suppliers per customer, and fewer organizational layers. Conversely, it can also mean more in terms of flexibility and capability, employee empowerment, effectiveness and efficiency, customer satisfaction, quality, competitiveness, and profitability (Clare & Dennis, 2005b).

The topics of lean in the literature are broad. Nowadays, the philosophy of lean has been actively transferred to other sectors beyond the manufacturing sector, such as higher education, healthcare, pharmaceutical, tourism and hospitality, transportation, and distribution. Countless studies have addressed this philosophy to target waste elimination while leveraging organizational performance through maximizing values, understand work as a process, form a smooth flow, respond to pull and aim for perfection (Womack et al., 1990). As stated initially by Ohno (1988), there is seven cardinal waste, which lean aims to reduce. They are overproductions, inventory, defects, motions, over-processing, waiting, and transportation. Afterward, Womack and Jones (2003) familiarized the underutilized human capital as an addition to the cardinal waste. Douglas, Antony, and Douglas (2015) converted the waste in the manufacturing context to HEIs, as presented in Table 1. This study abbreviates the types of waste as TIMWOODS. These waste are endeavored to be reduced by the implementation of lean practices.

In the context of HEIs, there is a growing number of academic literature, which are emerging in the area such as Cudney, Venuthurumilli, Materla, and Antony (2018), Douglas et al. (2015), Malmbrandt and Åhlström (2013), and Narayanamurthy, Gurumurthy, and Chockalingam (2017). Even though some research has acknowledged important practices of LHE, there was no single opinion among the researchers concerning the significance of the lean practices. The lack of agreement becomes a reason why practitioners and researchers presented diverse sets of elements to cover the lean principles. The elements varied extensively based on the background of the scholars. Through an extensive literature review, this present study identified, compiled, a regrouped the scrambled practices to become seven related practices of LHE. Table 2 presents the

TABLE 1: Waste in HEIs.

| Types of waste  | Waste in HEIs context  | Examples in HEIs   |
|-----------------|--|--|
| Transportation  | The movement of materials (e.g., papers, multiple approvals, and hand-overs)   | Multiple endorsements for conference attendance, moving paper, parts, and materials around buildings and between different departments   |
| Inventory       | More supply or materials than required. Records and documents held longer than usefully required   | Too many marketing brochures, stationery, and other documents, photocopies of lecture notes, storage for all the above in offices or stockrooms  |
| Motions         | The unnecessary movement of staff and students. Departments scattered across various campuses.   | Moving employees and students between classrooms or from one building to another   |
| Waiting         | Queuing for anything, waiting for documents to be approved, IT systems downtime, looking for files, books, and documents. It includes the time taken to respond to student queries | Waiting for multimedia systems to start up or classrooms to empty of previous occupants, waiting for maintenance technicians, waiting for approval, searching for books, papers, handouts, files, etc. |
| Over-processing | Overdesigning a product or a service. Multiple approvals or handovers. Multiple checks. A new program is launched without having the procedures ready to deliver                   | Too much info through e-mail, too many approvals required, and too many people involved. Too many student surveys and too many meetings  |
| Overproduction  | Producing more than what is needed. Unbalanced workload across semesters and uneven scheduling   | Too many teaching handouts made in advance and then stored. The workload is uneven across semesters and timetabling of students is not level across days or weeks                                      |
| Defect          | Errors in inputting data and underutilized classrooms  | Wrong grades input into the system, correcting, and checking data. Timetabling errors  |
| Skills          | Not using people's full talent. Giving people the wrong work   | Staff not teaching their specialist subject area, not teaching postgraduate courses, no research or scholarly activity time  |

Source: adapted from Douglas et al. (2015)

practices and the main focus of each practice. Several studies on the implementation of lean proposed the holistic implementation of all practices simultaneously because of the complementarity nature among the practices (Furlan, Vinelli, & Dal Pont, 2011; Khanchanapong et al., 2014; Nawansir, Lim, Othman, & Adeleke, 2018). In other words, the practices are unidimensional. This implies that the implementation of one practice may support the implementation of other practices. Based on these empirical supports, this study proposes the higher order model of LHE.

A couple of studies, such as Balzer et al. (2015) and Dinis-Carvalho and Fernandes (2017) signified the positive implications of the lean implementation on the HEIs performance. For instances, Balzer et al. (2015) suggested the benefits of LHE implementation

TABLE 2: Practices of LHE.

| Practices                   | Main focus  |
|-----------------------------|---|
| Waste identification        | Identifying waste (i.e., non-value added activities) through value stream mapping of processes (Douglas et al., 2015; Hadid & Mansouri, 2014; Malmbrandt & Åhlström, 2013).                             |
| Work standardization        | Whether or not there are standardized works and whether or not the standards are formalized (Douglas et al., 2015; Malmbrandt & Åhlström, 2013).  |
| Level and balance workloads | Proactive efforts in service to level and balance workloads as much as possible (Douglas et al., 2015; Nawanir et al., 2018).   |
| Built-in quality            | Whether the quality is built-in or not. It is essential to ensure that quality is built-in from the start. Therefore, inspections and quality control are less required. (Malmbrandt & Åhlström, 2013). |
| Pull system                 | Focuses on the use of pull principles and the use of signal for starting an activity (Malmbrandt & Åhlström, 2013; Nawanir et al., 2018).   |
| Multifunctional employees   | Developing skills of employees in order to be multi-skilled and multi-functional (Nawanir et al., 2018).  |
| Continuous improvement      | Continuous improvement activities, employee participation in improvement agenda, improvement work, problem-solving, and improvements (Balzer et al., 2015; Thomas, Antony, Francis, & Fisher, 2015).    |

among universities in the US by highlighting its positive impacts on waste elimination besides also highlighting the reduction in operational costs of the HEIs after the lean implementation. The next sections of this paper will highlight the potential effects of LHE on the sustainability of HEIs.

## 2.2. Sustainability in HEIs

Over the most recent couple of years, some crucial investigations have been led on HEIs' engagement in executing SD agenda (Aleixo, Ulisses, & Susana, 2018a; Cebrián, Grace, & Humphris, 2015; Dyer & Dyer, 2017). There are the same cases of SD in various dimensions around the world and incorporated in the main activities of HEIs (Aleixo et al., 2018a; Fischer, Jenssen, & Tappeser, 2015). With regards to the sustainability of HEIs; while few researchers assert that SD has been applied in all HEI system (Lozano, 2011), it is perceived that a comprehensive approach has not been taken in light of the fact that activities have been classified and applied in just a single or two dimensions of the education system (Aleixo et al., 2018a; Lozano et al., 2015). Three pillars of SD have been recognized in the literature (Amaral Luís, Martins Nelson, & Gouveia Joaquim, 2015; Godemann, Bebbington, Herzig, & Moon, 2014) including environmental, social and economic sustainability. However, it is currently common to discover other SD dimensions, remarkably institutional (Aleixo et al., 2018a; Lozano, 2011; Lozano et al.,

2015) and cultural (Lozano et al., 2015). At the same time, four measurements of SD have additionally been proposed for the execution of SD in HEIs (Aleixo et al., 2018a; Lozano et al., 2015), specifically, economic, environmental, institutional/educational/political, and social/cultural (Aleixo et al., 2018a).

### 2.2.1. Economic sustainability

Economic sustainability refers to the sustain, safeguard, and use of resources (material and human) to generate long-range sustainable values by best recovery, use, and recycling. In other words, conserving natural resources today to ensure the forthcoming generations can fulfill their needs. The economic measurement of SD includes economic viability and classifies economic needs, for example, focus about plans to get better budget for practices encouraging SD, energy efficiency and economic performance (Aleixo et al., 2018a; Lozano, 2011). Several studies, such as Henao, Sarache, and Gómez (2018), Iranmanesh, Zailani, Hyun, Ali, and Kim (2019) and Hussain, Al-Aomar, and Melhem (2019), noted the significant positive effect of lean on economic performance indicators (e.g., profitability, profit margin, and return on investment). Also, the studies (Hines, Found, Griffiths, & Harrison, 2011; Moyano-Fuentes & Sacristán-Díaz, 2012) reported that the concept of lean positively affects economic sustainability performance. This clues the following hypothesis:

**Hypothesis 1.** LHE positively affects economic sustainability performance.

### 2.2.2. Environmental sustainability

Environmental sustainability is related to the issues about energy (petrol, electricity, solar, gas, oil, thermal, wind, and coal), transport, biodiversity (fauna and flora), water, resources like paper, computers, and ink (to eliminate their usage and their dumping as waste/pollution) and other packaging and resources being aware consumer (Aleixo et al., 2018a; Cathryn & Deborah, 2008). The environmental measurement suggests the combination of environmental with organizational strategies. For example, the construction of sustainable infrastructure on campus, sorting of waste, and its procedures for equipment and recycling to create renewable energy (Aleixo et al., 2018a; Lozano, 2011). Recent literature provided strong support on the significant impact of lean on environmental performance. Piercy and Rich (2015) and Iranmanesh et al. (2019) stated that lean met multiple sustainability consequences including environmental benefits in

terms of reduction on pollution, reduction on energy consumption while increasing the efficiency of energy usage. Other studies (Florida, 1996; King & Lenox, 2001; Moreira, Alves, & Sousa, 2010) agreed that the concept of lean affects environmental sustainability performance. This evidence leads to the following hypothesis:

**Hypothesis 2.** LHE positively affects environmental sustainability performance.

### 2.2.3. Institutional, educational and political sustainability

Institutional sustainability is associated with the execution of sustainability policies and simplification of making decisions (Pfahl, 2005). Moreover, it is about how organizations frame their values and strategy, and how diverse stakeholders sense the strategy to meet goals of SD (Lozano, 2011). The institutional sustainability also covers transparency in governance and ethical commitments of organizations (Piercy & Rich, 2015), besides organizational declarations and partnership to promote the SD (Aleixo, Azeiteiro, & Leal, 2018b). Literature included several factors to indicate this SD element, such as several types of research, training, publications, and collaborations related to campus sustainability. Looking at the LHE, it gives the impression that the LHE practices, such as value maximization, stakeholder involvement, and continuous improvement, could positively improve the institutional sustainability performance. Therefore, the following is hypothesized:

**Hypothesis 3.** LHE positively affects institutional sustainability performance.

### 2.2.4. Social and culture sustainability

Social sustainability focuses on generating successful sustainable places that encourage luxury by considering what people required from their workplaces (Scott, 2009). Social sustainability consists of corporate social responsibility (CSR) and the cases surrounding the welfare of students and staff such as safety, and workplace health, ethics, interconnectedness, inclusive community, partnerships, quality of life, integrity, respect, along with the capability to perform tasks in teams as the chance to understand and listen other's viewpoints (Aleixo et al., 2018a; Scott, 2009). It also assigns to activities either by the surrounding community or an organization's human resources for example, policies encouraging diversity and equality, participating and developing in cultural, recreational, or sports activities, initiatives and concerns for social inclusion, and scientific or cultural initiatives address the outside community (Aleixo et al., 2018a; Lozano,

2011). Also, according to Aleixo et al. (2018a), this sustainability element is associated with rules and activities regarding the labor practices and decent work, quality of life, work health and safety, training, and participation in social activities. From a systems perspective, according to Piercy and Rich (2015), lean provides social-foundation for sustainability and pairs it with a technical-system to implement improvement. Also, several studies (Mason-Jones, Naylor, & Towill, 2000; Moreira et al., 2010) agreed that the concept of lean affects social sustainability performance. Therefore, the following hypothesis is posited.

**Hypothesis 4.** LHE positively affects social sustainability performance.

### 3. Methodology

This cross-sectional study applied a quantitative design. The measurements for each indicator were adapted and adopted from several recent works of literature on lean management, and sustainable development as depicted in Appendix A. Data were collected by using a set of the close-ended survey with ordered choice questions ranging from 1 (strongly disagree) to 6 (strongly agree). In order to diminish the effect of temporary variations of the variables, the sustainability indicators were measured based on the attainments throughout the previous three years. Content validity, reliability, and brevity of the instrument were assured by relying on the judgment from experts consisting of academicians and practitioners in the area of lean and sustainability. Three hundred questionnaires were self-administered to the respondents, with 102 questionnaires were returned. However, 14 questionnaires were discarded from the analysis because of incomplete answers and outliers. Finally, 88 questionnaires were completed and usable for further analysis, with an effective response rate of 29.33%. Based on the usable responses, 43 (48.86%) of the participants were senior lecturers, 38 (43.18%) lecturers, and 7 (7.95%) associate professors. Based on their working experience, majority of the respondents (88.64%) have been working in the institution for more than five years, and 11.36% served the university for between three and five years. Based on these figures, the respondents were sufficiently knowledgeable to participate in the survey. Structural Equation Modeling (SEM) approach with SmartPLS 3.2.8 software were used to analyze the data because besides it can perform simultaneous estimation of all parameters in a model (Iacobucci, Saldanha, & Deng, 2007), it provides more comprehensive evidence about the extent to which the model is supported by data (Hair, Hult, Ringle, & Sarstedt,



2017; Latan et al., 2018). More importantly, the PLS-SEM provides a robust estimation for non-normal data and small sample size (Hair Jr, Hult, Ringle, & Sarstedt, 2016).

## 4. Results

### 4.1. Construct Validity

Construct validity confirms that a set of manifest variables represents the latent variable that is proposed to measure (Hair Jr et al., 2016). Convergent validity characterized by outer loading, average variance extracted (AVE), and composite reliability (CR) was assessed. The details of the convergent validity are depicted in Appendix A. It shows that all outer loadings are higher than 0.50, AVE values are more than 0.50, and CR values are above 0.70. Besides, as this study proposed a second-order model, the convergent validity of the 2<sup>nd</sup> order construct was also assessed. The assessment on the second-order model shows that outer loadings ranged from 0.713 to 0.880, AVE is 0.660, and CR is 0.930. Therefore, the convergent validity of both first and second-order constructs are satisfactory. Furthermore, discriminant validity was also measured to reflect the extent to which each of the constructs is unique and not redundant with other constructs (Hair Jr et al., 2016). The discriminant validity was examined by using the Heterotrait-Monotrait ratio of the correlations (HTMT) reflecting the average of the heterotrait-heteromethod correlations relative to the average of the monotrait-heteromethod correlations (Hair Jr et al., 2016). Table 3 shows the results of HTMT assessment indicating the sufficient discriminant validity with the highest HTMT values of 0.871, which is below the threshold value of 0.90 (Gold, Malhotra, & Segars, 2001). In a nutshell, the measurement model provided a satisfactory construct validity.

TABLE 3: Discriminant validity: Heterotrait-monotrait Ratio Statistics (HTMT).

|      | BINQ  | CIMP  | ECSP  | ENSP  | ISP   | LBW   | MFE   | PULL  | SSP   | WID   | WSTD |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| BINQ |       |       |       |       |       |       |       |       |       |       |      |
| CIMP | 0.741 |       |       |       |       |       |       |       |       |       |      |
| ECSP | 0.537 | 0.754 |       |       |       |       |       |       |       |       |      |
| ENSP | 0.619 | 0.390 | 0.584 |       |       |       |       |       |       |       |      |
| ISP  | 0.690 | 0.736 | 0.871 | 0.594 |       |       |       |       |       |       |      |
| LBW  | 0.671 | 0.663 | 0.652 | 0.528 | 0.619 |       |       |       |       |       |      |
| MFE  | 0.868 | 0.866 | 0.675 | 0.590 | 0.729 | 0.697 |       |       |       |       |      |
| PULL | 0.828 | 0.660 | 0.629 | 0.644 | 0.733 | 0.579 | 0.647 |       |       |       |      |
| SSP  | 0.733 | 0.787 | 0.760 | 0.606 | 0.868 | 0.663 | 0.803 | 0.736 |       |       |      |
| WID  | 0.520 | 0.435 | 0.477 | 0.442 | 0.523 | 0.505 | 0.379 | 0.671 | 0.559 |       |      |
| WSTD | 0.701 | 0.652 | 0.576 | 0.629 | 0.640 | 0.715 | 0.652 | 0.779 | 0.699 | 0.692 |      |

**Note:** BINQ = Built-in Quality; CIMP = Continuous Improvement; ECSP = Economic sustainability performance; ENSP = Environmental sustainability performance; ISP = Institutional sustainability performance; LBW = Level and Balance Workload; MFE = Multi-functional Employees; PULL = Pull System; SSP = Social Sustainability Performance; WID = Waste Identification; WSTD = Work Standardization.

#### 4.2. Structural Model Assessment: Hypothesis Testing

The hypothesized path model is presented in Figure 1. This study hypothesized that the implementation of LHE practices positively affects sustainability performance indicators (i.e., economic, environmental, institutional, and social sustainability performance). The PLS bootstrapping based on 5000 bootstrap samples to derive a 95 percent bias-corrected confidence interval was applied to test the hypotheses (Preacher & Kelley, 2011). Table 4 shows that all the standardized beta values relating to the LHE and dependent variables are significant at  $p < 0.05$  ( $t > 1.645$ ) with non-zero confidence intervals. As the intervals are zero free, the positive relationships between LHE and all the sustainability performance indicators (economic, environmental, institutional, and social sustainability performance) are tenable. Therefore, all the hypotheses are supported.

TABLE 4: Summary of Hypotheses Testing.

| Hypotheses | Path       | Std. Beta | Std. Error | t-value | Bias   | Confidence Interval |       | R <sup>2</sup> | Q <sup>2</sup> | Decision  |
|------------|------------|-----------|------------|---------|--------|---------------------|-------|----------------|----------------|-----------|
|            |            |           |            |         |        | 5%                  | 95%   |                |                |           |
| H1         | LHU → ECSP | 0.698     | 0.068      | 10.297  | -0.007 | 0.571               | 0.793 | 0.488          | 0.374          | Supported |
| H2         | LHU → ENSP | 0.622     | 0.091      | 6.824   | -0.005 | 0.440               | 0.740 | 0.387          | 0.257          | Supported |
| H3         | LHU → ISP  | 0.766     | 0.055      | 13.928  | -0.003 | 0.657               | 0.839 | 0.587          | 0.426          | Supported |
| H4         | LHU → SSP  | 0.807     | 0.044      | 18.349  | -0.001 | 0.714               | 0.859 | 0.650          | 0.458          | Supported |

**Note:**  $p < 0.05$  (1 tailed test)

R<sup>2</sup> values indicating the coefficient of determinations were used to assess the amount of explained variance in the endogenous constructs. According to Hair Jr et al. (2016), the R<sup>2</sup> values of 0.25, 0.50, and 0.75 for targeted constructs are considered weak, moderate, and substantial, respectively. Table 4 shows the R<sup>2</sup> values for all endogenous latent variables in the hypothesized model. Based on the table, there is a medium effect of LHE on economic sustainability performance with R<sup>2</sup> = 0.488, which indicates that LHE explains 48.80% of the total variances in economic sustainability performance. Also, the LHE explains 38.70%, 58.7%, and 65% of the total variances in the environmental,

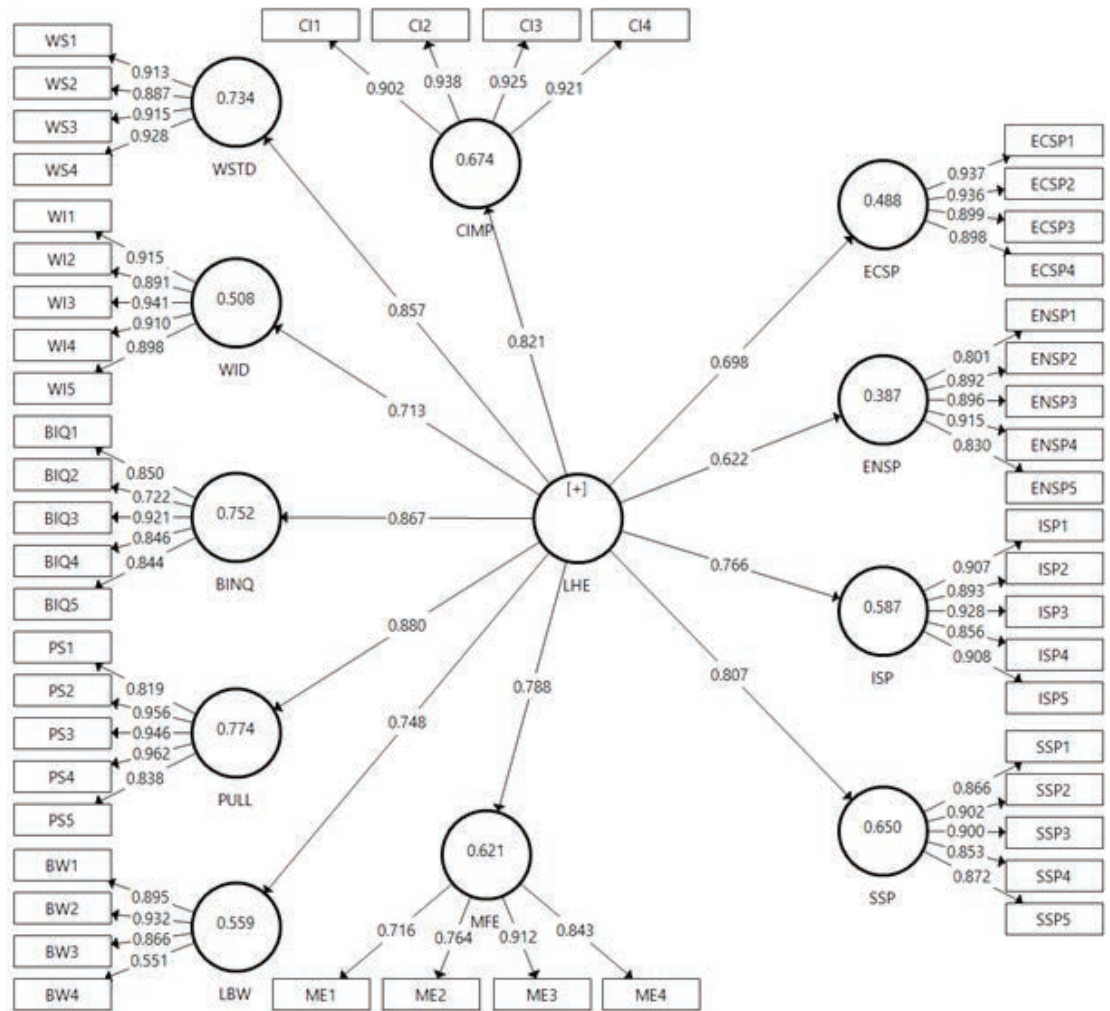


Figure 1: Hypothesized PLS Path Model.

institutional, and social sustainability performance, respectively. Hence the effects of LHE on economic and environmental performance are medium, whereas its effects on institutional and social performance are substantial. Also, a blindfolding was applied to ensure the predictive relevance ( $Q^2$ ) of the model. The  $Q^2$  shows the ability of a model in predicting endogenous variables. The results were obtained through the variable score from which cross-validated redundancy is extracted.  $Q^2$  shows the relevance of 0.374, 0.257, 0.426, and 0.446, respectively, for economic, environmental, institutional, and social sustainability performance. As the  $Q^2$  values in all the endogenous variables are more than zero, the model has a predictive relevance (Hair et al., 2017).

## 5. Discussion

This study was aimed at empirically investigating the effects of LHE on sustainability performance indicators. Four hypotheses relating LHE with each sustainability performance indicators (i.e., economic, environment, institutional, social) were tested by using PLS-SEM approach. The significant relationship between LHE and economic performance was proven with a confidence interval ranging between 0.571 and 0.793 and the estimated path coefficient  $\beta$ -value of 0.698. Based on the derived results, LHE practices were verified to be able to contribute to economic sustainability performance positively. Thus, it implies that in order to enhance economic sustainability performance, the universities could exert more efforts on implementing LHE practices. The respondents believed that LHE practices might increase the university's overall financial performance, return on investment, and energy efficiency while reducing the university's operational costs. The outcome of the present study provides further confirmation of previous studies (Hines et al., 2011; Martínez-Jurado & Moyano-Fuentes, 2014; Moyano-Fuentes & Sacristán-Díaz, 2012), which agreed that the concept of LHE has a positive effect on economic sustainability performance as they highlight the factors that clarify the sustained operational and financial consequences from the lean operation in the medium- and long-range.

The significant positive relationship between LHE and environmental sustainability performance was supported with the confidence interval ranging between 0.440 and 0.740, and the estimated path coefficient of 0.622. This result provides evidence that the employment of LHE contributes significantly to the achievement of environmental performance. It infers that to improve environmental sustainability performance, the universities should extensively apply LHE practices. The respondents believed that LHE practices lead to the use of energy-efficient equipment, tools, and machines; while reducing the consumptions of water, electricity, and fuel, besides the significant reduction in solid waste. This is because the main objective of LHE is to eliminate all types of waste in HEIs. This indicates that respondents believe that LHE practices could assist in increasing the university environmental performance and leading it to be more notable. The outcome of the present study confirms some of the previous studies, such as those of Florida (1996), King and Lenox (2001), and Moreira et al. (2010). These authors agreed that the concept of LHE positively affects environmental sustainability performance, as according to them that lean practices found to be inherently capable of facilitating the attainment of environmental objectives and enhancements in environmental outcomes.

Moreover, the study also found the significant relationship between LHE and institutional sustainability performance, with a path coefficient value of 0.766 and confidence interval ranging between 0.657 and 0.839. This finding implies that LHE practices are proven to be able to contribute positively to institutional sustainability performance. It implies that there is a simultaneous contribution of LHE practices to heighten institutional performance. The respondents tend to agree that the implementation of LHE may enhance the awareness and understanding among the HEIs stakeholders regarding the sustainable development-related issues. Also, this finding clues that LHE improve awareness among the stakeholders regarding the institutions' values as well as affect the way how the stakeholders perceived the visions, missions, values, and objectives of the institution (Aleixo et al., 2018a). Specifically, the number of researches to promote campus sustainability could be increased, besides the increase in the number of research and development projects related to the university's sustainable development, and participation of stakeholders in on-campus sustainable development activities.

Finally, the positive effect of LHE on social sustainability performance was supported with a confidence interval ranging between 0.714 and 0.859 and the estimated path coefficient of 0.807. The analysis revealed that LHE practices synergistically improve social sustainability performance. This suggested that the respondents believe that the implementation of LHE practices could encourage the outstanding application of HRM principles in universities, outstanding support service, excellent occupational health service, impactful CSR, and beneficial recreational, cultural or sports activities. Meaning to say, the respondents believe that LHE practices could assist the improvement of the overall social sustainability performance and driving it to be more outstanding. The outcome of the present study supports some previous studies, such as Mason-Jones et al. (2000), Moreira et al. (2010), and Womack et al. (1990) which agreed that the concept of lean affects social sustainability performance. According to Moreira et al. (2010), it is insufficient for institutions to achieve their performance; they must also manage their business conscientiously, and to be aware of the impact of their activities on society.

## 6. Conclusion and Implications

To conclude, this study provided empirical evidence that LHE practices contribute positively to sustainability performance in term of economic, environmental, institutional, and social. It implies that to enhance sustainability performance, the HEIs could exert more

efforts on implementing LHE practices within the institutions. This study contributes to the body of knowledge in bridging the gap of the lack of study in the HEIs context focusing on the effect of LHE towards sustainability performance in term of economic, environment, institutional and social as it is considered a new idea, especially in the Malaysian HEIs. This paper also contributes to the practitioners, such as policymakers of HEIs through providing the areas that enable them to survive and thrive and to decide whether to invest in these areas or not (Doman Mark, 2011). More importantly, this study is potential to contribute by providing the causes of the high operating costs, which are found to be wasted while proposing the methods that enable HEIs to eliminate the waste and reduce the operating costs.

## 7. Limitation and Suggestion for Future Research

While this study provides several contributions practically and theoretically, some limitations should be highlighted, which in turn may provide opportunities for upcoming studies. The first limitation is related to the context of the study, which focused on a single technical university in Malaysia. Even though the data were collected from different faculties and centers, the implementations of LHE concepts in each faculty and center closely resemble with each other as they are still under the same umbrella. The future studies should focus on multiple institutions, which can provide a more unobstructed view related to LHE implementation and its implications on the sustainability of Malaysian HEIs. Second, the sample of this study consisted of 88 academicians from a university, which could be considered small. Even though the data were analyzed by using SmartPLS, which is robust and effectively able to address the issue of sample size, future study should consider larger sample size, which will help to generate more convincing results. Third, this study is a cross-sectional study in which the data were collected once and represented at one point in time. As discussed in the literature, lean management is a long-term initiative and requires a long-term commitment (Vamsi Krishna Jasti & Kodali, 2014), and their benefits sometimes cannot be realized in the short term. Given that, the effect of lean university principles on economic, environmental, institutional, and social sustainability performance can be analyzed relative to the time of their implementations. In other words, a longitudinal study would be essential to accurately examine how LHE principles leverage the institutions' sustainability.

## Acknowledgment

We want to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2<sup>nd</sup> Conference on Governance and Integrity 2019.

## Appendix A: Measurement Items

| Construct | Code | Item  | Literature Support                                   | Outer loading | AVE   | CR    |
|-----------|------|---|--|---------------|-------|-------|
| BINQ      | BIQ1 | In general, our employees have high-quality awareness                             | Ahlstrom (2004); Malmbrandt and Åhlström (2013)      | 0.850         | 0.704 | 0.922 |
|           | BIQ2 | We implement methods of assuring quality in work without having to control.       |  | 0.722         |       |       |
|           | BIQ3 | Most areas are actively working to ensure built-in quality.                       |  | 0.921         |       |       |
|           | BIQ4 | Employees control quality themselves before finishing a job.                      |  | 0.846         |       |       |
|           | BIQ5 | Work tasks have been specifically designed to assure that quality is built-in     |  | 0.844         |       |       |
| LBW       | BW1  | We have proactive planning to balance workloads among the employees               | Apte and Goh (2004); Malmbrandt and Åhlström (2013)  | 0.895         | 0.681 | 0.892 |
|           | BW2  | Our employees' workloads are relatively fixed from time to time.                  |  | 0.932         |       |       |
|           | BW3  | We emphasize a more accurate forecast to avoid overload in activities             |  | 0.866         |       |       |
|           | BW4  | We emphasize to equate workloads on each employee                                 |  | 0.551         |       |       |
| CIMP      | CI1  | All employees actively participate in process improvement where they are part of  | Malmbrandt and Åhlström (2013); Womack et al. (1990) | 0.902         | 0.850 | 0.958 |
|           | CI2  | Continuous improvement is part of everyday work for all employees                 |  | 0.938         |       |       |
|           | CI3  | Employees are proficient in problem-solving techniques for continuous improvement |  | 0.925         |       |       |

| Construct | Code | Item   | Literature Support  | Outer loading | AVE   | CR    |
|-----------|------|--|---|---------------|-------|-------|
|           | CI4  | We have clear focuses for continuous improvement   |   | 0.921         |       |       |
| MFE       | ME1  | If an employee has no/fewer jobs, she/he can do other works within the same department/division            | Bowen and Youngdahl (1998); Malmbrandt and Åhlström (2013)                          | 0.716         | 0.660 | 0.885 |
|           | ME2  | If one employee is absent, another employee can take the same responsibilities                             |   | 0.764         |       |       |
|           | ME3  | Our employees are capable of performing several different jobs   |   | 0.912         |       |       |
|           | ME4  | Our staff are cross-trained in order to be able to perform several different jobs                          |   | 0.843         |       |       |
| PULL      | PS1  | Most of the operations in our university are performed based upon specific needs                           | Malmbrandt and Åhlström (2013); Radnor (2010)                                       | 0.819         | 0.821 | 0.958 |
|           | PS2  | We do a particular job as necessary, no more and no less   |   | 0.956         |       |       |
|           | PS3  | Each step in the chain of processes is aware of the status of the previous and next step of the operations |   | 0.946         |       |       |
|           | PS4  | Each step has a signal for when to start working   |   | 0.962         |       |       |
|           | PS5  | We do a particular job only when requested for by its users  |   | 0.838         |       |       |
| WID       | WI1  | We conducted value stream mapping to identify non-value-added activities at our university                 | Malmbrandt and Åhlström (2013); Stentoft Arlbjørn, Vagn Freytag, and de Haas (2011) | 0.915         | 0.830 | 0.961 |
|           | WI2  | Non-value-added activities are identified based on recurring internal problems                             |   | 0.891         |       |       |
|           | WI3  | Non-value-added activities are identified based on the customer perspective                                |   | 0.941         |       |       |
|           | WI4  | Process maps are visualized in the workplace   |   | 0.910         |       |       |
|           | WI5  | Process maps are updated regularly   |   | 0.898         |       |       |
| WSTD      | WS1  | We use formal work standards in most of the work areas   | Malmbrandt and Åhlström (2013); Papadopoulos, Radnor, and Merali (2011)             | 0.913         | 0.829 | 0.951 |



| Construct | Code  | Item   | Literature Support                          | Outer loading | AVE   | CR    |
|-----------|-------|--|---|---------------|-------|-------|
|           | WS2   | We have explicit, detailed and written standards for most of the jobs                      |   | 0.887         |       |       |
|           | WS3   | Our work standards are continuously challenged and updated                                 |   | 0.915         |       |       |
|           | WS4   | We standardize the works to reduce works' processing times                                 |   | 0.928         |       |       |
| ECSP      | ECSP1 | Overall return on investment has increased   | Aleixo et al. (2018a); Lozano et al. (2015) | 0.937         | 0.843 | 0.955 |
|           | ECSP2 | Energy efficiency has increased  |   | 0.936         |       |       |
|           | ECSP3 | Operational costs of our university have reduced   |   | 0.899         |       |       |
|           | ECSP4 | Overall financial performance of our university has been outstanding                       |   | 0.898         |       |       |
| ENSP      | ENSP1 | Water consumption has significantly reduced  | Aleixo et al. (2018a); Lozano et al. (2015) | 0.801         | 0.753 | 0.938 |
|           | ENSP2 | The use of electricity has significantly reduced   |   | 0.892         |       |       |
|           | ENSP3 | Total fuel consumption used in transportation has significantly reduced                    |   | 0.896         |       |       |
|           | ENSP4 | Solid waste disposals have significantly reduced   |   | 0.915         |       |       |
|           | ENSP5 | The number of energy efficient equipment has increased                                     |   | 0.830         |       |       |
| ISP       | ISP1  | The number of researches to promote campus sustainability has increased                    | Aleixo et al. (2018a); Lozano (2011)        | 0.907         | 0.808 | 0.955 |
|           | ISP2  | Level of stakeholders' understanding of the sustainability issues has increased            |   | 0.893         |       |       |
|           | ISP3  | The number of R & D projects on university's sustainable development has increased         |   | 0.928         |       |       |
|           | ISP4  | Participations of our staff in on-campus sustainable development activities have increased |   | 0.856         |       |       |
|           | ISP5  | Overall institutional sustainability performance of our university has been outstanding    |   | 0.908         |       |       |

| Construct | Code | Item  | Literature Support                   | Outer loading | AVE   | CR    |
|-----------|------|---|--------------------------------------|---------------|-------|-------|
| SSP       | SSP1 | Practices of human resource management in our university have been outstanding            | Aleixo et al. (2018a); Lozano (2011) | 0.866         | 0.772 | 0.944 |
|           | SSP2 | Student residence services have been outstanding  |                                      | 0.902         |       |       |
|           | SSP3 | Our occupational health service has been outstanding                                      |                                      | 0.900         |       |       |
|           | SSP4 | Recreational, cultural or sports activities (e.g., sports events) were done more frequent |                                      | 0.853         |       |       |
|           | SSP5 | Corporate social responsibility (CSR)-related activities have done frequently             |                                      | 0.872         |       |       |

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## Conference Paper

# Learning Factory Concept and Development at Faculty of Industrial Management, Universiti Malaysia Pahang

Mohd Ghazali Maarof, Gusman Nawanir, and Muhammad Fakhru Yusuf

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

One of the key resources for the organization to sustain in the competitive business world is the employee's competencies. Current business environment requires employees who are competent to adapt to ever-changing the business environment as a result of globalization and changes in customer's requirement. The current teaching and training methods used in the universities is lacking a continuous delivery of competencies, especially in manufacturing education. One of the approaches that are becoming popular in developing student's competencies is through the application of the learning factory concept. A learning factory represents a simulation of a real factory environment where students can gain hands-on the learning experience by conducting various projects. This paper will, therefore, present the process of setting up a learning factory and discuss how the learning factory can be used to support the teaching and learning process in a public technical university. This study was performed at the Faculty of Industrial Management, Universiti Malaysia Pahang. The purpose of the development of such a learning factory is to enable the students to attained hands-on experience on the concepts they have learned during class lecture and see how it can be applied in the real world.

**Keywords:** learning factory, experiential learning, lean management, transformation, globalization.

Corresponding Author:  
Mohd Ghazali Maarof  
mohdghazali@ump.edu.my

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

One of the key resources for firms to sustain in this competitive business environment is the employee's competency. This is due to the rapid changes in technological advancement, as a result of globalization and changing customer's demand. These changes have significantly impacted the nature of how to work in the industry. For instance, the manufacturing industry landscape, which used to be predominantly characterized by manual labor operation, has gradually transformed into more automated processes over the past several decades. This transformation of manufacturing technology has demanded a more effective competency development approaches to help firms acquire the required





human capital needed to work in the industry. University students have been trained with the knowledge to help them ready to face the challenges in the industry. This has allowed the graduates to apply the knowledge they have gained in the university to solve the industrial issues is very crucial. However, many of the current teaching and training methods used in the universities lack a continuous delivery of competencies especially in the manufacturing education (Tether, B., Mina, A., Consoli, D., Gagliardi, D., 2005). Cachay J, Wennemer J, Abele E, Tenberg R, (2012) in their studies have found that many of the universities are still using the traditional classroom method such as pictures, videos, and case study to teach students about the manufacturing environment. The students have very little exposed when it comes to the hands-on learning experience since many of the activities are done in the classroom. However, for students to be a capable and competent practitioner, an effective knowledge transfer method which can expose the students to the current and future competencies is required. However, to prepare the students with these kind of skills, the universities will need to match the education system with the competencies that are required by the industry (Abele, E., Metternich, J., Tischa, M., Chryssolouris, G., Sihnc, W., ElMaraghy, H., Hummele, V., Ranz, F., 2015). One of the approaches that are becoming popular in the development of student's competencies, especially in universities, is through the application of the learning factory concept. Therefore, the objectives of this study are to understand the following issues:

1. The setting up of a learning factory in a public technical university in Malaysia
2. How can the learning factory be used to support the teaching and learning process in a public technical university in Malaysia?

## 2. Literature Review

The economic growth, especially during this globalization era, is challenged by a lack of skilled and qualified workforce to work in the industry. There is a mismatched between the qualification of the available workforce and the changes that had happened in the industry. Universities should, therefore, play a bigger role to close these gaps so that the students that they produce will be ready for the job market (Khalid, N., Abd Hamid, N.A., Sailin, R., Othman, N., Awang, A.H., Mat Nor, M.F., 2014). However, many young graduates lack important competencies such as creative skill as well as communications and teamwork (Matt, D. T., Rauch, E., & Dallasega, P., 2014). The students might have been trained in the right technical knowledge, however, majority of them does not

possess the soft skills required by the industry (Nazron, M.A., Lim, B. & Janice L.H., 2017) such as lack of decision making and work planning skills as perceived by the Malaysian employers (Agus, A., Awang, A.H., Yussof, I. & Mohamed Makhbul, K.M., 2011). This poor soft skill among university graduates has been identified to be one of the key factors that have affected the graduate employability in Malaysia (Hanapi, Z., & Nordin, M. S., 2014). Furthermore, the students were also found to be lacked practical experience especially those involving the application of the technical know-how (Khalid, N., Hamid, N. A. A., Sailin, R., Othman, N., Awang, A. H., & Nor, M. F. M., 2014). According to a study by Abele, E., Metternich, J., & Tisch, M. (2018), learning factories can be used to enhance student's technical knowledge as well as to develop social and personal competencies such as team building, leadership, and communication. However, a comprehensive scientific study on how learning factory can be used to address those challenges is still lacking. There are various definitions given in defining the term "Learning Factory." However, within the CIRP Collaborative Working Group (CWG), a learning factory should have the following key characteristics (Abele et al., 2015):

- **Purpose:** teaching and training and/or research
- **Process:** that are authentic + multi-stage + technical and organizational
- **Setting:** that is changeable + real or virtual
- **Product:** physical or service
- **Didactics concept:** based on formal and informal learning enabled by own actions of the trainees in an on-site or remote learning approach.
- **Operating Model:** sustainable plan allows the ongoing operation (desired)

Declining product lifecycle, a rising number of product variants, globalization and an increased frequency of job rotation has required the need to increase competency building to ensure the sustained growth of the manufacturing industry (Abele, 2016). Thus, a new shift is needed both in education content and didactical approaches to respond to the new challenges in the manufacturing industry. According to Chrysosouris, G., Mavrikios, D., & Mourtzis, D. (2013), a learning factory presents a promising approach towards a shift in the learning approach to increase competency building. The theory of Constructivism by Piaget, J. (1964) has had a significant impact on the way education has evolved. Piaget's Constructivism theory suggested that educators should allow ample space for the students to engage in concrete experiences and explore the world around them to develop their cognitive and social skills. Through the process of accommodating and assimilating their internal representation of the world with their

real experience, the students will learn to construct new knowledge. This theory defines the role of the instructors is to support the learner by providing guidelines and creates the environment for the learners to arrive at his or her conclusions. Thus, the learning environment should also be designed in such a way it will support and challenge the learner's thinking in becoming an effective thinker. Learners need to be constantly challenged with tasks that require skills and knowledge that is beyond their current level of mastery. Learners will make their inferences or discoveries without someone need to told them what will happen next. The learning experience should be open and free enough to allow the learners to discover, enjoy, interact, and arrive at their conclusions.

### 3. Methodology

The primary aim of this research is to evolve a didactic concept in the areas of Supply Chain and Operation Management using a learning factory approach. The aim is to prepare the students with the competencies that are required by the Industry. This study was performed at the Faculty of Industrial Management, Universiti Malaysia Pahang. The Lean Management subject has been chosen to be the pilot study subject for this learning factory project. A learning factory represent a simulation of a real factory through specialized equipment with a learning environment where students can gain hands-on learning experience by conducting various projects Veza, I., Gjeldum, N., Mladineo, M., Celar, S., Peko, I., Cotic, M.,... & Stojkic, Z. (2017). This means that the processes and technologies available in the learning factory are characterized by a changeable multilink value chains which enable a direct approach to different phases of product lifecycle process as a way to simulate a reality-conform production environment (Jäger, A., Mayrhofer, W., Kuhlant, P., Matyas, K., Sihm, W., 2013)

### 4. Results

Realizing the needs for a hands-on activity to be embedded in the curriculum, the Faculty of Industrial Management, Universiti Malaysia Pahang has started a project to build a learning factory in 2016. The learning factory was later named as "FIM learning factory" which has started its operation in October 2017 after a year of planning, designing and constructing the factory. The initial size of the learning factory is 588-meter square and located in the Gambang campus. The learning factory consists of a receiving warehouse, an assembly line, a Quality Control section, an outgoing warehouse, and

packing/logistic processes which simulate a continuous flow of a hand dryer assembly processes. The learning factory aims at introducing the Faculty of Industrial Management undergraduate's students about the broad spectrum of manufacturing supply chain and operation management processes from part receiving, material storage, assembly process, quality control, packing and delivery of good. Figure 1 shows the diversity of activities that take place in the learning factory.



**Figure 1:** Supply Chain and Operation Management learning factory process flow.

One of the objectives of creating this learning factory is to create a simulated business environment where young students will have the opportunity to expose themselves and solve a real manufacturing problem. To prepare the students with the learning process, the assembly line was set-up based on the following criteria:

- Flexible production,
- Changeable, cellular system,
- Reconfigurable

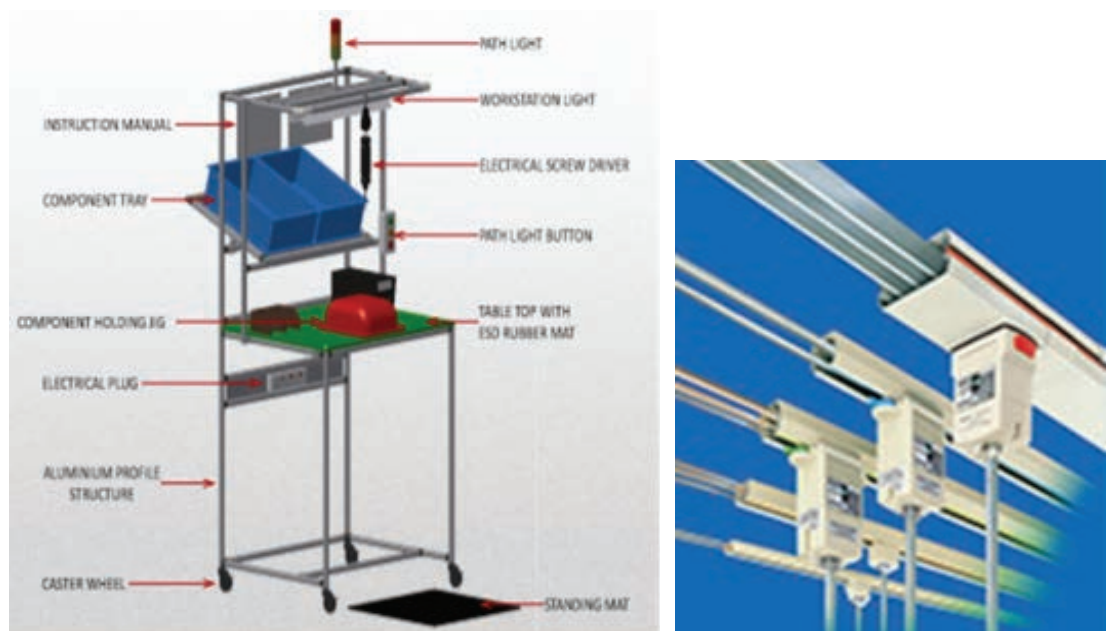
Such criteria of a learning factory will allow the students to reconfigure the assembly process based on a task being assigned, such as continuous improvement and optimization study. Figure 2 shows photos of how the assembly line was set up

To expose the students with the concept of flexible production, changeable, cellular system, and reconfigurable production system, the following equipment was installed in the learning factory: A cellular changeable production system, changeable workstations,



**Figure 2:** Photo of the Learning Factory Assembly Line.

and flexible overhead wiring system. Figure 3 shows various equipment installed in the learning factory



**Figure 3:** Various Equipment Installed in the Learning Factory.

The workstations were made of a highly flexible plug-in system of tabular standard aluminum profile frames. Through this concept, the workstation can be easily mounted

or knocked down very quickly, thus, allowing changeability. Lockable wheels were installed to guarantee a high level of mobility to the workstation, especially when relay out is required. To illustrate the one-piece flow concepts, the workstations were arranged in a linear way next to one another with the sub-assembly process connected directly to the main assembly line.

The vision of the FIM learning factory is to create a place where the university and industry can share needs, expectations, and work on collaborative projects. The mission is to bring the real industry world into the classroom by providing practical hands-on experience to the university students and help transfer the latest research to the industry through a collaborative project. There are four objectives that have been identified:

- Students' competency development: To provide an experiential learning process for students based on real industry environment.
- Industry engagement: To work closely with industry partners in solving real industry problems
- Product Commercialization: To generate new income for the faculty/ university
- Innovative platform: To create a platform for students/researchers to develop innovative solutions/products

The idea to develop the learning factory started in September 2016. To create a hands-on learning process, an assembly line for hand dryer assembly process which comprises of both manual and semi-automated workstations has been proposed. After benchmarking a few related industries within the Malaysian, a design concept was agreed, and the construction of the learning factory began in early 2017 and completed by September 2017. It was ready to be used in October 2017. Figure 4 shows the milestone of the learning factory establishment.

Lean management subject has been chosen as the pilot study for the learning factory project. Through the activities prepared in learning factory, the students have the chance to experience the whole supply chain process from parts receiving process until finish goods warehouse. Fifty-five different parts need to be assembled to complete one full product. Students were assigned to work on various lean management activities such as designing layout planning for the assembly process, develop a balanced assembly line, identify wastes in the lines, conduct kaizen activities and develop a pull system using Kanban. To help the students with the design, the faculty has provided the students with the solid work software to allow product development using 2D and 3D drawings models. A 3D printer was also available to enable the students to come out with product



Figure 4: Milestone of the Learning Factory Establishment.

realization based on the design made using the solid work software. Figure 5 shows the framework used to conduct the activities in the learning factory

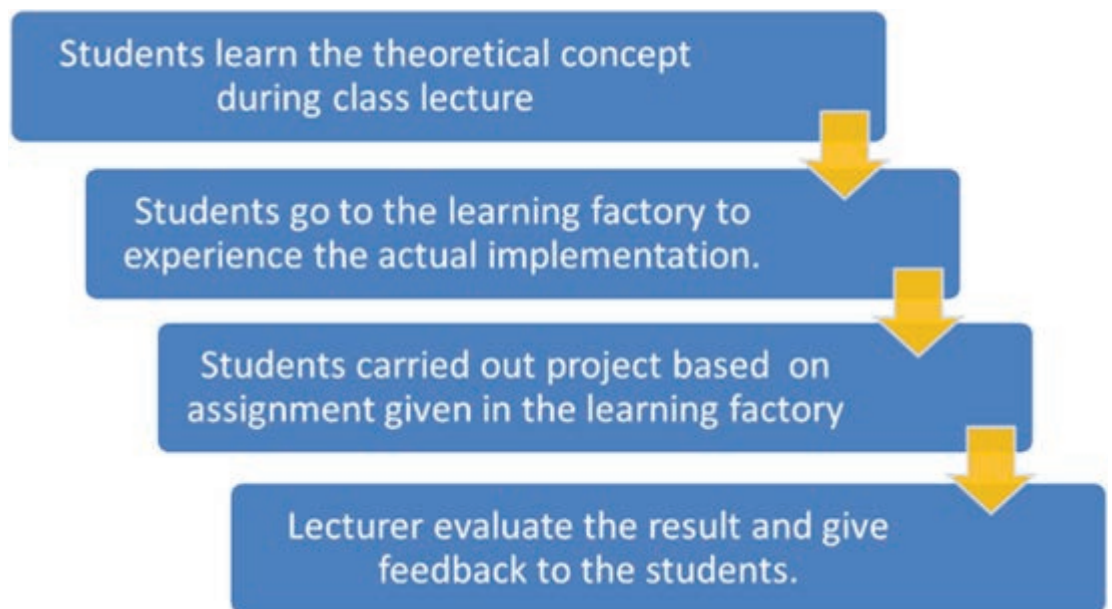


Figure 5: Teaching and Learning Framework.

## 5. Conclusion and Implications

In this paper, the development of a supply chain and operation management learning factory at Faculty of Industrial Management, Universiti Malaysia Pahang has been explained. The purpose of the development of this learning factory is to enable students

at the faculty of Industrial Management to attained hands-on experience to the concepts they have learned during a class lecture. By this way, the students can see how it can be applied in the real world through the use of a simulated factory called a learning factory. A framework on how the learning factory has been used in the curriculum has also been explained in this paper. Lean Management course has been selected to be in the pilot study. Future study should investigate more details about the impacts of the learning factory towards students learning experience.

## Acknowledgment

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

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**Conference Paper**

# Impact of Mature Corporate Governance on Detective Role of Forensic Accounting: Case of Public Listed Companies in Oman

Ali Rehman<sup>1</sup> and Fathyah Hashim<sup>2</sup>

<sup>1</sup>Internal Audit Department, A'Sharqiyah University, Ibra, 400, Oman

<sup>2</sup>Graduate School of Business, Universiti Sains Malaysia, 11800 Penang, Malaysia

## Abstract

Organizational fraud is transpiring despite the availability of controls, regulatory directives, and governance guidelines. These controls, directives, and guidelines are only utilized as a compliance checkbox instead of being utilized to identify the control deficiencies and also to identify the maturity of corporate governance. Forensic accounting detective role is an activity which can be available within an organization that can be impacted and reformed by the mature corporate governance which can eventually assist organizations in the reduction of fraud and its related activities. Three major constituents of mature corporate governance are the board of directors, audit and risk committee, and senior management or executive management. All three significant constituents are vital to the achievement of organizational objectives and providing satisfaction to shareholders. With the utilization of agency theory, this paper intends to identify the relationship between mature corporate governance and detective role of forensic accounting within public listed companies situated in Sultanate of Oman. The descriptive cross-sectional survey has been conducted with the utilization of quantitative method, and data has been analyzed by utilization of PLS-SEM. Result suggests that mature corporate governance has a significant direct impact on forensic accounting's detective role. In order to mitigate or eliminate fraud within organizations, it is highly recommended that organizations should have in-house forensic accounting detective role which can be strengthened with the mature corporate governance.

**Keywords:** mature corporate governance, good corporate governance, forensic accounting, detective role of forensic accounting.

Corresponding Author:

Fathyah Hashim  
 fathashim@usm.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Organizations that suffered from fraud, such as Enron, WorldCom, Satyam, and Oman National Gas, provided different services and operated in different modes of sectors; however, these organizations have one thing in common; immature corporate governance (Pedneault, Rudewicz & Silverstone, 2012; Pretorius, 2015) and non-availability of forensic accounting as in-house activity. Several works of literature are available

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which develops an emphasis on having corporate governance or good corporate governance and improving organizational internal assurance activities, but the literature which demonstrates the necessity of having mature corporate governance (MCG) and forensic accounting as in-house or internal assurance activity (Massie, 2012; Rehman & Hashim, 2018) is not enough. With the high occurrences of fraud and its related activities, innovation is necessitated in the field of corporate governance and detection of fraud. This innovation can be termed as MCG and forensic accounting detective role (FAD) as part of governance management activities (Vinita, Joe & Lee, 2008; Singleton & Singleton, 2010)

In the current business environment, corporate governance is utilized as a compliance checkbox (Zhu, 2016) instead of being measured for its maturity (Wilkinson, 2014). It is a well-known fact that organizations cannot exist without the availability of corporate governance; however, it is the maturity of corporate governance which defines the organization and not the organizational maturity that defines the corporate governance (O'Connor & Byrne, 2015). There are several instances available where newly formed organizations demonstrate the achievement of MCG, whereas more than decade-old organizations fail to achieve it. MCG assists organizations in achieving their goals and also identifies potential gaps between actual and planned performance. MCG obliges organizations to develop and implement strategies and policies which are targeted towards the realization of organizational objectives, mission, and vision.

Several committees and ordinances have been established after the prevalence of fraud. Few of the renowned committees and ordinances are Sarbanes-Oxley Act, Public Companies Accounting Oversight Board, and Committee of Sponsoring Organizations. However, fraud amounts and instances of fraud are increasing every year (ACFE, 2016; ACFE, 2014; ACFE, 2012). These ever-increasing frauds require services of an anti-fraud expert as conventional auditors denied the role of detecting fraud and label it as managements' responsibility (AICPA, 2013). This anti-fraud expert can be termed as FAD as they not only detect the fraud but also develop the controls so that similar or related event can be controlled in the future.

At the moment, FAD is considered as outside party which is called upon as and when required and only utilized as litigation support, divorce claim verification, insurance claim verification and expert witness (Singleton & Singleton, 2010; Charles, Ramona, & Suzanne, 2009). By utilization of FAD as an activity within the governance management system, will not only strengthen the controls but will also provide satisfaction to shareholders. Governance management is those who are directly responsible for the governance of organization such as BOD, ARC, SC, and the internal audit department

(CMA, 2016). Agency theory defines the relationship where shareholders (principal) expect the agents (senior management) to act and make decisions in the principal's interest. However, the problem arises when the agent makes a decision which is not in favor of shareholders and creates an agency problem (Afza & Nazir, 2014; Abdullah & Valentine, 2009). However, the inclusion of FAD in governance management system can eliminate or reduce the agency problems and related agency cost.

In Oman, the concept of corporate governance is relatively new. Codes of corporate governance are issued in 2016, whereas previous codes were issued in 2002 (Yılmaz, 2018). These newly developed codes oblige organizations to have basic requirements of corporate governance such as selecting of the board of directors (BOD, establishing audit and risk committee (ARC) and appointment and basic duties of senior management (SM). However, these codes do not define the composition and composure of BOD and ARC members, effectiveness of their meetings, and their impact on strategic planning. Similarly, the role of SM is also defined in a manner which fulfills the mere existence of SM but does not define the role which fulfills organizational commitment (Baatwah, Salleh, & Ahmad, 2015). Moreover, studies related to corporate governance in Oman are very few, and there are no guidelines available which can demonstrate that applied corporate governance is mature or immature. Following Bhasin (2013), no country is safe from fraud and fraudsters, and organizations in Oman also suffered from fraud and fraud-related activities. Few of the reported fraud cases in Oman can be categorized as financial frauds and bribery and ranges from USD 39 million to 2.9 million pertaining to various sectors of business (Reuters, 2014; Reuters, 2011). This study proposes that MCG is an independent variable, and FAD is the dependent variable. MCG assists organizations in the achievement of goals, strategies, objectives, and accomplishment of the true meaning of corporate governance (Rehman & Hashim, 2018). This study highlights the importance of FAD not only as fraud finder but as part of the governance management system, which can be directly impacted by MCG. This study also attempts to combine and incorporate relevant empirical research and literature to extend the intended potentials of MCG on FAD, particularly in public listed companies in Oman. Corporate governance is dependable and impacted upon by many factors (Wilkinson & Plant, 2012); however, this study is aiming towards the identification of mature corporate governance impact over a fraud detecting activity. Therefore, this study is unique in its way by testing the impact and relationship of MCG, which is a system on FAD, which is an activity and both MCG and FAD can be available within the organization.

## 2. Literature Review

This section reviews related and relevant literature on the theoretical and empirical research related to MCG and FAD. This section discusses the definition, concepts, and prior studies. Firstly, there is a review of existing literature in the field of MCG, which provides an understanding of the foundation and its related concepts. Moreover, this chapter also identifies gaps in the literature. This chapter also presents the framework for this study.

### 2.1. Mature corporate governance

There are several works of literature available which term corporate governance as good, immature, or poor; however, very few literatures is available, which demonstrates the measurement of corporate governance. It is the measurement of corporate governance, which defines that corporate governance is mature or immature. This measurement also defines where the organization stands and where they want to be and also identifies the planning gaps. In order to fully understand the concept of MCG, it is necessary to explain corporate governance, good corporate governance and scales require for the measurement of corporate governance.

#### 2.1.1. Corporate governance

Corporate governance is a system which defines and directs organizational policies, strategies, goals, and objectives. Corporate governance can also be defined as a system which directs and controls activities with positive business perception and integrity (Baghel & Yadav, 2009). There could be plenty of definitions for corporate governance; however, all will be defining the same purpose (Fernando, 2009). Corporate governance itself cannot function and is dependable upon its governance management. Governance management is those who are directly responsible for the governance of organization such as BOD, ARC, SM, and internal audit (Hermanson & Rama, 2016). Nevertheless, corporate governance offers a platform, via developed codes, where organizations are obliged to provide information and to act and follow local laws and regulation. It is up to the organization that how they utilize corporate governance such as either utilize as a compliance checkbox (Zhu, 2016) or measure it towards its maturity (Rehman & Hashim, 2018).

Organizations which demonstrate good corporate governance provide better results for their shareholders and can attract more potential business (Pintea & Fulop, 2015). Similarly and keeping the same concept; organizations which provide poor corporate governance end up in losses and face difficulty towards attracting new businesses and customers. It can be asserted that corporate governance cannot guarantee the good or poor performance of the organization, but it can develop a culture of integrity, controls, and compliances by impacting activities within the organization.

### **2.1.2. Good corporate governance**

Good corporate governance guarantees sustainable, enduring growth and development. Essential requirement towards the attainment of good corporate governance includes determined BOD and ARC, accurate and reliable financial reporting, protecting the interest of minority shareholders and implementation of laws and regulations. Good corporate governance consents organizations to realize their optimum efficiency and effectiveness, mitigate fraud and exploitation of power and provide a system of responsibility and accountability (Homayara, Md. Jahangir, Saeed, & Sawlat, 2008; Hashim, Mahadi & Amran, 2015).

It is worth mentioning that corporate governance does not follow the life cycle approach and as mentioned earlier; it is entirely dependent upon the organization that how they want to utilize corporate governance and to consider it as good or poor corporate governance. Oso and Semiu (2012) provide the following principle in Table 1 for good corporate governance:

As mentioned earlier, corporate governance can be a compliance checkbox, or it can be measured to identify its maturity and its impact over the organization. Good corporate governance is a culture and provides an environment of stability, obligation, accountability, fairness, comprehensibility, and effectiveness. However, the measurement of good corporate governance is required to ensure that a positive and honest relationship exists between the organization and its stakeholders (Kocmanova & Simberova, 2012).

### **2.1.3. Attributes of mature corporate governance**

It is the maturity of the corporate governance within the organization which needs to be identified enabling the evaluation of the good corporate governance as good corporate governance does not offer organized roadmap towards implementation and also do not define further measurable steps (Massie, 2012; Bramont, 2012). Organizations are

TABLE 1: Principles of Good Corporate Governance.

| Principles  | Description   |
|---|---|
| Shareholders rights and equitable treatment       | Shareholders should have fundamental rights. These rights should be properly articulated and should be available in articles of association and organizations website.<br>All shareholders should be treated equally irrespective of the number of shares held by them. |
| Stakeholders' interest                            | Protection of stakeholders' interest should be available in the organization's policies and should be properly approved.  |
| Role and responsibility of the board of directors | The board should be formed with roles and responsibilities. Board should have expertise and knowledge related to business, accounting and auditing.   |
| Ethical behavior and integrity                    | This is the essence of good corporate governance. Directors and executives of organizations should perform with ethics and integrity. They should avoid conflict of interest and perform the duty of care.  |
| Disclosure and transparency                       | Corporate governance requires that proper disclosures are made in the financial statements and transparency is followed in all transactions. All related parties transactions should be properly disclosed along with board resolutions.                                |
| <b>Source:</b> Oso and Semiu (2012)               |   |

obliged to follow and develop sound principles of corporate governance as it is the requirement of stakeholders, regulators, and it is also the necessity to avoid organizations' failures. In order to define what precisely organizational governance necessitates and how organizations should implement and monitor these sound governance principles has led towards the establishment of organizational own governance structures, systems, and process towards achievement of organizational MCG (Wilkinson, 2014).

There is no common or defined structure for MCG measurement (Roberta, Sanjai & Brian, 2008; Massie, 2012). MCG is a term available in researches conducted by companies outside of the academic publishing and distribution channels; these are often referred to as "grey literature." These researches are conducted by professionals, audit firms and governmental bodies established for this specific purpose. Furthermore, the trivial focus is provided by academic literature in the field of MCG (Massie, 2012; Wilkinson, 2014; Wilkinson & Plant, 2012; Rehman & Hashim, 2018).

In the absence of MCG, organizations can face complex situations towards conducting assessments related to organizational strategy and necessitated management assurances. Moreover, isolated managements' assurance practices are not only related to national or business culture barriers but also related to the achievement of MCG (Brender, Yzeiraj & Fragniere, 2015). In accordance with O'Connor and Byrne (2015), governance predicts organizational maturity and not organizational maturity predicts governance. In light of this argument, it can be asserted that MCG also defines the maturity of the organization as a whole.

Regulator, which in case of Oman is Capital Market Authority, is also responsible for measuring the governance maturity of organizations allowing them to look further and away from contextual issues of corporate governance and focus on the maturity aspects of the organization (O'Connell, 2016). Regulators might be required by law to perform MCG for organizations, however it is the responsibility of organization to develop and customize framework based on their requirements (Portella, 2014) to measure and achieve MCG as it provides a capability for tracking organizational progress and also provides methodology for establishing criteria for providing relevant, accurate and reliable information on the efficiency of current governance process (Bahrman, Manchanda, Roth & Mendes, 2012). MCG assists in planning, organizing, evaluating, managing and monitoring organizations. Advancement of governance could be jeopardized if MCG is not identified and established (Wilkinson, 2014).

MCG can also be explained as corporate governance indicative system which is based on the core and fundamental areas of responsibility of the BOD, ARC, and SM. MCG assists organizations in identifying their situation on corporate governance by assessing organizational governance capabilities across several constituents (Deloitte, 2010; Allais, Roucoules & Reyes, 2016). MCG as a system can support organizations in better understanding of their actions which can be considered necessary towards efficiency and effectiveness of organizational governance. Following comparison in Table 2 is available between mature and non-mature governance organizations' attributes (Lockhart, 2011):

#### **2.1.4. Measurement of mature corporate governance**

Anything which cannot be measured cannot be improved and controlled (Harpham, Grant, & Thomas, 2002; Berenson, 2016). Keeping a similar notion, corporate governance, or good corporate governance cannot perform well unless it is measured. Measurement of corporate governance eventually leads toward MCG (Rehman & Hashim, 2018). For the measurement of MCG, the following features are considered necessary and presented in Table 3 (Wilkinson, 2014):

In accordance with Table 3, there are three significant attributes towards the measurement of MCG and they can also be considered as major constituents. These constituents are defined in the following sections. Constituents of MCG can also include remuneration and compensation committee (Wilkinson, 2014); however, it is a very new committee (CMA, 2016) and has very minimal impact on the achievement of MCG.



TABLE 2: Comparison between Mature and Non-Mature Governance.

| Non-Mature Governance   | Mature Governance  |
|---|--|
| Non independent and personally-held ownership among family members only   | Independent directors, associated board members and diversified ownership  |
| Non constitutional and statutory arrangement  | Strategies and policies are developed. Minority shareholders rights are protected.   |
| Centrally regulated management with no segregation of duties among management and those charged with governance | Board of Directors manages the governance and proper segregation of duties exists between organizational management and governance management. |
| Intuitive and informal decision making  | Decisions are properly documented, made at board level and are followed up for implementation  |
| Decision and responsibilities are taken at individual levels  | Decision is made as a group  |
| Non-formal meetings and as and when required.   | Board and management meets regularly with agenda being circulated well in advance  |
| Non-recording or minuting meeting minutes   | Meetings are formally conducted and are also minuted.  |
| Only one person and or entirely unified leadership  | Board approved the policies and governance decisions. These are implemented via CEOs.  |
| Un-stable and regular changing strategies   | Formal planning, evaluation and proper control against strategies, plans and objectives  |
| Policies are not approved at appropriate levels and no formal approvals   | Written policies, effective and efficient delegations of authorities and formal procedures   |
| <b>Source:</b> Lockhart (2011)  |  |

TABLE 3: Necessary Features for the Measurement of Mature Corporate Governance.

| Feature                         | Description  |
|---------------------------------|--|
| Attributes                      | Attributes are the features which can be associated with the area of specialization, such as board of directors, audit and risk committee and senior or executive management.  |
| Levels of maturity              | Levels of maturity demonstrate that, where attributes stand. Usually, it ranges from immature to mature.   |
| Criteria                        | Criteria are the narrative form which links attributes with levels of maturity. It describes where organization stands in terms of maturity and also provides gaps analysis towards the potential achievement of MCG |
| <b>Source:</b> Wilkinson (2014) |  |

### 2.1.5. Board of directors

Board of directors (BOD) is the representatives of shareholders (Fernando, 2009). BOD is appointed by the shareholders to run the operations of the organization by developing policies and governance guidelines. BOD is also responsible for providing long term vision and strategy for the organization (Ganesan, Hwa, Jaaffar, & Hashim, 2017). BOD

is required to work closely with the senior management for the implementation of organizational strategies, policies, governance guidelines, and objectives (CMA, 2016; Mohd-Sanusi, Rameli, Omar & Ozawa, 2015).

There is no standard rule for the formation of BOD; however, it is recommended that members of BOD should possess knowledge of finance, business, organizational environment and its competitive environment (Mohd-Sanusi et al., 2015). Formation of BOD directly impacts the fraud that could occur in the organization as there could be many situations arising towards the conflict of interest, biased decisions, and erroneous judgments. Moreover, the majority of BOD members should be independent (Bansal & Sharma, 2016). BOD forms many committees within its members, such as audit and risk committee (ARC) and remuneration committee (CMA, 2016). BOD is required to have its charter or terms of reference, which defines its roles and responsibilities. These charters should be aligned with organizational vision and objectives and should be reviewed regularly (Mohd-Sanusi et al., 2015). Charter of BOD obliges them to work towards the best interest of the organization and also defines their authorities, limitations, and restrictions on decisions (Fernando, 2009).

BOD should not involve themselves in every day's operations of organizations (Leonard, 2010). Meetings of BOD should be convened regularly and with regular intervals. BOD meetings are majorly aimed for the approval of financial statements and also towards decisions on the issues related to organizational strategies (CMA, 2016). Meeting agenda should be informed before the date of the meeting and should be accompanied by the material information (OECD, 2009). All meetings of BOD should be recorded in the shape of minutes, and their decisions should be properly implemented (Bahrman et al., 2012). BOD meetings should be more concentrated for the organizational development, strategy formation, and development of objectives and goals (Bahrman et al., 2012). Decisions related or taken in the BOD meeting should be circulated to all employees as this procedure is essential to support transparency and it also develops trusts among employees (Zakaria, 2012; Mohd-Sanusi et al., 2015).

### **2.1.6. Audit and risk committee**

Audit and risk committee (ARC) is formed from the members of BOD and should comprise of members who possess the knowledge of audit, finance, accounts, and fraud (Bahrman et al., 2012). Majority of ARC members should be independent members and should operate under their own charter or terms of reference (Rehman & Hashim, 2018). ARC is one of the major contributors to the achievement of MCG. ARC ensures

that internal controls are in place and they are implemented properly by SM. Although, internal controls are approved by BOD but it is the duty of ARC to provide their opinion for the implementation of organizational policies and internal controls (OECD, 2009; Bahrman et al., 2012; Wilkinson, 2014; Mohd-Sanusi et al., 2015).

There is no hard and fast rule for the number of members for ARC; however, the minimum number of members should be three (CMA, 2016). Efficiency and effectiveness of ARC are dependent upon the number of meetings (Shir, 2013). The ARC should meet as and when required but is required to meet at least four times a year and should have minimum one separate meeting with the internal auditor and external auditor. ARC meetings should be recorded and minuted. ARC is also required to provide an opinion about the implementation of internal control in the financial statements of the organization (Abbot, Park & Parker, 2000; CMA, 2016).

ARC reduces the element of fraud and assists in the achievement of MCG (Wilkinson, 2014). It is one of the obligations of ARC to discuss internal and external audit findings with SM. These discussions provide support to internal and external auditors and at the same time, obliges SM to implement the recommendations proposed by these auditors (Laux & Laux, 2009). The ARC should ensure that organizational strategies are attainable and risk-free; moreover, the element of fraud is mitigated for the attainment of MCG (Bentley-Goode, Newton & Thompson, 2017)

### 2.1.7. Senior management

Senior management (SM) plays a major role in the implementation of policies which are approved by BOD (Mohd-Sanusi et al., 2015). SM is the major driver for the achievement of good corporate governance which can eventually lead towards the attainment of MCG (Rehman & Hashim, 2018). Corporate governance creates segregation of duties between the SM and BOD. In the past, there were many organizations where chairman BOD and chief executive officer of the company was the same person thus heaving organizations towards fraud and fraudulent activities (Keasey, Thomson & Right, 2012)

BOD appoints SM for the fulfillment of the duties and achievement of organizational vision, mission, goals, and objectives (Korine & Gomez, 2014). SM is a group of people who are directly responsible for the performance of the organization. SM includes chief executive officer, chief operating officer, and chief financial officer. SM should review organizational strategy every three years (Bentley-Goode, Newton & Thompson, 2017) to identify potential gaps between objectives of the organization (Mohd-Sanusi et al., 2015) which can create hindrance in the achievement of MCG.

SM must implement recommendations of ARC, internal auditors, and external auditors. SM should also review the internal controls regularly to identify their applicability and to identify whether they are capable of achieving MCG or they require enhancement. SM develops tone at the top and also develops a culture of honesty and integrity. Furthermore, and in order to avoid fraud and its related activities, SM plays significant role by implementing anti-fraud strategies which are usually provided by forensic accounting (Bhasin, 2013).

## 2.2. Detective role of forensic accounting

The emergence of forensic accounting is because of continuous and rigorous frauds (Leonard, 2010). Forensic accounting can also be categorized as the innovation towards fraud detection and prevention (Vinita, Joe & Lee, 2008). Forensic accounting is classified into two main functions, namely (a) preventive role of forensic accounting and (b) detective role of forensic accounting (FAD). History is filled with events where frauds are occurred due to poor corporate governance and due to the lack of fraud detection activities (Singleton & Singleton, 2010; Siregar & Tenoyo, 2015). Furthermore, it is the FAD that provided the tools and controls to detect fraud in the cases of WorldCom and Enron (Bhasin, 2013). The FAD is an activity that can be available within an organization and as part of governance management. Governance management is entities directly associated with the governance of an organization such as BOD, ARC, SM, and internal auditors (Hermanson & Rama, 2016). It is worth mentioning that regulatory and monitoring auditors (internal auditors) have denied the role for the detection of fraud (AICPA, 2017; IIA 2016; Salem, 2012; Francine, 2018) and FAD is not included in codes of corporate governance developed by many authorities including recent codes issued in Oman by CMA (2016). In this scenario, only organizational management will remain responsible for the detection and mitigation of fraud, but for doing so they require expertise and this expertise can be categorized as a FAD. In the current organizational scenario, FAD is only utilized as litigation expert, divorce settlement expert, insurance claim verifier and is called as and when required (Odelabu, 2016; Adrian, Lawrence & Lee, 2009; Gee, 2014; Nigrini, 2012). Only limited literature is available where FAD is considered as an activity which can impact corporate governance (Enofe, Ekpulu & Ajala, 2015; Siregar & Tenoyo, 2015) however, these literature are again emphasizing on the availability of FAD as the external party and not as part of governance management. FAD assists organizations in setting up internal controls in order to identify the fraud promptly and also assists in mitigating the fraud risks.

FAD assists organizations in developing accounting controls which are based on the instances of actual fraud occurring, therefore, these controls are considered as very useful towards fighting and eliminating fraud (Singleton & Singleton, 2010; Leonard, 2010)

### 2.3. Corporate governance in Oman

Concept of corporate governance in Oman is not very old. New codes of corporate governance are introduced in 2016, whereas previous codes were issued in 2002 (CMA, 2016). In recent years there are several researches available related to the corporate governance in Oman; however, none of the researches is related to the aspect of MCG. Available studies explain the concept of corporate governance in accordance with financial reporting timelines, compliance with accounting standards, relationship of corporate governance with financial performance, comparison of codes between GCC countries and potential challenges faced towards implementation of new codes of corporate governance (Ellen, 2002; Al-Shammari, Brown, & Tarca, 2008; Baydoun, Maguire, Ryan, & Willett, 2013; Shehata, 2015; Baatwah, Salleh, & Ahmad, 2015; Sanyal & Hisam, 2018; Yilmaz, 2018). No studies are found concerning the Omani market regarding how corporate governance can be considered as mature or immature, and FA can be considered as part of the governance management system. There is a total of 115 companies listed in the Muscat Stock Market. With regards to the fraud in Oman, there is no data available demonstrating the number of frauds occurrences, however, following ACFE (2016), there are 6% organizations that suffered fraud losses during 2014 to 2016. There are few other reported fraud incidents available in Table 4, which demonstrate following about the fraud losses in Oman:

TABLE 4: Fraud Cases Reported in Oman.

| Name of Organization | Nature of Fraud | Amount of Fraud | Source          |
|----------------------|-----------------|-----------------|-----------------|
| Bank Muscat          | Theft           | USD 39 million  | Reuters (2013)  |
| Oman Oil Company     | Corruption      | USD 8 million   | Reuters (2014a) |
| Topaz Company        | Bribery         | USD 2.9 million | Reuters (2011)  |

In accordance with Table 4, fraud cases belong to various organizations and have different nature of fraud; however, all are impacting the organizations' repute, distorting the confidence of shareholders and also demonstrates the immature corporate governance. FAD provides controls and tools that can detect fraud promptly. FAD also provides lesson learned reports which provide future fraud mitigation controls. The FAD is impacted by the policies which are approved by BOD and implemented by

SM. In a current business scenario, FAD is not reporting to ARC; however, if FAD is considered as part of the governance management system, then ARC can play a significant role towards its independence, discussion of reports and implementation of recommendations.

## 2.4. Underlying Theory

Theory applicable and explaining the relationship between MCG and FAD is agency theory. This theory can be defined as shareholders delegating some responsibilities to a team of experts while keeping in mind that they will perform best for the success of their organizations while resolving the conflict of interest and other related problems (Afza & Nazir, 2014). Agent or agency is hired by one or more persons called the principals. Agents act under a contract and are compensated by the principal to achieve desired outcomes for the principal. Because the agent is acting on behalf of the principal, the principal gives away decision-making authority to the agent. Hired agents such as SM, BOD, and ARC are directly responsible for the implementation of corporate governance and the achievement of mature corporate governance (Bahrman et al., 2012). Agents are responsible for the delivery of results and safeguarding the interest of shareholders, and this interest can only be protected by achieving MCG and utilization of means which can be categorized as a FAD. Till date, there is no specific role for FAD defined as an agent, although FAD completely qualifies the criteria of becoming an agent and can provide services to the principal. Moreover, FAD can also protect agency cost and agency conflict by eliminating financial statement fraud and occupational fraud. MCG impacts FAD in shape of approved policies, processes, and by allowing FAD to become part of the governance management system.

## 3. Methodology

To identify the relationship between MCG and FAD, quantitative method of research is applied with a descriptive cross-sectional survey design. Public listed companies in Oman are utilized as a unit of analysis. Five-point Likert scale logic was being used for this study ranging from strongly disagree to agree strongly. Questions were distributed into different sections of BOD, ARC, SM, and FAD. Each section explained the definition and purpose of the research. Furthermore, and in agreement with the study of Meeran, Amjad, Ansari, Ansari, and Latif (2018), a census sampling technique is adopted since the population is small, so the contribution of all 115 companies was

taken into consideration. Questions for this research are adopted and adapted from previous studies and are presented in Table 5. These questions are utilized for the measurement of MCG and FAD. It is recommended to take questionnaires as adopting or adapting as it assists in linking the studies to all other related studies and researches and also enhances the effectiveness and efficiency for the researcher (Korb, 2016). Questions in Table 5 are comprehensive and cover all the significant elements of MCG. Organizations cannot exist with the basic requirements of corporate governance (Butt, 2012); however, it is the effectiveness of BOD, ARC, and SM which enhances the corporate governance towards the attainment of MCG. Effectiveness can be achieved with well-defined structures, efficient meetings whose decisions are taken based on the well-informed reporting, and decisions are properly implemented. Terms of reference or charter also play a vital role in the efficiency and effectiveness of BOD. Questions which are related to FAD dealt with the accounting and internal control system specifically linked with fraud detection. Moreover, respondents are asked to identify whether FAD can only be utilized for uncovering diverted and unfocused fraudulent practices. These questions assist in identifying the organizational viewpoint about FAD and its related impact towards shaping the accounting and internal controls.

TABLE 5: Adapted and Adopted Questions.

| Question for Study  | Adopt/<br>Adapt | Original Question   | Source                                      |
|---|-----------------|---|---|
| <b>Mature Corporate Governance – Board of Directors</b>   |                 |   |   |
| In my company, there is a defined management structure supported by organization charts for all roles.  | Adopt           |   | Mohd-Sanusi, Rameli, Omar, and Ozawa (2015) |
| My company's Board of Directors meetings are held regularly and minuted, with actions noted in accordance with new codes of corporate governance issued by Capital Market Authority | Adapt           | Board's meetings were held regularly and minuted, with actions clearly noted.                       | Mohd-Sanusi, Rameli, Omar, and Ozawa (2015) |
| My company's Board of Directors has defined Terms of Reference which are updated periodically   | Adapt           | Board have clearly defined job descriptions and set performance targets which are updated annually. | Mohd-Sanusi, Rameli, Omar, and Ozawa (2015) |
| My company's Board of Directors ensures that strategic planning is in line with the organization's objectives.  | Adapt           | Board have clearly defined job descriptions and set performance targets which are updated annually. | Mohd-Sanusi, Rameli, Omar, and Ozawa (2015) |
| <b>Mature Corporate Governance – Audit and Risk Committee</b>   |                 |   |   |

| Question for Study   | Adopt/<br>Adapt | Original Question   | Source                                      |
|--|-----------------|---|---|
| My company's Audit and Risk Committee meetings are held regularly and minuted, with actions noted in accordance with new codes of corporate governance issued by the Capital Market Authority. | Adapt           | Board's meetings were held regularly and minuted, with actions clearly noted.   | Mohd-Sanusi, Rameli, Omar, and Ozawa (2015) |
| My company's Audit and Risk Committee discuss the pervasiveness of audit finding/ recommendations in audit reports with senior management.   | Adapt           | Fraud issues are being discussed seriously during the meeting.                  | Mohd-Sanusi, Rameli, Omar, and Ozawa (2015) |
| My company's Audit and Risk committee ensure that strategic planning is in line with the organization's objectives.  | Adapt           | Strategic planning has a clear relationship with the organization's objectives. | Mohd-Sanusi, Rameli, Omar, and Ozawa (2015) |
| Mature Corporate Governance – Senior Management  |                 |   |   |
| In my company, there is strategic planning lasting three years or more   | Adopt           |   | Mohd-Sanusi, Rameli, Omar, and Ozawa (2015) |
| My company's strategic planning has a clear relationship with the organization's objectives.   | Adopt           |   | Mohd-Sanusi, Rameli, Omar, and Ozawa (2015) |
| Senior Management of my company seriously views corrective actions as an avenue for improvements   | Adopt           |   | Mohd-Sanusi, Rameli, Omar, and Ozawa (2015) |
| Forensic Accounting – Detective Role   |                 |   |   |
| My company has updated accounting systems to detect fraud  | Adapt           | My company has changed accounting or internal control system to detect fraud    | Siregar and Tenoyo (2015)                   |
| My company has updated internal control systems to detect fraud  | Adapt           | My company has changed accounting or internal control system to detect fraud    | Siregar and Tenoyo (2015)                   |
| Forensic accounting in my company can only be used to uncover diverted/ unfocused fraudulent practices.  | Adopt           |   | Enofe, Ekpulu, and Ajala (2015)             |

Respondents are asked to answer 16 questions, which also comprise three demographics questions. Respondents for this study are those who can respond on behalf of the organization and includes members of the BOD, members of ARC, SM, internal auditors, and company secretaries. Data is collected by utilization of Internet-based tool, and analysis is performed by usage of Statistical Package for Social Science (SPSS) and



Partial Least square and Structural Equation Modeling (PLS-SEM). Assessment of the measurement model in PLS-SEM is required which is made for internal consistency and reliability by utilizing composite reliability (CR). It can also be defined as measuring internal consistency, convergent validity via indicator reliability and average variance extracted (AVE) and measuring discriminant validity with Heterotrait-monotrait (HTMT) ratio (Henseler, Ringle, & Sarstedt, 2015). Regarding AVE, CR, and discriminant validity, acceptable values are defined by Ramayah, Cheah, Chuah, Ting, and Memon (2016) and presented in following Table 6:

TABLE 6: Rules of Thumb for Model Evaluation- Measurement Model Analysis Using PLS-SEM.

| Assessment                            | Name of Index                    | Acceptable Value   |
|---------------------------------------|----------------------------------|--|
| Internal consistency                  | Composite reliability            | Composite reliability $\geq 0.70$  |
| Indicator reliability/Factor Loadings | Indicator Loading                | Loadings > 0.7, 0.6, 0.5 is adequate. Values below 0.4 should be deleted                                 |
| Convergent validity                   | Average Variance Extracted (AVE) | The average variance extracted (AVE) should be higher than 0.50. Indicators below 0.5 should be deleted. |
| Discriminant validity                 | HTMT Criterion                   | HTMT - all values should be below 0.85   |

**Source:** Ramayah et al., (2016)

After the assessment of the measurement model, the next step is to assess the structural model in PLS-SEM. Assessment of the structural model includes measurement of collinearity, path coefficient, R-square, and Q-square (Hair, Hult, Ringle, & Sarstedt, 2017). Table 7 defines the rule of thumb for the assessment of structural model:

TABLE 7: Rules of Thumb for Model Evaluation- Structural Model Analysis Using PLS-SEM.

| Assessment       | Name of Index                         | Acceptable Value   |
|------------------|---------------------------------------|--|
| Collinearity     | VIF (Variance inflator factor)        | Multi-Collinearity occurs in a model when VIF values for specific indicators are 5 and above                         |
| Path Coefficient | Path Coefficient                      | p-value <0.01<br>t value >2.33 (one-tailed)  |
| R-square         | Coefficient of determination          | 0.26- Substantial<br>0.13- Moderate<br>0.02- Weak  |
| Q-square         | Stone Geisser Q2 predictive relevance | A value larger than zero indicates that exogenous constructs have predictive relevance over the endogenous construct |

**Source:** Hair et al., (2017)

## 4. Results

Out of 115 organizations, 96% responded. Response rate is in agreement with the other studies where census sampling is applied with response rate less than 100% (Meeran, Amjad, Ansari, Ansari, & Latif, 2018; Janulyte, Aleksejuniene, Puriene, Peciuliene, & Benzian, 2014; Samim, Aleksejuniene, Zed, Salimi, & Emperumal, 2013; Yeboah, Kwafoa, & Amoah, 2017; Butt & Shams, 2013). After careful analysis of the received data, three respondents are identified who do not provide the answers for all of the questions and considered as missing data. This missing data is deleted, and analysis is performed on the remaining 107 respondents, which comprises 93% of the total population.

Table 8 defines the demographic profile of 107 respondents. Majority of the respondents are male and representing 96% of the population, whereas female respondents are only 4%. With regards to the qualification, the majority of respondents are professionally qualified, such as a chartered accountant, public accountant, certified internal auditors, and certified risk assessors. The second-highest category of respondents pertains to Master qualification followed by bachelors, others, and certified fraud examiners respectively. Other qualification includes those qualifications which were not listed in the questionnaire such as lawyer degree and chartered secretary certifications. For the role or position in the organization, 71% of respondents belong to the category of senior management, the second-highest category of respondents are members of ARC which is 16% followed by the board of directors.

TABLE 8: Demographic Profile of Respondents.

| Category                       | Description                          | Number of Respondents | %age |
|--------------------------------|--------------------------------------|-----------------------|------|
| Gender                         | Male                                 | 103                   | 96   |
|                                | Female                               | 4                     | 4    |
| Highest Qualification          | CA/ CPA/ MIPA/ CIA/ CRMA             | 51                    | 48   |
|                                | CFE or other fraud-related education | 3                     | 3    |
|                                | Masters                              | 36                    | 34   |
|                                | Bachelors                            | 13                    | 12   |
|                                | Others                               | 7                     | 4    |
| Role/ Position in Organization | Board of Director                    | 14                    | 13   |
|                                | Audit and Risk Committee             | 17                    | 16   |
|                                | Senior Management                    | 73                    | 71   |

**Source:** Authors' own work

Assessment of the measurement model is conducted in PLS-SEM with the rule of thumb defined by Ramayah et al., (2016), which are presented in Table 6. AVE and CR of MCG are 0.500 and 0.903, respectively whereas AVE and CR of FAD are 0.575 and 0.793 respectively. These values are presented in Table 9 below: Furthermore, for HTMT ratio, the value is below 0.85, and it can be asserted that discriminant validity is established (Ramayah et al., 2016).

TABLE 9: Average Variance Extracted and Composite Reliability.

| Variable and Questions  | Outer Loading | AVE   | CR    |
|---|---------------|-------|-------|
| <b>Mature Corporate Governance</b>  |               |       |       |
| In my company, there is a defined management structure supported by organization charts for all roles.  | 0.665         | 0.5   | 0.903 |
| My company's Board of Directors meetings are held regularly and minuted, with actions noted in accordance with new codes of corporate governance issued by Capital Market Authority       | 0.561         |       |       |
| My company's Board of Directors has defined Terms of Reference which are updated periodically   | 0.758         |       |       |
| My company's Board of Directors ensures that strategic planning is in line with the organization's objectives   | 0.791         |       |       |
| My company's Audit and Risk Committee meetings are held regularly and minuted, with actions noted in accordance with new codes of corporate governance issued by Capital Market Authority | 0.607         |       |       |
| My company's Audit and Risk Committee discuss the pervasiveness of audit finding/ recommendations in audit reports with senior management.  | 0.567         |       |       |
| My company's Audit and Risk committee ensure that strategic planning is in line with the organization's objectives.   | 0.734         |       |       |
| In my company, there is strategic planning lasting three years or more  | 0.699         |       |       |
| My company's strategic planning has a clear relationship with the organization's objectives.  | 0.766         |       |       |
| Senior Management of my company seriously views corrective actions as an avenue for improvements  | 0.766         |       |       |
| <b>Forensic Accounting – Detective Role</b>   |               |       |       |
| My company has updated accounting systems to detect fraud   | 0.809         | 0.575 | 0.793 |
| My company has updated internal control systems to detect fraud   | 0.915         |       |       |
| Forensic accounting in my company can only be used to uncover diverted/ unfocused fraudulent practices.   | 0.500         |       |       |
| <b>Source:</b> Authors' own work  |               |       |       |

In accordance with Table 9, all the requirements of the measurement model are meeting the criteria and assessment of structural model can be performed. For the assessment of the structural model, evaluation of collinearity, path coefficient, R2, and

Q2 was conducted. For the collinearity assessment, the result suggests that the value of VIF is 1. Multi-Collinearity occurs in a model when VIF values for specific indicators are 5 and above (García-Carbonell, Martín-Alcázar, & Sánchez-Gardey, 2015); hence, there is no issue of multicollinearity. Values of R2 and Q2 are 0.210 and 0.093, respectively, which are also meeting the acceptance criteria. The R2 defines an area of related construct variance that is explained by the model, and acceptable values are 0.02-0.12 as weak, 0.13-0.25 as moderate and above 0.26 as substantial (Hair et al., 2017). The Q2 is verified to establish the model's predictive relevance for endogenous constructs. Q2 values larger than zero indicate the model's predictive relevance for the endogenous constructs under consideration (Hair et al., 2017). Values of outer loading and R<sup>2</sup> are also presented in Figure 1.

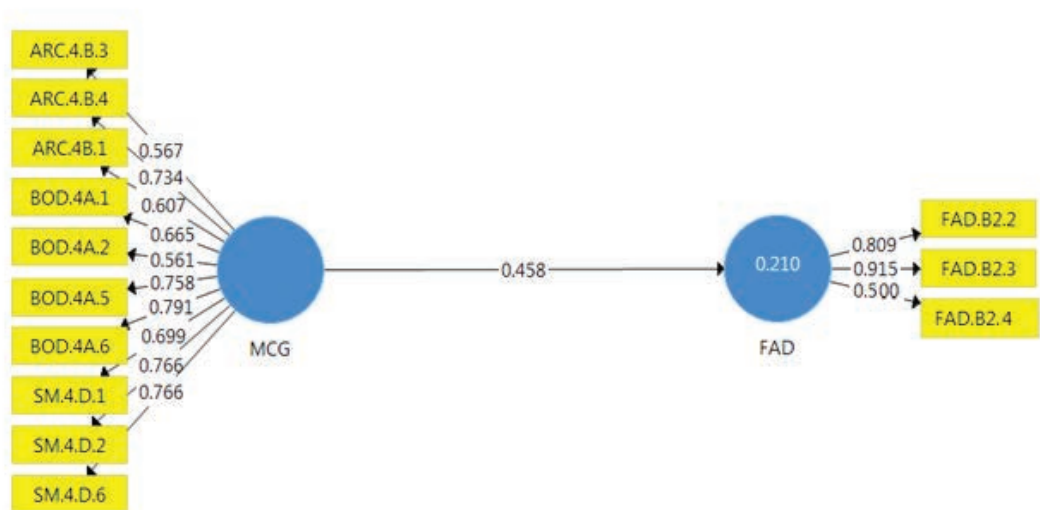


Figure 1: Outer Loading and R<sup>2</sup> (Source: Authors' own work).

For the significance of Direct Effects- Path Coefficients, bootstrapping was utilized via smart PLS for 107 samples with the application of 5000 samples. Path coefficient is measured to ascertain a level of significance related to the direct effects. Rule of thumb for a level of acceptance related to path coefficients for t-values is >2.33, and for p-value is <0.01 (Hair et al., 2017). The significance of direct effect – path coefficients are presented in Table 10 below:

The above-mentioned t-value is also demonstrated in Figure 2 below:

This study evaluates the significant effects of the model of research. It is demonstrated by results that mean of the original sample is 0.458, which is positive, t-value is 5.999, which is greater than 2.33, and p-value is 0.00, which is less than 0.01. Hence it is established that MCG is positively statistically significant and influencing

TABLE 10: Significance of Direct Effect – Path Coefficients.

| Path      | Std. Beta | Standard Deviation | t-value | Confidence interval bias corrected |       | Decision  |
|-----------|-----------|--------------------|---------|------------------------------------|-------|-----------|
|           |           |                    |         | 5%                                 | 95%   |           |
| MCG → FAD | .458      | .076               | 5.999   | 0.367                              | 0.617 | Supported |

**Note:** \*p < 0.01  
**Source:** Authors' own work

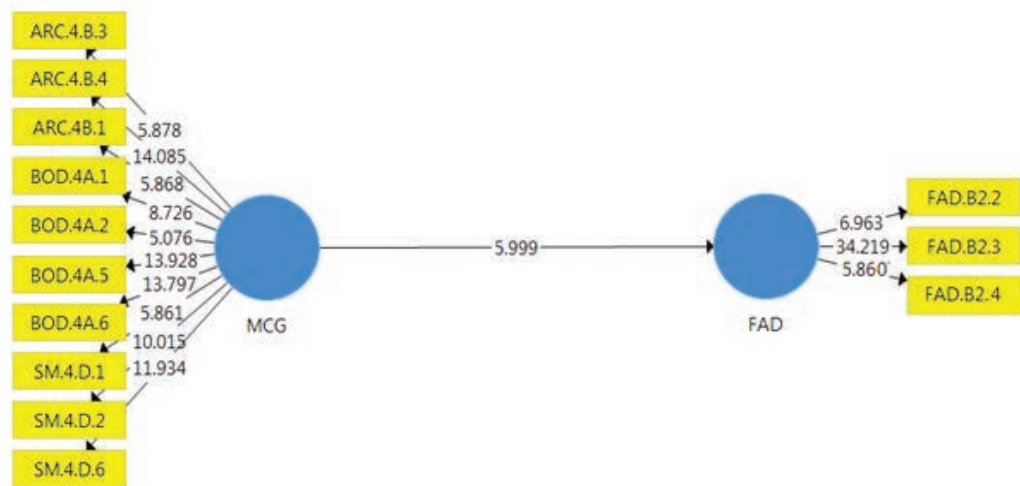


Figure 2: t-value (Source: Authors' own work).

FAD. This result is consistent with the literature review where MCG can influence FAD in the shape of policies and procedures by enforcing fraud-related controls and including FAD in reshaping corporate governance.

### 5. Discussion

Fraud is the menace which can occur in any organization. It brings not only financial losses but also damages the reputation of the organization. It is also a fact that despite the availability of many governance authorities and codes, fraud is still transpiring and with more intensity than before. Organizations are required to provide much more security to their stakeholders, especially the shareholders, as they are the major investors and one of the major affectees due to fraud.

In validation to Agency Theory, FAD is an activity that can be available within an organization which can be positively impacted by the constituents of MCG. FAD can provide detective measures to detect any fraud, identify its root cause, and can also develop controls which can prevent and mitigate fraud. FAD can be considered as governance management system by including it in the codes of corporate governance.

Majority of the respondents agreed that they have accounting and internal control system to detect fraud however 20% of the respondents mentioned that they do not have accounting controls and 21% of respondents stated that they do not have internal controls to detect fraud. 62% of respondents agreed that FAD could only be used to uncover diverted/ unfocused fraudulent practices. However, 28% of the respondents believe that FAD can only be utilized towards uncovering fraud. As stated earlier, FAD is an activity which can develop control towards mitigation of fraud, and the majority of the respondents agree to that, moreover FAD can also develop policies and can also be part of governance management.

BOD are appointed by shareholders to run the organization on their behalf. BOD plays major role in shaping organizational strategy and performance. BOD's effectiveness is supported by its meeting. 78% of the respondents agree that in their organization, there is a defined management structure supported by organization charts for all roles. Moreover, 87% responded that BOD's meetings are held regularly and minuted, with actions noted under new codes of corporate governance issued by the Capital Market Authority. Majority of the respondents agreed that BOD is operated under their own terms of reference which is updated periodically moreover BOD also ensures that strategic planning is aligned with organizational objective. However, and as mentioned earlier, fraud is the highest risk which can distort organizational performance and achievement of its objective unless it is controlled and detected by an expert which is FAD.

ARC is appointed by BOD and operates under its terms of reference or charters. ARC provides recommendations for control enhancement and also provides assurance towards the risk that an organization can face. It is one of the duties of ARC to discuss the audit findings and related recommendation with SM of the organization. Majority of the respondents agree that ARC meetings are effective and minuted. Moreover, ARC ensures that strategic planning is in line with the organization's objectives. However, only 53% of respondents informed that ARC discusses the pervasiveness of audit finding/ recommendations in audit reports with senior management. ARC plays a vital role in controlling and eliminating fraud. ARC can assist FAD by endorsing the recommendations raised by FAD towards fraud risk and fraud controls.

SM is appointed by BOD and plays major and vital role towards implementation of policies approved by BOD. SM is the critical component for the achievement of MCG, and they are the main drivers of strategic plans. Majority of the respondents agree that they have strategic plans which last more than three years, which means that it is not rapidly changing and SM seriously views corrective actions as an avenue for improvements.

FAD can provide corrective actions in the shape of reports and recommendations which can assist in eliminating fraud and its related risk.

FAD, if included, as an agent in governance management and supported by the major constituents of MCG, can create a difference in the field of fraud detection and control. As mentioned earlier, conventional auditors denied the role of detection of fraud, which has created the expectation gap for the shareholders. The FAD is the best option available which can not only detect fraud but at the same time assists the organization in achieving its goals and objectives.

## 6. Conclusion and Implications

Forensic accounting detective role (FAD) can be considered as the cornerstone of mature corporate governance and an agent which is necessary to eliminate the fraud within an organization. The FAD is an activity which should be available as governance management and within the organization. FAD, if supported and included, can identify the fraud, a person conducts the fraud, its basis, and reason and can mitigate its effect by developing controls. On the other hand, MCG can function effectively and can provide satisfaction to shareholders once the organization is free from fraud and fraudulent activities. MCG in this study is measured by its three major constituents namely board of director (BOD), audit and risk committee (ARC) and senior management (SM).

This study is conducted with the viewpoint that MCG has a positive impact on FAD within Omani public listed companies. For this reason, a quantitative survey is conducted for all 115 organizations listed in the Muscat Stock Market. Data is received from 110 companies from which three are further deleted for not providing the answers for all questions. The questionnaire is forwarded to all those individuals who can respond on behalf of the organization such as the BOD and related committees members and SM. Data is collected via the internet-based tool and analyzed by utilization of PLS-SEM. The result of this study suggests that MCG is having a significant direct relationship with FAD as  $t$  value is above 2.33, and the  $p$ -value is below 0.01.

This study contributes towards literature review and provides practical application to organizations not only in Oman but can also be suitable for all organizations across the globe, including both public and private organizations. MCG is the essential requirements for all organizations and cannot be limited only to public listed companies. Likewise, fraud is also impacting all organizations regardless of their categorization; therefore, FAD is essential towards elimination, mitigation, and controlling of fraud.

In accordance with the literature review and result of research, it is highly recommended that organizations should have FAD as fraud detecting control and should be embedded it in their corporate governance policies which will eventually be impacted by MCG.

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## Conference Paper

# Effect of Ethical Leadership of Company's CSR on Employee CSR Engagement in the Era of Digital Industry Revolution

Salmi Mohd Isa<sup>1</sup> and Cheng Kong Loke<sup>2</sup>

<sup>1</sup>Graduate School of Business, Universiti Sains Malaysia, 11800 USM, Penang, Malaysia

<sup>2</sup>Broadcom Limited, Penang Free Trade Zone, 11900 Bayan Lepas, Penang, Malaysia

### Abstract

In this paper, we examined how companies are using ethical leadership CSR to interact with their employees about corporate social responsibility (CSR) related matters. A structured questionnaire was designed to elicit employees responses. Data were collected from the 200 respondents but only 154 were found usable for the data analysis. The responses were analysed using the PLS-SEM statistical technique using Smart-PLS software towards testing the proposed model. The research findings found that employee's understanding of the company's CSR to be the most significant predictor of employee CSR engagement accompanied by using ethical leadership with the moderating impact of Person-Organisation Fit. It is evident that social exchange values may affect employees towards Corporate Social Responsibility (CSR) engagement. Contribution to ethical leadership and CSR engagement are discussed.

**Keywords:** CSR, ethical leadership, person-organisation fit, engagement, digital industry

Corresponding Author:

Salmi Mohd Isa

Salmi Mohd Isa

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

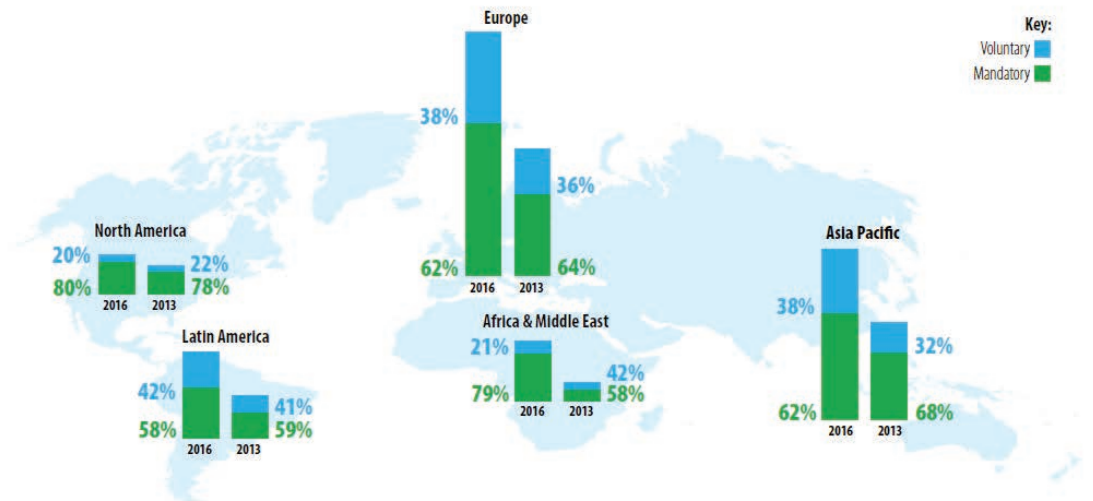
## 1. Introduction

In the era of digital industrial revolution, corporate social responsibility (CSR) programme has become more significant for employees' engagement (Carroll & Shabana, 2010; Rupp et al., 2018; McLennan & Banks, 2019). Past study has shown that the organisation expects

the stakeholder to behave ethically (Schlegelmilch, 1997; Coghlan, 2019) and organisations should concern on the social issues (Shaw & Shiu, 2003). The organisation is increasingly putting emphasis on CSR activity as part of their business activity. In addition, a firm needs to leverage digital communication tools to interact with stakeholders and find a better way to engage with them (Illia, Romenti, Canovas, Murtarelli & Carroll, 2017) to catch up with fast changes of the digital industrial revolution. By knowing the importance of the CSR activities and its contribution, the firm has started to encourage and ensure the driving of the CSR initiative towards this new era. Based on Figure 1, it

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was noted that many countries had made the report on corporate social responsibility as mandatory disclosure to the public (Carrot & Stick Report, 2016).



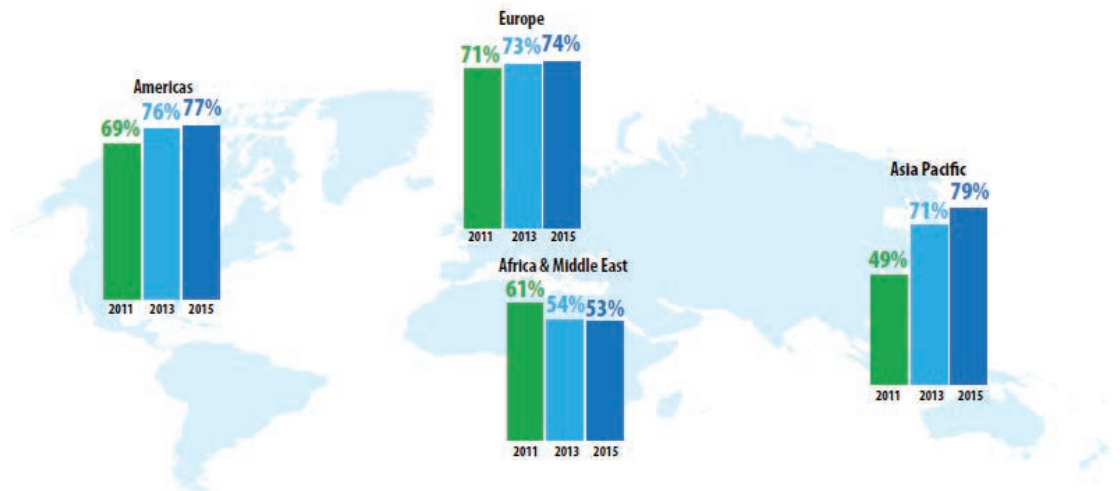
**Figure 1:** Mandatory vs Voluntary Instruments by Region (Source: KPMG Survey of Corporate Responsibility Reporting (2015)).

In Malaysia, in order to promote CSR activities in both public as well as private companies, Malaysian Institute of Integrity (IIM) was established under the National Integrity Plan (IIM, 2010). The aim of this institute is to promote ethical principles, good values, and integrity. Also, the CSR has given extensive attention following the announcement by the Prime Minister of Malaysia on 2008 that all the public listed companies (PLCs) are required to reveal the evidence of the company's CSR activities (Yusof, 2016).

Organisations realise that focusing on CSR as part of their core business strategy creates a valuable strategic asset for the firm by creating a competitive advantage. Past studies have shown that organisations that are socially responsible will enable the organisation to enjoy benefits such as customer satisfaction and better customer evaluations (Luo & Bhattacharya, 2006; Sen & Bhattacharya, 2001; Brown & Treviño, 2006; Ridley-Duff & Bull, 2019). Furthermore, CSR activities are also linked to better financial performance, good reputation, talent attraction, and high rate of job satisfaction (Liu et al., 2013; McWilliams & Siegel, 2001). Thus, social responsibility has gain prominence to be as one of the key performance indices of a company (Idowu & Papasolomou, 2007; Stewart-Knox et al., 2005). As a result, more and more companies are initiating CSR programmes and include such issues in their public communication media such as the annual report (Corporate Register, 2008; Stewart-Knox et al., 2005). KPMG's 2015 Survey of Corporate Responsible Reporting shown in Figure 2 indicated that the rate



of sustainability reporting is increasing, particularly in the Asia Pacific region (Carrot & Stick Report, 2016).



**Figure 2:** Rate of Sustainability Reporting Among the 100 Largest Companies per Country (Source: KPMG Survey of Corporate Responsibility Reporting (2015)).

As highlighted earlier on the importance of CSR, organisations strive to implement and drive the CSR activities to reap the greatest benefit from it. However, the primary factor that is able to drive CSR's success is still vague. An employee is a primary stakeholder that directly contributes to the success of an organisation (Freeman, 1984; Alt, 2015). Besides that, employees also viewed as one of the important stakeholders that act as a significant component in CSR programmes (Chandler & Werther, 2011). Many has recognised the importance of employee engagement in CSR (Rupp et al., 2013; Aguilera et al., 2007; Rupp et al., 2018). However, Aguinis and Glavas (2012) commented that employee engagement in CSR should not be neglected as they are the one ensures the success of CSR activities. To fill this research gap, this study will examine the effect of ethical leadership and employee's perception on the company's CSR. Person-organisation fit will be introduced as a moderator to measure the employee's CSR engagement.

## 2. Literature Review and Hypotheses Development

The increasing relevance and ethical leadership with the employee for CSR engagement are linked to the "person-organisation fit" and its perception. In a digital environment, employees work as critical actors who show scepticism towards corporate sources in CSR engagement. Ethical leaders are individuals who encourage CSR practices by delivering ethical standards, encouraging ethical conduct, and disagree on unethical

conduct in an organisation (Umpress et al., 2010). Groves and LaRocca (2011) argue selecting appropriate leadership in an organisation able to enhance employee engagement in CSR initiatives. Research by Angus-Leppan et al. (2010) showed that leadership's behaviour is able to inspire an employee's attitude toward CSR and its successful execution. In the content of CSR, a leader's ethical principles and values are communicated to employees through the organisation's treatment of external parties (Rupp et al., 2006), which ultimately shapes employee perceptions of ethical climate. Cheng et al. (2000) argue that leaders are role models whose actions will be followed by subordinates. Collier and Esteban (2007) have put emphasis on the leaders and the connection between the organisation, leader personal values and employee engagement with CSR by embedding the leader's principles and practice in the culture of the organisation. Based on the previous research, this research suggests the following hypothesis:

**Hypothesis 1:** Ethical leadership positively influences employee CSR engagement

Employee's perception of the company's CSR is the degree to which employees perceive their employing company supports the activities related to a social cause (Lee et al., 2013). Peterson (2004) argues that there is a positive relationship between employee perceptions on the company's CSR and their engagement level. Employee engagement in CSR initiatives usually occurs in corporate volunteer programs, where employees offer their time and skills in providing service to the community (Peterson, 2004). Employee CSR perception regarding their organisation may influence their attitude and performance of the organisation. As a result, employee good perception on the CSR can help in multiplies the positive effect of CSR and contribute to its successful implementation (Athanasopoulou, 2012). In the past study, the researcher found that there is a positive relationship between perception of CSR and employee commitment (Peterson, 2004). Vinerean (2013) suggested that the company should improve its employee's CSR perception in order to trigger greater employee CSR engagement in the workplace. As a result, this research proposes below hypothesis:

**Hypothesis 2:** Employee's perception of the company's CSR positively influences employee CSR engagement

Person-organisation fit (P-O fit) defined as the compatibility between individuals and organisations (Kristof, 1996). Research from Collier and Esteban (2007) emphasize the importance of "tone at the top which is leadership and the connection between organisational and personal values for employee engagement with CSR. The previous study has linked the leader's behaviour and employee engagement in CSR activity (Chen & Hung-Baesecke, 2014). Employees can be easily influenced by their leader directly and indirectly through personal interactions (Kidwell, Mossholder, & Bennett, 1997). A

leader’s behaviour can impact the motivation and behaviour of their follower (Derue, Nahrgang, Wellman, & Humphrey, 2011) and the same goes to prosocial behaviours of the employee (Ilies et al., 2007). As such, below hypothesis derive based on literature review:

**Hypothesis 3:** Person-organization fit moderate the relationship between ethical leadership and employee CSR engagement.

The employees are preferable to attach to an organisation which their moral and ethical value is consistent with the employers (Folger et al., 2013). An organisation which acts in a socially desirable way not only gives employees a sense of the organisation’s concern, treating people fairly, but also it creates an opportunity to employee and management to work toward good deeds (Aguilera, 2007). The past research shows that employees’ perception of a company’s CSR impact employee’s willingness to participate in social initiatives (Aguilera, 2007). The employee seeks fit between their value and the CSR initiative they participate in (Rupp, Ganapathi, Aguilera, & Williams, 2006). Individuals are different in how they value CSR, and these differences are likely to influence organisational outcomes (Aguilera, 2007). So, this research suggests the following hypothesis:

**Hypothesis 4:** Person-organisation fit moderate the relationship between employee’s perception of a company’s CSR and employee CSR engagement

Base on the literature review and previous study, below theoretical framework derives from studying on the employee CSR engagement in the organisation. Figure 3 presents the research framework used in this study. This model is showing a positive linkage between ethical leadership, employee’s perception of the company’s CSR and person-organization fit with employee CSR engagement.

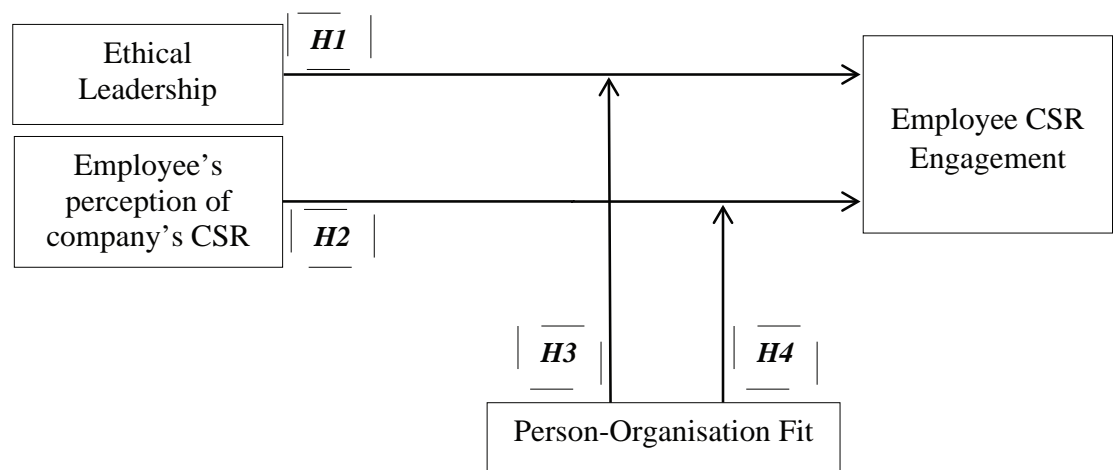


Figure 3: The Research Framework.

## 3. Methodology

### 3.1. Samples and data collection

To research on the problem statement, the unit of analysis of this study is an individual employee who is working in Kulim Hi-Tech Park (KHTP) and the Penang Industrial Zone (PFTZ). A quantitative research approach is applied to validate the theoretical framework and hypothesis that were proposed in this research. Data for this research will be from primary data, which is through questionnaires. The data was collected through emails and invited through a Google survey to the participating employees located in both locations. Non-probability sampling using snowballing sampling was applied in this study, where it is heavily used by many researchers in different fields (Randall & Gibson, 1990). Hatcher (1994) stated that the sample size should be five times larger than the number of variables available in a particular study. Also, as argued by Hair et al. (2014; 2017), the sample size for PLS-SEM should be ten times the largest numbers of the structural path which directed toward a latent construct in the model. Sekaran (2003) argues that sample sizes larger than 30 and less than 500 are appropriate for most research. As such, 200 samples were prepared for data collection. The questionnaire was divided into a few subtopics which included, section 1, which regards to the demographic background of the respondent. In Section 2, is a measurement of the ethical leadership, Section 3 is the measurement of employee's perception of the company's CSR, and Section 4 is regarded as the person-organisation fit. Meanwhile, Section 5 measures the employee's CSR engagement. Overall, ten items for ethical leadership (EL) was adopted from Brown and Treviño (2006), 17 items for employee's perception on company's CSR (CSR) was adapted from Turkey (2009). Four items for person-organization fit (POF) was adapted from Cable and DeRue's (2002), and lastly, employee CSR engagement (ECSR) was adapted from Schaufeli et al. (2003). These hypotheses were tested with Statistical Package for Social Sciences (SPSS) version 22 and Partially Least Square (SmartPLS) version 3.2.8 Factor analysis will test the measurement model for all the constructs applied in the framework (Hair et al., 2013, Hair et al., 2017). Construct validity, convergent validity, discriminant validity, reliability analysis, and good-of-fit measures are required to be examined before the Structural Equation Modeling (SEM) is conducted. The structural model examines the relationship between latent variables using the bootstrapping approach.

## 4. Results

## 4.1. Respondents profile

A total of 200 questionnaires were distributed to various respondents for data collection through “Google Form” and email. At the end of the data collection, 154 questionnaires were received. The remaining 46 questionnaires have no response from the respondent. The response rate achieved was 77 percent. From Table 1, it was shown that 100% of respondent are Malaysian. From Table 1, 53 respondents consisted of the male, which is 34.4%, while female covered the remaining 101 respondents which are 65.6%. Responded who aged 21-30 comprised of 84 people (54.5%), aged 31-40 consisted of 49 people (31.8%), aged 41-50 having 19 people (12.3%), while >50 in 2 people with 1.3%. About marital status, 89 respondents which covered 57.8% are single, and married respondent consisted of 63 people (40.9%) while there are two respondents were divorced (1.3%). In term of the ethnicity, there is 25 respondent Malay (16.2%), 107 respondents are Chinese (69.5%), 21 respondents are Indian (13.6%), while another one is belonging to another ethnicity (0.6%). From the data shown, there is a high number of respondents holding bachelor’s degree which consisted of 127 people (82.5%), followed by master’s degree holder consisted of 18 people (11.75%), and the certificate/diploma holder with seven people (4.5%). Lastly, there are 2 respondents (1.3%) is from other educational background. Next, participants were asked about their occupational level. 142 respondents (92.2%) are from the executive level, whereas 12 of them (7.8%) are working as non-executive. In this research, it was defined those non-executive job scopes is work related to clerical tasks such as operator and clerk. Also, participants were asked about their working experience. This is to understand how many years they have been working. There are 19 respondents having < years of working experience (12.3%), 2-5 years consisted of 60 respondents (39%), 6-10 years experienced participant consisted of 46 (29.9%), and more than 11 years is 29 respondents (18.9%). In regard to duration of the employee’s service with their current employer, most of them are working 2-5 years with their current organisation with the number of 72 (46.8%), followed < 2 years comprise of 45 respondents (29.2%), and then 6-10 years consisted of 25 respondents (16.2%). Finally, the lowest number of respondents, which is 12 (7.8%) are working >11 years with their current employer. The last item in the questionnaire was about the number of employees in their organisation. Twenty of the respondents (13%) are working for the company with less than 100 employees, 101-500 employees having 16 respondents (10.4%), 501-1000 employees comprised of 28 respondents (18.2%). The highest number of respondents, which is 90 (58.4%) of them, are working in an organisation with more than 1000 employees.

TABLE 1: Respondents' Demographic Profile.

| Variable                                | Frequency | Percentage |
|---|-----------|------------|
| <b>Gender</b>                           |           |            |
| Male                                    | 53        | 34.4%      |
| Female                                  | 101       | 65.6%      |
| <b>Age</b>                              |           |            |
| 21-30                                   | 84        | 54.5%      |
| 31-40                                   | 49        | 31.8%      |
| 41-50                                   | 19        | 12.3%      |
| >50                                     | 2         | 1.3%       |
| <b>Marital Status</b>                   |           |            |
| Single                                  | 89        | 57.8%      |
| Married                                 | 63        | 40.9%      |
| Divorced                                | 2         | 1.3%       |
| <b>Ethnicity</b>                        |           |            |
| Malay                                   | 25        | 16.2%      |
| Chinese                                 | 107       | 69.5%      |
| Indian                                  | 21        | 13.6%      |
| Others                                  | 1         | 0.6%       |
| <b>Highest level of education</b>       |           |            |
| Certificate/Diploma                     | 7         | 4.5%       |
| Bachelor's degree                       | 127       | 82.5%      |
| Master's degree                         | 18        | 11.7%      |
| Others                                  | 2         | 1.3%       |
| <b>Occupation level</b>                 |           |            |
| Executive                               | 142       | 92.2%      |
| Non-Executive                           | 12        | 7.8%       |
| <b>Working Experience</b>               |           |            |
| <2 Years                                | 19        | 12.3%      |
| 2-5 Years                               | 60        | 39.0%      |
| 6-10 Years                              | 46        | 29.9%      |
| >11 Years                               | 29        | 18.8%      |
| <b>Tenure with current organisation</b> |           |            |
| <2 Years                                | 45        | 29.2%      |
| 2-5 Years                               | 72        | 46.8%      |
| 6-10 Years                              | 25        | 16.2%      |
| >11 Years                               | 12        | 7.8%       |
| <b>Number of Employees</b>              |           |            |
| Less than 100 employees                 | 20        | 13.0%      |
| 101-500 employees                       | 16        | 10.4%      |
| 501-1000 employees                      | 28        | 18.2%      |
| More than 1000 employees                | 90        | 58.4%      |

## 4.2. Measurement model results

Convergent validity is an indication of the degree in which multiple measures of the construct are related or linked. In order to examine convergent validity, composite reliability (CR), and average variance extracted (AVE) is used (Hair et al., 2013). Results exhibited in Table 2 contain the composite reliability (CR), and average variance extracted (AVE) and is used to examine the convergent validity. There are several criteria that have to be fulfilled which included composite reliability should be higher than 0.70 and the average variance extracted (AVE) should be higher than 0.50 (Hair et al., 2014). According to Hair et al. (2013), discriminant validity signifies the degree in which a construct is truly distinct from the other constructs. The discriminant validity can be gauged by checking the correlation that exists between the measures of constructs that may overlap. One method for evaluating the presence of discriminant validity is the Fornell and Larcker (1981) criterion. The result shown in Table 3 demonstrated that the AVE square root showed in the diagonal are greater than other values in its rows and columns. In short, this means that this study’s overall measurement showed good discriminant validity. As presented in table 4, all items indicated sufficient convergent validity and the discriminant validity as the loading items are greater than their cross-loadings (Hair et al., 2017).

TABLE 2: PLS Result of Convergent Validity Measures.

| Model construct                      | CA    | CR    | AVE   |
|--------------------------------------|-------|-------|-------|
| Employee’s perception on company CSR | 0.904 | 0.933 | 0.777 |
| Employee CSR engagement              | 0.922 | 0.939 | 0.72  |
| Ethical Leadership                   | 0.927 | 0.939 | 0.612 |
| Person-Organisation Fit              | 0.933 | 0.952 | 0.832 |

TABLE 3: PLS Result of Discriminant Validity Measures.

| Model construct                            | CSR          | ECSR         | EL           | POF          |
|--|--------------|--------------|--------------|--------------|
| Employee’s perception on company CSR (CSR) | <b>0.882</b> |              |              |              |
| Employee CSR engagement (ECSR)             | 0.587        | <b>0.848</b> |              |              |
| Ethical Leadership (EL)                    | 0.708        | 0.432        | <b>0.782</b> |              |
| Person-Organisation Fit (POF)              | 0.597        | 0.61         | 0.56         | <b>0.912</b> |

Critical analysis was applied for one-tailed t-test was 1.65 (significant level is 5%) and 2.33 (significant level is 1%) per Hair et al., (2013) suggestion (Table 5).

**H1:** Relationship between ethical leadership and employee CSR engagement ( $t=0.410$ ,  $P>0.1$ ), was not significant as t-value is less than 1.65, and p-value is more than 0.1.

TABLE 4: Cross Loadings.

| Variable                             | Item  | CSR          | ECSR         | EL           | POF          |
|--------------------------------------|-------|--------------|--------------|--------------|--------------|
| Employee's perception on company CSR | CSRC  | <b>0.906</b> | 0.530        | 0.620        | 0.525        |
|                                      | CSRE  | <b>0.913</b> | 0.568        | 0.719        | 0.674        |
|                                      | CSRG  | <b>0.857</b> | 0.521        | 0.524        | 0.430        |
|                                      | CSRS  | <b>0.849</b> | 0.434        | 0.633        | 0.456        |
| Employee CSR engagement              | ECSR1 | 0.598        | <b>0.796</b> | 0.493        | 0.575        |
|                                      | ECSR2 | 0.480        | <b>0.792</b> | 0.361        | 0.523        |
|                                      | ECSR3 | 0.461        | <b>0.859</b> | 0.264        | 0.418        |
|                                      | ECSR4 | 0.441        | <b>0.872</b> | 0.323        | 0.506        |
|                                      | ECSR5 | 0.477        | <b>0.878</b> | 0.362        | 0.532        |
|                                      | ECSR6 | 0.498        | <b>0.887</b> | 0.355        | 0.520        |
| Ethical Leadership                   | EL1   | 0.587        | 0.241        | <b>0.763</b> | 0.465        |
|                                      | EL10  | 0.597        | 0.394        | <b>0.792</b> | 0.471        |
|                                      | EL2   | 0.467        | 0.340        | <b>0.583</b> | 0.322        |
|                                      | EL3   | 0.426        | 0.285        | <b>0.573</b> | 0.282        |
|                                      | EL4   | 0.575        | 0.405        | <b>0.851</b> | 0.453        |
|                                      | EL5   | 0.568        | 0.322        | <b>0.846</b> | 0.475        |
|                                      | EL6   | 0.543        | 0.274        | <b>0.831</b> | 0.441        |
|                                      | EL7   | 0.568        | 0.347        | <b>0.823</b> | 0.498        |
|                                      | EL8   | 0.588        | 0.371        | <b>0.833</b> | 0.471        |
|                                      | EL9   | 0.578        | 0.312        | <b>0.862</b> | 0.465        |
| Person-Organisation Fit              | POF1  | 0.536        | 0.555        | 0.513        | <b>0.904</b> |
|                                      | POF2  | 0.520        | 0.564        | 0.462        | <b>0.921</b> |
|                                      | POF3  | 0.609        | 0.587        | 0.571        | <b>0.918</b> |
|                                      | POF4  | 0.510        | 0.515        | 0.496        | <b>0.906</b> |

**H2:** Relationship between employee's perception on the company's CSR and employee CSR engagement (t= 2.972, P<0.1), was significant as t-value is higher than 1.65 and p-value is less than 0.1.

**H3:** Person organisation fit able to moderate the relationship between ethical leadership and employee CSR engagement (t= 2.066, P<0.1), as T value is higher than 1.65 and p-value is less than 0.1.

**H4:** Person organisation fit not able to moderate the relationship between employee's perception of a company's CSR and employee CSR engagement (t= 1.249, P>0.1), as T value is higher than 1.65 and p-value is less than 0.1.

In short, perceived employee's perception of the company's CSR was discovered to be the most significant predictor of ECSR followed by ethical leadership with moderator



P-O fit. To conclude, the hypotheses H2 and H4 were supported, while hypotheses H1 and H3 were not supported.

TABLE 5: Hypothesis Testing Results.

| Hypothesis | Path  | Path coefficient | t-value | Result |
|------------|---|------------------|---------|--------|
| H1         | Ethical Leadership → Employee CSR                         | 0.09             | 0.41    | No     |
| H2         | CSR → Employee CSR  | 0.10             | 2.97    | Yes    |
| H3         | Ethical Leadership → Employee CSR<br>Moderating Effect 1: | 0.10             | 2.06    | Yes    |
| H4         | CSR → Employee CSR<br>Moderating Effect 2:                | 0.10             | 1.25    | No     |

## 5. Discussions and Conclusion

This study found that employee’s perception of company CSR and ethical leadership with the person-organisation fit was shown to have a positive influence on employee CSR engagement. On the other hand, ethical leadership and employee’s perception of the company’s CSR with person organisation fit was found to have less impact on employee CSR engagement.

### Hypothesis 1: Ethical leadership can increase Employee CSR engagement

The t-value derived from the study was lesser than the minimum acceptable value of 1.645 ( $0.410 < 1.645$ ). In other word, ethical leadership in an organisation will not increase employee CSR engagement. Although previous studies had proven that ethical leadership and individual ethic has an impact to employee’s subsequence reaction and are strongly support the social responsibility in business (Khosla et al., 2007; Edinger-Schons, 2019), but the actual result was contradicted. It was also contradicted with the study from Chen and Hung-Baesecke (2014) showing that appropriate leadership able to enhance the employee engagement in CSR activity. It was arguably that ethical leadership impact the employee’s attitude and success to CSR practice (Angus-Leppan et al., 2010; De Roeck & Farooq, 2018), but from the analysis shown, the employee might not necessarily engage in CSR practice in the organisation. An employee might feel that ethical leadership in an organisation not necessarily to motivate them to engage in CSR practice in the organisation. It was arguably that the existence of the ethical leader in the organisation has no direct impact on the employee about CSR engagement. Employees are not willing to engage in CSR practice, although their leaders are ethical as it does not motivate them. An employee might feel that it is none of their concern whether their leader’s ethical behaviour can direct them to CSR engagement. From the previous literature review, ethical leadership impact the employee’s subsequent behaviour such

as follower's self-concept and impact their action on the workplace (Shamir et al., 1993). However, this research showing that the employee is not interested in engaging in CSR, although there is ethical leadership in an organisation that shapes the ethical climate. This might due to most of the respondents of this research is in the age range from 21- 30 (54.5%), which consider young employee. They might not understand the ethical leadership as they do not have sufficient employment experience in the working field. It was argued that they might not get influenced by the ethical leadership in the firm as what they more concern is on getting their daily routine work done. Aside from that, this study consisted of 65.6% participant is women, we believe there is a different viewpoint with ethical leadership between men and women, which resulted the hypothesis was rejected.

**Hypothesis 2:** Employee good perception of the company's CSR can increase Employee CSR engagement

Based on the result collected, this hypothesis was supported as t-value 2.972 is greater than 1.645. It was concluded that employee's good perception toward the company's CSR able to increase employee CSR engagement. The result was aligned with previous studies by Peterson (2004), who argues that there is a positive relationship between employee perceptions on the company's CSR and their engagement level. Positive company external CSR image able to motivate employees to engage in CSR activity as an employee feels proud to tag along with CSR concerned company. This is also supported base on social identity theory, which argues that employee sees themselves as a part of the identity of the company which concerns on CSR practice. Automatically, they feel they should engage in CSR practice as they are part of the company's component. Positive view on the company's CSR able to enhance employee's self-belongingness to the company, and they tend to be part of it by engaging in CSR activities. It was supported by a literature review that employee more positively identifies with companies in which they perceive the virtues and character strengths to be inherently good (Dutton et al., 2010; Story & Neves, 2015), which lead them to engage in CSR activities.

**Hypothesis 3:** Person organisation fit able to moderate the relationship between ethical leadership and Employee CSR engagement

The t-value resulted obtained for this hypothesis was 2.066 are greater than the minimum acceptable value, which is 1.645. Thus, it was shown that the hypothesis was supported base on the statistic result. Although hypothesis 1, which indicate there is no relationship between ethical leadership and employee CSR engagement, the result was different when moderator factor person organisation fit added into the consideration. It

was proven that the existence of ethical leadership as a single factor not able to motivate employees to engage in CSR. The result was significantly different when an employee feels that their value and belief are fit with the employer and ethical leadership abilities to motivate them to engage in CSR activity. This result was aligned with the previous study from Collier and Esteban (2007) who argue the importance of leadership and the connection between organisational and personal values for employee engagement with CSR. To add on, based on the social exchange theory, it was argued that an employee is looking for an exchange for what the organisation has provided to them. It was argued that if employees feel they are fit to organisation value, they are likely to be actively supporting their corporation as mutual social exchange and engage in CSR initiative (Organ, 1990; Hur, 2018). Ethical leadership as a single factor is not enough to motivate employee to engage in CSR, but when employees feel that they shared the same value and belief with their organisation, they tend to appreciate the ethical leadership. A creditability of a CSR initiatives depends on the congruity between a company's CSR effort and its core businesses (Isa, Chin & Liew, 2019). As a consequence, employees will support the organisation by engaging themselves in CSR activities.

**Hypothesis 4:** Person organisation fit able to moderate the relationship between employee's perception of a company's CSR and Employee CSR engagement

The t-value derived from hypothesis 4 only accounts for 1.249, which is lower than the minimum acceptable value of 1.645. As such, we can conclude this hypothesis was rejected and P-O fit not able to moderate the relationship between employee's perception of a company's CSR and employee CSR engagement. In other word, P-O fit does not have a relationship between the independent variable and dependent variable in this study. This was contradicted with past literature review showing individual's attitudes and behaviours within an organisation are influenced by the level of congruence between the individual and the organisation (Pervin, 1989; Szczepańska-Woszczyńska, 2015), and employees whose self-concept is based on social responsibility tend to have positive attitudes toward the CSR practices of their employers (Morris, 1997). In this research, it was arguable that employee CSR engagement is not impacted by the moderator factor of P-O fit. Although based on hypothesis 2, which conclude the employee CSR engagement is positively related to their perception of the company's CSR, but when the moderator factor added, the relationship is not significant. It is concluded that person-organisation fit not able to strengthen the relationship between the independent variable and dependent variable. Employee's value and belief congruence with the employer is not able to work as a moderator factor in this study. The reason being is that the employee will engage in CSR activity as long as they perceive

their employer has good CSR image no matter the person organisation fit takes place. Employees tend to feel proud of the good CSR image of their company base on social identity theory and will engage in CSR practice. To add on, person organisation fit is not able to increase their CSR engagement level as the moderator is not a strong motivating factor in this case. Good perception of the company's CSR has already a strong motivation for employee CSR engagement.

### 5.1. Limitation and recommendations for future research

Based on the research over 6,000 greening initiatives in 635 firms in the 2009, Newsweek Top 500 Green Companies, and in the Fortune 500 list, many organisations' CSR efforts rely on the "voluntary" of their employee participation (D'Mello, Ones, Klein, Wiernik, & Dilchert, 2011). The employees are the most important stakeholders in driving CSR activities (Collier & Esteban, 2007; Vlachos et al., 2017; Hejjas et al., 2019). This study has concluded that there are two significant factors that organisation needs to address in order to get employee to engage in CSR activities, namely ethical leadership with the moderating effect of P-O fit and employee good perception on company's CSR. Ethical leadership is important as it shapes how employees think about the ethical climate in a particular organisation. When employees feel that the ethical leadership is within the company and values between them are matched, employees tend to give their full commitment to support the company's activities. In another word, the P-O fit serves as a platform for the employees to contribute to the CSR initiative. Interestingly, this research also found that employees will engage in CSR activity when they perceived their company exhibit positive CSR image. Employees tend to shows their sense of belonging when their employer has a good CSR image in the public eyes.

This study has some limitations which need to be taken into consideration for future research. Firstly, there is a limitation in regards to the location where the research was conducted within only the two industrial areas in Malaysia Northern regions. Secondly, this study used snowballing approach by predicting that the participant has information and knowledge about the CSR of their company. The identified risk included participant might answer the questionnaires, although they do not have the background of CSR practices. Despite the limitation of the study, the findings provide a better understanding in regard to the employee's CSR engagement. Future research can further investigate the peer pressure on CSR engagement. Are other employees likely to engage as well or they will not get influenced by the co-workers? It was noted by Peloza et al. (2009) and Rodell et al. (2016) that employee's volunteering related to volunteering behaviours of

their co-workers as well. However, in the aspect of CSR engagement, will the other co-workers will impact and influence by engaging workers. Moreover, future research can add gender as a mediator to research if gender differences play a role in the employee CSR engagement. Based on previous studies, it was shown that women likely to have a substantial benevolence value (Struch et al., 2002; Gul & Kupfer, 2019) and will prefer to participate in CSR programmes (Haski-Leventhal., 2013; Kish-Gephart, Harrison & Travino, 2010).

In conclusion, from the organisation perspectives, the company can increase the success rate of the CSR programmes that they implemented by involving their employees. The employees' engagement can reduce the cost and eliminate the inefficiency of the CSR program that will be delivered. The limited amount of time and resources in the CSR programmes will be employed due to employees' commitment. Hence, a firm can build a positive image with the public by delivering successful CSR programmes. In the long term, the values, that is the core beliefs that they have will help a firm to differentiate its reputation and identity and that guide communication efforts (Isa & Reast, 2014). Moreover, in the competitive era of digital technology, a firm is also able to build a closer relationship between the employees. Technology may help them to integrate CSR communications more effective. Leveraging on technology on CSR programmes will make a significant difference as multiple stakeholders can enjoy the benefits derives from the CSR programmes.

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**Conference Paper**

# Ethics in Neuromarketing and its Implications on Business to Stay Vigilant

Salmi Mohd Isa<sup>1</sup>, Aida Azlina Mansor<sup>1,2</sup>, and Khairiah Razali<sup>3</sup>

<sup>1</sup>Graduate School of Business, Universiti Sains Malaysia, Penang, Malaysia

<sup>2</sup>Faculty of Business and Management, Universiti Teknologi MARA Selangor, Malaysia

<sup>3</sup>Department of Neurosciences, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia

## Abstract

Neuromarketing is an emerging field in which academic and industry research employ neuroscience techniques to understand the consumers' mind by explaining consumers' preferences, motivations, and expectations. Nevertheless, some people claimed that the use of neuroscience in marketing somehow had introduced companies to a 'buy button' that can read the mind of potential consumers and influence their buying decisions. Plus, those that oppose neuromarketing also believe that the act of 'reading' consumers' mind with the aim of improving company services is unethical and should not be used, let alone implied. However, what does actually 'ethics in neuromarketing' mean in the first place? Moreover, how does this become an issue in the marketing field? Herein, we will articulate common ethical concerns with neuromarketing. We argue that the most frequently raised concerns- autonomy, informed consent, confidentiality, privacy, benevolence, and no maleficence-given the current capabilities for business to stay vigilant. However, we identify how potentially serious ethical issues may emerge from neuromarketing practices in the industry, which are primarily exclusive. We identify approaches that business can use and reduce the threats to consumers. We conclude that neuromarketing has clear potential for business to stay vigilant and mitigate the positive impact on society.

**Keywords:** consumer behavior, neuromarketing, neuroscience tools, buy button, ethics

Corresponding Author:

Salmi Mohd Isa  
 salmi.mohd.isa@usm.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Neuromarketing is a research area that evolved from the combination of concepts of neuroscience and theories of classical marketing research that examines the decision-making process of the consumer from a cognitive perspective. These new concepts bring powerful insights and techniques, particularly on consumer analysis to marketing research. The neuromarketing concept was the reason for new marketing research. Thus, the study of cognitive neuroscience, the study of the mind through the brain, has become increasingly important, mostly through advances in neuroimaging tools. Miletic,

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Guido, and Prete (2016) stated that neuromarketing has contributed to the evolution of marketing by illustrating how the unconscious responses and emotion can affect consumers' perception and decision-making proceeding. They mentioned that neuro-marketing is established on the inference of individual senses and motor systems that can be found by observing the brain activity, which can represent the insensible or emotional attribute of consumers' decision making. The nature of neuromarketing is to gain understanding and the answer which is unobtainable from traditional marketing methods such as pen and paper. This is because respondents are not always honest, and sometimes they give answers, and sometimes it is difficult to say how they are feeling correctly. According to Stanton et al. (2016), the objective of neuromarketing is to study the consumer behavior that beyond survey or focus group study using the new method. This is because, Neto, Filipe, and Ramalheiro (2011), Murphy (2005), Poldervaart (2009), Zurawicki (2010), Zaltman (2003) and Brierley (2017) endorsed 95% of consumers decision making are made subconsciously. The subconscious mind is a key player in the consumer decision-making process (I.A. & M., 2013). Consumer behaviour comes from the brains, and if we can understand what brains do when making purchasing decisions, then we can tailor marketing accordingly. A finding by Luan, Yao, Zhao, & Liu (2016) proves that consumers' subconscious is hard to be measured by traditional research method. Researchers have shown interest in applying neuroscience technology in marketing research to study consumer subconscious response in detail to close the gap. The advancement neuromarketing reveals a few responses, and consumers may begin to believe that neuromarketing violates their privacy. Where the company uses the findings from neuromarketing for profit-oriented purposes. It is scanning the brain waves to improve marketing by using medical equipment as an unethical practice of the neuromarketing process (Babu & Vidyasagar, 2012). This will result in unethical business ethics. Thus, the main question arises, is it ethical to probe into consumers' brain and use the findings for the business? This is why the use of neuroscience for market research raises ethical considerations, one of neuromarketing main barriers (Pop, Dabija, & Iorga, 2014; Ariely & Berns, 2010; and Madan, 2010). To understand more in-depth about ethics in neuromarketing, further discussions that discussed potential use and misuse of neuroscience in marketing are needed. Thus, this writing aims to study the ethical issues arouse from applying neuromarketing in companies and organizations. Specifically, the first half of this paper focuses on ethical considerations in neuromarketing, while the second half highlights several approaches that can be taken by companies in their attempts to stay vigilant in applying neuromarketing.

## 2. Neuromarketing: The Science of Decision Making

The term 'neuromarketing' was proposed by Smidts in 2002 and is a discipline that combines marketing with the advancing neuroscience (Ulman, Cakar & Yildiz, 2015). The purpose of neuromarketing is to study consumer behaviour and preferences, as well as their buying decisions. Since years ago, industries have been adopting neuromarketing into their companies to improve the effectiveness and accuracy of their marketing strategies. However, the approach, and application of neuromarketing varies according to the goals that a particular company wanted to pursue (Stanton, Sinnott-Armstrong & Huettel, 2017). For example, Yahoo Company uses neuromarketing to study how consumers would react towards television commercials while Microsoft Company is more interested in studying consumers' interactions (satisfaction, frustration, etc.) with a computer.

### 2.1. Neuroscience in marketing

Before the emergence of neuromarketing, traditional techniques such as pen and paper surveys, satisfaction forms and focused-group experiments were the primary approach to understand consumer behavior (Stanton et al., 2017). In most cases, subjects were asked to complete surveys regarding their feeling and satisfaction towards the service given by the company. However, these techniques were subjective and prone to human error because sometimes they tend not to speak honestly or even worse, not even read thoroughly what the survey was asking. Thus, with the help of neuroscience in marketing, the use of neuroimaging tools such as functional magnetic resonance imaging (fMRI), electroencephalography (EEG) and the eye-tracking device can improve the accuracy of consumer behavior studies. Even, there is a research-based company known as 'NeuroFocus' that uses wireless EEG to conduct their neuromarketing research on big companies such as Google and Walt Disney (Flores, Baruca & Saldivar, 2014). The study of brain imaging solves these problems, allows the researchers to understand consumer decision making and purchasing patterns without prejudice that the experiments are done through by reading the unconscious mind. To a certain extent, human sense can get fooled; expectation is the driver of success in sensory marketing (Marjin K. K., 2016). Many companies use neuromarketing to create impulsive purchase behaviors, or to connect the senses of consumers. According to Owen Gough (2017), a t-shirt printing company Printsomenote, "sensory marketing has a 'subconscious influence' on

consumers brand appeals to three senses rather than just on you are three times more likely to make a sale.”

Research in neuromarketing is based on neuroscience, and the role of neuroimaging techniques is to test hypothesis, improve existing knowledge and test the effect of marketing stimuli on the consumer’s brain (Bercea, 2012). In Figure 1, the tools of neuroimaging are shown and divided into three categories: (1) record metabolic activities in the brain, (2) record electrical activity in the brain and (3) without recording brain activity.

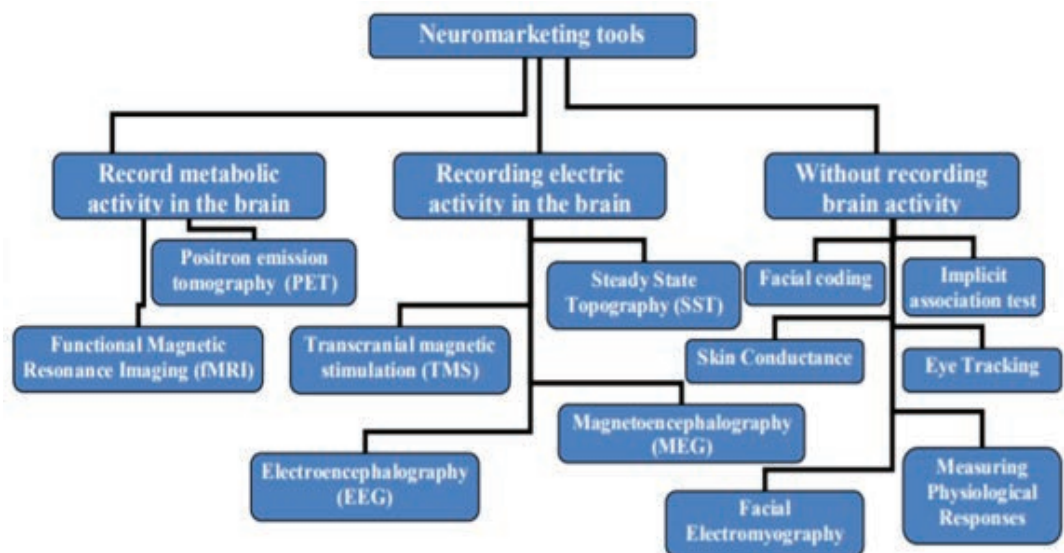


Figure 1: Classification of Neuromarketing Tools. Adapted from Bercea (2012).

fMRI and PET measure brain activities indirectly through analyzing the metabolic activity in the brain. fMRI provides excellent spatial resolution but poor temporal resolutions. In neuromarketing, fMRI is used to measure memory encoding, sensory perception, the valence of emotions, craving, brand loyalty and trust, brand preferences, and brand recall. Due to the high cost of using fMRI, the small sample size is used, and generalizability is affected. Nonetheless, it guides marketers in their marketing strategies. PET is an invasive method and less used if compared to fMRI. It can measure sensory perception and valence of emotions in contact with marketing stimuli. Among the tools that can measure direct brain activities through electrical signals are EEG, magnetoencephalography (MEG), transcranial magnetic stimulation (TMS), and steady-state topography (SST). After fMRI, EEG is the most used neuromarketing tool. It is cheaper and less intrusive. Attention, boredom, excitement, emotional valence, cognition, memory encoding, recognition and approach/withdrawal can be measured via EEG neuromarketing research. MEG is a stronger version of EEG with better spatial resolution but very expensive. Both MEG and EEG are used in research on product choice, gender

differences in decision making, hedonic logos evaluation, advertisements, pleasantness and tracking cultural differences in reaction towards advertising.

TMS is used in causal inferencing by analyzing the subject’s reaction towards marketing stimuli after certain brain areas are excited or inhibited by TMS. TMS mostly used in neuromarketing research related to attention, cognition, and behavioral changes. The downside of using TMS is the ethical concerns tied to the usage. The most important feature that set away SST from EEG is that SST can measure variations in the delay between stimulus and Steady-State Visually Evoked Potential response over extended periods. The usage of SST in neuromarketing research is in evaluating consumer behavior, video material effectiveness, long term memory encoding, engagement, emotional intensity, and valence, processed visual and olfactory input and attention. Same as EEG, both have a poor spatial resolution. Other tools are used in neuromarketing research without recording brain activities are eye trackers, measuring physiological responses, implicit association test, skin conductance, facial coding, and facial electromyography. These methods can be used together with neuroimaging tools to offer more in-depth insights into neuroimaging results and offer internal validation. Eye-tracking is used in assessing attention cues in marketing stimuli and eye movement patterns. Emotions related to marketing stimuli can be measured by measuring physiological responses, skin conductance, and facial coding. Facial electromyography can investigate emotions and social communications while the implicit association test is used in celebrity endorsement and brand positioning via the measurement of reaction time and underlying attitudes. Each technique has its advantages and disadvantages. The selection of neuromarketing tools depends on the research objective and scope. Table 1 illustrates the differences between Social Behaviour Neuroscience, Animal Behaviour Neuroscience, Neuroimaging (Human), Cognitive Psychology (Human) and Neuromarketing.

TABLE 1: Neuroscience Methods.

| Type of Research Report      | Research Aims   | Research Scope  | Methodology                                       | Research Implications |
|------------------------------|---|---|---|-----------------------|
| Social Behavior Neuroscience | - study of neurobiology of social behavior from a comparative perspective | - motivational systems such as parental, aggression and sexual behavior, and play | - functional neuroimaging (correlational studies) | - Policy making       |
|                              |   |   | - lesion studies in animals (causal studies)      | - Education           |



| Type of Research Report      | Research Aims  | Research Scope                          | Methodology  | Research Implications   |
|------------------------------|--|---|--|---|
|                              |  |   | - human case studies coupled with neuroimaging tools | - Society   |
|                              |  |   | - TMS (causal studies)                               | - Contextual issues (cultural, gender, economy background etc.)   |
| Animal Behavior Neuroscience | - generate hypotheses regarding psychiatric disorders  | - biological psychiatry                 | - causal analog model                                | - Translation of findings from non-human animals to humans        |
|                              | - understand variations in gene expression or developmental trajectories in relation to brain and behavior                         | - behavior genetics                     | - hypothetical analogical model                      | - Identification of new psychiatric drugs                         |
|                              | - contribute to the prevention and treatment of cognitive and affective disorders (such as depression and anxiety) in human beings | - experimental psychopathology          |  | - Evaluate new therapy  |
|                              |  | - neuropsychopharmacolc                 |  |   |
| Neuroimaging (Humans)        | - utilize any experimental technique than enable the human brain structure or function to be researched, especially in vivo        | - behavioral and cognitive neuroscience | - structural neuroimaging                            | - prediction study with statistical modelling                     |
|                              |  | - construction of models                | - functional neuroimaging                            | - relate brain structure and function to behavior                 |
|                              |  | - computational neuroscience            | - multimodal neuroimaging                            | - discover neural correlates of cognition, behavior and disorders |
|                              |  | - neuroeconomics                        | - mathematical modelling                             | - study effects of brain trauma                                   |
|                              |  | - psychiatry                            |  |   |
|                              |  | - biophysical modelling                 |  |   |
|                              |  | - statistical models                    |  |   |

| Type of Research Report | Research Aims  | Research Scope                      | Methodology   | Research Implications  |
|-------------------------|--|-------------------------------------|---|--|
| Cognitive Psychology    | - the study of human perception, learning, memory and the thinking process about information           | - human intelligence                | - controlled laboratory experiments                         | - in-depth insights on human mind and higher order cognitive processes |
|                         |  | - linguistics                       | - Psychobiological research                                 | - human development  |
|                         |  | - human development                 | - Self-reports  |  |
|                         |  | - social psychology                 | - Case studies  |  |
|                         |  | - artificial intelligence           | - naturalistic observation                                  |  |
|                         |  | - problem solving                   | - computer simulations                                      |  |
|                         |  | - perception                        | - artificial intelligence                                   |  |
| Neuromarketing          | - research the process of decision making in consumer behavior and the factors that associated with it | - product marketing and advertising | - neuromarketing tools that record metabolic brain activity | - policy making  |
|                         |  | - purchasing behavior               | - neuromarketing tools that record electric brain activity  | - increased sales  |
|                         |  | - entertainment                     | - neuromarketing tools without recording brain activity     | - political influences   |
|                         |  | - architecture                      |   | - brand recognition  |
|                         |  | - political candidates              |   | - better movies  |
|                         |  |                                     |   | - developing trends  |

This challenging framework rise of neuroimaging techniques that have provided new strategies options and such approach finally allow marketers to probe the consumers' brains in order to gain valuable insights on the subconscious processes explaining why a message eventually succeeds or fails. The marketers eliminate the biggest issue facing conventional advertising research, which is to a belief that people have both the motivation and ability to express how they are aroused by a specific piece of advertising (Morin, 2011).

## 2.2. “Push the buy button” in customers’ brains

As marketers’ desire, the “buy button” can be triggered by the marketing efforts such as advertisement that aims to increase the sales or purchase. The “buy button” could be affected by advertisers to create impulse purchasing behaviour. Some might already say marketers have been pushing the button with seductive products and advertisement. However, the consumer’s decision making is a complex process and behaviours over time. The behaviours entice with feelings, emotions, and experiences at the same time, including the conscious and non-conscious processes. The purchase decisions and behaviours are not processed solely by a single spot of the brain, but many, including the medial frontal cortex, hippocampus, amygdala and so on. According to Steve (2014), purchase decisions are complex behaviours that play out over time, engage both conscious and non-conscious processes, forced trade-offs between anticipation of reward and the pain of paying for it. According to Sandar (2014), researchers have found that knowing the brand you are buying can influence your preferences by commandeering brain circuits involved with memory, decision making, and self-image.

### 2.2.1. Consumer decision making and preference

Consumer decision making is looking at how consumer preferences are formed and how neural activities can be used to predict their preferences. There is a lot of consumer neurosciences research has been investigated in this area and found out the role of ventromedial prefrontal cortex in consumers’ decision-making process. The research reported that right and left ventromedial prefrontal cortex is responsible for emotional engagement in decision-making (Bechara, Damasio, & Damasio, 2000). The emotional factor is important in decision-making. If consumers experience positive emotional engagement, it is more likely to enhance buying behavior. One of the examples is music-evoked positive emotions responses. Ju and Ahn (2016) stated that music could evoke emotional responses such as pleasure and arousal and is significantly related to impulse purchasing. Although it cannot help marketers to ‘push the buy button’ in consumers’ brain, what we can read from the research is there are many factors contributing in increasing the purchase intention of consumers through different circumstances.

### 2.2.2. Engagement of the brain reward system

Products that represent higher status in terms of wealth and social status can influence the reward system in the brain, specifically in the striatum. According to Raab, Elger, Neuner, and Weber (2011), the regional brain activation shown in purchase decisions between compulsive and non-compulsive consumers is found to be different. Non-compulsive consumers shown significantly lower activation of the nucleus incubent within the striatum, suggesting that the compulsive buying behavior may result from a positive relationship of the brain's reward system in response to marketing stimuli. Hulten (2017) reported that if a positive brand experience perceived could enhance buying behavior. The positive brand experience could refer to the pleasure perceived during the experience. Research shows that pleasure and arousal can influence purchase intention. When we feel the product experience is satisfied with our needs, we tend to feel pleasure, and there is where the brain reward system plays its role.

### 2.2.3. Motivational and emotional responses

According to the approach-avoidance model (Davidson, 2004), pleasantness engaged in advertising could be one of the factors that prompt approach motivations of consumers towards the products and it happens to have more brain activation occur in the left hemisphere. Research carried out by Vecchiato et al. (2011) also reported the different brain activation related to the levels of perceived pleasantness with regards to advertising. The pleasantness is referring to the extent of liking an advertisement by an individual. The higher pleasantness shows higher neural activation in the left hemisphere while the lower pleasantness shows more brain activation in the right hemisphere. By understanding how the neural activities represent the emotional responses, marketers can design their advertisement and products by using these approaches and therefore motivate the consumers in acquiring their products.

### 2.2.4. Neural foundations of consumers' attention and memory

Attention and memory are also important for consumers to understand more about the products. After capturing the attention, making consumers memorizing the products also a vital factor in order to promote purchase intention. According to Stoll et al. (2008), attractive packaging is related to significant brain activations at the occipital lobe and presumes at the parietal lobe, which referring to the stimulation of visual input

and attention. They also mentioned about the attractive packaging usually having two important factors that are colors (multi-colored and bright) and shapes (oval, rectangular and abstract shapes). Both factors can contribute to drawing attention and processing of spatial information related to episodic memory. Figure 2 illustrates a heat map on the product, price, promotion, and place (4Ps) on a green product. The following statistical parameters are shown to dwell time and average fixation.



Figure 2: Heat Map on the Single-subject Level on the 4Ps Marketing Mix using Eye Tracking.

Table 2 shows the area of interest of a green product.

TABLE 2: Area of Interest (AOI) for Brand A.

| Item             | Price    | Product 1 | Product 2 | Promotion | Place    |
|------------------|----------|-----------|-----------|-----------|----------|
| Dwell time       | 12.1%    | 10.7%     | 29.5%     | 24.2%     | 12.3%    |
| Average fixation | 426.1 ms | 389.8 ms  | 460.1 ms  | 443.9 ms  | 326.9 ms |

A dwell was defined as a gaze that stays at least 120ms on a product, and total dwell time on each product is information measurements acquired specifically from each product. (Gidlöf, Wallin, Dewhurst, & Holmqvist, 2013). Dwell time is the amount of time spent looking at an image (Morey, 2013). The result shows that the highest dwell time was on “Product 2”, which is the image of the product itself. Next respondents dwell time, 24.2% is more on the promotion offered by the non-green body wash. Next, followed by Place (12.3%), Price (12.1%) and Product 1(10.7%). The study found that participants were spending more time on Product 2, compared to the other marketing mix elements.

According to Favier, Celhay, and Pantin-Sohier (2019), package design is one of the factors that can affect brand perception and buying intention of consumers. The extent of simplicity in package design has a significant effect on the brand perception that simpler graphic design suggests a more successful image and is prone to have higher buying intention from consumers. One example of companies is Apple. Apple takes up

simplicity as its core design principle in designing their packaging. It is not only become their significant label in packaging but also makes consumers memorize it easily.

Although neuromarketing cannot help marketers to push the buy button in consumers' brain, it can influence consumers' purchase intention. As mentioned above, there are many factors that could affect decision making and buying behavior in consumers. Thus, sensory marketing that focuses on the five senses of human, which are sight, hearing, smell, taste, and touch is also one of the core factors in neuromarketing. By understanding the five senses and the trigger points, marketers can implement the knowledge into their marketing strategies and thus affect consumers' buying behavior. One of the examples of sensory marketing is touch or haptic marketing. The power of touch is mentioned in this marketing strategy. According to Mulcahy and Riedel (2018), touch can improve the experience of advertisements and enhance purchase intentions. If what consumers were exposed from the advertisement is align with the haptic information in real life, it tends to enhance their decision-making and purchase intentions.

Nevertheless, many claimed that the use of neuroscience in marketing somehow had introduced companies to a 'buy button' that can read the mind of potential consumers and influence their buying decisions. Plus, those that oppose neuromarketing also believe that the act of 'reading' consumers' mind to improve company services is unethical and should not be used, let alone implied. However, what actually does 'ethics in neuromarketing' means in the first place? Moreover, how does this become an issue in the marketing field?

### 3. Is Neuromarketing Ethical?

Ethics are moral principles and rules that take up most of the aspects of human life. It governs the conducting behavior of people and even influences their decision making (Detert, Treviño & Sweitzer, 2008). Ethics in neuromarketing is often viewed as a guideline to how companies or researchers should act when applying neuroscience in their marketing field or studies. They must abide by the ethical rules and regulations to avoid violating both company and consumer rights.

Despite the effective use of neuroscience in marketing, some critics argued that neuromarketing brings negative impacts to consumers. They claimed that neuromarketing leads to manipulation of the minds of consumers, which later will influence their buying decisions (Berlińska & Kaszycka. 2016). For example, through neuromarketing, Microsoft

can know their customers' preferences and behaviors and thus, can provide more profitable services. According to Ariely and Berns (2010), the application of neuromarketing by companies that are concentrating on making a profit can be the reason why ethics in neuromarketing should be discussed. Also, researchers studying neuromarketing will have access to customers' personal information, which can further lead to issues of privacy and confidentiality.

Certainly, neuromarketing helps marketers and advertisers to understand further consumer's decision making, behavioral and purchase intention, which provides benefits and help to develop their product and brand success. According to Stanton et al. (2016), neuromarketing is often indicted for violating ethical boundaries and breaking the consumer's trust. Ethical objections to neuromarketing fall under the category that neuromarketing causes risks of harm and violations of rights. There are two common ethical issues attributed to neuromarketing; first, there is a buy button in the brain that can be used to manipulate and second, influence consumer choice. Therefore, the advertisers that use neuromarketing have a potentially unfair advantage over those that cannot, or do not, use it. With this, the media also portrays neuromarketing as a field of study that finds a buy button in the consumers' brain and can influence consumers to buy products. In reality, the idea behind neuromarketing is for the companies to create a better product or advertisement to entice the consumer, but not manipulate the consumer's mind (Stanton et al., 2016). Neuromarketing will allow an exceptional level of manipulation by any companies through their marketing activities. Hence, the companies should focus more on marketing activities which promote one product to the other, rather than manipulating a consumer's mind. They should create a mood of consumers more likely to know and enjoy their product.

Moreover, companies that afford to buy fMRI and EEG machines, will be the ones that benefit from neuromarketing science, while the smaller companies without the money to afford these luxuries need have to put more effort in their marketing activities and strive to create uniqueness in their product as well as their advertising just to compete with the big companies. Small companies will struggle to market their products in comparison. This could provide a situation where larger companies can take customers from the smaller companies using this superior marketing practice and offering a superior product, ultimately will eliminate the smaller companies (Stanton et al., 2016). If neuromarketing practices become important and provide benefit on understanding into consumer minds, it will become necessary that the advertisers act under a set of laws to ensure their actions are ethical. The primary concern endorsed by critics is that by scanning consumer's brains and perhaps finding a super-effective message means,

advertisers will be able to push the buy button in a consumer's brain thus being able to manipulate consumer behavior. The morality of such an act is observed as dishonesty from the start (Murphy, Illes, and Reiner, 2008). So, as a result of this risk, Murphy et al. (2008) specified that there is a need to secure numerous parties that can be misused by the research and to protect consumer independence if neuromarketing becomes highly effective.

Therefore, ethical codes and guidelines in companies' ethical behaviour are important. Companies must abide by the rules outlined in ethical codes (Hesis, Arlauskaitė, & Sferle, 2013). Research on neuromarketing poses many ethical issues that marketers need to consider (Fisher, Chin, & Klitzman, 2010). Therefore, the NMSBA Code of Ethics for the Application of Neuroscience in Business is being used. This code to ensure that the highest ethical standards are maintained for the neuromarketing study. The code emphasis on three important elements, which is; to establish public trust in neuro marketers 'integrity; protect participants' privacy and protect neuromarketing service purchasers (Neuromarketing Science & Business Association, 2016). Most papers discussing on ethical issues in neuromarketing focused on similar codes of ethics. These codes, or also known as principles, are autonomy and informed consent, confidentiality and privacy as well as no maleficence and beneficence (Dierichsweiler, 2014; Stanton et al., 2017; Ulman et al., 2015). Each of the codes play an important role to ensure the righteousness in applying neuroscience technologies in marketing. Plus, violations to these codes can result in ethical crises, which may blindfold the advantages and embrace the disadvantages of neuromarketing. Further explanation on each code is discussed below.

### **3.1. Autonomy and informed consent**

The concept of autonomy explains the freedom of right given to everyone to choose or make decisions. In selling-buying practice, this principle is associated with allowing customers to make informed decisions about product or service they want to buy or receive. However, some critics viewed that the emergence of neuromarketing has led to neglecting of autonomy of these customers because their mind have been 'directed' or manipulated to choose a neuromarketing product (Dierichsweiler, 2014).

For example, an experiment was conducted to study the influence of the frequent appearance of a product on customers' choice. Subjects were shown photographs of Dasani water bottle a couple of times without their conscious awareness of the brand, and at the end of the experiment, were asked to choose one out of four brands (including



Dasani) of a water bottle. Surprisingly, the majority of the subjects chose the Dasani water bottle instead of the other three brands. The finding of this experiment revealed that repeated exposure towards a product could manipulate the brain into choosing that product, even without one's consciousness (Stanton et al., 2015). In accordance to this, it can be deduced that the autonomy and informed consent of customers have been compromised by frequent exposure to a certain product, which in the claim of ethic critics, is wrong and unethical.

However, the claim can be counter-argued by saying that the freedom of the right of a customer to choose is not totally influenced by repeated exposure. This is generally because the human mind is not as simple as that. Yes, it is fair to say that, by frequently showing customers a product, it will lead to them *considering* in buying that product, but it does not necessarily lead to customers *buying* the product. Plus, the decision making process during buying is very complex and involves many connections to parts of the brain. Perhaps a simple concept of 'repeated exposure' will influence and trigger their memory, but indeed not their ability to make their own decision.

### 3.2. Confidentiality and privacy

Confidentiality and privacy in neuromarketing concern on the assurance given from companies to customers that their personal information and data will be kept confidential and will only be shared anonymously. Results from neuroimaging, for example, can show researchers much information regarding a subject, and if this information is revealed to public or other agencies without legal permission from the subject, it may be misused and violate ethics codes of conduct.

According to Ulman et al. (2015), one of the reasons that highlight the importance of keeping confidential and private information is to take care of vulnerable groups. These groups, such as mental health subjects, children, and young adults, are prone to discrimination and exploitation. Besides, consumers like children and young adults are less mature in making decisions, thus easier to be influenced. In other words, these groups need higher protection to avoid any ethical violations of their privacy and confidentiality. This is the reason why critics opposed the use of vulnerable groups as subjects for neuromarketing studies. In a more extreme case, France even banned companies from conducting any neuroimaging researches about neuromarketing (Ulman et al., 2015).

However, using vulnerable groups as neuromarketing subjects do bring advantages to companies. Example of studies done on children is the one performed by Robinson et al. (2007), that investigated young children of age 3 to 5 on their preferences

between branded and non-branded fast foods. A similar study was done seven years later by Bruce et al. (2012), to study children's perception of with-logo and non-logo products. This study was conducted using fMRI on children of age 9 to 16 years old. Both studies revealed the importance of popularity and attractive logos in the eyes of young customers.

By considering both advantage and risk of using vulnerable groups as subjects in neuromarketing studies, it is important for companies to have strict ethical guidelines in handling their confidential. Because these groups are less able to protect themselves, irresponsible individuals or third parties might overuse their data for additional profit. Thus, it is suggested to have a standardized procedure for research on vulnerable groups to ensure their information are interpreted confidentially. Also, significance of neuromarketing studies should first be investigated and justified before allowing the use of these groups as subjects.

### 3.3. Benevolence and no maleficence

Benevolence means 'well,' or 'do good' while no maleficence is defined as 'do no harm' (Ekstrand & Ekstrand, 2016). Both terms often go together because, in ethics, it is insufficient to only 'do no harm'. For someone to be considered as virtuous, he must also 'do good' and be beneficial to everybody (Summers & Morrison, 2009). However, ethical issues aroused when these two codes of ethics are neglected in some markets, especially those that prioritize profit rather than their customers' wellbeing. Issues had been raised by ethics critics on advertisements that promote harmful or damaging products such as tobacco and alcohol. Fortunately, in Malaysia, such advertisements have been banned by the Malaysian Communication and Multimedia Commission (MCMC) (Yoon, 2005).

Another issue is also raised by ethics critics about an advertisement that does not represent the exact image of the product. For example, fast foods advertisements by Mc Donald's or Kentucky Fried Chicken (KFC) are often *prettier than it seems*. The burgers and chickens look so deliciously tempting on television; however, in reality, they are freakishly small and look less delicious. Hence, question aroused whether this is considered as an act opposite to benevolence. The reason for this is because companies such as Mc Donald's and KFC are manipulating and influencing consumers with their overly tempting advertisements when, in reality, the foods look nothing like that. If this act is not benevolent, then these companies are violating the ethical code of 'do good.'



**Figure 3:** Example of Mc Donald's Menu in Commercial versus How it Looks Like in Reality.

The question of whether exaggerated advertisements are ethical or not is still and may forever be a continuous debate. Ethics critics, with their stance on the concept of benevolent, argue that these kinds of advertisement are like a bad trick to influence consumer behavior. However, this claim can be counter-argued by the fact that even though consumers' mind has been injected with these pretty and delicious advertisement, it does not disturb their autonomy and freedom of choice. They are still free to make their own informed decisions on whether or not to buy the advertised product. Besides, in the case of Mc Donald's and KFC, most of their loyal customers prioritize the taste instead of the look. Hence, as long as this issue is acceptable by consumers, it can be said that no harm or malicious tactic is being practiced.

In a brief conclusion, inculcating neuroscience in marketing has brought positive impacts to companies and marketers in their attempt to understand consumer behavior. Plus, neuromarketing also helps in the increment of popularity through effective advertisements. However, issues aroused by ethic critics in terms of potential discriminations towards autonomy, privacy, and confidentiality of customers and the act of benevolence and no maleficence by companies.

#### **4. Suitable Approaches for Business to Stay Vigilant**

The practice of neuromarketing in markets and companies has raised several ethical issues, especially those on the state of mind of customers. Since the application of neuroscience in marketing is still new in most countries, most people, including marketers themselves, are unclear on the dos and don'ts and are unaware of the potential threats neuromarketing can cause. Thus, here are some approaches that marketers can apply in order to stay ethically honest and vigilant before adopting neuroscience into their

companies. According to Lindstrom (2013), neuromarketing has no motivation to rise up sales or profits at all, in conjunction with it can be claimed that every cutting-edge technology has this capability to be misused and there is an ethical responsibility for neuromarketing also. So, in point of consumers' view, the brain imaging approach may support the consumers to assess and divulge hidden and delicate methods used by marketers due to it organize our decision-making mechanism in the brain (Renvoise and Morin, 2012).

#### **4.1. Abide by the guidelines and codes of ethics**

Before using neuroscience in marketing, companies should set up rules and regulations that highlight what can be done and what cannot be done with neuromarketing technologies (Dierichsweiler, 2014). These rules must follow the standard operating procedure (SOP) of the company and must be strictly validated by higher authorities such as the ethics committee and neuroscience experts before its installment. Furthermore, without the presence of rules and guidelines, it is possible for workers of the company to go astray and misuse the neuromarketing data.

Apart from that, companies must also abide by the laws or declarations made by the government, especially regarding the health and safety of vulnerable groups like children, minorities, and patients. For example, in Finland, any studies or researches that involve human research, including neuromarketing a neurotechnology, must follow ethical codes specified in the Declaration of Helsinki (Ulman et al., 2015). Plus, ethics committees are present to perform strict investigation following any human researches (Moreno & Arteaga, 2012).

#### **4.2. Include neuromarketing issue in meetings**

Following rules and regulations is not enough if a company does not bother to make regular check up on issues pertaining to neuromarketing. Employees need to be reminded regularly on the practice of neuroscience so that potential misuse of this technology can be avoided. An ethically vigilant company is the one that knows exactly what their strengths and weaknesses are in applying neuroscience in marketing and brainstorms their way through possible threats and opportunities regarding this issue. In this way, workers will be frequently reminded of what to do and what not to do when it comes to conducting neuromarketing research.

### 4.3. Keep trust between marketers and consumers

Another approach that can be used by marketers to stay vigilant is by being truthful to customers, especially about products or services offered. In neuromarketing, consumer behaviors are being studied and investigated to reach consumer satisfaction. Once marketers understood what their customers want, first thing first is that they might come out with effective advertisement regarding their products. However, as mentioned in the previous section, sometimes these advertisements are exaggerated from reality. Marketers must keep the trust of their customers as a priority. Hence, one way to ethically do that is by putting a disclaimer at the bottom of the advertisement to inform customers that the products or services may not be as it seems. In this way, customers will not put such high expectation to the said product, and trust will not be shattered. All in all, marketers can stay ethically vigilant while imparting neuroscience in their marketing, if they follow the rules and regulations, do regular analysis to avoid potential misuse and be truthful with their customers.

Marketers and advertisers are striving to increase sales and profits of their products and services as well as to maintain frequent purchase actions among their consumer/customer toward their products and services. Hence, they are always trying their very best to make the most effective advertisement that somehow well persuades the consumer to push the buy button. In this context, to gain more knowledge about their consumers purchase behavioral intention, marketers and advertisers applied neuro-marketing methods to understand how their brain works. Neuromarketing is strictly focused as a tool to help them to create and improve their product and brand. As for neuromarketing findings, marketers and advertisers should not be used for the purpose to manipulate the consumer's mind; in fact, they should be using it for creating the best advertising campaign. Let the consumer make their own decision about whether to buy their products and services. Marketers and advertisers should appreciate and respect consumer's autonomous thinking, which always leads to their decision based on their needs and wants. The needs and wants of consumers are unpredictable; however, marketers and advertisers need to maintain doing their advertising campaign as much as they can and create the most revealing and persuading advertisements that help to increase sales and profits. Marketers and advertisers should try to avoid creating an advertisement that is going to push consumers into doing things they do not want to do. For example, creating the most persuading commercial about drinking alcohols and smoke cigarettes. This is not only generating interest in the target market but also to those who are not the target and potential markets such as school students and kids.

Marketers and advertisers should maintain the purpose to use neuromarketing that is to study the human brain and physiological feedbacks to understand about purchasing behavior and what makes them buy a particular product and service (Yucel and Cubuk, 2013).

## 5. Conclusion and Future Research

Neuromarketing offered much more valuable information. However, the field of neuromarketing receives a great deal of criticism because it is still young in the field of marketing research. Discussions on neuromarketing and ethics have focused on consumer manipulation and lack of transparency (Fisher, Chin, & Klitzman, 2010 and Hensel, Iorga, Wolter, & Znanewitz, 2017). Therefore, neuromarketing raises particular ethical issues, for example, the need for protection of research subjects, the need for prevention of exploitation of vulnerable populations and the need to make sure correct rather than exaggerated information is provided to the public (Nyoni & Bonga, 2017 and Lim, 2018). This situation, however, is due to the lack of awareness, consent and understanding on the part of targeted consumers (Wilson, Gaines, & Hill, 2008). Thus, more research could be done to make neuromarketing more ethical and understandable. It is time to implement neuromarketing in a marketing and research study with ethical way. Ethics should not be a strange field for any professional as it generally relates to society (Burgos-Campero & Vargas-Hernandez, 2013). In conclusion, neuromarketing helps to better understand the customer and deliver the best, but at the same time protects customer privacy and confidence.

Issues have been raised by ethics critics regarding the use of neuroscience technologies in marketing. This is because the application of said technologies is still new and unclear, especially regarding researches or studies that involve human subjects. In the light of human health and safety in neuromarketing, marketers should always prioritize consumers' autonomy, informed consent, privacy, and confidentiality. Plus, the act of benevolence and no maleficence towards customers and clients must not be neglected as well. Approaches such as following rules and regulations and keeping consumers' trust are good baby steps for companies to ensure ethical neuromarketing application.

The future of neuromarketing is expected to grow because marketers and advertisers need a deeper understanding of consumer's buy button mind. Our brain is traditionally seen as an important part of our society; the simple remark on its manipulation has greater cultural effects. Through neuromarketing's growth over the past time, there has been consistent progress of neuroscientists conducting research in business school

and an influx of consumer neuroscientists developing their competence and generating more studies and findings (Plassman et al., 2015). Furthermore, it is suggested that future directions in neuromarketing studies should include the construction of a standard legal framework that is applicable for marketers and companies, especially for those that are operating in populations where neuromarketing emergence is still new. Even though there is no 'buy button' that can be pushed by marketers to manipulate consumer behavior, but ethical consideration must always be a priority.

In a nutshell, neuromarketing can serve as a bridge between consumers and companies by supporting to understand consumers and to outline the process of their brain to develop better, more efficient, and human-coherent products. On the contrary, neuromarketing shows and discovers insights to consumers and clues about how companies design their advertising campaigns, create their products and what do they reveal and know about our brains so that consumers could be positive for vulgarity marketers and companies when confronted.

## Acknowledgement

This research was supported/partially supported by RUI 1001/PPAMC/8016038 Universiti Sains Malaysia. We thank the expertise of the Department of Neurosciences, School of Medical Sciences, Universiti Sains Malaysia, who provided insight and expertise that greatly assisted the research.

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## Conference Paper

# The Impact of Islamic Based Accounting Education on Professional Conduct among Accountants: A Conceptual Review

Nor Azah Abdul Jalil<sup>1</sup>, Hasnah Haron<sup>2</sup>, and Muhammad Bin Muda<sup>3</sup><sup>1</sup>Cyberjaya Graduate School of Management and Finance, Universiti Islam Malaysia, Selangor, Malaysia<sup>2</sup>Universiti Malaysia Pahang, Universiti Malaysia Pahang, Kuantan, Malaysia<sup>3</sup>Universiti Islam Malaysia, Universiti Islam Malaysia, Cyberjaya, Selangor, Malaysia

## Abstract

The importance of developing a good curriculum for accountancy programs is due to the call of needs to ensure the safeguarding of the profession in the future. This paper tends to review the curriculum structure; emphasis on ethics and personal values (religiosity), which is presumed to have an impact on the conduct of accountants in their practice. Based on prior study, some ethics education programs have reported measurable success where it was found that ethics courses do improve students' ability to recognize ethical issues and had a higher level of moral reasoning abilities after taking ethics courses. This review hopes to add value to the existing literature on perceptions of ethics and personal values impact for accountants' behavior in their profession. Included in the review, are issues on the competency of the accountants.

Corresponding Author:

Nor Azah Abdul Jalil

azah@kuispsas.edu.my

Hasnah Haron

hasnahharon@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under

the responsibility of the

FGIC2019 Conference

Committee.

## 1. Introduction

Many researchers have found interest due to the rising number of ethical conduct about financial reporting and accounting professional conducts whereby extensive discussions and solutions finding have been conducted to refrain ethical misconduct from continuing in accounting practice.

According to Yin Yin et al. (2014), ethics has already been included in the higher education curriculum. In line with the Malaysian National Higher Education System, the reassessment report on the accounting program at public universities (i.e., Hala Tuju 2006) stated that professional values and ethics should be embedded in all courses of the accounting program. It is hoped that by incorporating ethics into the courses, Malaysia can be perceived as one of the developing countries that are actively involved in the development of quality academic programs upon producing graduates who are knowledgeable and possess competencies that meet the requirements of the profession in line with the current and changing business environment.

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Attempts from industry are by addressing the issue through injecting religious and ethical elements. The existing codes of ethics focus on how professionals, including accountants, perform their functions. Such codes guide right and wrong and can serve as deterrents to the rationalization dimension of the fraud triangle.

Many universities have also introduced religiosity elements in their accounting curriculum (Muhamad et al., 2015), namely Islamic Science University Malaysia and International Islamic University Malaysia. However, the impact of these guidelines and curriculum are not well researched or documented.

It is the hope of this research will highlight some of the impacts that have been brought out from the guidelines and also the curriculum. Malaysia is serious about improving the quality of graduates especially accountancy talents produced by institutes of higher education as shown in The Malaysian Education Blueprint 2013 by The Ministry of Education Malaysia (Johari et al., 2016). Every student is expected to ensure they possess the knowledge, technical and leadership skills, bilingual proficiency, ethics, spirituality, and international identity. In line with that, a new released of Malaysian Education Blueprint 2015 - 2025 (Higher Education) also highlight ethics and spirituality as one of the graduates' attributes in order to balance the *akhlaq* (ethics) and *ilmu* (knowledge). The student is expected to have ethically and morally upright, spiritually grounded, compassionate and caring, appreciates sustainable development, and a healthy lifestyle.

The motivation to conduct this study came from the challenge faced by accountants today. In order to establish good ethical values, the existing curriculum should be enhanced by adding religiosity courses as to what being offered by the Islamic universities in Malaysia. The need to inculcate a strong base of ethics knowledge before practicing as an accountant.

## 2. Research Problem

The most important, yet most misunderstood, is the ethics in accounting, which concerns in the world of business today. Accounting ethics instruction has received a considerable amount of attention since the turn of the century. Enron's failure, Andersen's demise, KPMG's tax shelter scandal, and the 2008 financial crisis all caused additional scrutiny of the accounting profession. The resulting increased focus on accounting ethics has led to an examination of the ethical education provided to accounting students and calls for increased ethics coverage in colleges. Implications to the profession due to the

scandals, deprived the integrity of the accounting reporting, reputation of the company, and tarnished the independence of accounting firms.

Several questions were asked by researchers in lieu of ethical failures in the accounting profession: how does the moral development of accountants and accounting students compare to those in other professions or other majors? Can ethics be taught to accounting students? What role should ethics play in the accounting curriculum? What types of accounting ethics education interventions are most effective?

Another concern over the profession is on the professional values obtained and later practiced by the accountants. Stephens et al. (2012) acknowledged that the values of those entering colleges are not up to the ethical demands of the accounting profession, but recognized the need for the high ethical standards demanded by the profession and the challenges that are faced by profession in recruiting individuals with high ethical standards.

The mission of the International Federation of Accountants (IFAC), as set out in its constitution, is to serve the public interest, strengthen the accountancy profession worldwide and contribute to the development of international economies. The International Accounting Education Standards Board (IAESB), has been established by the IFAC Board has been established to pursue this mission. The IAESB function is to develop and issue, in the public interest and under its authority, pronouncements including, International Education Standards (IESs), International Education Practice Statements (IEPSs), Information Papers and other information documents on pre-qualification education and training of professional accountants and continuing professional education and development for members of the accounting profession. Education consists of learning processes that are systematic, structured, and often formal and also includes a form of a developmental process referred to as training.

Values provide a basis for understanding the ethical decision-making process. Rokeach defines fundamental human values “as enduring beliefs regarding personally and socially preferable specific modes of conduct or ends states of existence.” As an example, an individual who values equality will generally prefer equal rights to harmful discrimination. Each individual has an enduring set or cluster of rank-ordered (in terms of importance) values, referred to as a value system.

One of the essential aspects of the intellectual development of an accountant is the underlying philosophy in the education level received during their study. Bloom’s taxonomy has been widely employed to achieve this aspect, and it seems, has considerable intuitive appeal in aiding initial conceptualization of educational objectives. The measurement of the accountants’ professional conduct is another aspect of the

importance to gauge whether the accountants are practicing in accordance with the standards set.

According to Stephenson (2016), ethical conduct can be developed based on how they understand their knowledge impact towards modifying and changing their behavior as long as having the opportunity to reflect and make a value judgment. The imposition of personal values into the curriculum, which includes all the elements in personal life code, humanistic belief and others could be the answer in refraining continuous corporate scandals from happening.

### 3. Research Objectives

This study aims to focus on the following objectives:

1. To examine the current accounting curriculum and requirements issued by the International Federation of Accountants [Code of ethics for professional accountants-2006] and recommendations highlighted by the Committee to Strengthen the Accountancy Profession report [2014] with emphasis on professional values and ethics and religiosity.
2. To explain how the professional values in accounting curriculum content and religiosity contribute to enhance the professional conduct of accountants.

### 4. Literature Review

The major aim of education theory is to enable the change of behavior to its pupil. The important gist is to guide human beings into being an individual with knowledge and wisdom and consequently transform their low ethical values initially instilled to higher ethical values which will lead to better conduct in their profession.

Massive amount of literature was found on whether ethics should be incorporated into the curriculum over recent decades.

The argument is that, if potential accountants are well-trained so that good values are inculcated, they could bring along such values to their professional lives; hence, practice ethical behavior. It is based on this understanding that criticisms have been leveled at educators for contributing to the corporate reporting scandals by discharging poor quality professional education. According to Amernic and Craig, "one of the causes of the seemingly never-ending parade of accounting scandals and unexpected company collapses is the inadequacy of university curriculum and business education."



The domination of the learning techniques and rules has been the main objective and learning outcome in an accounting program thus leaving very little attention to instill values, ethics, and a sense of integrity in the process of teaching and learning. Additionally, Glover and Aono highlight the defects in the education system as being responsible for the behavioral problem of lack of ethics, which, in turn, has led to accounting fraud.

Therefore, the role of accounting education has risen in importance as a means to inculcate good behavior among accountants to complement the regulatory measure. Ethics in accounting education need to start with values, not codes of professional conduct and on responsibilities, not the rules.

## 5. Ethics in Accounting Education

Throughout any accounting courses, it is complimentary if some form of ethical modules were made compulsory for the students. Why is this so? As is known to all, education gives knowledge to an individual. Therefore, to produce an ethical accountant, the education has to provide for morality to be inculcated within an individual. This is what Huss and Patterson (1993) also noted in their paper 'Ethics in Accounting: Values Education without Indoctrination'. As highlighted in their paper, there are seven objectives to be fulfilled when ethics and accounting are integrated: (1) relate the accounting with the ethical issues, (2) recognize issues with ethical implications in accounting, (3) develop a sense of responsibility, (4) develop the abilities needed to deal with ethical dilemmas, (5) learn to deal with uncertainties, (6) ability to alter ethical behavior and (7) understand the relationship of accounting ethics with the general ethics field.

From the side of academicians, they should only present the ethical dilemmas to students and allow them to come up with their potential solution. They should not persuade students of their solutions. Different ideas are brought forward from different students would trigger much room for improvement to make a better ethical decision. In recent publications, it was highlighted that merely identifying the presence of an ethical situation is not enough. This is because once they have identified and made their own ethical decision, they are hesitant to voice it out. This is due to the belief that others hold the opposite opinion on the matter, and that is the right one. In simplicity, they are in favor of a 'perceived opinion' to which everyone might oppose. The term pluralistic ignorance is applied in this instance. Going along this line, the moral reasoning judgment of an individual is continually changing.

Among accounting professionals, ethics education has attracted substantial interest given the notoriety of past high-profile corporate failures and scandals and their association with a lack of accountability and oversight. Prior research indicates the integration of ethics education in accounting programs has steadily expanded across different subjects/courses and in the type of teaching methods and support materials, e.g., lectures and tutorials incorporating textbook examples, in-class debates, real-life case analysis and journal/news article reviews.

On the other hand, Sugahara and Boland (2016) examine the teaching of ethics in the education system of Japan and found that its uniqueness particularly at the pre-qualification stage in tertiary schools where no formal or informal networks exist between accounting professional bodies and academics that foster the development of the accounting curriculum. As a result, ethics training is not included in the formal accounting education process nor is the completion of an ethics module a pre-requisite for attempting the Certified Public Accountants (CPA) examination in Japan. Instead, ethics training is only provided at the post-qualification stage through Continuous Professional Education (CPE) provided by the Japanese Institute of Certified Public Accountants (JICPA, 1998).

## 6. Code of Professional Ethics and Ethical Values in Accounting Courses

According to IFAC (2008) the content of professional accounting education should consist of: (a) accounting, finance and related knowledge; (b) Organizational and business knowledge; and (c) Information technology knowledge and competencies. It is deemed that the professional knowledge component complements the non-professional knowledge, and the intellectual, personal, interpersonal, communication, and organizational and management skills developed in general education. Daniels (2011) explains that when professions and skills are made obsolete in the knowledge economy, the need for continued high-level lifelong learning becomes increasingly important to the sustainability and viability of local, regional, and national economies. This lifelong learning is often referred to as Executive and Professional Education (EPE). EPE consists of two primary areas – soft and functional skills. Technical and functional skills are acquired either at work or through formal training and education. However, soft skills or social, behavioral skills must be learned through understanding and practice.

Based on the growth of specialized certifications in today's world, it becomes clear that an important function of a certifying organization, in addition to certifying that

a practitioner has the necessary competencies to meet a prescribed standard, is to transform or translate tacit knowledge into explicit and formalized knowledge. Most skills are developed after working through experimentation or under the authority of others.

Let take the audit as an illustration. Auditors need to possess skills that will help them meet the demands of the real-time economy. Audit education must catch up with the progress being made in the rest of the business world in order to maintain relevance. The traditional accounting education model tends to rely on knowledge of accounting concepts and rules. Audit education must shift students' attitudes, behavior, and objective knowledge. Putting these three dynamics at the core of an audit education program will prove immensely beneficial to the real-time economy auditors.

## 7. Personal Values

There are five assumptions underpinning Rokeach's conceptualization of values: (1) each individual possesses a relatively small number of values; (2) all people, everywhere, possess the same values but to different degrees; (3) values are organized into value systems; (4) personality, society, and its institutions, and culture are essential antecedents of values; and (5) the consequences of values are manifested in virtually all social phenomena. Values are viewed as both enduring yet changing for a lifetime. Addressing this apparent paradox, Rokeach argues that a change in values may be viewed as a reordering of priorities within a relatively stable value system. As a consequence, value systems are "... stable enough to reflect the fact of sameness and continuity of a unique personality socialized within a given culture and society, yet unstable enough to permit rearrangements of value priorities as a result of changes in culture, society, and personal experience." Values guide attitudes and act as imperatives to action. Values are to be distinguished from attitudes, with the latter relating to positive or negative evaluations of an object.

Values, on the other hand, are said to go beyond specific situations, potentially influencing a wide range of human behaviors, including motivating action and aiding in "the selection or evaluation of actions, policies, people, and events" (Schwartz, 2007, p. 1). It is perhaps not surprising, then, that values are seen as being inextricably linked to ethical decision-making processes. Kohlberg's cognitive development model, for example, conceptualizes values as a basis for ethical behavior. Likewise, Ferrell and Gresham's (1985) contingency model of ethical decision making includes individual values as an important prior presence of ethical behavior. Lan et al. (2008) consistently

found with empirical evidence of certain value types being systematically associated with levels of moral reasoning among business undergraduate majors.

Personal values represent a potentially significant antecedent of ethical decision making. There is evidence that values may differ between students and practitioners. Lan et al. (2009), for instance, examined the personal value orientations (measured using Schwartz's (1992) 56 item Schwartz Value Questionnaire) of practitioners and students in China. Their sample included 454 practitioners from six large cities in China and 126 students who were enrolled in a graduate accounting program from a large university in central China. Both practitioners and students ranked Family Security, Self-Respect, Healthy and Honoring of Parents and Elders among their top four values, and Respect for Tradition, Authority, Detachment, Social Power, An Exciting Life, Devout, and Accepting My Portion in Life among the lowest seven values (although there were differences in the relative rankings of these individual values between the accountants and students). While there were similarities in values, the researchers also found 18 values that differed significantly between the two groups.

As a part of personal values, religiosity is viewed from a different perspective. It is believed to be inculcated to strengthen the syllabus of the ethics course, which can produce the most desired results, which is to produce accounting students who are ethically sensitive. Therefore, the ethical sensitivity of accounting students has to be studied on to add to the body of knowledge and help the academicians to come up with an accounting ethics syllabus which includes the elements that can produce students with high rationale of spiritual behavior and conduct upon their practice as an accountant. This is vital to develop the necessary skills to handle ethical dilemmas appropriately.

## 8. Competency

The National Education Law defines and classifies competencies by taking into account two big categories: professional competencies and transversal competencies. Professional competencies represent a unitary and dynamic ensemble of knowledge and abilities. Knowledge is expressed by the following descriptors: know-how, comprehension, and use of specific language, explaining, and interpretation. Abilities are expressed through the following descriptors: application, transfer, and problem-solving, critical and constructive reflection, creativity, and innovation.

Transversal competencies are defined as being value acquisitions and the attitudes that surpass a particular study field/program and are expressed by the following descriptors: autonomy and responsibility, social interaction, personal and professional development (n.n. interesting is this separation of the competencies; I am for attaching creativity to this last type of competencies).

Professional competencies acquired in the students' learning process are always appreciated, but they might not be sufficient for getting hired, as some graduates from the accounting field might think at a given point. These kinds of situations may occur because there are companies which appreciate more the transversal competencies held by alumni, instruction at the workplace being the grounds which they build their human resources strategy.

For instance, Devonport found that, despite the efforts of many, a university degree has never been a prerequisite for membership of NZICA. In Australia, in the past, the two traditional professional accounting bodies (CPA Australia and Institute of Chartered Accountants in Australia) have for some time had fairly rigorous programs for qualification for entry to their membership. In the 1960s these bodies fought for a university degree prerequisite for membership. The success of this venture greatly assisted the establishment of accounting as a university discipline. However, as indicated above, a recent policy change by one of these bodies has done a great disservice to accounting as an intellectual endeavor. There is no qualified profession that does not require a university degree despite the high level of technical skills that some non-graduates may possess.

In the USA, to be a CPA requires university study amounting to 150 hours, which is usually well beyond a first degree. In the UK, there are many professional bodies, and for some, a university degree is not a necessity. They have argued, similar to the NZICA argument described by Devonport, that a rigors system of professional qualifying examinations can in most cases be taken to represent the equivalent of a first degree.

The International Federation of Accountants (IFAC), the international professional association of national accounting bodies, has for some time required its members to have programs of mandatory continuing education. If future professional accountants are to perceive professional values, ethics, and attitudes as relevant to their work, it is essential that they do not perceive the treatment of professional values, ethics, and attitudes as peripheral to their main education programs.

## 9. Conceptual Framework

Based on all the literature discussed above, a conceptual framework is proposed based on the following hierarchy of importance;

i) introducing ethics courses in the Bachelor of Accountancy program together with the initial requirements by the International Education Standard and Code of Ethics for Professional Accountants,

ii) ensuring the quality of knowledge required is ample with emphasis on how to blend the professional values obtained from the standards together with personal values (morality, religiosity, culture, etc.) in order to enhance the professional conduct as an accountant by profession.

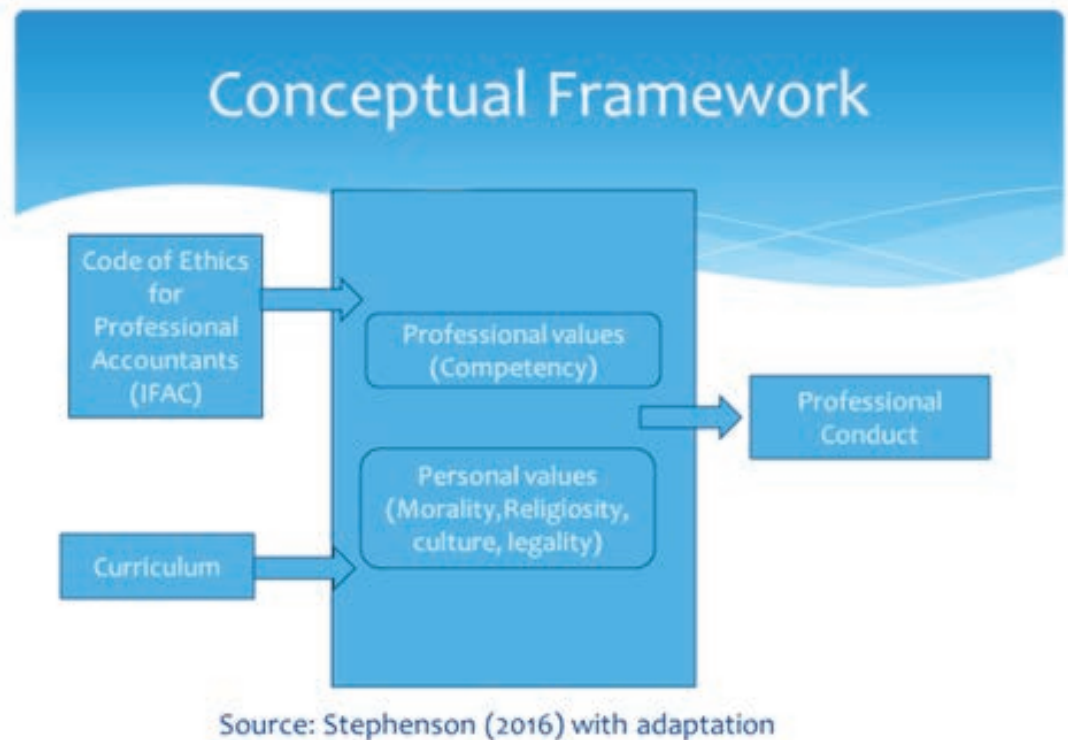
This model is supported by Utami (2011) which suggest that professional knowledge component complements the nonprofessional knowledge, and the intellectual, personal, interpersonal, communication, and organizational and management skills developed in general education.

Moreover, Stephenson's (2016) Reflective Ethical Decision Model (REDM) description highlighted the uses of philosophical humanism in collaboration with self-directed learning to help students determine and design their model construct of ethical values. The reason underpinning this idea is to evoke the personal ethics each of us has, not to promote additional avenues to extend the fallacy surrounding business ethics.

According to Stephenson, the rationale used in designing this model and developing this approach is the notion that operational values and orientations which guide human behavior are not fully developed until early adulthood. Accordingly, the author believes that students of all ages must be encouraged to develop their own personal ethics code of conduct even from an early age, and more importantly before they join a business or organization because these skills cannot be taught when they arrive.

## 10. Research Questions

Based on the discussion from a prior study, it can be stated that ethics and personal values (religiosity) courses do contribute to the accountants' professional conduct. This study intended to extend the discussion by looking at two perspectives; the graduates and the employer, which will enable the researcher to prove the sustainability of the ethics and personal values (religiosity) courses introduced during their undergraduate level do instill positive behavior in the graduates' professional conduct as an accountant. Therefore, the questions of this study are:



**Figure 1:** Conceptual Framework.

1. How do ethics as content in the curriculum affect the professional conduct of an accountant?
2. How does personal values (religiosity) in the accounting curriculum content contribute to enhance the professional conduct of accountants?

This study is exploratory research that uses a qualitative approach. The qualitative approach needs the researcher to collect a detailed database and use various methods to triangulate data and increase the reliability of the study. The potential participants of the research will be samples which could give in-depth information via interview sessions.

## 11. Conclusion

The purpose of this study is to explain how the professional values in accounting curriculum content and religiosity contribute to enhance the professional conduct of accountants. It is assumed that both elements will associate to a better conduct of accountants in their practice. It is hoped that this study will contribute to the number of works of literature on the importance of ethics and personal values (religiosity) as

a content in the curriculum to enhance the professional conduct of accountants in the future.

## Acknowledgement

We would like to thank Yayasan Bank Rakyat for the financial support by sponsoring this paper to be presented in the FGIC 2<sup>nd</sup> Conference on Governance and Integrity 2019.

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## Conference Paper

# A Reflection of Local Supplier Development towards Sustainable Social Supply Chain

**Munira Halili and Yudi Fernando**

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 23600, Gambang, Pahang, Malaysia

### Abstract

In today's business environment, supplier management is increasingly inclined to complexity and uncertainty due to rapid technological changes and globalization. The objective of this study is to review the necessary important of local supplier development towards sustainable social supply chain. Supplier management must be handled systematically, and maintaining a good relationship between manufacturer and supplier is vital. Therefore, it is critical for the supplier in making a well-informed decision. As an alternative, firms should consider developing a local supplier in making sure the availability of fast and reliable supplies to meet global requirement. The criticality is due to supplier selection contributes to overall supply chain performance. This study concludes that developing a local supplier will reduce the increased pressure to develop a direct economic relationship with local communities.

**Keywords:** supplier development, sustainable, social supply chain, manufacturing, supplier.

Corresponding Author:

Yudi Fernando  
 yudi@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Business process and decision making could lead to a firm's success or failure. Within this energetic business arena, the firm must always keep up with customers' requirement. Often customize configuration particularly will impose a risk to manufacturer specifications with regards to the material supplies. Therefore, relying on the supplier to sustain its business and produce good quality of products or services is critical. Failing to do so causes the firm to potentially unable to fulfill the orders and face obstacles in operating and managing its supply chain. To always be on top of the game, selecting a supplier that meets the firm's requirement and standard will ensure that no disruption in its supply chain.

Although maximizing profit and shareholder value is the top priority in any business, often time, firms are highly demanded to be accountable to the social implications as a result of their activities in their supply chains. Ensuring that no harm is done towards society at large is essential. Supplier's practices could have an impact to the

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manufacturing in terms of its performance indicator as well as branding and reputation as a society today has become aware of the negative issues surrounding firms' activities such as child labor and gender discrimination. News is shared rather quickly, particularly through the usage of social media. This has become a challenge to firms these days is making sure not only their manufacturing complies to good practices but likewise to their suppliers. Local supplier development will contribute to improving social sustainability as this act indicates that firms care of society's wellbeing by giving out opportunities to the locals and trusting their skills and capabilities by developing the community where firms operate. In addition to that, local government regulations could also be the factor enforcing local supplier development.

## 2. Literature Review

### 2.1. An Overview of Malaysia Manufacturing Industry

The manufacturing industry has significantly contributed towards firming up the economy of many countries, be it in the global arena or those in developing countries by supplying goods and services (Abdul-Rashid, Sakundarini, Raja Ghazilla, & Thurasamy, 2017). According to Janee Ali, Islam and Poon Howe (2013), the manufacturing industry globally has undergone drastic changes lately, not only focusing on efficiency alone, rather integrating the customer-focused technology-based through the open operating system to survive in this dynamic sector. This is supported by Naqshbandi, Kaur, Sehgal, and Subramaniam (2015) that Malaysia economy will become more driven by technology and using knowledge as its basis as Malaysia moves towards becoming a fully developed country.

Malaysia manufacturing sector are diverse and segregated into twelve areas namely non-metallic mineral industry, aerospace, textiles and textile products, basic metal products, electrical and electronics, engineering support, food and sustainable resources, machinery and equipment, medical devices, petrochemical, pharmaceuticals and wood and wood products and furniture and fixtures (Malaysian Investment Development Authority, 2019).

According to the Department of Statistics Malaysia (2019), the manufacturing sector recorded an increase in sales value of RM69.9 billion in April 2019, a growth of 6.8 percent as compared to RM65.5 billion last year. The electrical and electronics (E&E) alone shows the significant increase in sales value in April 2019 to 6.7% (Department of Statistics Malaysia, 2019). According to the Malaysian Investment Development Authority

(2019), E&E industry reportedly contributing significantly by foreign investments of RM8.2 billion, which equivalent to 84.5% of all investments in the industry. Hence, the E&E industry is, no doubt, the leading sector in Malaysia's manufacturing sector.

Although manufacturing industries flourished significantly, several challenges are associated with industries success. Due to rapid technological advancements, to facilitate this, segregation between managing a firm's core competencies and subcontracting the non-core activities to the supplier is one the decision firm has to make. Integrating firm manufacturing with suppliers is one of the moves so that any possible issues can be detected at an earlier stage.

In addition to that, numerous cases concerning child labor and poor management of suppliers workforces were highlighted in recent years, which impacted the reputation of giant players in the industry. Issues such as Nike utilizing child labor at suppliers' factories in the 1990s as well as the suicidal case in Apple's supplier Foxconn in early 2000s are amongst those that had received severe backlashes from consumers and society. These inappropriate practices by suppliers are some of the examples of social issues related to product and process, because these aspects could have an impact to people and society surrounding global business networks as it is directly impacting the credibility of these huge corporations (Tate, Ellram, & Kirchoff, 2010; Mani, Gunasekaran, Papadopoulos, Dubey & Childe, 2016). Therefore, supplier selection is critical in ensuring the firm is economically and socially compliance.

## 2.2. Local Supplier Development (LSD)

Maintaining a good relationship with a supplier is crucial in running businesses. Supplier management is one of the aspects in the supply chain process that must be handled carefully as the supplier is the supply chain's primary foundation and the beginning of the chain process. According to Kannan, Khodaverdi, Olfat, Jafarian, and Diabat (2013) and Kannan, Govindan and Rajendran (2015), it is vital and crucial for firms to select the best supplier to ensure that firm's association throughout its chain is effective so that firm can successfully strive globally. Also, Jabbour, Jabbour, Latan, Teixeira, and Oliveira (2014) concluded that to achieve sustainability in a supply chain without supplier support is of a great challenge. According to Buyukozkan and Cifci (2011), triggering point in supply chain sustainability is the suppliers, making a shift in procurement's focus to not only on economics but also to incorporate social and environmental perceptions when selecting suppliers. This is because supply chain performance could be affected by these continuous efforts.

Kannan (2017) identified five critical factors in selecting suppliers. The factors highlighted are preserving continuous and long-run relations and coalitions, authorization by stakeholder, fairness in managing labor and human rights aspect are categorized under social concerns, whereas production of polluting agents is an environmental issue. Other criteria considered by firms during the supplier selection process are price, quality, and flexibility, among others. Further, Kannan (2017) also mentioned that the rise of suppliers' performance would contribute to the increment of an efficient supply chain.

Selection of supplier during the early days indicated that economic factors were the only criteria when selecting suppliers. However, these days, emphasizing social and environmental concerns has shifted focus from profits to sustainability, as well as stakeholders pressure (Thresh Kumar, Palaniappan, Kannan, & Shankar, 2014). Protection mechanism and underage labor have been identified as the highest driving and dependence power when selecting supplier based on a CSR perspective. This notion goes together with a request to put human rights central within CSR. This is due to globalization that somehow neglects this right and targeting on profits. Hence it becomes the key concerns for business in both practical and normative terms.

Suppliers performance and reputation impact the firms. If suppliers do not comply with the rules and regulations as well as bringing negative impacts to the environment or social aspects, firms will face the same bad reputations. High performing suppliers should be able to address common supply chain problems, which in turn preserving limited resources. Heckmann, Comes and Nickel (2015) in their paper shown that research on economic risks such as quality and delivery issues of suppliers and their sub-suppliers have been the focus of firms, however Foerstl, Reuter, Hartmann and Blome (2010) had earlier argued that social and environmental risks of suppliers and supply chains have gained much attention from firms.

According to Mani, Gunasekaran, and Delgado (2018), due to cost advantage, firms increasingly extend their supplier base to emerging countries. However, although cost advantage is important, firms nowadays face with societal pressures from stakeholders as well as bound to governmental laws and regulations, hence taking into consideration environmental and societal issues with regards to handling their suppliers (Ferri & Pedrini, 2018). Firms are seen to select and manage suppliers to increase their reputations and social standards; satisfactory working conditions is foreseen to reduce the likelihood of being penalized if firms involved in social scandals or misbehaviors.

Suppliers selection are based on certain criterion such as evaluation of quality and business practices (Chardine-Baumann & Botta-Genoulaz, 2014). Suppliers' quality

performance and fair trading are examples of these aspects. Closeness to suppliers' practices focusing on supply lead time reduction, geographical concentration of the supply base, close relationships with suppliers and direct deliveries from suppliers are also important for firms in ensuring that social performance is met (Ciccullo, Pero, Caridi, Gosling, & Purvis, 2017). Health and safety and wellbeing systems in the workplace and with suppliers are crucial to firms.

Tang and Zhou (2012) argued that firms must ensure their operation strategies are aligned with upstream suppliers and downstream customers to generate the largest benefits. A study conducted by Kumar and Rahman (2016) illustrated that external influence and sustainability adoption's expected benefits are important precursors of top management commitment towards integrating sustainability into supply chain operations. This will then influence the supplier practices such as supplier selection, supplier development, and supplier performance review, which further influenced the economic, social, and environmental sustainability performance of the supply chain.

Supplier development is generally targeting at producing a new capability, competency, and capacity of diverse suppliers (Goffin, Lemke, & Szwejczewski, 2006). The aim is to enhance the competitiveness and advantage for the firm and at the same time, provide growth for the local communities. Supplier development could also be deemed as improving the performance, which would be apparent in the way new products are introduced as well as the management of process and standard. To the firm itself, this move is a way to achieve cost savings as global sourcing is less required, the firm can oversee the quality, on-time delivery performance is improved which in turn increased profit (Krause, Handfield, & Tyler, 2007).

### **2.3. Sustainable Social Supply Chain and Local Supplier Development**

This section aims to examine four aspects of sustainable practices towards local supplier development. The four identified elements are sustainable procurement, sustainable design, sustainable distribution, and sustainable production. It is worth to synthesize the relationship between these elements.

Sustainable procurement is defined as a process whereby firms meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the firm, but also to society and the economy, whilst minimizing damage to the environment (Department for Environment Food and Rural Affairs, 2006). Brammer and Walker (2011), in their studies, developed

two new dimensions of sustainable procurement practices, namely procuring locally and procuring from small suppliers. In addressing sustainable procurement practices, their study adopts the design and packaging of products, purchasing from small and local suppliers, products' potential for recycling or reuse, safety, labor rights, carbon reductions in the movement of products to facilities, operational excellence, product innovation, leadership, willingness of suppliers to commit to waste reduction goals, religion, and culture as dimensions.

Besides that, when it comes to sustainable design, the firm needs to take into consideration its social impact on society. Hence, the supplier must also be socially inclined so that both the manufacturers and suppliers are aligned on the business operating model. Zhang, Zhang, Fung, and Ng (2019) indicated that make-or-buy analysis and supplier selection are closely related to product design. Developing suppliers locally gives control to the firm in designing the products that meet societies acceptance. Besides that, the firm can ensure the design can produce good quality products and not harmful to consumers.

To sustain the firm's distribution channel, fast delivery is one of the criteria to determine a supplier's performance aside from cost and quality. Hence, strategic distribution is essential to ensure goods are delivered in a timely manner and efficient. Finding in the study conducted by Ashenbaum and Maltz (2017), found that purchasing managers deemed mutual responsibility to positively influence supplier delivery speed, whereas logistics managers found it to positively influence supplier price performance. Local sourcing has an advantage with regards to its short and deterministic lead-time to achieve high responsiveness (Yin, Wang, & Yin, 2018). By sourcing locally, the supplier has the advantage of responding competently to requirements which could lead to reducing inventory costs. It gives more flexibility to the firm by sourcing locally, particularly when a huge opportunity arises, or demand from existing customers suddenly increases. Since the suppliers are within the communities or county's border, the products are expected to be quickly delivered.

About the principles of sustainable production, indicators for economy stated that the favorable criteria in selecting suppliers locally as well as employing workers in all firm's areas are a portion of a firm's corporate social responsibility. Policy for this local suppliers' favorable criteria and guideline to employing local workers must be put in place for the local supplier development can be successfully achieved (Samuel, Agamuthu, & Hashim, 2013).



By incorporating the above sustainable practices in firms' operations, it is likely will assist in developing suppliers locally. Fast response and delivery and close relationship within are critical to ensure firms able to meet customers' requirements globally.

### 3. Reflection

Local sourcing is deemed as the best approach for a manufacturing firm to maintain its aggressiveness towards fulfilling customer's needs. Therefore, developing a local supplier is required to assist suppliers in enhancing their skills and capability. By this move, the firm is seen as building the communities where it operates, in turn, brings a good reputation and image to society. To ensure that this kind of program is successful and effective, this paper recommends that authority to set a certain requirement to out-source certain activities to local suppliers. Guidelines and enforcements by policymaker are seen as appropriate to ensure that this approach is effective. Frequent follow-ups and audits could be conducted to measure suppliers' performance.

The systematic approach between firm and supplier is deemed necessary as a long-term strategic goal. Regular monitoring is required to ensure the plan is executed into actual performance to further improve its supply chain. To rate its success, it is recommended that both the manufacturer and supplier to have a mutual understanding of its end goal. This can be achieved by on-going engagement and communications to ensure the goals are met.

### 4. Conclusion

In the current economic situation where marketplace changes rapidly, firms are expected to change faster and align with the current changes. This also applies to the suppliers as firms rely heavily on innovations from the business partners. The development of local suppliers addresses disperses suppliers by having an integrated and comprehensive initiative. By this development, it is foreseen that the local suppliers will be equipped with suitable skills so that firms' ultimate goal to achieve profits and to operate in effective and efficient ways is achievable.

### Acknowledgment

The authors convey their appreciation to the Division of Research & Innovation, Universiti Malaysia Pahang for funding this study (RDU grant no: 172207; PGRS grant no: 190365).

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## Conference Paper

# Research Note on Eco-Efficient Supply Chain Integration

Latifah Naina and Yudi Fernando

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

Manufacturing must strictly improve environmental protection as this will able to triggers eco-efficient based innovation. At the same time, it will lead manufacturing to achieve the optimum level of environment protection and improve business performance. Currently, environmental improvement still a lack of pressure given for industry to implement environmentally friendly management practices even though the improvements in energy efficiency are obvious. Eco-efficiency has been expanded through green and lean initiatives; there is a decline in the level of integration for eco-efficiency in the supply chain to balance in both environmental and economic aspects. Thus, the objective of this study is to determine the impact of eco-efficient supply chain integration in environmental manufacturing protection improvement. The paper elaborates the importance of eco-efficient supply chain integration in environmental manufacturing protection to indicate of their improvement. The application and mechanics of eco-efficient supply chain integration discussed related to the implementation of the current practices of environmental manufacturing protection improvement.

Corresponding Author:

Yudi Fernando  
yudi@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E**Keywords:** eco-efficient supply chain integration, environmental manufacturing protection.

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Government, business organizations, and societies have deep concerns about environmental issues such as solid pollution, global warming, air pollution, and ozone depletion. Issues in environmental have become measured for most of the industry for their environmental problem (Rozar, Hasrulnizam, Mahmood, & Ibrahim, 2015). In Malaysia, the manufacturing sector is its economic development driven by export-oriented, that makes Malaysia one of the potential choices for an investor in a foreign country to invest in the manufacturing sector. Moreover, the manufacturing industry in Malaysia is one of the key industries that contribute to Malaysia economic growth. Unfortunately, manufacturing industry triggered a decline in environmental because manufacturing produces more emissions compared to other industry when manufacturing build order to fulfill customer's demands and needs (Yusuf, Mahmood, Salleh & Rahman, 2015).

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On the other hand, there is a negative impact from manufacturing in terms of environmental in a different way, where manufacturing generated liquid, gaseous, and solid waste products that can cause to the pollution of our natural resources (Klassen, 1993). Firms encouraged to align their operations towards a sustainable supply chain. The firm needs to measure environmental protection in its operation by achieving transition in the sustainable supply chain (Acquaye, Mohamed, Genovese, Afrifa, Yamoah & Oppon, 2018).

The awareness of environmental impact towards transportation of goods, production processes and sourcing of raw material should be escalating not only for the manufacturers but the pressure should also be given to upstream and downstream supply chain partners. (Katiyar, Meena, Barua, Tibrewala, & Kumar, 2018). According to Rahman, Noman, and Shahari (2017), energy consumption and economic growth have the highest impact on environmental pollution in Malaysia. Environmental protection would require essential changes in manufacturing industry activities and their business patterns. According to Colgan (2009), the manufacturing industry in worldwide has contributed 38% of carbon dioxide (CO<sub>2</sub>) emissions, and this has an impact on the environment such as changes in weather patterns, air pollution, global warming and potential to expand disrupting the natural balance of the ecosystem and human health. It is essential for manufacturing to reduce CO<sub>2</sub> emissions, and change is needed to gain trust from business and customer.

Due to globalization, the supply chain distribution networks of goods and services have become more complex, and it has increased the carbon emission across the supply chain (Jin, Granda-marulanda, & Down, 2014). Govindan, Sarkis, Jabbour, Zhu and Geng (2014) claimed that eco-efficient is a tool that will give sustainable growth and increased attention to practitioners and researchers as eco-efficient has given important benefits to firm's operational performance but with having eco-efficient supply chain integration (EESCI) is a closed-loop alignment and collaboration including coordination in supply chain including internally and externally. The level of integration (Sezen, 2008); (Trkman & Stemberger, 2007) between the supply chain members has become a necessity. EESCI is a tool for manufacturing to work for hand on hand among supply chain partners to look at overall problems that manufacturing facing and collaborate to resolve the issues.

## 2. Literature Review

Malaysia emphasized environmental protection when realizing the country has increased in industrialization, and this will reduce threats to the national environment

(Mokhtar, Ta, & Murad, 2010). Thus, the Malaysian government has put priority to provide good quality and modest environment for the urban area as these important towards economic growth and investment center for Malaysia (Bekhet & Othman, 2017).

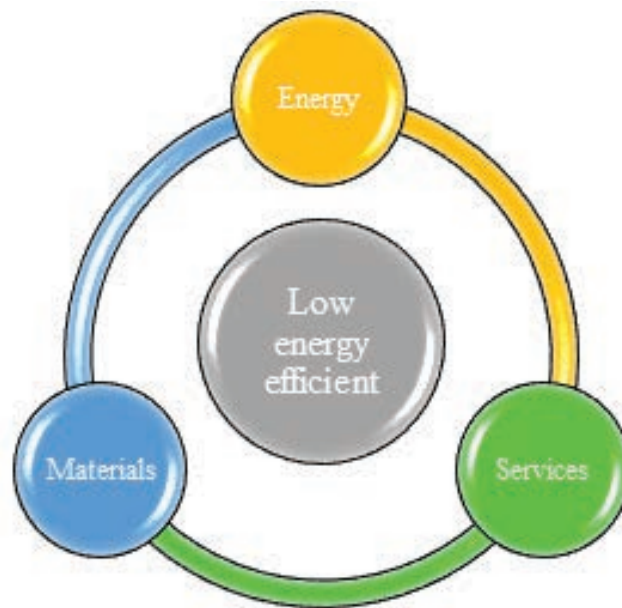
Mehedi Masud et al. (2015) claimed the environmental problems have created by activities designed to improve human life. One of the Malaysia vision in 2020 is to become a developed country, with the rapid growth in the nation and climate change burden it is a threatened to environmental improvement (Mehedi Masud et al., 2015). However, there is an inherent conflict of interest between protecting the environment and promoting economic growth (Shah & Husin, 2013).

## 2.1. Environmental Manufacturing Protection Improvement

The development in the manufacturing sector has increased rapidly, and the population in the industries area has been boosted. The land has expanded to occupied by the population. Consequently, the negative impact is on the quality of the environment because of economic growth and has caused air pollution and industrial emissions (Mokhtar et al., 2010). According to Ma and Cai (2018), manufacturing industry caused serious damage to the environmental by consumes a lot of limited material, energy, and services. Global warming and environmental pollution are severe because of the impact of industrial production. Therefore, the manufacturing industry must implement processes with high-level flexibility and efficiency at the same time, support by consuming low energy and cost (Wang, Wan, Zhang, Li, & Zhang, 2016). On the other hand, products with environmentally friendly are higher price, customer that have environment-sensitive will support environmental protection and willing to pay high prices but some customers will have some price concern and will expect to get lower price and their care on environmental protection level is lower (Wang, Zhang, & Zhu, 2017). Figure 1 shows the determinants of low energy efficiency in the manufacturing context.

## 2.2. Eco-efficient supply chain integration

Eco-efficiency has become critical for a manufacturer to implement in their products (Gmelin & Seuring, 2014) and (Dormer, Finn, Ward, & Cullen, 2013). There is still a lack of integration for eco-efficiency in the supply chain to balance in both economic and environmental aspects. Contingency factors such as product complexity, the complexity of business conditions in supply chain integration are uncertainty (Wong, Boon-Itt, & Wong, 2011). Even though there is a different opinion in research, limited study has

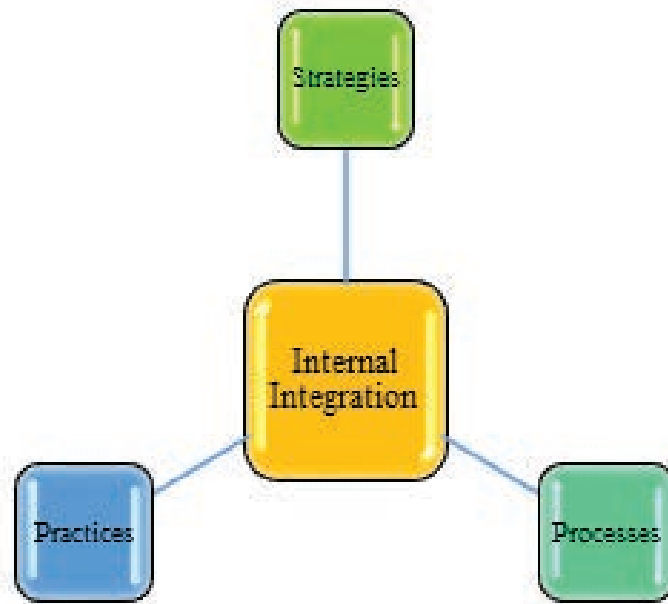


**Figure 1:** Determinants of Low Energy Efficiency.

agreed that the impact of the eco-efficiency-based supply chain to firm improvement process (Govindan, Sarkis, Jabbour, Zhu, & Geng, 2014). The connection between customer and supplier integration in new product development is still very limited. This is an opportunity to improve supply chain integration (He, Keung Lai, Sun, & Chen, 2014). Many studies have stressed that manufacturing will gain benefits if they successfully implement eco-efficient, the benefits they will achieve will be greater, the benefits categorized in workforce productivity, better firm image, improved in social responsibility, expand to the new green market and enhance eco-efficient capability ((Shrivastava, 1995). Hence, EESCI can be implemented to increase improvements in services, processes, and services along the product value chain (Ferna & Capuz-rizo, 2010). EESCI can be viewed as the manufacturer requires good coordination and collaboration among supply chain to work together with internal and external supply chain to improve supply chain process internally among the supply chain and externally with supplier and customer to protect and improve in environmental. There are two major groups in supply chain integration; there is internal integration which manufacturers create own organization strategies, processes and practices to collaborates and synchronized so that can interact with supply chain partners such as upstream supply chain and satisfied downstream supply chain requirement (Flynn, Huo, & Zhao, 2010). Figure 2 shows the design of internal integration in supply chain management. Whereas for



external integration, manufacturers work with supply chain partners to create inter-organization strategies, create processes, and implement practices to collaborate and synchronize from both sites (Flynn, Huo, & Zhao, 2010).



**Figure 2:** Design of Internal Integration in Supply Chain Management.

Figure 3 shows the design of the external side of supply chain integration. However, different objectives among the supply chain partner will cause failure in communication and collaboration (Denolf, Trienekens, Wognum, Vorst, & Omta, 2015). Manufacturing that implements the eco-efficient is able to reduce negative impacts on the environment during the production process (Fernando, Xin, & Wah, 2017). Eco-efficient combines both environmental demands and economic, and at the same time, eco-efficiency will be used to identify a solution that will not increase the level of damage in environmental unless if the costs also get impacted that will lead to increase in cost (Neto, 2009).

### 3. Research Note

This paper summarizes the implementation of EESCI in environmental manufacturing protection improvement. EESCI is able to play an important role to improve environmental protection in the manufacturing industry. According to (Wang, Zhu, Zou, & Xu, 2017), integrate between supplier and customer may reduce manufacturing cost, increase inventory turnover, and increase in labor. Information sharing and collaboration are part of the key contribution of EESCI. Manufacturing adapts to collaboration in networks among the supply chain partners can reduce unpredictable issues that arise in



**Figure 3:** Design of External Integration in Supply Chain Management.

markets and reduce the product lifecycles with increasing the agility (*Perspective, Brettel, Friederichsen, Keller, & Rosenberg, 2014*). Based on the review on eco-efficient supply chain integration, this study is proposed a conceptual model for future research. The conceptual model is presented in Figure 4.

#### 4. Concluding Remarks

Improving the enforcement of environmental protection of the manufacturing industry is essential and a key task to increase environmental performance. Environmental manufacturing protection improvement would require essential changes in manufacturing industry activities and their business patterns. EESCI able to add value to environmental protection such as purchasing environmentally-friendly facilities, conducting low carbon training to employees and so on, which may increase costs but high-quality products (Mao, Zhang, & Li, 2017). For EESCI to succeed, supply chain partners must implement good teamwork and coordination among them. Although technological advancement is essential and playing a big role in making EESCI success, the integration in technologies among supply chain partners does not confirm that the supply chain actions will integrate automatically after implementing such technology, this is because EESCI needs a greater transformation in engaging supply chain partners. Firms also required

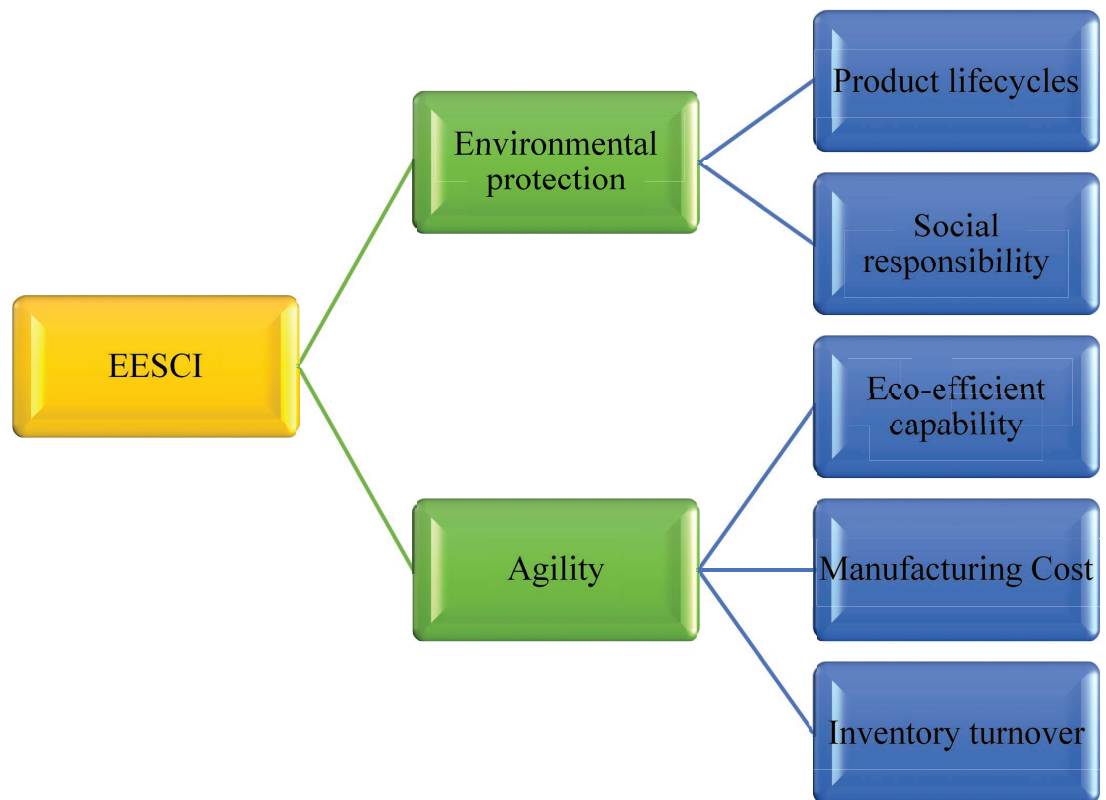


Figure 4: A Conceptual Model for Future Research.

to change to integrate all the procedures and product flow to become more effective and efficient (Huang, Yen, & Liu, 2014).

## Acknowledgment

The authors convey their appreciation to the Division of Research & Innovation, Universiti Malaysia Pahang for funding this study (RDU grant no: 172207; PGRS grant no: 190366).

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## Conference Paper

# Why Does Theory of Inventive Problem Solving Matter in Malaysian Food and Beverage industry?

Aminaimu Zheng xiaoming and Yudi Fernando

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

Nowadays, the competition in the food and beverage industry has developed from a single food competition to comprehensive competition in all aspects: from the pursuit of high-quality products to the expansion of market share, to the promotion of the brand effect and to the new shape of pursuing the entire enterprise. Consumers' demands keep changing with time. These changes are different from demands that occur for classy foods requiring typical features such as nutrition value, the lusciousness of taste, and accessibility, to basic aspects such as improved food safety, food life span, durability, and waste food proper management. Thus, the objective of this research work is to review the TRIZ-theory of inventive problem-solving the matter in Malaysian food and beverage industry. The new product development in Malaysian food and beverage industry needs to accommodate the market demand. This study revealed that the actual product development process could be analyzed by assessing the interactions between consumer demands and expectations, the producer's technical capacity of the food, and emerging knowledge from scientific researches about food. This has been attributed to the problem of the low quality of input terms of the food industries and productivity growth of Malaysian manufacturing industries, which is input-driven rather than total factor productivity-driven.

**Keywords:** new product development, balanced scorecard, food and beverage industry, TRIZ theory.

Corresponding Author:

Yudi Fernando

1271210987@qq.com

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under  
the responsibility of the  
FGIC2019 Conference  
Committee.

## 1. Introduction

Companies are facing an enormous challenge to continuously improve its performance to meet its stakeholder's obligation (Danso et al., 2019; Dembek, York, & Singh, 2018; Silva, Nuzum, & Schaltegger, 2019) and performance (Aydiner et al., 2019; Liu et al., 2018). One of the best-known approaches to performance is Balanced Scorecard (BSC). BSC is considered as one of the best highly specific multidimensional system for performance measurement to maintain a multitude of stakeholders who seek perfection in accountability (Trotta, Cardamone, Cavallaro, & Mauro, 2013). A customized scorecard

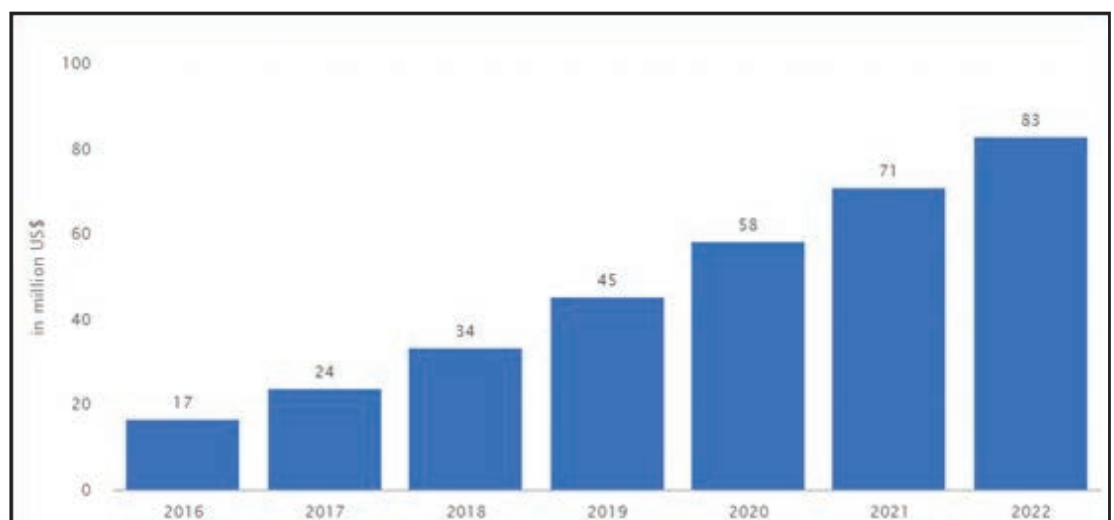
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design can assist in the development of processes that lead to better sustainable performance (Reefke & Trocchi, 2013; Shad et al., 2019). A strongly designed BSC on a hierarchical basis acts as a bridge between performance measurement and key organizational performance (Shen, Chen, & Wang, 2016).

## 2. Food and Beverages Industry (F&B) Performance in Malaysia

The product and the process development are considered as the essential and critical part of developing smart business strategies for any food industry, just like any other industries. Failure to develop innovative products relay firms to compete entirely on prices which benefited the players with an approach to the lowest cost inputs (Ravindran & Jaiswal, 2016). Implementing a lower cost policy for a country economy, can create an unforeseen outcome, especially when another country, with a lower cost structure, invade the market (Avermaete et al., 2004).

There are more than 9000 food processing firms in Malaysia, of which 95% are categorized as small-scale each having simple to complex organizational structure and thrive on being flexible that can adapt to changes at disparate stages of the product development and procedures to accommodate consumer interest are better suited for the industry of food processing (Talib, Ali, & Idris, 2013). Figure 1 shows the F&B revenue projection in Malaysia in a million USD.



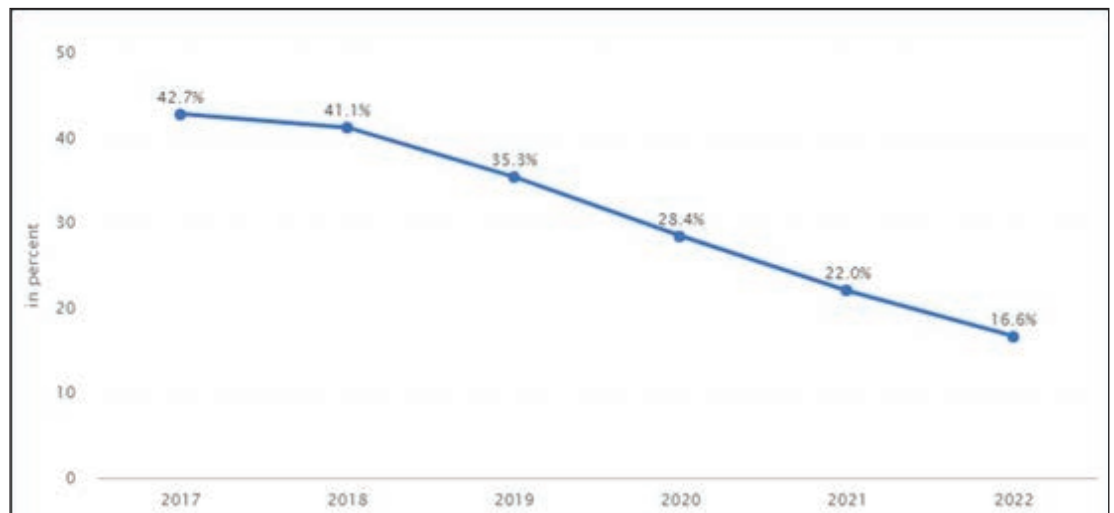
**Figure 1:** Food & Beverage revenue projection in Malaysia in a million USD (**Source:** (Statistica, 2017)).

From Figure 1, it is evident that the growth of F&B revenue projection in Malaysia from 2016 to 2022 is growing at a rapid pace. An increase from 17 million USD in the



years 2016 to 83 million USD in the years 2022 is witnessed. So, we can say that the growth of F&B in Malaysia is very high, and so is the demand for F&B (Statistica, 2017). Figure 2 shows the F&B revenue growth projection in Malaysia.

The growth of F&B revenue growth projection in Malaysia from 2017 to 2022 is visualized in the Figure 2. The amount of F&B growth projection rapidly decreases from 42.7% in the years 2016 to 16.6% in 2022. So, we can say that the growth of F&B is based on demand. The demand seems to be decreased due to some reasons which the academicians and industrial managers should take this into account seriously (Statistica, 2017).



**Figure 2:** Food & Beverage revenue growth projection in Malaysia (Source: (Statistica, 2017)).

One of the highly uncertain industries that are competitive is F&B. Therefore, it can challenge company business performance to improve, which is performance. The competition in the food industry has seen tremendous growth, from producing high-quality products to the expansion of market share, to the promotion of the brand effect and to the new shape of pursuing the entire enterprise and there is always a competition between the competitors (Jin, Shu, & Zhou, 2019). Successful food and beverage innovation are essential in helping companies achieve sustainable growth and profitability. In a recent survey, over 60% of F&B executives stated that product innovation or portfolio adjustments to 'healthier' trends would be the key drivers they turn to for revenue growth over the next three years. While executives acknowledge that achievement of strategic goals will be mostly dependent on product innovation, many companies hardly strive with adequately delivering on innovative initiatives to meet those goals, with failure rates of new food and drinks products climbing as high as 70%-80% (Boyd et al., 2017).

Malaysia exports a variety of commodities like the other developed countries. However, processed food products constitute the main portion of these exports (Parfitt, Barthel, & Macnaughton, 2010; Wang, Jin, & Zhou, 2019). Rapid urbanization and restructuring in economically developing countries have transformed the food market. Malaysia is now participating in global trade agreements with other countries for a wide range of food products stability (Somasundram, Razali, & Santhirasegaram, 2016; Weis, 2007). Based on the subsequent government's attention over agriculture concerns, the agro-based industry is witnessing Malaysia as one of the largest foods and beverage processing hub. During the time of the Industrial Malaysian Plan 2006-2020 (IMP3), the investment's target of the food processing industry has been set at RM24.60 billion (Stoloff & Sikka, 2012). At various business environments, small and medium scale companies altered and influenced the Malaysian food production and industry (Goswami, Mattoo, & Sáez, 2012). Presently, the major advancement and gain areas are convenience food, food ingredients, functional food, health-related food, and halal food. In response to peripheral environmental changes around the globe, the industrial sector is going through several modifications caused by a variety of determinants such as technological developments, shifting demand patterns, rising production costs, and changes in competitive groupings (Ayupp, 2013).

BSC systems enrich and formulate the development of strategy into the implementation at an operational level and create a strong "strategic map" that incorporates all four dimensions BSC in a single chart. The four dimensions are financial (Sainaghi, Phillips, & d'Angella, 2019), the customer (Niven, 2014), internal business and learning and growth (Ottman, 2017) that are a core strategy of any businesses. When a balanced scorecard and a strategic map is combined, it acts as a performance appraisal tool to execute the planned strategy effectively (Fooladvand, Yarmohammadian, & Shahtalebi, 2015).

Therefore, a modern BSC will help to determine the company strategy and will help companies achieve high business performance (Sainaghi, Phillips, & d'Angella, 2019). Since business performance depends on strategic planning, the corrective role of strategic performance management on short-term and long-term goals are facing many challenges like external environment, customer expectations, judicious resources management, uncertainty and risk, and timely decision making. BSC suggests feasible solutions and control the conditions of the highly variable uncertain economic and social environment (Trotta et al., 2013).

These internal and external environments pressure are affecting the business performance of a company. Even when companies practicing BSC to improve business

performance, companies are facing uncertainties from a dynamic business environment. The development process of the actual product is signified by the interactions among buyer demands and prospects, the producer's food processing capability, and understanding of the scientific knowledge about food science. (Coles, McDowell, & Kirwan, 2003; Dou et al., 2016). Therefore, with new product development, companies can meet customer expectations and in the end, increase business performance. Other than increasing business performance, companies also can increase innovation that comes from BSC practices. The best strategy for each company would be determined by the unique characteristics of the company and the external environmental factors to guarantee exclusive growth for those companies. Hence, to be successful in the beverage and food industries, companies need to depend on confined and implicit knowledge that can behave and benefits instantly to business indicators such as price issues, cost inequities, legislative compliance, competition restrictions, and changing customers' preferences that brings diversity in taste from original traditional foods, etc.

Whether the proprietor or the administrator manage the company, the authorities' direct interaction with end-users and flexible attitude creates an environment which brings a unique advantage to these companies (Ayupp, 2013). The two essentials pillars for a food business are the quality and safety of the food. Also, the customer satisfaction is realized by the quality of the products which also acts as a strong weapon (strategy) for the business success in the competitive environment (Talib, Ali, & Idris, 2013).

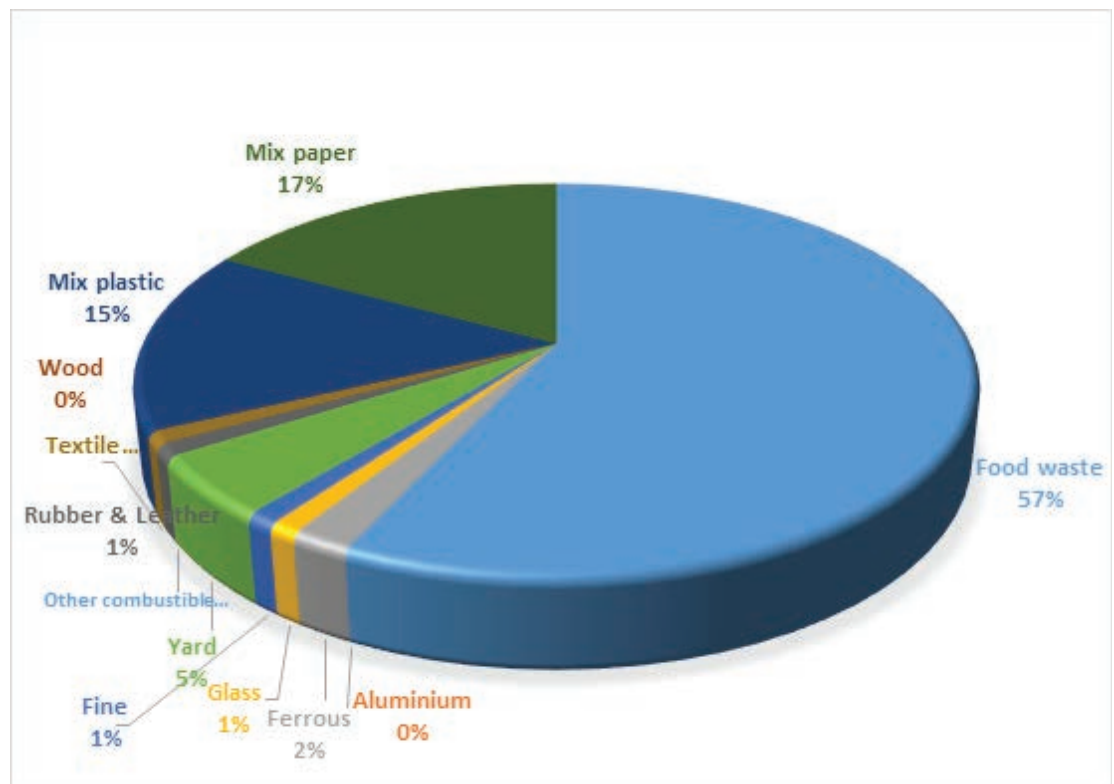
### 3. Food Waste in Malaysia

Over several decades, attempts have been made to quantify global food waste, motivated partially by the need to indicate and highlight the scale of 'waste' about global malnutrition (Alexandropoulou et al., 2017). The most often quoted estimation is that 'as much as half of all food grown is lost or wasted before and after it reaches the consumer's (Romani et al., 2018). There will be an impact on the composition of solid waste by the rapid development of economic growth. The new trends in lifestyle, especially in the metropolitan cities, have led to more severe waste handling and disposal problems. It was estimated in the Ninth Malaysia Plan that percentage of food waste would be the maximum (45%) among the others waste including paper (7%), iron and glass (6%), plastic (24%), with the remaining makeup by other materials (Romani et al., 2018).

It is obvious that Malaysian solid waste is composed of an extremely high proportion of food surplus. According to a survey in 2008, the food waste statistic reached up to 63.1% (Siwar, 2008) overall Malaysia while the value of 74% in particular reported

for Kuala Lumpur (the capital city of Malaysia) which is the result of incinerated waste products into the dumping ground areas. The figures mentioned above can be further increased if other recyclable materials are recovered from the waste stream, which mainly dumped at the landfills sites (Ghani et al., 2013). Due to various restrictions, food waste segregation and minimization programs have not been extensively implemented in Malaysia unlike the other recyclable waste such as glass and paper, which basically due to low awareness among waste generators and low demand recyclable products from waste food such as fertilizer and compost (He & Lin, 2019).

In Figure 3, the graphical depiction of recyclables percentage is presented. The results signify that the major component followed by mix paper and plastics is food (organic) waste. However, unluckily, the attention rewarded by authorities towards this aspect is not enough to undertake this issue. Though recycling activities in Malaysia is rising, the recycling industry still needs to be more enhanced (Bong et al., 2017).



**Figure 3:** MSW Recyclables of Kuala Lumpur (Source: (Bong et al., 2017)).

#### 4. New Product Development (NDP)

The management and control programs for the new products received a positive impact by the implementation of formal NDP process which solely depends on the way the

companies adopt the process (Cooper, 2019), formal NPD processes have had a positive impact on the way that some companies' new product programmed are managed and controlled. Proper management for new products can produce a substantial injection in the growth of new products that unusually be monitored by the existing products. The three building blocks of NPD growth involves; process, strategy, and resources. Having an innovative business strategy for a product that correlates product development to the company strategy, that differentiates between the spotlight and the areas of focus for product development, having a longer-term drive, and finally, that is clearly articulated and communicated to all in the company, can direct a company towards success. Ample financial resources are another factor that can move a company NPD towards success, which can be achieved by appointing the people with expertise in relevant areas and managing the funds for R&D expenses in place. Finally, the most important point among the three aforementioned is to have an innovative idea for a new product which can guide towards the launching stage.

Similarly, if there are three bases of NPD success such as process, strategy, and resources, which will improve the performance of the food industry. New products and product advancements in food processing industries could fluctuate from expanding the existing production lines, introducing new flavors, and varying the product's package wrapping to give the customer a new appeal for the products (Ayupp, 2013; Cooper, 2019). This will have a direct impact on the performance of the newly launched products for the food industry.

## 5. TRIZ As an Underpinning Theory

TRIZ has proved to solve difficult technical issues that require innovative thinking. TRIZ theory provides the integration of experiences and knowledge which acts a base for the invention in the world, creating a through a methodology for solving the technical problems in NPD (Butler et al., 2013). Also, the TRIZ theory provides a good mean to analyze and deal with many types of complications. The researchers pointed out the three important outcomes about the process innovation (Hidalgo & Albors, 2008). Firstly, the repetition of problems and solutions across industries and sciences. Secondly, the repetition of technical evolution across industries and sciences. At third place, the use of innovation outside the effects of the scientific field where they were developed. For instance, in the Project plan (Butler et al., 2013).

Ippolito and Zoccoli (2013) developed a macro and micro level BSC to identify measures and target values, and action plans related to budget and also take care of

other stakeholder's requirements. This proved as a dynamic tool that incorporated both dynamism and supported different roles and situations to achieve strategic flexibility. Similarly, the BSC model for R&D was established by (García-Valderrama, Mulero-Mendigorri, & Revuelta-Bordoy, 2008) to test recognized specialists in administration and R&D. Here the BSC is put forward to check the organizational effectiveness in achieving the strategic objective and then later group them into a set of BSCs' five broad perspectives. Based on the procedures followed and as well as insights derived from these two studies. The current study is focused on designing a BSC as a performance measurement tool in the context of NPD for the F&B industry.

The applicability of TRIZ (a Russian acronym for Theory of Inventive Problem Solving) is yet to be tested for effective adoption towards technology innovation and NPD. In a recent study, Huang reported that the use of TRIZ, for designing of a new product, could be one of the best ways out to cope with the hurdles of satisfying the customer through new product design (Huang, 2013). In this stringent international competition, each successful organization creates a unique business model which is suitable for its own. Solving an innovate business model via the universal TRIZ standard procedure could be the best option, which provides a scientific basis for enterprises to accelerate the revolution steps of a business model (Gu, Ouyang, & Liang, 2010).

Meaning of TRIZ in other words, a theory of inventive problem solving (Rantanen & Domb, 2008). TRIZ comprises three pillars, which are analytical logic, knowledge-based philosophy, and a logical way of thinking. TRIZ is the evolution of technologies, not an unsystematic process, but one established on several laws (Khomeenko & Ashtiani, 2007). TRIZ is also categorized as a problem-solving method based on logic and data, not intuition, which accelerates the project team's ability to solve these problems creatively (ReVelle, 2016). TRIZ theory has been applied by several global organizations who have found it particularly useful for spurring new product development (Tukker, 2015). TRIZ can also be used as a useful method in the new product development process to generate alternatives (Ekmekci & Koksall, 2015). To make the comprehensive budget management align effectively with business strategies, the contradictions of the comprehensive budget management system planning processes must be identified and resolved based on TRIZ theory (Song & Yi, 2015).

TRIZ also provides reproducibility, probability, and reliability due to its structure and algorithmic approach (Silverstein, DeCarlo, & Slocum, 2007). In contrary to psychologically-based common creativity tools, "TRIZ is an international science of creativity that based on the study of the patterns of problems and solutions, instead of spontaneous and intuitive creativity of individuals or groups (P. K. Ng, Jee, & Choong,

2016). The validity of TRIZ theory as a problem-solving methodology is principally evidenced with a high level of difficulty associated with a problem or when problem classified as a non-routine or inventive problem whose solution needs some creativity (Ilevbare, Phaal, Probert, & Padilla, 2011).

These difficulties levels related to each other to the source of knowledge required to solve. There are five levels of TRIZ Theory. Level one stated about the knowledge available quite easily and understandably solving a simple problem. The level 2 demonstrated the solutions of the problem require knowledge outside the industry, but still, be solvable inside the industry. In level 3, the problem needs appropriate knowledge outside the industry, but still within a discipline. It is about clever analogous things (I. M. Ilevbare, Probert, & Phaal, 2013). Level 4 using new technical systems together with solutions from wide boundaries of knowledge. Level 5 involves discovery something innovative in science to develop new systems which can be implemented to meet formerly unfulfilled needs (Gadd, 2011).

TRIZ offers many solutions to problem-solving. This is the advantages of TRIZ over other methods that provide ambiguous ways of resolving problems like brainstorming, mind mapping, lateral thinking, and morphological analysis. Moreover, TRIZ provides the delivery of systematic innovation, acceleration of problem-solving in creative ways, confidence that all possibilities of new solutions have been covered and breaks up mental inhibitors (psychological inertia) to innovation and indenture problem solving (Hicks, 2004).

## 6. Conclusion

This paper review about to promote the new product development, which is one part of the BSC revolution. The food industry's ability to interact with sustainable BSC framework, while also delivering greater in vision and strategy, allow it to deliver positive prospects as a conventional product with computing the effectiveness of revenue growth and cost reduction, measuring related to the most desired customer group, identifying more effective processes for organization to achieve high efficiency and aligning the internal skills and capabilities to strategic goals.

## Acknowledgment

The authors convey their appreciation to the Division of Research & Innovation, Universiti Malaysia Pahang for funding this study (RDU grant no: 172207; PGRS grant no: 190379).

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## Conference Paper

# Tax Incentives for Green Industries: Determinants of Performance between Green Building Index (GBI) and Non-Green Building Index Firms in Malaysia

Adi Iskandar Iliyas<sup>1</sup>, Nadiah Abdul Hamid<sup>1</sup>, and Soliha Sanusi<sup>2</sup><sup>1</sup>Faculty of Accountancy, Universiti Teknologi MARA, Bandar Puncak Alam, Selangor<sup>2</sup>School of Management, Universiti Sains Malaysia, 11800 Penang

## Abstract

Industrialization, urbanization, and economic growth are among the major causes of environmental degradation. These factors are closely related to the construction sector. To curb the issue, the government has initiated tax incentives to encourage developers embracing green technology. Developers who entitled to these tax incentives should enjoy a considerable amount of tax savings, which can be employed for capital reinvestment. Consequently, this study aims to determine whether firms that specifically involve with the construction of green buildings and have received the tax incentives are more likely to achieve relatively better financial performance, as a result of tax benefits gained from the government assistance. For the empirical analyses, secondary data was employed. A total of 138 firm-year observations from 2015 until 2017 used to measure the firm's characteristic of board size, asset tangibility, deferred tax balances, and leverage against financial performance. The Theory of the Growth of the Firm was used to interpret the relationship between the financial characteristics and firm performance. We obtain evidence that indicates there is no significant difference in the financial performance between the GBI and non-GBI firms. The deferred tax balance, a proxy of the investment tax allowances granted by the Malaysian government to the GBI firms, is shown to be ineffective in improving the financial performances of these firms. The finding of this study suggests that any form of tax assistance from the government for the construction sector has not benefitted its recipients and requires remodeling.

**Keywords:** theory of the growth of the firm, green building tax incentive, investment tax allowance, green technology, green building index.

Corresponding Author:

Soliha Sanusi

solihasanusi@usm.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

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## 1. Introduction

In recent years, environmental issues such as climate change, energy crisis and increasing of pollution, have received much attention in Malaysia, especially within the construction industry (Shafiei, Abadi, & Osman, 2017). Transforming building construction and operations are significant because the environmental impacts are expected to increase

with population growth. It also due to changes in other factors such as demographic and economic factors. Various measures have been carried out to minimize the construction impacts towards environmental and sustainable development with the purpose to improve the quality of life for the current population and the future generation.

To implement sustainable development goals in Malaysia's construction industry, the government has introduced the concept of green buildings. The design and operation of green buildings should reduce the overall impact of the built environment to its surroundings (Green Building Index, 2017). A green building increases the efficiency of using resources such as energy, water, and materials. It correspondingly reduces the building impact on human health as well as on the environment during the building's lifecycle. These could be achieved through better siting, design, construction, operation, and maintenance (Onuoha, Aligha & Rahman, 2017). The green building policies in Malaysia began in 2009 with the launching of the National Green Technology Policy (NGTP) and subsequently, with the introduction of the Green Building Index (GBI) (Onuoha et al., 2017). The National Green Technology Policy was launched on 24 July 2009 by the former Prime Minister YAB Dato' Seri Mohd Najib Bin Tun Haji Abdul Razak.

The numbers of Malaysian firms that obtain GBI certification in order to capitalize on the Malaysia Green Building tax incentives are significant, but not outstanding (Aliagha, Hashim, Sanni, & Ali, 2013). Shafiei et al. (2017) share the same opinion as from their study, they have found that even though the concept of GBI has been introduced in Malaysia, there is a lack of interest among the building industry stakeholders. He indicated that most new projects only displayed a few green building technology features. The authors also explain that the firms, which have previously awarded with the certification had failed to continuously comply with the conditions for extension of the GBI certification. Hence, they are not entitled to an extension of the GB tax incentives. Instead, their GBI certifications were revoked due to increasing issues or problems related to the environment in Malaysia.

Aliagha et al. (2013) further mentioned that even though the Green Building tax announced by the Malaysian government provides very attractive incentives, the number of registered projects is still relatively low. There are a total of 806 registered projects for GBI from 2009 to 2017, but only 433 were certified. From 1 certified project in 2009, it increases to 82 for the next five years but reduces significantly afterward (Green Building Index, 2017). The declining number of certified projects identified might be due to reasons, such as the tedious process to claim the GBI and to utilize the tax incentives given (Olubunmi, Xia & Skitmore, 2016). The final total of firms approved for tax incentives under the GBI was only 23 as of 2017. The small number of approved

cases indicates that the tax incentive was not attractive to the construction firms in enjoying the benefits of exemptions, despite the tax incentive promoted (Abd Hamid, 2015). A firm that is granted tax incentives is expected to prepare itself to sustainably perform in the future once the tax incentive expires and also to perform better than a firm without these incentives. Chan and Mo (2000) reported that in China, firms granted tax incentives outperformed those without the tax incentives.

In Malaysia, the tax incentives given to GBI firms have yet to be analysed empirically. Only a few researchers such as Olubunmi et al. (2016) and Shazmin, Sipan and Sapri (2016) have examined the GBI firm with tax incentives in their studies, but there are no descriptive studies with empirical analysis have been done thus far. Hence, this study addresses this gap by analyzing the effects of a few independent financial variables such as board size, assets tangibility, deferred tax and leverage on the financial performance of the listed GBI firms in Malaysia, using the Theory of the Growth of the Firm. Also, performance comparison analysis was also carried out to determine the effectiveness of GBI firms (firms utilized with tax incentives) against the non-GBI firms.

The rest of the paper will proceed with the discussion of the literature review. This is followed by the methodology section, which describes the data analytical procedures, findings, and discussion. Lastly, we provide a summary of the study.

## 2. Literature Review

### 2.1. Green building index

A green building index certification is awarded to developers of a green building in Malaysia, upon complying with the conditions and procedures as specified by Green Building Index Sdn Bhd, the entity which operates GBI. The GBI rating is awarded upon recommendation by a GBI Accreditation Panel that enables the holder of the GBI rating to apply for tax incentives, provided by the government.

Malaysian Investment Development Authority is the agency responsible for administering tax incentives on green technology projects and services while the Malaysian Green Technology Corporation (MGTC) is mandated to manage the incentives granted for purchases of green technology assets. Green building is one of the projects listed as a 'green technology project,' which is entitled to a 100% investment tax allowance (ITA) on the qualifying capital expenditure incurred. The allowance could then be offset against 70% of statutory income in a year of assessment; effective from the year of

assessment 2013 up to the year of assessment 2020. Also, any unclaimed allowance may be carried forward into the future years, until it is fully utilized.

One of the conditions listed in the 'Guideline on Application for Incentive and Expatriate Posts for Green Technology (GTT)' is that the applicant must have a green building certificate. According to the GBI website, different rating levels requires different standard requirements. This exacerbates by the fact that the highest GBI rating, i.e., GBI Platinum, is indeed very 'difficult to achieve.' The intention was that a world-class building worthy of the highest rating should only be a handful ("Myths and Truth about GBI," n.d.). Since the pre-conditions for eligibility of the ITA was silence on the rating grade, parties aspiring to apply for the incentives need not necessarily have the highest GBI rating.

The GBI is not (yet) a compulsory requirement. Hence, building developers may need to establish the potential benefits of such certification before initiating a green building project. A previous study by Zaid and Kiani (2016) highlighted that possible economic benefits in obtaining the GBI rating include lowering of operation and maintenance cost, development of green products and services, economic performance optimization, cost reduction for civil infrastructure as well as image improvements. Additionally, tax incentives granted to SMEs are found to be as one of the contributing factors for enhanced or improved financial performance for SMEs (Shuid & Noor, 2012).

## 2.2. Investment tax allowance

National Green Technology Policy provides the guiding principle for the construction industry to venture into developing the green building by providing tax incentives for GBI firms. According to Onuoha et al., (2018), developers and investors are influenced to invest in green commercial properties due to the monetary green tax incentives. Such inclination has created a highly significant effect on the supplies and investments of green commercial property. Firms that have been granted with the ITA can plan their capital expenditures to maximize the benefits of tax incentives on its financial performance or profitability. In a study in relation to the impact of R&D tax incentive provided by the Taiwanese government, Chen and Gupta (2017) found evidence indicate that it helps the R&D firms to optimally structure their R&D spending plan to obtain better tax credits and potentially improved tax revenues. Tax incentives were also found to have a considerable positive effect on firms with a high level of cash flows and no financing constraints (Edgerton, 2010).

Chirinko and Wilson (2008) attempted to identify the extent of tax incentives policy by states in the USA. The findings show that the State's tax policy appears to be a zero-sum game among other states. However, a zero-sum game has a more significant role in the markets that is, to inject higher liquidity to the futures markets and help firms to find ways in stabilizing their prices and subsequently, improves their operation and financial performance. In this study context, any tax incentives introduced by the government are, therefore, expected to have an overall net positive effect on the economy. Devereux, Maffini, and Xing (2018) suggested that the provision of the tax incentives may not be suitable for the targeted industries if governments are misguided by the information they have obtained. A study by Edge and Rudd (2011) pointed out that tax incentives should not be used repeatedly can have a destabilizing effect. Specific schemes of incentives should be designed to match even at the sub-specific sector levels (Karimi, Eksioglu & Khademi, 2018). Government policies relating to tax incentives must not be applied in a blanket across all industries as Gordon and Sarada (2018) suggested that refunding tax savings from business losses and compensating surtax on profits are a better alternative to help start-up firms. Nonetheless, in this context, the government role in leading a more sustainable corporate performance, in the long run, is beyond doubt (Alexopoulos, 2018)

### 2.3. Financial characteristic

The firm's financial characteristics can be observed from its financial statements. With further analysis - financial ratio analysis, the information from the financial statements can provide useful data to the interested parties to the firm. Financial ratio analysis is a quantitative analysis which uses information extracted from the financial statements. This type of analysis provides a more meaningful interpretation of the organisation's financial and operational performance in various aspects, such as efficiency, liquidity, profitability, and solvency. Financial ratio analysis allows the managers to identify organizational strengths and weaknesses, as shown by the indicators, which would then allow the necessary concerned parties to develop proper response strategies and initiatives. Intra-firm comparison can be made for performance assessment; however, a cross border comparison could have a significant difference due to the variation in accounting standards adopted by different countries (Liu, O'Farrell, Wei, & Yao, 2013). Other drawbacks include variation in the valuation used for items in the financial statements as well as operational differences (Wright, 1975). Firms should be aware of the importance of selecting an appropriate ratio to use, as it may undermine the quality

of evaluation (Hsieh & Wang, 2001). Bauman and Shaw (2016) pointed out that certain classification of balance sheet items may reduce investors' ability to accurately forecast stock prices, causing distortion in the result of their ratio analysis. Aripin et al. (2011) suggested that regulators should consider mandatory disclosures of important ratios in the financial reports for the benefits of potential investors, as the extent of financial ratios disclosure was found to be very low although, its usage is essential.

Qualitative assessment of institutional characteristic is very subjective as the evaluation is subjected to personal interpretation based on the assessor's background and is also exposed to individually perceived circumstances. In order to reduce (or possibly to remove) these uncertainties, financial ratio indicators are considered more appropriate to predict the organisation's financial characteristics, as these indicators are more stable and permanent in nature. Hence, the selected financial characteristics identified as the independent variables were hypothesized with the construction firms' characteristics and successful utilization of the tax incentives as the determinants of the firms' financial performance, i.e. dependent variable.

### **2.3.1. Board Size – Number of Board Members**

Managers must be able to develop a suitable governance structure to enforce decisions in the interest of their shareholders. Generally, there has always been a conflict between managers and firm owners. To explain this problem, the agency theory highlighted that executives (normally referred to as the CEO) may not always act in the best interest of the shareholders. Such circumstances could have an impact on firm performance due to the conflict it poses. There are many factors that can influence financial performance, and as one of the essential components, board size was tested in this study.

Xie and Fukumoto (2013) found in their study of Japanese firms that, there was a significant positive relationship between the firm performance and board size, provided that the board size was small. If the board size was significant, the relation of firm performance and board size was significantly negative. They concluded that the characteristics of the firms have some levels of influence in the relationship between performance and the board size. According to Cheng, Evans, and Nagarajan (2008), reducing the size of board members is essential when corporate control of the market is active. They found a significant association between smaller board size and better firm performance before the anti-takeover laws were passed in the USA. Once the law was passed, a weaker relation exists between the firm performance and board size.



Lin and Chang (2016) study on banks listed on the Taiwan Stock Exchange revealed that not only board size influences performance but the composition of the board (independent vs. non-independent directors) or the board structure as well. Orozco, Varga, and Dorado (2018) found that the board structure had a direct impact over the firm financial performance but further added that there was no relationship between financial performance and board size in large firms. Consistently, smaller SMEs in Finland were also found to be less affected by the board structure (Lappalainen & Niskanen, 2012).

Elsayed (2011) attempted to look at how the board leadership structure influence the relationship between the board size and performance; further concluded that in the situation whereby the role of CEO and chairman was split, board size has a significant effect on the performance. If the board structure has CEO and Chairman being the same person, board size was found to have a negative influence on corporate performance. This finding, however, contradicted a study by Salehi, Tahervafaei, and Tarighi (2018), who noted that corporate performance was not affected by the board size or the dual role of CEO in the firms listed on Tehran Stock Exchange. Instead, they concluded, that board independence was the factor that had a positive and significant association with performance. The author also claimed that in Tehran, non-executive directors understand the business and market behavior far better than the executive members of the Board.

Nguyen et al. (2016) affirmed that there was evidence of a strong negative relation between board size and firm value in their studies of Australian firms. However, they also noted that the effect of board size on performance was more apparent in smaller firms. According to Larmou and Vafeas (2010), larger board sizes appear to be positively related to improved operating performance and shareholder value upon testing smaller firms with a history of poor operating performance. A larger board has a negative relationship with the financial performance of firms impacted by the financial crisis of 2008/09 in India (Srivastava, 2015). Pathan, Skully, and Wickramanayake (2007) also found a significant negative relation between Thailand's banks' board size and their performance. Arosa, Iturralde, and Maseda (2013) noted that large board size had negatively affect performance as coordination, flexibility, and communication worsen. They concluded that non-executive directors do not contribute to the improvement of non-listed Spanish SMEs performance. Mishra and Kapil (2017) found that the board size with different levels of promoter ownership has different levels of a significant positive relationship on the ROA, in their study of firms listed on the CRISIL NSE Index of 500

firms. Although findings from previous research seem to contradict each other, it is clear that the board size is an important factor that influences the firm's ability to perform.

A total number of directors has been the most widely used measurement for board size in previous other research, such as in Larmou and Vafeas (2010). Based on the above arguments and to test the relationship between board size and GBI and Non-GBI firms' financial performance, the hypotheses established are:

H1a – The number of a board member will significantly affect the level of the financial performance of the GBI firms.

H1b – The number of a board member will significantly affect the level of the financial performance of the Non-GBI firms.

### 2.3.2. Asset Tangibility

The ratio of property, plant, and equipment (PPE) to total assets (TA), also known as asset tangibility, represents a firm's assets structure as it shows the portion of non-current assets on the overall total assets. This ratio is only meaningful if the comparison is between the firms from the same industry, as a different industry has different asset structures. Koralun-Bereznick (2013) pointed out that asset tangibility is considerably influenced by industry-specific and to a bigger extent; even by country-specific.

Asset structure is an important factor as it has a direct contribution to the improvement of total business performance (Jezovita, 2016). This notion is also supported by Khalaf et al. (2015), who concluded that asset structure has a significant influence on Jordanian's non-listed firms' profitability. In contrast, while studying the impact on life insurance firms across Asia, Zainuddin, Mahdzan, and Leong (2018) found that asset tangibility was not a factor that could influence the profitability of the insurance firms.

As a proxy to asset tangibility, the current study uses the ratio of a total non-current asset over the total asset, following previous studies by Ezeoh (2008) and Awartani et al. (2016). Based on the above arguments, we test the relationship between asset tangibility and financial performance of the GBI and Non-GBI firms using the hypotheses as below:

H2a – Assets tangibility will significantly influence the level of the financial performance of GBI firms

H2b – Assets tangibility will significantly influence the level of the financial performance of Non- GBI firms

### 2.3.3. Deferred Tax

Malaysian Financial Reporting Standard (MFRS): 112 Income Taxes issued by the Malaysian Accounting Standard Board provides guidance on the accounting treatment of deferred tax balances in the financial statements. The standard defines deferred tax liabilities (DTL) as the amounts of income taxes payable in future periods, in respect of temporary taxable differences. In contrast, deferred tax assets (DTA) has been described as the amounts of income taxes recoverable in future periods in respect to (i) deductible temporary differences; (ii) the carry forward of unused tax losses; and (iii) the carry forward of unused tax credits. A DTL has the effect of increasing the amount of tax owed (and payable in future periods) by a firm to the tax authorities. A DTA often arises due to taxes paid or carried forward, but are yet to be recognized in the income statement.

The DTA could also be explained in the scenario, whereby a business incurs a loss in a financial year and entitled to report the loss for lowering its taxable income in the future. For loss firms, loss earnings are assets. The most common scenario that creates the DTA is when there is a difference between accounting rules and tax rules, in particular, when an expense is recognized in the income statement before they are being recognized by the tax authorities or when revenues subjected to taxes before becoming taxable in the income statement. The different treatment causing the expenditure or revenue items of either being allowed or disallowed for taxation purposes is known as a timing difference.

The timing differences or book-tax differences can be further classified into either a temporary or permanent difference; the former is when the differences are capable of reversal in subsequent periods. It is essential to appreciate that a DTA is only recognized in books of accounts if the asset is expected to offset future profits. Unutilized investment tax allowances (being the tax incentives or exemptions) are recognized as a DTA up to the extent that it is probable that the future taxable profits will be available against which the unutilized tax incentives can be set-off or utilized. Otherwise, if future taxable profits are not likely to occur, the amount of DTA will not be recognized; instead, are quantified and disclose in the notes to the financial statement.

A firm which has improved financially is expected to generate higher profits. The profits would theoretically attract higher income taxes. However, the availability of the tax exemptions reduces the tax liability of the profitable firm. Therefore, a firm which demonstrated a reduction in its DTA/DTL ratio may be considered as a financially performed firm as the DTA balances reduce (upon being utilized for set off with the profits).

An investor would typically perceive a loss firm positively if its financial statements recorded a DTA in the balance sheet; for the reason that there is a possibility of an adequate future taxable income to be netted off with the DTA (Samara, 2014).

The research also pointed out that the mere existence of a net DTL balance in the balance sheet would imply the negative performance of the firm. Investors would interpret that the reversal from losses to profits by the firm to be less likely because DTL reflects future tax payments. The deferred tax was also considered as an indicator of future cash flow that the market sometimes views as less risky, possibly due to the firms being perceived as attempting to minimize or defer taxes (Chandra & Ro, 1997). Nor Shaipah and Holland (2015) also suggested that deferred tax balances could be used as a measure of earnings quality in their study of firms listed on the London Stock Exchange.

Sundvik (2017) reported from their study of private European firms across 12 countries that these firms have a peculiar tendency to manage their earnings in a situation of a 'low book-tax conformity'; this situation arises primarily with the presence of tax incentives. 'Low book-tax conformity' occurs when there is a more significant difference between accounting profits and taxation profits, which contributes to the creation of deferred tax balances in the financial statements. The book-tax conformity levels, as well as the recognition criteria method used for financial reporting purposes, were also found to provide certain avenues for tax management manipulation or aggressive reporting (Guenther et al., 1997; Tang & Firth, 2011).

Malaysian public listed firms were also found using net DTL to avoid earnings reduction even when a proper corporate governance mechanism was in place (Kasipillai & Mahenthiran, 2013). Management behaviours in manipulating earnings could be mitigated with strong monitoring system championed by Board (although, research has shown that they can be influenced by age, tenure and education heterogeneity) and Audit Committees as well as increasing the disclosure requirements of the timing differences (Heltzer & Shelton, 2011; Moore, 2012; Nor Shaipah et al., 2018). Based on the above and to test the relationship between deferred tax balances and GBI and Non-GBI firm's financial performance, the hypotheses are as follow:

H3a – The net deferred tax balances resulting from the tax incentives enjoyed by the GBI firms will significantly affect their financial performance.

H3b – The net deferred tax balances holding by the Non-GBI firms will significantly affect their financial performance.

### 2.3.4. Leverage

The firm reduces the leverage in order to increase their cash balances. Dasgupta, Noe and Wang (2011) found that this action had a consequential effect on the firm's investment potential, which at the same time had led to an increase in leverage for the subsequent periods, as shown from their study on the sensitiveness of cash flows of firms listed in the New York Stock Exchange, the American Stock Exchange, and NASDAQ.

A firm without significant financial constraints should maximize shareholder value by maintaining an appropriate level of capital structure that balances the tax shield from debt. As Graham (2000) pointed out in his study that the tax benefit of debts was 9.7% of firm value. This finding would suggest that the firm should aggressively increase reliance on debt for external financing (rather than equity) by looking at its tax benefit functions. Nonetheless, high indebtedness may signify financial distress (Miroshnychenko, Barontini & Testa, 2017).

In the case of non-listed firms in Jordan, Khalaf et al. (2015) found out that leverage hurt profitability. Extremely high leverage can expose the firms to unnecessary and much greater risks on their financial performance (Borhan, Naina & Azmi, 2014; Wright, 1975). The choice of leverage, however, is an industry-specific decision (Islam & Khandaker, 2015).

Firms issue debt instruments to obtain cash proceeds, which are intended for various reasons. It is not uncommon for construction firms to issue bonds because of the reason that business nature is highly capital intensive. Cook, Fu, and Tang (2016) found that issuance of debts has adverse effects such as lower growth, higher tax liabilities, and high leverage deficit. Alternatively, a debt repurchase exercise would reduce highly leverage firms into a less business risk situation, which would increase its shareholder value as well as the effect of lowering tax liabilities.

Majumdar (2014) studies revealed that non-listed firms' borrowings depend on the capacity of their collateral, as they were unable to obtain financing from the capital markets. Therefore, the government should take positive steps to redefine the role of financial institutions or banks, into being a partner to encourage the growth of these firms rather than only be the source of credit. Sorana (2015) noted that listed manufacturing firm on the Bucharest Stock Exchange had recorded an improved performance as they relied more on equity funding rather than on debts.

Long term debt over total assets had also been used as a proxy to financial leverage by other recent research such as Chen and Gupta (2017) and Ballester (2017). Based on

the above arguments and to test the relationship between leverage level and financial performance of the GBI firms, the hypotheses are:

H4a – The leverage level will significantly affect the financial performance of the GBI firms.

H4b – The leverage level will significantly affect the financial performance of the Non-GBI firms.

### 2.3.5. Financial Performance

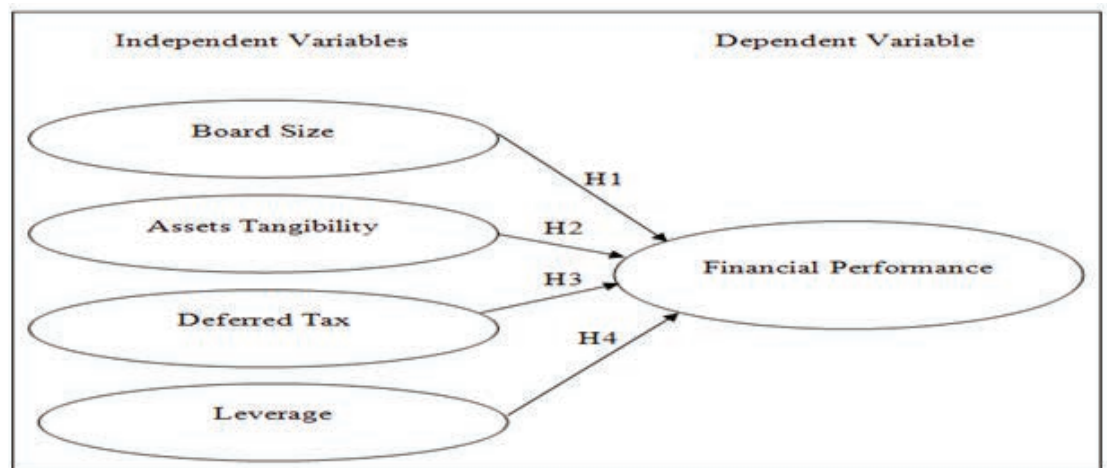
To be competitive in today's business environment, it is vital for any sector of the industry to specifically identify areas that could contribute significantly to the performance of the organization. Performance may be easily evaluated over a period of time within a firm, provided that the managers are aware of their historical business trends (Wright,1975). According to Malichov and Mária (2015), although, non-financial ratio indicators may also provide information on performance, the financial indicators can evaluate the firm's conditions more objectively and accurately based on previous development. It is indisputable that executive decisions influence the financial performance of any organizations consistent with their roles as the key decision-makers. Their decisions would display the ability to efficiently use the assets and manage the firm's operations to make a profit. Profitability ratios such as profit margin, return on equity, or return on assets are generally used for performance assessment purposes. According to Tahir and Razali (2011), these ratios are important to shareholders and potential investors because profitability influence the firm value. Thus, good results of the ratios attract higher investments, and for the creditors, they would imply repayment abilities.

The cost has always been an important element of a business as it influences the level of targeted profitability of any business venture. A firm involved in the construction industry incurs a higher cost of capital expenditure. Even more so if they are involved with green building development projects. Kim, Greene, and Kim (2014) found out that by comparing the construction of a traditional building and a green building, developers of the green building had to incur a cost of 10.8% higher than the construction of a traditional building.

Apart from constructing a green building, a developer must also be involved with the practice of a green building. Ballester (2017) and Miroshnychenko et al. (2017) revealed that a developer's green practices are closely related to the firm future market value as well as its profitability. According to Fan, Pan, Liu, and Zhou (2017), proactive construction of China firms in environmental management practices had seen some considerable

amount of growth in productivity and financial performance in both short term and long term. The profitability of insurance firms across Asia was found to be influenced by its size and volume of capital (Zainuddin et al., 2018). Romanian firms' performance was higher when they avoided debt and operated highly on lower debt to equity ratio (Sorana, 2015).

ROA was used as a proxy to measure financial performance in various contexts of study such as, for SMEs in Shuid and Noor (2012), manufacturing firms in Alexopoulos et al. (2018) and Japanese listed firms (Xie & Fukumoto, 2013). ROA was also used to evaluate banks' performance (Lin & Chang, 2016), as a proxy for investment projects or firm's quality (Awartani et al., 2016) and profitability (Zainuddin, Mahdzan and Leong, 2018). The ratio of profit before income taxes (PBIT) over total assets was used as a proxy of financial performance in the study similar to the measurement used by (Ezeoha, 2008). This measurement was selected as it may have a better indication of the tax incentives being studied.



**Figure 1:** Research Framework.

The hypothesized relationships as illustrated in Figure 1 depict the relations between independent variables, which are the board size, asset tangibility, deferred tax balances and leverage, and the dependent variable, which is the financial performance of the GBI firms.

## 2.4. Theory of growth of the firm and firm's financial performance

A theory which is found to be very relevant to GBI performance in utilizing the tax incentives is the Theory of Growth of the Firm, which was developed by Penrose (2009). The theory explains the speed of a firm's growth and the related resources involved in

pursuing the firm's desirable growth rate. However, since firm resources are scarce due to costly general and administration expenses, the growth process would be dynamically affected. It was also argued that the average cost of output increased with the rate of growth rather than the production scale (Buckley & Casson, 2007).

This study focuses on identifying whether the financial characteristics influence the financial performance of GBI firms following the receiving of tax incentives. Various internal and external factors could have affected firm performance. According to this theory, internal development is synergized by realizing the opportunities that arise from the firm environment, with a precaution that the firm must also be aware of the conditions that it operates. The theory has laid out certain growth paths, which it believes would boost the generation of resources. These paths were identified as accessibility, mobilization, deployment, growth reinforcement, and growth reversal; the first three is argued to be the most critical. It further explains that opportunities are to be identified with decisions on the carried-out opportunities, and resources should be appropriately deployed.

Additionally, the mixture of financial resources, management team, experienced and skilled labour, and personality are considered as an important ingredient towards growth. Business founders are considered vital as their ambitions dictate the growth; including the relations that the founders might have with other stakeholders, such as colleagues and funders. The initial phase would generally revolve around the activities (including addressing issues) of identifying resources, perceived opportunities, as well as other related issues of resourcing. According to Woodward (1958), the firms' choice of business activity is vital as it has to establish the appropriate business model and maybe the needed technology. Oakey (1995) added that firms' inability to grow was mostly caused by the lack of expertise and insufficient funding for business operation. According to the theory, in order to grow the financial performance, a GBI firm is also influenced by the internal and external factors which are exposed and influenced by its environment.

### 3. Methodology

This study is quantitative research as it is focused on gathering numerical data, generalizing it, and finally explains the phenomenon that was observed. It relied primarily on the collection and analysis of numerical information by using a longitudinal design as the information or data was collected over three years. All public listed firms on Bursa Malaysia were considered as the population. Based on the Bursa Malaysia listing



sectors, firms categorized under the construction sector were identified. A content analysis was conducted on the firms' annual reports to identify whether the firms have been accorded with the GBI rating.

The data that was used for this study was secondary. A total of 66 listed firms on Bursa Malaysia were classified under the construction sector. A content analysis was conducted on all the 66 firms to identify those accorded with the GBI rating. The awarded GBI rating is usually mentioned in the non-financial section of the annual reports. The study assumed that if a green building rating was not specifically mentioned in their financial statement, therefore, any of related words, such as 'graded green building' or 'approved green building,' would serve as an indication that the firm is a GBI firm.

In the initial stage, the study had considered using the GBI projects registry from Green building index as the population base. However, it was found that to match each certified project to the individual construction firm was an uphill task as the directory did not make any reference to the firm's identity. According to the registry maintained at Green building index, 464 projects were awarded the GBI ratings as at 15 November 2018. Out of the 66 public listed firms, a total of 23 firms were found to have project(s) accorded with the GBI rating. Therefore, for the comparative study, the same number of 23 non-GBI firms were selected based on a non-probabilistic sampling method. The study used longitudinal data from three financial years; which was 2015 to 2017. The sample size was assumed as sufficient based on Sekaran and Bougie (2016) whose suggestion for the sample size range is considered appropriate for most research. Annual reports were downloaded from the Bursa Malaysia website (including reliable links off the site) or the firm's website. Data was hand-gathered from the directors' reports and financial statements, including relevant 'notes to the financial statements. When group annual financial statements were presented, the ratios were based on group results.

The unit analysis in the current study involved firms categorized under the construction industry and was accorded with the GBI rating, as well as the non-GBI firms. Firstly, the data extracted from the annual reports were systematically organized into a suitable template, which was created by using Microsoft Excel. Then, to produce simple statistics which allow observation of patterns in variables, the data were analyzed by using a descriptive analysis before it was further analyzed with the IBM SPSS. Outputs from the SPSS were then presented in the form of tables which can be further analyzed by multiple regression analysis.

A simple descriptive statistic is conducted to compare the mean and standard deviations between variables. Additionally, for the testing of hypotheses, the study used regression analysis. The regression model is as follows:

$$FP_j = \beta_0 + \beta_1 BSZ_{1j} + \beta_2 ASST_{2j} + \beta_3 DTB_{3j} + \beta_4 LEV_{4j} + \varepsilon_j$$

Where,

$FP_j$  = Financial Performance

$BSZ_{1j}$  = Board Size

$ASST_{2j}$  = Asset Tangibility

$DTB_{3j}$  = Deferred Tax Balance

$LEV_{4j}$  = Leverage

## 4. Results and Discussion

### 4.1. Descriptive analysis for GBI and non-GBI firms

Table 1 shows that for the board size of the non-GBI firms, the mean was recorded at 6.94 and the standard deviation at 1.444 with a minimum of 5 and a maximum of 10. For GBI firms, the mean for board size was 8.20, and the standard deviation was 1.451, with a minimum of 5 and a maximum of 12. On average, non-GBI firms had a smaller board size compared to the GBI firms.

For asset tangibility, the non-GBI firms had a mean value of 0.17 and a standard deviation of 0.468 with 0 as the minimum and 0.391 as the maximum value. For GBI, the mean and standard deviation was 0.12 and 0.122, respectively, with 0 as the minimum and 0.569 as the maximum value. As both the GBI and non-GBI firms are in the construction sector, the asset structures were almost the same. Non-current assets formed 12% and 17% of the total assets of the GBI and non-GBI firms, respectively.

In terms of deferred tax balance, the non-GBI firms' mean and standard deviation was 9.05 and 31.612, respectively, with a minimum of 0 and a maximum of 164.48. For the GBI firms, the mean was 2.81, and the standard deviation was 8.827, while the minimum value was 0, and the maximum was 66.06. The deferred tax balance was lower for the GBI firms, which may indicate a relatively lower occurrence of future taxable profits.

The non-GBI firms' leverage recorded a mean value of 0.59 and a standard deviation of 0.583. The minimum value was 0, while the maximum value was 5.02. As for the GBI firms, the mean value of leverage was 0.52, and the standard deviation was 0.153, with a minimum of 0.18 and a maximum of 0.89. Both GBI and non-GBI firms had

TABLE 1: Descriptive Statistics for Variables by Rating.

| Variable              | Ratings | Descriptive Statistics |                |         |         |
|-----------------------|---------|------------------------|----------------|---------|---------|
|                       |         | Mean                   | Std. Deviation | Minimum | Maximum |
| Board Size            | Non-GBI | 6.94                   | 1.444          | 5       | 10      |
|                       | GBI     | 8.20                   | 1.451          | 5       | 12      |
| Asset Tangibility     | Non-GBI | 0.17                   | 0.468          | 0.00    | 3.91    |
|                       | GBI     | 0.12                   | 0.122          | 0.00    | 0.569   |
| Deferred Tax Balance  | Non-GBI | 9.05                   | 31.612         | 0.00    | 164.48  |
|                       | GBI     | 2.81                   | 8.827          | 0.00    | 66.06   |
| Leverage              | Non-GBI | 0.59                   | 0.583          | 0.00    | 5.02    |
|                       | GBI     | 0.52                   | 0.153          | 0.18    | 0.89    |
| Financial Performance | Non-GBI | 0.08                   | 0.105          | 0.00    | 0.83    |
|                       | GBI     | 0.06                   | 0.391          | -0.06   | 0.18    |

almost the same mean value, which indicated almost similar dependence over debt for the industry. Additionally, non-GBI firms seem to be highly geared by reference to the higher maximum value of 5.02 against 0.89 for the GBI firms.

One of the objectives of the study intended to compare the performance of the GBI and non-GBI firms. It is noted that the financial performance of the non-GBI firms had a mean and standard deviation of 0.08 and 0.105 respectively, with a minimum of 0 and maximum of 0.83. For the GBI firms, the mean and standard deviation was 0.06 and 0.39, respectively. The minimum was -0.06, and the maximum was 0.18. Non-GBI firms' profitability was marginally higher than that of the GBI firms.

#### 4.2. Test of differences

Table 2 indicated that the mean scores of board size are statistically different at 0.01 ( $p < 0.01$ ). It is concluded; therefore, that mean scores on board size differ between ratings. It can be seen that GBI firms had a higher number of board size compared to non-GBI firms. However, the mean scores of asset tangibility are not significant at 0.05 ( $p > 0.05$ ), indicating that there is no difference in asset tangibility between the two ratings, the mean scores towards asset tangibility are almost the same. The same goes for the mean scores of deferred tax balance. They are not significant at 0.05 ( $p > 0.05$ ), indicating that there is no difference in deferred tax balance between the two ratings. The mean score for leverage also not significant at 0.05 ( $p > 0.05$ ), indicating that there is no difference in leverage between the ratings. Indicating that in any group of ratings, the mean scores towards leverage are almost the same.

TABLE 2: Summary Statistics of Mann Whitney Test on Difference between GBI and non-GBI.

| Variable              | Ratings | Mean  | t-value | p-value |
|-----------------------|---------|-------|---------|---------|
| Board size            | GBI     | 1.451 | -5.117  | 0.000** |
|                       | Non GBI | 1.444 |         |         |
| Asset Tangibility     | GBI     | 68.42 | -0.317  | 0.751   |
|                       | Non GBI | 70.58 |         |         |
| Deferred Tax Balance  | GBI     | 70.1  | -0.177  | 0.86    |
|                       | Non GBI | 68.9  |         |         |
| Leverage              | GBI     | 73.88 | -1.288  | 0.198   |
|                       | Non GBI | 65.12 |         |         |
| Financial Performance | GBI     | 70.1  | -0.177  | 0.86    |
|                       | Non GBI | 68.9  |         |         |

### 4.3. Correlation analysis

Table 3 shows that the number of board members, which is the proxy for board size, is negatively and moderately correlated with financial performance ( $r = -0.506$ ;  $p < 0.01$ ). To a moderate extent, an increase in the number of board members is associated with a decrease in financial performance, and vice versa. Leverage also has a negative, but low correlation (or weak relationship) with financial performance ( $r = -0.269$ ;  $p < 0.05$ ) that is, to a low extent, an increase in leverage will decrease financial performance and vice versa.

The result also shows that asset tangibility and deferred tax balance do not have a significant correlation (or no relationship) with financial performance as statistically; the  $p$ -value is more than 5%. On average, there is no relationship between asset tangibility ( $p = 0.396$ ,  $p > 0.05$ ) and deferred tax balance ( $p = 0.228$ ,  $p > 0.05$ ) with financial performance.

TABLE 3: Summary statistics of correlation analysis between the variables for GBI firms.

| Variable               | Financial performance                  |         |
|------------------------|--|---------|
|                        | Pearson Coefficient of Correlation (r) | p-value |
| Board size             | -0.506                                 | 0.000** |
| Asset Tangibility      | -0.104                                 | 0.396   |
| Leverage               | -0.269                                 | 0.025*  |
| Deferred Tax Balance   | -0.147                                 | 0.228   |
| *Significant at 0.05   |  |         |
| ** Significant at 0.01 |  |         |

Table 4 indicates that board size and asset tangibility are positively and moderately correlated with financial performance ( $r = 0.306$ ;  $p < 0.01$ ), ( $r = 0.335$ ;  $p < 0.05$ ) for

non-GBI firms. To a moderate extent, an increase in the number of board members and the value of non-current assets in the non-GBI firms will improve their financial performance and vice versa. The result also shows that there is no significant correlation or relationship between deferred tax balance and leverage with the financial performance of these firms as the *p*-value is more than 5%. On average, the deferred tax balance and leverage does not have any relationship with financial performance.

TABLE 4: Summary Statistics of Correlation Analysis between the Variables For Non-GBI Firms.

| Variable               | Financial Performance                   |         |
|------------------------|---|---------|
|                        | Pearson Coefficient of Correlation (r ) | p-value |
| Board size             | 0.306                                   | 0.010*  |
| Asset tangibility      | 0.335                                   | 0.005** |
| Leverage               | -0.004                                  | 0.976   |
| Deferred tax balance   | -0.104                                  | 0.396   |
| *Significant at 0.05   |   |         |
| ** Significant at 0.01 |   |         |

#### 4.4. Regression analysis

In the regression equation, the dependent variable, financial performance, is analyzed against the board size, asset tangibility, deferred tax balance, and leverage, which are the independent variables.

Based on the analysis from Table 5, the regression equation is statistically significant at 0.05 ( $p < 0.05$ ), implying that there is an association between financial performance and any or all of the independent variables. However, the adjusted R-square value being 0.217 means that the four independent variables as a whole account for 22% of the variation in the dependent variable (financial performance). Therefore, the effect of board size, asset tangibility, leverage and deferred tax balance as a whole on financial performance value is low (Hair, Hult, Ringle, & Sarstedt, 2014) There are other variables that exert much more influence on financial performance but beyond the scope of this study. A VIF value of 5 or higher indicates a possible multicollinearity problem (Hair et al., 2014). Since the VIF value is lesser than 5 (between 1.112 to 1.358), there is no collinearity problem with the model used. The following table presents the summary statistics of the estimated regression equation.

Looking at the individual regression coefficient, one finds that only the coefficient of board size and leverage are statistically significant at 0.01 ( $p < 0.01$ ) and 0.05 ( $p < 0.05$ ).

TABLE 5: Estimated Regression Equation for GBI Firms.

| Variable                | Coefficient | t-value | p-value | Collinearity Statistics |       |
|-------------------------|-------------|---------|---------|-------------------------|-------|
|                         |             |         |         | Tolerance               | VIF   |
| Board size              | -2.387      | -3.383  | 0.001** | 0.900                   | 1.112 |
| Asset Tangibility       | -6.636      | -0.746  | 0.458   | 0.736                   | 1.358 |
| Leverage                | 13.411      | 1.901   | 0.042*  | 0.895                   | 1.118 |
| Deferred Tax Balance    | 14.012      | 0.480   | 0.633   | 0.807                   | 1.239 |
| F                       | 3.599       |         | 0.010*  |                         |       |
| Adjusted R <sup>2</sup> | 0.217       |         |         |                         |       |
| * Significant at 0.05   |             |         |         |                         |       |
| ** Significant at 0.01  |             |         |         |                         |       |

Hence, H1a and H4a are supported. Whereas, asset tangibility (H2a) and deferred tax balance (H3a) are not. The coefficient of board size with a value of -2.387 means that an increase in board size decreases financial performance. This is consistent with the findings by Cheng et al. (2008), Nguyen et al. (2016) and Xie & Fukumoto (2013); a larger board size has a negative relationship with performance. While the positive coefficient of leverage (13.411) indicates that an increase in leverage leads to an increase in the firms' performance. The changes in asset tangibility and deferred tax balance have no impact on financial performance value.

TABLE 6: Estimated Regression Equation For Non-GBI Firms.

| Variable                | Coefficient | t-value | p-value | Collinearity Statistics |       |
|-------------------------|-------------|---------|---------|-------------------------|-------|
|                         |             |         |         | Tolerance               | VIF   |
| Board size              | -7.055      | -2.794  | 0.007** | 0.735                   | 1.360 |
| Asset Tangibility       | 47.977      | 1.930   | 0.048*  | 0.838                   | 1.193 |
| Leverage                | -24.845     | -1.686  | 0.097   | 0.921                   | 1.086 |
| Deferred Tax            | -124.262    | -1.662  | 0.101   | 0.815                   | 1.227 |
| F                       | 3.121       |         | 0.021*  |                         |       |
| Adjusted R <sup>2</sup> | 0.163       |         |         |                         |       |
| * Significant at 0.05   |             |         |         |                         |       |
| ** Significant at 0.01  |             |         |         |                         |       |

The adjusted R-square value (Table 6) being 0.163 means that the four independent variables as a whole account for 16 percent of the variation in the dependent variable (financial performance). The effect of board size, asset tangibility, leverage, and deferred tax balance as a whole on performance value at 16% is considered low (Hair et al., 2014). However, other variables may have much more influence on financial performance but are beyond the scope of this study. The VIF value of between 1.086 to 1.360 indicates that there is no collinearity problem with the model used.

Looking at the individual regression coefficient, one finds that only the coefficient of board size and asset tangibility are statistically significant at 0.01 ( $p < 0.01$ ) and 0.05 ( $p < 0.05$ ). Therefore, H1b and H2b are supported. Whereas, deferred tax balance (H3b) and leverage (H4b) are not supported. The coefficient of board size (-7.055) and asset tangibility (47.977) means that an increase in board size decreases performance and that an increase in asset tangibility increases the financial performance. Changes in the value of leverage and deferred tax balance, however, have no impact on financial performance.

Similar to GBI firms, the board size, and financial performance have a negative relationship (Cheng et al., 2008; Nguyen et al., 2016). The positive relationship between asset tangibility and financial performances is similar to the findings of the study by Jezovita (2016) and Khalaf et al. (2015). Since non-GBI firms do not enjoy the benefit of tax incentives as compared to GBI firms, changes in deferred tax assets arising from the ITA do not have any effects on their financial performance.

The circumstances of improved financial effect are in line with the study by Graham (2000), who highlighted that the tax benefits account for 9.7% of the firm value. Leverage was also found to have positive effects on financial performance from studies by Kartikasari and Merianti (2016), Kumar (2014) and Singapurwoko and El-Wahid (2011). The findings by this study, however, contradict with other studies which had shown a negative relationship between leverage and financial performance, such as by Borhan et al. (2014), Cook et al. (2016), Khalaf et al. (2015), and Wright, (1975).

The asset structure is firm-specific (Koralun-Bereznicka, 2013), and depending on the industry, may not affect financial performance (Zainuddin et al., 2018). The effect of deferred tax in the financial statements need not be recognized if the underlying assets and liabilities are recorded at the present value of their associated future cash flows. Guenther and Sansing (2000) had shown that if tax deductions are not taken up when expenditure such as depreciation is made, the value of deferred tax account is independent of when that account will reverse.

Deferred taxes have been used for earning management purposes (Guenther et al., 1997; Kasipillai & Mahenthiran, 2013; Sundvik, 2017; Tang & Firth, 2011), but have no direct effect on firms' financial performance. Even to the extent of "*the firm's income increasing, decreasing, or smoothing choices may be embedded in the deferred tax component; some of which is not explicitly disclosed elsewhere in the financial statements,*" according to Chaney and Jeter (1994). It was not an easy task for the firms to obtain the GBI certifications in order to be eligible for the ITA, as discussed earlier in this study. However, the deferred tax balance as a proxy to the ITA can be seen as not

an effective policy in improving the financial performance of GBI firms. This is consistent with the findings of (Abd Hamid, 2015) in the study of the Malaysian SMEs and their corresponding tax incentives.

The effect of board size, asset tangibility, deferred tax balances and leverage on both the GBI and non-GBI firms were low as signified by the low adjusted *R*-square values of 21.7% and 16.3%, respectively. This is consistent with the Theory of Growth of the Firm, which emphasizes that the environment as well as the internal development of resources, plays an essential role in the firms' growth rather than the identified financial characteristics identified in this study.

## 5. Conclusion and Implications

Results showed that board size and leverage had a relationship with GBI firm's financial performance. Meanwhile, board size and assets tangibility had a relationship with the non-GBI firms. There were no significant differences between GBI and Non-GBI firms regarding financial performance and financial characteristics. The tax incentives did not directly improve the firm's performances. The study found that profitability levels were not affected by the green building recognitions awarded to the firms within the construction industries. In other words, construction firms were indifference even with the adoption of better construction practices. The authorities may also need to review their tax incentives policies to promote better competitive advantage between these firms for the reason that the certified GBI firms had put in efforts and commitments in gaining the recognition yet could not generate better returns than the non-GBI firms.

The study adds to the limited taxation incentive knowledge and literature in Malaysia. The study could add value or contribute to knowledge to green technology as there were not many studies in the area. Therefore, this study may be of some guidance for future GBI and tax incentives research. Since the samples were from the Malaysian public listed firms within the construction industry, therefore it may not be applied to other industries. Future research shall be extended to other types of firm in order to gain a broader result about the tax incentives on Malaysian GBI firm performance. It will show a better indicator of the Malaysian scenario. The researcher may also include other factors, such as technology, human resource (in terms of numbers of staff) and their knowledge, as discussed by the Theory of the Growth of the Firm. Besides, the result of this study may also be extended by interviewing the project owners of the building awarded with GBI. The researcher may further explore whether the tax incentive given had benefitted them with regards to their firm's performance in the long run.



## Acknowledgement

The authors extend their appreciation to the Faculty of Accountancy, Universiti Teknologi MARA (UiTM), and the Ministry of Education, Malaysia for facilitating and funding this research project under the grant no. 600-IRMI/Dana KCM 5/3/LESTARI (143/2017).

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## Conference Paper

# The Governance of Tax Audit Enforcement: Indicators on Automation Incentive, Tax Avoidance and Firm Characteristics

Fairus Halizam A. Hamzah, Nadiah Abd Hamid, Siti Noor Hayati Mohd Zawawi, Salmah Jaafar, and Norazah Md Azali

Faculty of Accountancy, Universiti Teknologi MARA, 42300 Shah Alam, Selangor, Malaysia

## Abstract

The intense development in the Fourth Industrial Revolution (IR 4.0) demands tight governance of tax audit enforcement by the Inland Revenue Board Malaysia (IRBM) on firms claiming automation incentive. Through tax audit enforcement, IRBM provides a monitoring mechanism for corporate governance. However, due to data confidentiality, little has been established on what indicators that caused tax authority to carry out tax audits. In this research, we employed tax return and historical audit data of corporate taxpayers consisting of profitable and loss firms which consistently claim the Reinvestment Allowance (RA) to examine the indicators applied by the tax authority in executing the role of governance. Employing Binary logistic regression, firm characteristic of firms experiencing tax audit was observable, but tax avoidance and incentive utilization indicators were not apparent. Tax avoidance indicators such as effective tax rate and book-tax difference, loss firms, and incentive utilization receive less attention when it comes to tax audit enforcement. Examining firms that experienced tax audit enforcement has enriched our understanding of indicators that draw the interest of tax authorities when it comes to tax audits. Overall, this research could be the first in Malaysia that has used actual historical tax audit record, which has revealed new evidence on the indicators preferred by the IRBM in conducting a tax audit. The slight fine-tuning of the responses, especially on tax avoidance and incentive utilization indicators for tax enforcement might produce comprehensive tax audit coverage and yield a greater mechanism for governance.

**Keywords:** tax audit enforcement, reinvestment allowance, tax avoidance, firm characteristics, tax returns.

Corresponding Author:  
Fairus Halizam A. Hamzah  
fairuzhalizam@gmail.com

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Tax enforcement executed by the tax authority is a decisive and valuable corporate governance function. The functionality of corporate governance demonstrated by tax enforcement such as reporting unrecognized tax benefits (Brushwood, at el. 2018), detecting tax avoidance (Bozanic, at el. 2017; Kubick, at el. 2016; Hoopes, at el, 2012;), promoting good financial reporting (Hanlon, at el, 2014), detecting income shifting

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decisions of multinational corporations (Beuselinck, et al. 2014) reducing the cost of debt financing (Guedhami and Pittman, 2008) and deterring the conflict of interest among stakeholders as well as increasing firms' market value of share (Desai, et al. 2007) is well documented by the prior researchers. The outcomes from prior research prove that tax enforcement strengthens corporate governance and thus, attract great attention from the taxpayers, governments, policymakers and even among the tax researchers.

However, little is known on how tax authorities perform their governance role, such as how a tax audit is selected especially what indicators that caused tax authority to carry out tax audits. Due to data confidentiality, only a few researchers have highlighted this question. One of these researchers focused on the use of public disclosure in financial statements and the tax avoidance measurement employed for audit selection (Bozanic et al. 2017). In another research, Hanlon et al. (2014) extracted data from the IRS's (Internal Revenue Services) Audit Management Information Reporting System (AIMS) and used firms assets, coordinated industry and proximity of tax headquarters to indicate tax audit probability. Similarly, Kubick et al. (2016) used the distance of tax office as an indication for the likelihood of an IRS audit. Unlike previous studies that examined tax authority enforcement activities by linking tax avoidance elements and firm characteristic as a possible indicator for audit selection, we specifically examined incentivized firms that utilize Reinvestment Allowance (RA). RA incentive is designed to encourage firms in the manufacturing sector that embrace in the IR 4.0 (Abd Hamid, et al. 2018). Hence, tax audit enforcement becoming more complex to ensure the incentivized firms achieve the intended objective of RA. In response to Henry and Sansing (2018) who claimed that loss firm found to be excluded in most of the tax research, we included loss firms to our sample. We managed to include these loss firms because there is no restriction for this type of firms from claiming RA. The inclusion of RA utilization and loss firms in this research has added to the variation in firm characteristics, which enabled us to examine the full coverage of an audit enforcement task.

This study employed confidential tax return data (The tax and audit data are subject to strict confidentiality requirements, and outcomes are cautiously presented in the aggregate to maintain this confidentiality) and historical tax audit record of taxpayers' profiles based on the Case Management System (CMS). By only documenting firm characteristics associated with the tax audit indicators and found no association with other indicators such as tax avoidance and incentive utilization, we explained the area of interest in tax audit governance. The rest of this paper is organized as follows: Section II gives the literature review and hypothesis development. Section III outlines



our research methodology, while Section IV covers our empirical results. Section V contains the discussion, and lastly, Section VI concludes.

## 2. Literature Review and Hypothesis Development

### 2.1. Tax Audit Enforcement

Broadly speaking, the principal responsibilities of a tax authority is to regulate tax compliance (Murphy, 2008), collect income tax from individuals and business entities (Nessa, et al. 2016) and administer tax administrative obligations (IRBM, 2017). In Malaysia, IRBM conducts two kinds of tax audits, namely field, and desk audits. A field audit would involve a visit to a taxpayer's premises for a detail examination of relevant documents. While a desk audit entails a review of documentation attained from a respective taxpayer and interviews the taxpayer at one of IRBM's offices. According to IRBM, tax audit involves the examination of a taxpayer's business record as well as its financial affairs. The Malaysian Institute of Certified Public Accountants and other professional accounting bodies (2019) acknowledged that tax audit enforcement carried out by IRBM is to ensure that the income and tax liability declared by taxpayers in their tax returns are correct and compliant with the Income Tax Act 1967.

Among academic researchers, tax enforcement is widely acknowledged as a valuable mean for corporate governance. In the earlier years, Desai et al. (2007) established two key insights on the importance and the impact of tax enforcement on corporate governance. Firstly, stricter tax enforcement strengthens corporate governance. Secondly, tax revenue relies on the quality of corporate governance. Correspondingly, Guedhami and Pittman, (2008) and Hoopes et al. (2012) added further evidence that the impact of tax enforcement is stronger when other means of corporate governance are found to be weak. Further, Hanlon et al. (2014) supported Desai et al. (2007) research outcome that the tax authority provides a monitoring mechanism associated with the quality of financial reporting. Recent research conducted by Tennant and Tracey (2019) documented that tax audit enforcement employed among the large taxpayers has led to an increase of firm profitability and the level of the effective tax rate (ETR).

Researches in this area predominantly highlight the importance of tax enforcement (Desai et al. 2007), the effects of tax enforcement (Brushwood et al. 2018; Hanlon et al. 2014), the likelihood and determinants of tax audit (Bozanic et al. 2017), the interaction of tax payers and tax authority (Ayers, Seidman, and Towery, 2017; Beuselinck et al. 2014) and how tax authorities conduct an audit within their resources (Kubick et al. 2016;

Nessa et al. 2016). This research examined the indicators of tax audit enforcement, concentrating on the fundamental information reported in tax returns and financial statements such as firm characteristics and tax avoidance indicators. In addition to these indicators, this research has included the loss firms and more importantly, covered firms that have consistently claim the RA incentive for the period of 2007 to 2016.

This research answers the question on what are the determinants or indicators applied by IRBM in fulfilling the governance role when executing a tax audit enforcement. The governance of tax audit enforcement on selecting audit cases remains a secret, and only the tax authority knows how a taxpayer is selected. However, the audit selection can be predicted. According to Nessa et al. (2016), an understanding of the tax authority's resources such as the reduction or increase in the financial budgets and the strength of a tax authority's employees would allow taxpayers to expect the likelihood of facing the tax audit enforcement. Hoopes et al. (2012) highlighted that firms can discern the trend of tax enforcement activities by paying attention to the leadership and structural changes of tax authority, the trend of government revenue, changes in financial accounting standards, hiring of former tax officers, conversations with peer firms experiencing audits as well as historical annual audit coverage data released by the tax authority.

Based on the Tax Audit Framework issued by IRBM, MICPA et al. (2019) revealed that selection of audit cases was made through a computerized system built on risk analysis criteria and various determinants such as business performance, financial ratios, type of industry, prior compliance track record and third party information. In this research, we reviewed the information disclosed in the annual report released by the IRBM. Valuable information was gathered concerning tax audit enforcement executed by IRBM among the corporate taxpayers. Some of the important insights on tax audit enforcement are summarized as follows:

Although the above information is historical, tax enforcement executed by IRBM relied on various indicators and carried out based on the strategic approach. Moreover, the increasing number of resolved tax audit cases indicates the seriousness of IRBM in performing their governance role. Our research looked at the fundamental indicators or determinants of tax enforcement, which led to the understanding of the coverage and area of interest in tax audit enforcement.

TABLE 1: Valuable Information on Tax Audit Enforcement Activity.

| Year | Number of audit cases resolved | Achievement from targeted *KPI (%) | Strategies/preferences  |
|------|--------------------------------|------------------------------------|---|
| 2017 | 178,583                        | 137.48                             | - implementation of <i>Focus Audit</i> executed by the field audit.<br>- tax audit criteria based on risk analysis.<br>- digital economy.<br>- data mining and collaboration with other agencies.<br>- implementation of audit on small and medium enterprise (SMEs).   |
| 2016 | 161,760                        | 142.51                             | - segmented according to <i>Industry Based Audit</i> : information and technology, services, manufacturing, professional, technical and scientific activities and vehicle repair workshops.<br>- introduction of <i>Monitoring Deliberate Tax Defaulters</i> (MDTD) program focusing on non-compliance taxpayers. |
| 2015 | 138,203                        | 152.49                             | - transfer pricing and high-income taxpayers.<br>- focusing on the settlement of audit cases which generate the correct amount of taxes.  |

**Note:** \*key performance indicator  
**Source:** Extract from IRBM's Annual Report (IRBM, 2015, 2016, 2017)

### 2.1.1. Tax Audit Enforcement and Firm Characteristics

Our research questions are based on the various indicators the tax authority considers before the decision for audit is made. We argued that the most basic indicators used by the tax authority in executing tax audit enforcement were firm characteristics. Information on firm characteristics is gathered by the tax authority through the submission of tax returns by the taxpayers (Bozanic et al. 2017). Indicators such as type of firm whether it is multinational or domestic, managerial structural whether the firm has a foreign director or domestic director, type of industry, tax consultants, profitability level as well as audit years have been widely used by the previous researchers to represent tax audit enforcement indicators (Bozanic et al. 2017; Nessa et al. 2016).

We argued that the information on the scale of operation of a domestic firm or a multinational firm does influence the choice of the tax authority when performing tax audit. A research performed by Kubick et al. (2016) has postulated that the IRS is more likely to choose domestic taxpayers given the close distance to a tax office, which would incur a lower audit cost. Nevertheless, they found that the IRS is not interested with local firms but rather conduct an audit examination based on their industry know-how. Form their survey analysis on tax directors of multinational firms,

Hoopes et al. (2012) revealed that stricter audit enforcement did not prevent firms from applying tax aggressive scheme. In another research Beuselinck et al. (2014) claimed that the multinational firms took advantage of weaker tax enforcement to shift their income. The rationale behind this relied on the variation in the scale of operations. This rationale is further supported by Salihu et al. (2015), who documented that multinational firms operating in Malaysia were exploiting their international scale of operations to evade taxes. Although multinational firms are more exposed to international tax planning (Transfer pricing, international tax system and different accounting systems) compared to domestic firms, Dyreng, et al. (2017) found that both types of firms have recorded the same decreasing trend in ETR.

Next, we contended that the managerial structural whether the firm has a foreign director or domestic director does influence over the choice made by tax authorities to execute tax audit enforcement. The basis behind this relied on the outcomes of previous research which proved that foreign director is connected with the interest of foreigner toward the host country (Salihu et al., 2015), cross-border investment (Masulis, et al. 2012), monitoring firm performance (Estélyi and Nisar, 2016). Due to the segregation of ownership and control, a firm with either a foreign or domestic director has the opportunity to use the complexity in corporate taxation to divert the income elsewhere. For instance, Salihu et al. (2015) found that there are significant positive associations between a foreign director (Salihu et al., (2015) use foreign director and foreign shareholding as proxies for foreign interest) and tax avoidance. However, stricter tax audit monitoring would prevent (El Ghouli, et al. (2011) and make it harder for the directors or managers (insiders) to gain personal benefits (Hanlon et al. 2014). In light of stricter audit enforcement, Brushwood et al. (2018) found that managers are more cautious when reporting tax.

In previous research, the type of industry has been commonly used as a possible preference by the tax authority when conducting audit enforcement (Brushwood et al. 2018; Ayers et al. 2017; Kubick et al. 2016; El Ghouli et al. 2011). We also noted in the annual report released by IRBM, which states that the course of audit enforcement has been segmented according to the *Industry Based Audit*, as shown in Table 1. Our research consisted of incentivized firms that are heavily involved in plant and machinery. Thus, we concluded that industry indicators (ISEC) are informative to the tax authority.

Hired tax consultant provide services such as accounting and taxation affairs. According to Frecknall-Hughes and Moizer, (2015), services provided by the tax consultant are divided into compliance work and tax planning or avoidance advice. The aim of tax compliance is to ensure that every economic transaction complies with tax law.

The role of tax consultants is to serve the interest of their clients hence, there are occasions where there is deliberate manipulation to reduce the amount of tax payable. On the other hand, there are researches where tax consultant is the additional force that improves corporate governance at the firm level. Hoopes et al. (2012) state that firms' corporate governance improved when they hire an auditor from the Big Four showing negative interactions with tax audit probability. Even though the evidence highlights two different effects of tax consultants, we hypothesized that tax consultants (TC) have significant influence over tax audit.

Next, we argued that profitability (ROA) and profit versus loss status (FS) are conceivably key elements that attract the attention of tax authority to conduct tax audits. The government through its tax authority have its share of profit in tax payable, thus, the government is interested to ensure the actual profit earned is reported (Hanlon et al. 2014). The government's or tax authority's interest in firms' profit is reasonable because Frank et al. (2009) reported that profitability measured by the return of asset (ROA) has a positive association with tax avoidance. Other researchers affirmed that profitability has a positive relationship with the probability of being selected for a tax audit (Kubick et al. 2016). Unlike other researches, which excluded the loss firms, we have included an additional variable that could explain precisely the loss year status firms as well as profit years status firms. The main difference between profitability level and profit vs. loss firms is that profitability captures the economic magnitude in terms of percentage while profit vs. loss detects whether a firm record negative or positive profit within the observation year.

We hypothesized that the tax authority predetermines year-based audit (AUDYR) and when the actual year of tax audit take place (AYA) is strongly connected to the tax audit enforcement. We noted that the selection on the year of assessment (Y/A) for audit is chosen through the internal computerized system and is based on risk analysis (IRBM, 2017). We are unaware of the criteria of risk analysis, however, we generally assume that the year of assessment chosen is to ensure firm declares the right amount of tax and complies with the provision of the laws and rulings. Due to timing difference, the year of actual audit takes place does not necessarily occur in the same year predetermined by the tax authority. We noted that the year of the actual audit carried out by the assessment officer is the year when communication with a taxpayer is initiated, audit examination is conducted, tax issues or any disputes are discussed, audit adjustment are proposed and lastly, the audit case is resolved. Therefore, as to when audit cases are systematically chosen by the computerized system and when assessment officers initiate contact with taxpayers, we strongly expect the execution of tax audit enforcement likely to occur.

In this research, we have included all the above-mentioned variables to explain determinants that may contribute directly to the selection of tax audits. Overall, we expected the indicators in firm characteristics to have a substantial association with the likelihood of being selected by the tax authority for tax audit enforcement. Thus, we propose the following hypotheses:

H1 Indicators on firm experiencing tax audit enforcement (EXAUD) associated with firm characteristics

### 2.1.2. Tax Audit Enforcement and Tax Avoidance

Several types of research carried out in countries that are engaged in an advance taxation system have demonstrated that tax audit enforcement is triggered by tax avoidance indicators such as ETR (Hoopes et al., 2012) as well as book-tax difference (Bozanic et al. 2017). Subjected to less cost and resources involved in conducting tax enforcement, Hoopes et al. (2012) suggested that stricter tax audit enforcement would lead to a decrease in tax avoidance, and subsequently, would increase revenue. There are several reasons as to why tax authorities are interested in these indicators. According to Bozanic et al. (2017), a tax authority like the IRS is inherently interested in ETR because this indicator provides information on international tax strategies while higher book-tax difference indicates higher tax avoidance. Additionally, ETR and book-tax difference indicators have been proven to trigger tax avoidance activities by previous scholars (Higgins, et al. 2015; Lisowsky, 2010; Frank et al. 2009; Wilson, 2009; Dyreng, et al. 2008; Desai, 2003). Since tax authorities are determined to detect corporate tax avoidance, we expected the selection of audits for tax enforcement to be driven by tax avoidance indicators. We purposed our second hypothesis as follows:

H2 Indicators on firm experiencing tax audit enforcement (EXAUD) associated with tax avoidance

### 2.1.3. Tax Audit Enforcement and Automation Incentive

Briefly, RA is a special tax relief introduced in 1979, which is designed for manufacturing firms to stimulate investments in automation, modernization, expansion, and diversification of businesses. With 60% of tax deduction provided on qualifying capital expenditure, firms can utilize this incentive to expand and transform their business into a fully automated and modernized operation. Unlike any other incentives such as investment tax allowance and pioneer status, which is governed by the Malaysia

Investment Development Authority (MIDA), RA is governed and administrated by IRBM. What makes RA closely associated with IR 4.0 is that the provisions contained in the investment of qualifying capital expenditure of RA apply to the nine pillars of technology-related in IR 4.0. The nine pillars of technology-related component of IR 4.0 which has been widely discussed by the researchers known as an autonomous robot, internet of things, big data analytics, horizontal and vertical system integration, cybersecurity, the cloud, augmented reality, simulation, and lastly, additive manufacturing (Saucedo-Martínez, et al. 2017; Kamarul Bahrin, et al. 2016; Rüßmann et al. 2015). According to Abd Hamid et al. (2018), RA is designed to support IR 4.0 since it provides cost reduction in the form of a specific tax deduction for a firm's wish to invest in the modernization and automation scheme. In their research, the utilization of RA had been applied to access firms' readiness in embracing IR 4.0. They further suggested that tax audit should be carried out to increase the effective utilization of RA incentive. Following Abd Hamid et al. (2018), this research use RA utilization to represent the application of automation incentive.

We included RA utilization (RAUTI) for two reasons. First, we were aware that our entire sample firms used in this research claimed RA. We were interested in examining whether RA utilization rate attracts tax audit. There is research that focused on the determinants of RA utilization. Concerned with the low utilization rate of RA incentive, Abd Hamid et al. (2018) conducted a research to identify the determinants of incentive utilization and discovered that not all firms that claimed RA was able to fully utilize the incentive as expected. Secondly, firms in their tax planning strategies will seek to exploit opportunities presented by tax incentives to lower their tax burden through tax avoidance. Issues connected to tax incentive implementation such as compliance with qualifying conditions, continuous monitoring compliance and possible misuse of tax incentive need to be considered by governments and policymakers. Continuous monitoring of incentive is fundamentally important to prevent the misappropriation of tax incentives. For instance, Zolt (2014) has raised several conditions where tax incentive can be abused such as fictitious investments, overvaluation of assets, manipulation of the non-qualifying activities into qualifying activities as well as the transfer of pricing schemes to related entities. Knowing the extensive capital required in IR 4.0, the complexity, and potential misappropriation of the tax incentive we predict that tax audit conducted by IRBM will concentrate on incentivized firms not only on compliance and avoidance issues but also on how a firm makes full use of RA incentive in IR 4.0. Thus, we purposed our third hypothesis as follows:

H3 Indicators on firm experiencing tax audit enforcement (EXAUD) associated with Reinvestment Allowance Utilization (RAUTI)

### 3. Methodology

#### 3.1. Data and Sample Selection

To empirically test the hypotheses H1 to H3 on various indicators for tax audit enforcement, we merged data from two sources: i. confidential tax return data (Compiled by the Department of Analytical and Statistics of Tax Operational Division of the Inland Revenue Board of Malaysia (IRBM)) and ii. historical tax audit record of taxpayers' profiles based on internally generated by the Case Management System (CMS). The criteria for sample selection are described in Table 2. A total of 7,153 sample firms claiming RA during the period of 2007 to 2016 were identified and were sorted according to the firm-year observation that exhibited complete data as well as firms that consistently reported RA utilized and RA unutilized in the specific columns provided in the tax return. After performing multiple data filtration, we identified 401 samples and completed 4,010 observations (10 observation years).

TABLE 2: Sample Selection Criteria.

| DATA         | Criteria   | Number of Firms |
|--------------|--|-----------------|
| tax return   | Total sample frame consists of firm utilising RA   | 7,153           |
|              | Exclude: firms not utilizing RA consistently in all observation years (2006-2017) and firms reported incomplete RA claim in tax returns. | (5,955)         |
|              | Full sample inclusive of firms reported positive and negative nett incomes   | 1,198           |
| audit record | Restrict: firms reported extreme values of ROA more than 100% and -100% firms with incomplete variables data.                            | (797)           |
|              | Final samples of firms consist of profit and loss firms are matched with the historical audit record.                                    | 401             |

#### 3.2. Regression Specifications

The objective of this research is to examine indicators in firm characteristics, tax avoidance and RA utilization that caused tax authority to carry out tax audit enforcement. Accordingly, we developed a regression model to examine whether firms experiencing tax audit are connected with firm characteristics, measures of tax avoidance and RA utilization. The model is as follows:



$$\text{EXPERIENCING TAX AUDIT} = \alpha + \beta_1 \text{ FIRM'S CHARACTERISTICS} + \beta_2 \text{ TAX AVOIDANCE} + \beta_3 \text{ RA UTILIZATION} + \epsilon_{i,t}$$

Our measure of tax audit enforcement consists of a dichotomous outcome, whether firms experiencing tax audit enforcement or did not. We employed Binary logistic regression (Logistic regression uses to test models in predicting categorical outcomes (Pallant, 2016)) to predict the indicators used by the tax authority to determine tax audit enforcement. In the above equation, EXPERIENCING TAX AUDIT (EXAUD) is used as a proxy for tax audit enforcement. Data on EXAUD are derived from confidential historical audit records of taxpayers generated by CMS. In this research, firms that had experienced tax audit executed by the tax authority for the observation period of 2017 to 2016 were indicated as “1”, while firms that did not experience and faced tax audit for the same period of observation were assigned as “0”. We did not segregate the tax audit approach, be it field or desk audit. In sum, as long as a firm experienced one of the tax audit approaches, we assumed that the firm was audited. We included FIRM'S CHARACTERISTICS, TAX AVOIDANCE, and RA UTILIZATION as predictor variables when examining the indicators for tax audit enforcement. Firm characteristics consist of rich data such as as year audit criteria (AUDYR), actual years of audit (AYA), return on asset (ROA), firm status (FS), taxpayer profiles (TPP), industrial sectors (ISEC), firms' directorship (FD) and lastly tax consultant (TC). We employed the most common indicators to detect tax avoidance strategy, which is an effective tax rate (ETR) and book-tax difference (BTD). Finally, we included RA utilization as our predictor variable to examine the indicator used by tax authority before executing a tax audit. We explained the measurement of all other variables in the next section.

### 3.3. Variable Definitions

Table 3 lists the variables used in the empirical analysis.

## 4. Results

Binary logistic regression was performed to predict the influence of the number of variables on the possible indicators used by the tax authority to execute tax audits. Table 4 shows the observation and categorical variable coding. In this table, each variable is observable and has completed 4,010 frequency of occurrence. Among the highest frequency recorded by a variable is EXAUD with 84%, FS (profit) 81.8%, and followed by other variables. Table 5 shows the descriptive statistic for ETR, BTD, ROA,

TABLE 3: Measurement of Variables.

| Variables    | Operationalization and measurement of variables   |
|--------------|---|
| <b>AUDYR</b> | Year audit criteria predetermined by internal computerized system of IRBM. Year of audit pre-selected by the system is indicated as “1” at year <i>t</i> and “0” for years not selected.  |
| <b>AYA</b>   | Actual year of audit represents the year of tax audit conducted by the tax officer. Actual year of audit is indicated as “1” at year <i>t</i> and “0” otherwise.  |
| <b>ETR</b>   | Effective Tax Rate measured by tax payable divided by nett accounting income.   |
| <b>RAUTI</b> | Reinvestment Allowance (RA) utilization (in percentage) measured by RA claimed during the year divided by actual maximum amount of RA at year <i>t</i> .  |
| <b>ROA</b>   | Return on asset proxy for profitability. ROA is measured by nett accounting income divided by total assets.   |
| <b>BTD</b>   | Book-tax difference computed as pre-tax book income less estimated taxable income divided by total assets at year <i>t</i> . Our data on taxable income is incomplete. Alternatively, we used tax payable divided by Malaysia’s statutory tax rate at year <i>t</i> to derive estimated taxable income.   |
| <b>FD</b>    | Firm directorship is a categorical variable. The presence of a foreign director in a firm is referred to as FDIR and DDIR is for the presence of a domestic director.   |
| <b>TPP</b>   | We use taxpayers’ profile predetermined and coded by the IRBM. Tax Payer Profiles (TPP) is noted as:<br><br>Multinational taxpayers abbreviated to “TPP1” where i) total income, income from other business sources and profits generated from related foreign firm exceeding RM 25million. ii) Sales, purchase, total expenditure incurred, and total income generated from related foreign firm exceeding RM15million iii) loan made to or from related foreign firm.<br><br>Big taxpayer denotes as “TPP2”, where sales exceeding RM30 million<br><br>Normal taxpayer denotes as “TPP3”, where sales not exceeding RM30 million. |
| <b>TC</b>    | Tax Consultant is a dummy variable for firms that engaged the services of the BIG Four audit firms is indicated as “1” and “0” for non-BIG Four.  |
| <b>ISEC</b>  | Sector industry is a dummy variable categorized according to firm’s core business: 1 is for electric and electronics, 2 is for metal and minerals, 3 is for food and beverage, 4 is for textile and garment, 5 is for wood, paper and printing, 6 is for petroleum, chemical, rubber, and plastics, 7 is for automobile, equipment, and other manufacturers and finally, 8 for agricultural.  |
| <b>FS</b>    | Firm years status is a dummy variable for firms reporting positive profit in <i>t</i> years is indicated as “1” at year <i>t</i> and “0” on firms reporting negative profit at year <i>t</i> .  |

and RA utilization. For each variable shown in the table, there is a 95% confidence interval for mean within the lower and upper bound.

The model as a whole explained between 17.3% (Cox and Snell R square) and 29.8% (Nagelkerke R squared) of the variance in tax audit execution (EXAUD) and correctly

TABLE 4: Categorical Variable Coding.

| Variables                      | Descriptions and Coding                        | Frequency | Percent (%) |
|--------------------------------|--|-----------|-------------|
| Experiencing Tax Audit (EXAUD) | No-0   | 630       | 15.7        |
|                                | Yes-1  | 3,380     | 84.3        |
| Year Audit criteria (AUDYR)    | No-0   | 3,173     | 79.1        |
|                                | Yes-1  | 837       | 20.9        |
| Actual Years Audit (AYA)       | No-0   | 2,952     | 73.6        |
|                                | Yes-1  | 1,058     | 26.4        |
| Firm Years Status (FS)         | Loss-0   | 730       | 18.2        |
|                                | Profit-1                                       | 3,280     | 81.8        |
| Tax Payer Profiles (TPP)       | Branch-1                                       | 2,140     | 53.4        |
|                                | Big Tax Payer-2                                | 1,390     | 34.7        |
|                                | Multinational-3                                | 480       | 12.0        |
| Industrial Sectors (ISEC)      | Electrical and electronics-1                   | 560       | 14.0        |
|                                | Metal and minerals-2                           | 660       | 16.5        |
|                                | Food and Beverage-3                            | 350       | 8.7         |
|                                | Textile and Garments-4                         | 80        | 2.0         |
|                                | Wood, Paper and Printing-5                     | 940       | 23.4        |
|                                | Petroleum, chemical, rubber and plastics-6     | 710       | 17.7        |
|                                | Automobile, equipment and other manufactures-7 | 610       | 15.2        |
|                                | Agricultural (Palm Oil and Livestock)-8        | 100       | 2.5         |
| Firm Directorship (FD)         | Domestic Director-0                            | 2,790     | 69.6        |
|                                | Foreign Director-1                             | 1,220     | 30.4        |
| Tax Consultant (TC)            | Non-big Four auditor-0                         | 2,690     | 67.1        |
|                                | Big Four Auditor-1                             | 1,320     | 32.9        |
| Total                          |  | 4,010     | 100%        |

**Note:** For the definition of variables, refer to Table 3

classified 83.7% of the firms. Table 6 reports on the sensitivity of the model. Based on the sensitivity of this model, we were able to accurately classify 99% of the firms which experienced tax audit enforcement.

As shown in Table 7, only firm characteristics indicators such as AUDYR, TAXAUD, FS, TPP2, FD1 and ISEC 2, 4, 5, 6, 7 made a unique statistically significant contribution to the model of predicting tax audit indicators applied by the tax authority. The most reliable indicator of tax audit enforcement is year audit criteria predetermined by the internal computerized system of IRBM (AUDYR), recorded an odd ratio of 91.01. This indicated that a firm was identified by the internal computerized system was over 91 times more likely to experience tax audit enforcement than a firm that was not selected by the system. The odds for firms showing profit status FS to EXAUD is 1.52

TABLE 5: Descriptive Statistics for ETR, RAUTI, ROA and BTD.

| Statistics/Variables             |             | ETR    | RAUTI  | ROA     | BTD     |
|----------------------------------|-------------|--------|--------|---------|---------|
| Mean                             |             | 0.0887 | 0.3460 | 0.0543  | 0.0355  |
| 95% Confidence Interval for Mean | Lower Bound | 0.0847 | 0.3332 | 0.0495  | 0.0338  |
|                                  | Upper Bound | 0.0927 | 0.3588 | 0.0590  | 0.0372  |
| 5% Trimmed Mean                  |             | 0.0715 | 0.3289 | 0.0578  | 0.0297  |
| Median                           |             | 0.0528 | 0.1165 | 0.0510  | 0.0209  |
| Variance                         |             | 0.0167 | 0.1705 | 0.0234  | 0.0030  |
| Std. Deviation                   |             | 0.1291 | 0.4129 | 0.1528  | 0.0544  |
| Minimum                          |             | 0      | 0      | -0.9926 | -0.3328 |
| Maximum                          |             | 1      | 1      | 0.9993  | 0.9829  |
| Range                            |             | 1      | 1      | 1.9919  | 1.3157  |

**Note:** For the definition of variables, refer to Table 3

TABLE 6: Model Sensitivity.

| Observed           |     | Predicted |      |                    |
|--------------------|-----|-----------|------|--------------------|
|                    |     | EXAUD     |      | Percentage Correct |
|                    |     | No        | Yes  |                    |
| EXAUD              | No  | 11        | 619  | 1.7                |
|                    | Yes | 33        | 3347 | 99.0               |
| Overall Percentage |     |           |      | 83.7               |

times higher compared to firms showing loss status. TPP2 and FD1 showed significant and negative coefficients. These coefficients indicated that the odds of “Big Taxpayer” (TPP2) to EXAUD were .629 times lower than the normal and multinational taxpayers. The possibility of firms with foreign directors was .620 times less likely to experience tax audit enforcement (EXAUD). All industry sectors (ISEC) reported significant coefficient to EXAUD, except for electric and electronics (ISEC1) and food and beverage (ISEC 3) industries. Moreover, the odds of the Big Four audit firms hired by the firm was 1.635 higher than firms hiring non-Big Four audit firms to face EXAUD. Unexpectedly, our indicator variables for tax avoidance such as ETR and BTB as well as RA utilization reported insignificant coefficients in this model.

## 5. Discussion

Our identification approach mainly focused on rational expectations of firm will experiencing tax audit enforcement relying on firm characteristics and tax avoidance indicators for an observable period of 10 years. Considering the complexity and possible abuse

TABLE 7: Variables in the Equation.

| Indicator Variables | B      | S.E   | Wald    | Sig. | Exp(B) |
|---------------------|--------|-------|---------|------|--------|
| FS Profit (1)       | .419   | .165  | 6.460   | .011 | 1.520  |
| ROA                 | -1.075 | .449  | 5.722   | .017 | .341   |
| Tax Payer Profiles  |        |       | 7.320   | .026 |        |
| TPP(1)              | -.098  | .118  | .681    | .409 | .907   |
| TPP(2)              | -.464  | .174  | 7.141   | .008 | .629   |
| FD(1)               | -.479  | .120  | 15.920  | .000 | .620   |
| ISEC                |        |       | 121.703 | .000 |        |
| ISEC(1)             | -.056  | .159  | .125    | .724 | .946   |
| ISEC(2)             | 2.089  | .349  | 35.860  | .000 | 8.078  |
| ISEC(3)             | -.521  | .283  | 3.374   | .066 | .594   |
| ISEC(4)             | 1.324  | .180  | 54.171  | .000 | 3.757  |
| ISEC(5)             | .330   | .163  | 4.087   | .043 | 1.391  |
| ISEC(6)             | .496   | .167  | 8.866   | .003 | 1.642  |
| ISEC(7)             | .904   | .374  | 5.834   | .016 | 2.469  |
| TC(1)               | .492   | .125  | 15.452  | .000 | 1.635  |
| AUDYR(1)            | 4.510  | .711  | 40.259  | .000 | 90.907 |
| AYA(1)              | 2.406  | .224  | 115.074 | .000 | 11.090 |
| ETR                 | -.512  | .451  | 1.292   | .256 | .599   |
| BTD                 | -.647  | 1.047 | .381    | .537 | .524   |
| RAUTI               | .014   | .141  | .009    | .923 | 1.014  |
| Constant            | .537   | .175  | 9.452   | .002 | 1.711  |

**Note:** For the definitions of variables, refer to Table 3

**Statistical analysis:** tested at significance level of  $\alpha = 0.05$  (p-value) with 95% confidence interval

of tax incentive, we included RA incentive utilization, the incentive which was designed to support IR 4.0. Overall, our Binary logistic equation showed that firm characteristic indicators were observable but tax avoidance and incentive utilization indicators were not apparent to tax audit enforcement.

Even though our model of sensitivity correctly predicted a high percentage (83.7%) of firms experiencing tax audit and provided 4,010 complete firm observations, the results have to be interpreted carefully. The reason is that our interest and sample consist of firms claiming RA. Thus, the findings from this research cannot be generalized to represent the entire corporate taxation population though we have included the various types of corporate taxpayers such as multinational firms, big taxpayers and normal taxpayers to widen the area of interest in this research. Our logistic equation shows all indicators in firm characteristics tested on EXAUD are significant and thus,

strongly support H1. The strongest predictor of a firm experiencing tax audit is AUDYR, indicating that the tax audit enforcement selection is mainly to improve tax compliance. Other indicators such as TAXAUD, FS, ROA, TPP2, FD1, TC and ISEC 2, 4, 5, 6, 7 show significant association toward tax audit execution and thus, support all the hypotheses tested on firm characteristics. Our profitability indicator which is measured by ROA interestingly shows a negative association on EXAUD. In line with Bozanic et al. (2017), this outcome indicates that the selection of tax audit is based on a decreasing trend in profit and approaching loss status. Consistent with Mills (1998) and Hanlon and Slemrod (2007) who claimed that loss firms have a lower probability of facing an audit, this research affirms that firms reporting negative profit throughout the year of observation received less attention from the tax authority versus firms that show a positive profit. As such, the tax authority might share a similar view with Ayers et al. (2017) who reported that loss firms have a lower chance of engaging tax avoidance strategies.

Firms that hired their tax consultants from the Big Four demonstrated 1.63 times higher chances of facing tax audit as compared to firms that engaged the services from non-Big Four. Even though prior researches claimed that firms were better governed and possessed a higher value when they appointed tax consultants from the Big Four (Hoopes et al. 2012), our finding proved that hiring tax consultants from the Big Four did not deter firms from being selected by the tax authority. Next, our industry sector (ISEC) indicator mostly showed significant predictor of EXAUD except for electric and electronics as well as food and beverage industries. As mentioned in their annual report, IRBM applied the Industry Based Audit approach as a basis to conduct tax audits. Thus, the significant association of ISEC on EXAUD is not surprising and strongly support our hypothesis. This indicates that the information on types of industries is informative to a tax authority when conducting tax audits.

Our measure for tax audit execution (EXAUD) is based on whether firms experienced tax audit during the 10-year observation period. Instead of using probability rates or public information disclosure as in research conducted by Bozanic et al. (2017) and Hoopes et al. 2012), we employed actual tax audit recorded to analyze firms that experienced tax audit enforcement. We found vigorous outcomes that our predictor for TAX AVOIDANCE measured by the effective tax rate (ETR) and boo-tax difference (BTD) as well as indicators of RA UTILIZATION was not associated with EXAUD. Overall, these results are inconsistent with the notion that the tax authority had preferences on the measures of tax avoidance (ETR, BTD) as well as RA utilization (RAUTI). In this research, RAUTI was also found to be insignificant on EXAUD. RAUTI showed how much tax benefit claimed by a firm. We concluded that the tax audit conducted on incentivized

firm looked at regular tax compliance issues rather than a detailed examination of the intensity of firms claiming tax benefits. As such, these results shed light on the untouched area that the tax authority needs to consider seriously before initiating tax audits.

## 6. Conclusion and Implications

We examine the indicators or determinants of firms that had experienced tax audit enforcement by connecting tax returns and historical tax audit data to firm characteristics as well as tax avoidance indicators. Confidential data were employed to accurately predict the occurrence of tax audit conducted by the tax authority on firms that consistently claimed RA from 2007 to 2016. Unlike all other previous studies that examined tax audit enforcement relating to common indicators associated to firm characteristics and tax avoidance, we extended the focus of our research by examining incentivized firms that utilized RA and included loss firms. We found that tax audit enforcement is driven by firm characteristics such as AUDYR, TAXAUD, FS, ROA, TPP2, FD1, TC, and ISEC. In terms of tax avoidance and the RA utilization indicator, we unexpectedly discover that these determinants to be insignificant and unrelated to tax audit enforcement.

By examining firms experiencing tax audit enforcement has enriched our understanding of indicators that caused tax authorities to carry out tax audits. Beyond this established understanding, we could possibly predict why tax audit enforcement was conducted. For instance, our firm characteristic variables, especially AUDYR, showed significant association to tax audit enforcement. We come to understand that the motive for selecting and conducting audits is to mainly deter in compliance as well as to detect risk associated with firm characteristics. We included loss firms because this type of firm also benefitted from the RA incentive. The insignificant result in this research suggested that tax audit enforcement has ignored this type of firms. Therefore, the incentive claim by loss firm will not be uncovered and the tax position of this type of firms remain unknown. Our result also explicates that tax authority had fewer preferences on the measures of incentive related to IR 4.0 when it comes to tax audits. Interestingly, one of the research conducted in German by Rüßmann et al. (2015) forecast on enormous additional revenue generated to the country as a result of the application of IR 4.0. Therefore, IR 4.0 is the next great task to be embedded in governing the tax audit. This research also conveyed an important message among corporate taxpayers. A high percentage of 84.3 tax audit occurrence, indicates a high possibility of the corporate

firm being selected for tax audit and thus, taxpayers are urged to better prepare to face the taxmen.

More importantly, this research revealed new evidence on the area that has been focused as well as the untouched area yet to be discovered by the tax authority during the course of a tax audit. Although it would be premature at this early phase to propose policy prescriptions, such as recommending that the tax authority should devote more effort to concentrate on tax avoidance indicators (ETR and BTD) and in RA incentive utilization (RAUTI), we help fill another gap by providing some insight to the alternative indicators to be used by tax authority for enforcing tax audit governance.

## Acknowledgement

Endless support by the Institute of Graduate Studies (IPSIS) and the Faculty of Accountancy, UiTM is acknowledged and appreciated. We are indebted to Inland Revenue Board of Malaysia for authorizing the use of privileged data to one of the authors in this research. None of the confidential tax information received from IRBM is disclosed in this research. Statistical aggregates were used so that no specific taxpayer can be identified from information given by IRBM. All opinions are those of the authors and do not reflect the views of IRBM.

## Funding

The authors are grateful for the financial support given by the Universiti Teknologi MARA through the LESTARI grant ref no:600-IRMI/DANA/KCM/5/3/LESTARI (143/2017)

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## Conference Paper

# Teachers' Self-Assessment of Their Teaching Effectiveness at Higher Secondary Level in Pakistan: A Case Study

Lubna Quddus<sup>1</sup>, Mukhdoom Khalid<sup>1</sup>, and Muhammad Waris Ali Khan<sup>2</sup>

<sup>1</sup>Faculty of Education, Bahauddin Zakariya University, Bosan Road, 60000 Multan, Pakistan

<sup>2</sup>Faculty of Industrial Management, University Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

Self-assessment is a process of continuous reflection, self-monitoring, and self-judgment, to review an individual's strengths and weaknesses and helps to discover areas which need improvement. It involves an individual's learning from his experiences, by judging his personal, educational as well as his professional performance. Self-assessment enables teachers to get control over their progress. It can serve as one of the most influential tools for the measurement of teacher quality. The researcher of this study administered a questionnaire which consisted of two parts. Part one comprised of SITE II (Self-assessment Instrument for Teacher Evaluation II) on which teachers rated themselves, and part two was designed to explore teachers' opinion about the effectiveness of self-assessment. The sample comprised of 107 teachers of higher secondary level. The basic motive of the researcher was to enhance learning through self-assessment to know if such self-assessment exercises may promote quality teaching in classrooms. It was found that the respondents viewed that self-assessment helps them understand their strengths and weaknesses. It establishes teachers' involvement in self-learning, which can serve as a sound basis in the teaching process. By doing self-assessment, teachers can re-consider as to how they are teaching in their classrooms.

**Keywords:** self-assessment, teacher evaluation, summative assessment, formative assessment.

Corresponding Author:

Lubna Quddus

lubnasubzwari@gmail.com

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Borg & Edmett (2018) define self-assessment as a pervasive idea in education. It is an ability to assess knowledge, learning, performance, and skills which enables a person to become an autonomous learner. Self-assessment involves teachers in teacher-evaluation by giving them ownership in the process of evaluation and creating a sense of awareness of their weak areas they ought to improve (Borgmeier, Loman, & Hara, 2016; Ross & Bruce, 2007). Bandele and Oluwatayo (2014) suggest that self-assessment

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becomes a matter of conscience when it is tactfully used as a device for the evaluation of teaching effectiveness. However, its actual worth lies not only in opportunity for the teachers to determine their perception regarding teaching effectiveness but also in having a reflective approach towards self-improvement. Self-assessment allows them to take time to reflect, record, and synthesize what was learned and use this knowledge for bringing about real changes (Weimer, 2013).

## 2. Self-Assessment: An Essential Aspect of Formative Assessment

Teacher evaluations are basically of two types: summative and formative. The summative evaluation aims to measure and rate teachers. It determines tenure, promotion, awards, merit raises, and dismissal. On the other hand, formative evaluation emphasizes on teacher development and growth (Marzano, 2012). Teachers are considered as “participants in, not recipients of, their evaluations” in formative evaluation (NYSUT, 2012). The aim of formative evaluation is the improvement of instructional practices as well as continuous professional development. It is collaborative in nature which promotes self-reflection and goal setting. Self-assessment serves as an essential aspect of formative assessment, which encourages teachers’ development and provides an opportunity for reflecting on their teaching practice. It enables them not only to self-assess but also discuss their judgments with their peers, supervisors, and mentors without fearing that the assessment might not be misused in the making of the high-stakes decision. Self-assessment must be systematic instead of being haphazard. It demands perseverance and discipline, and the results should prove its worth (Brown, 2007).

### 2.1. The Role of Self-Assessment in Teacher Evaluation in Pakistan

In Pakistan, self-assessment is more a matter of summative evaluation rather than of formative evaluation. Regarding self-assessment, the available document from the Higher Education Commission (HEC) is ‘Self- Assessment Manual.’ Raouf (2006) prepared it, and it deals with the summative aspect of self-assessment. It focuses on self-assessment as a valuable tool for measuring academic Quality Assurance, which also provides feedback to management for introducing action plan for progress. Batool & Qureshi (2007) in ‘Section -V’ of ‘Quality Assurance Manual’ of Higher Education in Pakistan describes the Internal Quality Assurance System as Self-Assessment. According to this manual

self-assessment reports lie at the center of the whole Quality Assurance (QA) system and demand to be made by institutions in the light of the guidance provided by Quality Enhancement Cell (QEC) and by Manual of Self-Assessment as published by HEC as the first documented effort for implementing the quality assurance processes in institution of HEC. Borg & Edmett (2018) can be cited who are of the view that in the perspective of growing global interest regarding teachers quality and methods for its evaluation (OECD, 2013a, 2013b), the teachers' self-assessment can be regarded as a formative approach that is bound to boost their own judgment and enables them to take the responsibility of their personal, professional growth. Teacher self-assessment is just one of numerous options which are available for the teacher evaluation process. It is not suggested that self-rated checklists for assessing the teachers' competence are preferable or superior to other teacher evaluation approaches. The teacher evaluation should be carried out by multiple sources, and self-assessment should be considered as one source. Marzano and Toth (2013) are of the view that self-assessment can be combined with classroom observations to make it more authentic.

By reviewing literature, the prevalent concept of self-assessment to promote the quality of teaching had been supported by giving references to many educationists and their studies. The researcher found a research gap regarding the usage of self-assessment for formative purpose in Pakistan and observed that it largely remained an unstudied area which demands a systematic inquiry in this direction.

### 3. Problem Statement

In Pakistan, self-assessment is used mainly for the summative purpose to evaluate the performance of teachers, curriculum, and institutions. The emerging trend of using self-assessment for the formative purpose which is also known as assessment for learning is the primary concern of the researcher. Akram (2012) states that in Pakistan, public sector schools make use of the Performance Evaluation Report (PER) for evaluation of teachers' performance. The school heads assess their teachers according to it. Evaluating teachers' performance through one source only (PER) is challenging as data from multiple sources are to be used for evaluating teachers' performance. Neither is a single source for data collection feasible and valid for all the teachers nor is a single source for data collection be suitable for the evaluation of teachers' overall performance (Peterson, 1990). In this regard, self-assessment can be used as a powerful tool to measure teacher quality along with the ratings taken by the principals or the administrators. Akram and Zepeda (2015) were of the view that due to the availability

of weak evidence for measuring teacher quality in Pakistan, it becomes necessary to address following major targets: (1) To find indicators to measure teacher quality which corresponds to the international standards. (2) To find other data sources, e.g. teachers' evaluation tool(s) besides principals' ratings. Ministry of Education (2009), in Pakistan, has developed the National Professional Standards for Teachers which address the first target while to address the second target, self-assessment instrument can be used. In perspective of existing global awareness regarding teachers' evaluation, teachers' self-assessment of their teaching practice can be perceived as being one of the appropriate sources of evidence for teacher competence.

The researcher agreed with the idea of Calatayud (2008) that improvement in teaching practice has a direct link with effective self-assessment that helps in understanding the issues and fixing these problems and issues in pursuit of the quality education. Hence, the present study attempted to investigate teachers' self-assessment towards their teaching and to create awareness for practicing such thinking, which will help them in emerging as an influential teacher.

## 4. Research Questions

The following research questions has guided this study:

1. How do teachers self-assess their competences?
2. Does self-assessment help teachers to judge their potentials and weaknesses?

## 5. Methodology

### 5.1. Population and Sampling Technique

The population comprises of all teachers of Higher Secondary schools of Multan District. Through Convenience sampling technique, which is a Non-random sampling method, the researcher selected four campuses of a private-sector college of Multan District. The sample comprised of all 107 teachers of four campuses, from various disciplines.

### 5.2. Research Instrument

The current research has a descriptive nature. Hence, the Survey Method was employed for data collection. The researcher of this study administered a questionnaire which

consisted of two parts. Part one comprised of SITE II (Self-assessment Instrument for Teacher Evaluation II). Akram and Zepeda (2015) developed it, and part two was adapted from 'Developing a self-assessment tool for English language teachers' by Borg & Edmett (2018), to explore teachers' opinion about the effectiveness of self-assessment. Biodata includes teachers' gender and faculty (science/arts). Part I contained 28 items for teaching effectiveness variables, grouped into five major categories namely: Subject matter knowledge (8 items), Instructional planning and strategies (6 items), Assessment (5 items), Learning environment (5 items), Effective communication (4 items), Teacher's motivational skills (3 items), and Teacher's evaluation skills (5 items). The range of response on the Likert scale was from the lowest to the highest as Never = 1, Rarely=2, Sometimes=3, Often=4, and Always=5. Part two consisted of 15 items to collect the teachers' perception of the effectiveness of the self-assessment technique. On a five-point Likert scale each item was rated as Strongly Disagree=1, Disagree=2, Undecided=3, Agree=4, Strongly Agree=5.

### 5.3. Data Collection and Analysis

The data were collected in September 2019. The researcher (first author) herself collected it. The researcher calculated the mean score for each statement. Based on the mean score, ranks were assigned to the items. For drawing Gender-wise analysis and Faculty-wise analysis, the researcher calculated Combined Mean, S.D., and applied Z-test.

## 6. Results

The researcher arrived at following results which are being discussed as an answer to the Research Questions, as under:

**Question 1:** How do teachers self-assess their competences?

Part 1 of the questionnaire supplied the answer to the above-mentioned research question. Teachers rated themselves for effectiveness variables, i.e. Subject matter knowledge, Instructional planning and strategies, Assessment, Learning environment, Effective communication, Teacher's motivational skills, and Teacher's evaluation skills. Mean Score of various statements varied between 4.73 and 3.24. It indicated that greater part of teachers responded positively regarding their rating on the self-assessment tool. The detail of the mean score, along with the ranking of each statement is given in Table 1.



TABLE 1: Means of Items and their Corresponding Ranks.

| S. No | Items                                       | Mean | Rank |
|-------|---|------|------|
| 1.    | Encouraging students                        | 4.73 | 1    |
| 2.    | Appropriate Language                        | 4.64 | 2    |
| 3.    | Revision of Contents                        | 4.63 | 3    |
| 4.    | Students' attention                         | 4.62 | 4    |
| 5.    | Monitoring Students' Performance            | 4.62 | 4    |
| 6.    | Communication of Content                    | 4.54 | 5    |
| 7.    | Classroom environment                       | 4.49 | 6    |
| 8.    | Linkage of content with Learning Experience | 4.40 | 7    |
| 9.    | Demonstration of Accurate Knowledge         | 4.34 | 8    |
| 10.   | Teaching according to Time-table            | 4.32 | 9    |
| 11.   | Mutual Trust                                | 4.28 | 10   |
| 12.   | Students' participation                     | 4.20 | 11   |
| 13.   | Classroom setting                           | 4.13 | 12   |
| 14.   | Basis of Instruction                        | 4.11 | 13   |
| 15.   | Students' Results                           | 4.07 | 14   |
| 16.   | Addressing appropriate Curriculum           | 4.03 | 15   |
| 17.   | Evaluation and Feedback                     | 3.98 | 16   |
| 18.   | Individual Differences of Students          | 3.92 | 17   |
| 19.   | Teaching according to the Needs             | 3.91 | 18   |
| 20.   | Teaching Methodology                        | 3.90 | 19   |
| 21.   | Explanation of Lessons                      | 3.78 | 20   |
| 22.   | Student learning Data                       | 3.77 | 21   |
| 23.   | Demonstration of a Variety of Skills        | 3.74 | 22   |
| 24.   | Appropriate Resources                       | 3.73 | 23   |
| 25.   | Correct Vocabulary and Grammar              | 3.60 | 24   |
| 26.   | Keeping Official Record                     | 3.56 | 25   |
| 27.   | Usage of Resources                          | 3.47 | 26   |
| 28.   | Communication of Students' progress         | 3.24 | 27   |

Reflecting the overall picture given in Table 1, the highest mean score 4.73 was imparted to 'Encouraging students' which is an item for measuring variable 'Learning environment,' shows that majority of teachers rated them extremely positive in this domain. It confirms that they encourage students to interact respectfully. Similarly, mean score 4.64 was assigned to 'Appropriate Language' an item for assessing variable 'Effective Communication'. It holds the second rank on the ranking table. It confirms that the majority of teachers attach importance to the usage of appropriate language in their classes. 'Revision of Contents' secures the third rank with a mean value 4.63, indicating that the majority of teachers pay proper attention to this aspect. 'Students' attention' and 'Monitoring Students' Performance' received mean score 4.62, which

affirms that majority of teachers engage, motivate, and maintain students' attention as well as monitor students' performance. On the other hand, the comparatively low ranking was assigned to the item 'Keeping Official Record' with mean 3.56 and rank 25. This low response demands that teachers should pay more attention towards keeping official records of their students as it will help them plan, organize and execute their teaching to satisfy individual needs. Similarly, the item 'Usage of Resources' with mean 3.47 and ranking 26 also received a low response which confirms that in Pakistan, most of the teachers still follow the traditional teaching methodologies. They should make use of appropriate material, technology, and resources to enhance students' learning. 'Communication of Students' progress' with mean 3.4 and ranking 27, stands lowest on the ranking table. It shows that a large number of teachers pay less attention to this important aspect. Teachers must discuss students' progress not only with them but also with their parents and other teachers.

**Question 2:** Does self-assessment help teachers to judge their potentials and weaknesses?

Part two of the questionnaire was related to the teachers' perception of the effectiveness of the self-assessment technique. The data were analyzed for each statement of teachers by using the mean score. Mean Score of different statements of teachers fluctuated between 4.45 and 3.13. It had been found that the majority of teachers confirmed that it helps them in getting knowledge of their strengths and weaknesses. The detail of the mean score, along with the ranking of each statement about teachers' perception regarding self-assessment is given in Table 2.

Considering the overall ranking given in Table 2, the highest mean score of 4.45 was given to 'Understanding of expectations as being a teacher' which is the most important aspect of teacher quality. It means self-assessment guides them towards a better understanding of what is expected of them as a teacher. It ultimately improves their quality as a teacher, which is a valuable service rendered to them by self-assessment. Item 'Opportunity to reflect' with mean 4.43 occupies the second rank, which indicates that the majority of teachers agreed that self-assessment provides them an opportunity to reflect on their behaviour. Item 'Discussion of weak areas with colleagues' with mean score 3.13 stands on the lowest position in the table. This shows that most of the teachers are not interested in discussing their weak areas with their colleagues. This demands that teachers should develop a culture for mutual professional growth by sharing their strengths and weaknesses.

TABLE 2: Teachers' perception about Self-assessment of Teaching effectiveness.

| S. No | Items  | Mean | Rank |
|-------|--|------|------|
| 1.    | Understanding of expectations as being a teacher                 | 4.45 | 1    |
| 2.    | Opportunity to reflect   | 4.43 | 2    |
| 3.    | Sharing strengths with colleagues                                | 4.28 | 3    |
| 4.    | Relevance of Self-assessment tool                                | 4.27 | 4    |
| 5.    | Areas to be improved   | 4.25 | 5    |
| 6.    | Skills, knowledge and behaviors                                  | 4.13 | 6    |
| 7.    | Consultation with experts  | 4.03 | 7    |
| 8.    | Encouragement to look for professional development opportunities | 3.88 | 8    |
| 9.    | Easy to understand   | 3.83 | 9    |
| 10.   | Opportunity for review   | 3.83 | 9    |
| 11.   | Awareness about key areas to be improved                         | 3.79 | 10   |
| 12.   | Discovering strengths/weaknesses                                 | 3.74 | 11   |
| 13.   | Recommendation to a friend                                       | 3.61 | 12   |
| 14.   | Generation of some other questions related to teaching           | 3.56 | 13   |
| 15.   | Discussion of weak areas with colleagues                         | 3.13 | 14   |

### 6.1. Comparison between agreement/disagreement level regarding Gender and Faculty

To draw the comparison between agreement/disagreement level for both male and female teachers regarding effectiveness variables, i.e. Subject matter knowledge, instructional planning and strategies, Assessment, Learning environment, Effective communication, Teacher's motivational skills, and Teacher's evaluation skills, mean scores for the gender of respondents were computed. Combined Mean and SD for male and female teachers were calculated. The *Z-test* had been applied. The calculated value of *Z-test* is given in Table 3.

TABLE 3: Gender-wise Analysis.

| Gender | N  | Mean   | SD   | Z-test |
|--------|----|--------|------|--------|
| Female | 36 | 119.06 | 6.26 | 0.11   |
| Male   | 64 | 112.33 | 4.84 |        |

The table value of *Z-test* is 0.05(1.96). Its calculated value is 0.11, which is less than the table value, i.e.  $0.11 < 1.96$ . It indicates no statistically significant difference in the opinion and approach of both male and female teachers towards self-assessment of their teaching practices.

## 6.2. Faculty-wise Analysis

To draw the comparison between agreement/disagreement level of teachers of sciences and social sciences, mean scores with respect to faculty of respondents were calculated. On the basis of faculty, combined Mean and SD were calculated. *Z-test* had been applied. The calculated value of *Z-test* is given below in Table 4.

TABLE 4: Faculty-wise Analysis.

| Faculty | N  | Mean   | SD   | Z-test |
|---------|----|--------|------|--------|
| Arts    | 45 | 112.33 | 4.77 | 0.20   |
| Science | 55 | 113.46 | 5.07 |        |

The table value of *Z-test* is 0.05(1.96). Its calculated value is 0.20, which is less than the table value  $0.20 < 1.96$ . It indicates no statistically significant difference in the opinion and approach of both the sciences and social sciences teachers concerning their approach towards self-assessment of their teaching practices.

## 7. Conclusions and Implications

The current research attempted to study teachers' self-assessment of their teaching effectiveness. The basic motive of the researcher was to use self-assessment for formative evaluation instead of a summative evaluation of teachers' performance. This study also investigated the awareness of teachers about their strengths and weaknesses, which serves as an important and vital step towards self-improvement. It was found that by doing self-assessment teachers re-considered as to how they were teaching in their classrooms. It provided them the input which is required to learn beyond what is in current practice and what needs improvement. Regarding their perception about the effectiveness of self-assessment to measure their teaching quality, the majority of them were extremely positive.

The researcher made an attempt to illustrate how self-assessment can contribute to the professional growth of teachers. The results of this research may help teachers to reap the benefits of self-assessment to enhance their teaching skills as well as it may also assist them in incorporating self-assessment in their teaching practice to improve quality of the teaching-learning process. Tan cited in Krebt (2015) depicts three methods by which self-assessment practices can be linked with life-long learning such as developing of critical skills, particularly for conducting and evaluating individuals' learning, developing individual's self-directed learning which enables him to organize and focus his learning, developing the individual's responsibility for learning.

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## Conference Paper

# Analyzing the Constructs of Stakeholder Engagement towards Renewable Energy Projects Success in Malaysia: A PLS Approach

Muhammad Waris, Zarith Sufia Azlan, Puteri Fadzline Muhamad Tamyez, Mehfooz Ullah, and Asadullah Khan

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

Stakeholder engagement is increasingly becoming a part of practice in delivering successful project outcomes. However, there is a limitation of studies on how the stakeholder engagement approaches are being implemented primarily towards mega-scale projects such as renewable energy projects. This paper intends to fill the gap by analyzing the relationship between ten identified constructs of stakeholder engagement and renewable energy project success. Data was collected through survey questionnaires applied to the Renewable Energy Power Providers (REPPs) in Malaysia, using stratified random sampling. SPSS ver.23 and SmartPLS 3.0 was applied to test measurement and structural models of this study. The findings revealed that effective communication, continuous consultation, understand intention and behavior, implement plans, build good relationships, analyze changes, risk mitigation, compromise conflicts, understand project success and good project governance were significant critical constructs of stakeholder engagement that were confirmed as drivers that influenced the renewable energy project successfully. It is apparent that this study allows the contribution to the body of knowledge of project management and offers some important insights into limited literature on stakeholder engagement. This study also shed light on the key stakeholders' groups in developing successful renewable energy projects.

**Keywords:** stakeholder engagement, renewable energy projects, project success, Malaysia

## 1. Introduction

The renewable energy industry is growing at a rapid pace around the world. The Renewable 2018 Global Status Report in REN21 (2018) claimed that the renewable energy industry had achieved its largest annual increase ever in 2017, which accounted for 70% of net additions to global power generating capacity. Besides, developing countries such as China, Europe, and the United States were consistently leading in the renewable energy industry and committed \$177 billion or accounted for nearly 75% of the global

Corresponding Author:

Muhammad Waris

waris@ump.edu.my

Zarith Sufia Azlan

sufia.zarith@gmail.com

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

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investment (Frankfurt School-UNEP Centre/BNEF, 2018). Increasing developments in this industry have led Malaysian government to recognize renewable energy as the fifth fuel equivalent with gas, oil, hydro-electric and coal for grid-connected electricity generation under the Eighth Malaysia Plan (8 MP) in 2001. Since then, the government has taken various efforts to uptake and boost up the generation of renewable energy in the overall fuel mix. These were through the implementation of initiatives such as the Small Renewable Energy Programme (SREP), Malaysia Building-Integrated Photovoltaic Project, Feed-in-Tariff (FiT), Large-Scale Solar Photovoltaic (LSS-PV) and also Net Energy Metering (NEM) programme. Apart from that, the Energy Commission of Malaysia (2016) reported that more than 300 renewables energy licensees were awarded to commence the renewable energy projects. However, despite many initiatives taken by the government, the transition and development of renewable energy projects in Malaysia are not without a drawback. Prior research has emphasized the major issue in implementing renewable energy projects is managing stakeholder relationships. Since the use of renewable energy plays an important role in achieving the sustainable development, there is uncertainty on how every project are perceived by the different stakeholders involved (Nie, Chen, Yang, & Wang, 2016; Wehn, Collins, Anema, Basco-Carrera, & Lerebours, 2018). A wide range of stakeholders with diverse backgrounds and interests may intricate relationships and interactions in renewable energy projects. Baudry, Delrue, Legrand, Pruvost, & Vallée, (2017) asserts that every mega-scale project is often 'human-driven' and since renewable energy projects considered as national agenda initiatives, stakeholders are the essential figures and critical factors to deliver a project successfully. Besides, the high complexity of project stakeholders has been a barrier in establishing stakeholder mutual understanding and collaborations which lead to many challenges and drawbacks of deployment the renewable energy projects. Consequently, stakeholder engagement is considered as a success factor for the implementation of renewable energy projects.

Currently, effective stakeholder engagement is undoubtedly becoming a part of professional practice in order to deliver project outcomes positively. Extensive literature has been carried out concerning stakeholder engagement and relationships in other fields especially in manufacturing and construction, but very few studies have been conducted in renewable energy (Baudry et al., 2017; Bourne, 2015; Cuppen, Bosch-Rekveltdt, Pikaar, & Mehos, 2016; Kahla, 2017; Mojtahedi & Oo, 2017; Mok, Shen, & Yang, 2015; Xu et al., 2018). In the context of Malaysia, Sawandi, (2014) mentioned that the application of stakeholder engagement is not new, however to date, there has been little empirical work on the means of organizations engage with stakeholders and it was only limited on



specific sectors such as in the financial and business sector. Therefore, the limitation of literature and the gaps in the implementation of stakeholder engagement, specifically in Malaysia renewable energy projects set the basis of this study. Apart from that, there is still lack of a validated and reliable framework for stakeholder engagement as a guide to increase the performance of renewable energy projects (Sovacool, 2013). This paper intends to fill the gap by identifying critical constructs of stakeholder engagement in the context of projects and analyzing the relationship between identified critical constructs of stakeholder engagement and renewable energy project success. The conceptual framework has been constructed from previous literature and, thus, has been tested in the renewable energy sector. The outcome of this study will be benefited for the key stakeholders' groups involved in the renewable energy sector in generating a framework that can deliver successful implementation of renewable energy projects. Apart from that, using Malaysia as a sample, this study offers some critical insights into stakeholder engagement among scholars worldwide and extend the limited literature on the critical constructs of stakeholder engagement that influence the renewable energy project success. The research objective of this study is to investigate the relationship between the constructs of stakeholder engagement and renewable energy projects success. The rest of the paper is structured as follows: Section 2 reviews the existence of empirical literature provides that helps develop the conceptual research framework and sets out the hypotheses of this study. Section 3, the research methodology, is described. Section 4 represents the data analysis and the respective results. Finally, the results are discussed, and conclusions are presented in Section 5.

## 2. Literature Review and Hypothesis

This study investigates the relationship between the determinants of stakeholder engagement and renewable energy project success in Malaysia. A review of related literature was undertaken with the primary focus on the stakeholder engagement approaches and renewable energy project success as well as the theoretical relationships between them. The stakeholder theory introduced by Freeman (1984) was used in this study to explain the extent of stakeholder engagement factors to leverage the success of one's organization. Freeman (1984) in his book further explained, within a project management discipline, the stakeholder theory recommends project managers to stay in constant touch with their stakeholders through stakeholder engagement framework so that project could avoid failure (Agyapong, 2017). A study by Eskerod, Hue-mann, & Ringhofer (2015) also emphasized that the stakeholder theory has recognized

the continual engagement between stakeholders as being an essential component of the organization's success story. Therefore, this stakeholder theory was used as the foundation of this study in achieving the renewable energy project successfully through the stakeholder engagement activities. Figure 1 below illustrates the proposed conceptual framework of this study. The framework was developed based on the ten measurement or indicators items of stakeholder engagement which are effective communication, continuous consultation, understand intention and behavior, implement plans, build good relationships, analyze changes, risk mitigation, compromise conflicts, understand project success and good project governance. It proposes that stakeholder engagement activities implemented by the renewable energy project developer or service providers will achieve the development and deployment of a successful renewable energy project in Malaysia.

## 2.1. Effective Communication

Effective communication is described as an important approach between project managers and all stakeholders either directly or indirectly involved in the project. Zhou, Cheung, & Hsu (2017) has emphasized that effective communication is required in ensuring adequate information is well transfer between project managers with relevant stakeholders internally or externally. Similarly, Takim (2009) highlights that effective communication channels are essential, so that information transfer between project teams are well circulated. However, it had been argued in ensuring the intended information is understood and the desired response is achieved, a clear communication requires relentless and also time-consuming effort especially in the complex projects such as renewable energy projects (Sadhukhan et al., 2018; Chan & Oppong, 2017; Oppong, Chan, & Dansoh, 2017; Mok et al., 2015). Bakens, Foliente, & Jasuja, (2005) pointed out that the effective communication in stakeholder engagement is significant in delivering the concept of 'effective'; which are consist of delivering the right and precise information to the related stakeholders by using appropriates means of communication and clarifying the project objectives. Similarly, Heravi, Coffey, & Trigunarsyah, (2015) found that effective communication is playing a critical role in achieving project success by facilitating the provision of clear project objectives among stakeholders especially during the early stages of projects. Therefore, the following hypotheses are formulated:

*H1: Effective communication is positively related to the renewable energy project success*

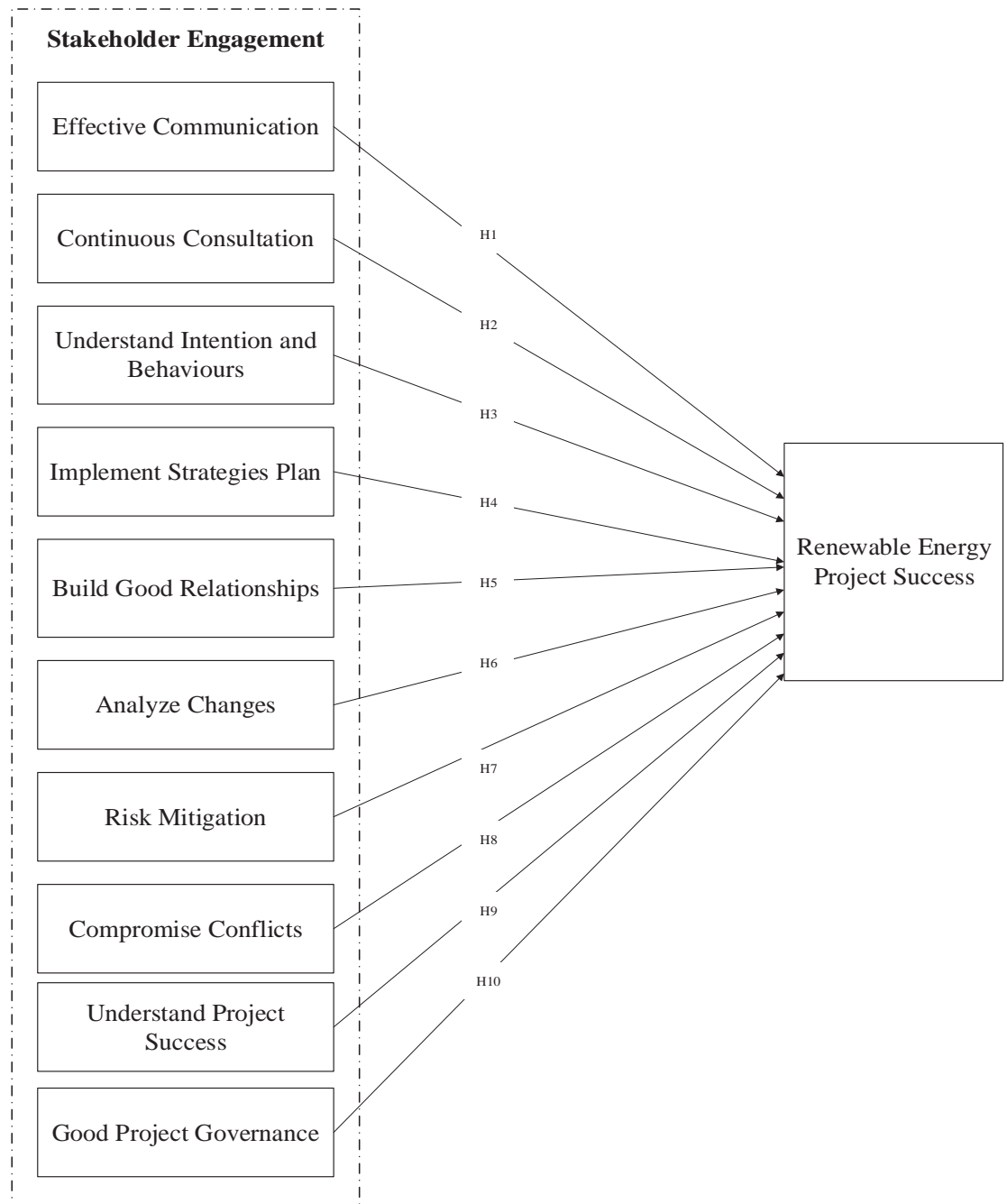


Figure 1: Conceptual Framework.

## 2.2. Continuous Consultation

Continuous consultation is an effective method for gaining project stakeholder's support. A continuous consultation is an act of asking relevant people for their advice and how they feel in order to get useful information and ideas (El-Sawalhi & Hammad, 2015; Senaratne & Ruwanpura, 2016; Tang & Shen, 2013). Davidson, (2017) further explained that consultation session with stakeholders should always be ongoing

throughout the project life cycle. In her review, Davidson, (2017a) emphasized that continuous consultation between the project team and other stakeholders will provide a clear and consistent stakeholder analysis, and therefore, will also contributing to the successful delivering of project. Unlike Davidson, (2017a), A. Heravi et al., (2015) argues that even though consulting with stakeholders and obtaining their feedback is necessary during the stakeholder engagement process, it does not mean that all of their needs and issues will necessarily be fulfilled. However, Bal, Bryde, Fearon, & Ochieng, (2013) argues that there is a need to continuous consultation whether all stakeholders are meeting their essential needs and responsibilities because it implies that their views can be considered during the crucial planning processes and can contribute to achieving a better outcome for the project. In the context of renewable energy projects, continuous consultation is a mechanism for deliberating the financial and funding issue between the project developer and financial institution (Upham, Shackley, & Waterman, 2007; Upham & Speakman, 2007; Xavier, Komendantova, Jarbandhan, & Nel, 2017). Therefore, the following hypotheses are formulated:

*H2: Continuous consultation is positively related to the renewable energy project success*

### 2.3. Understand Intention and Behaviors

Understanding the intentions and behaviors among different types of stakeholders involved in the project is very significant approaches. Bourne (2015); (2017) has highlighted in order to determine how project stakeholders wish to be engaged, and project managers should take consideration to understand the underlying motives and intentions of different stakeholders involved. Since many stakeholders are likely to have personal agendas that might help against what should be prioritizing. Bourne (2015) holds the view that “when encountering a stakeholder who appears to be unreasonable, their behavior often becomes more understandable when their ‘real’ agenda is discovered”. Similarly, previous literatures have emphasized that it is crucial to determine of what is the stakeholder’s ‘real’ intention during engagement process so that project manager can be more strategically integrates and incorporates the views of stakeholders about the practical approaches which can maximize the effectiveness of their involvement and help to achieve project success in implementing renewable energy initiatives (Jing, 2010; Yang, Shen, Ho, Drew, & Chan, 2009; Karlsten, Græe, & Jensvold Massaoud, 2008). Therefore, the following hypotheses are formulated:

*H3: Understand the intention and behaviours is positively related to the renewable energy project success*

## 2.4. Implement Strategies Plan

Practically in many projects, the strategic plans for stakeholder engagement approaches do not exist in any form. The plans are usually being set as the intuitive approach in the heads of the project leaders (Sheriff, 2012). In consequence, stakeholder engagement approaches cannot be implemented accordingly and may affect the performance of the project. Jing, (2010); Mok, Shen, Yang, et al., (2017) further mentioned that in ensuring the project moving forward, the project managers should implement the planned strategies accordingly. Therefore, instead of a 'make it up as we go along' approach, the stakeholder engagement approaches needs to be planned and should be deliberately and wisely resourced (El-Sawalhi & Hammad, 2015; A. H. Heravi, 2014). Towards the successful implementation of sustainable energy initiative, especially in developing renewable energy projects, each organization should have strong stakeholder engagement plan (Dusyk, 2013; Lee & Leal, 2014). Therefore, the following hypotheses are developed:

*H4: Implement strategies plan is positively related to the renewable energy project success*

## 2.5. Build Good Relationships

In achieving a successful project and fulfill the stakeholder expectations, building and sustaining a good relationship among stakeholders is very important strategies. Bal et al., (2013); Molwus (2014) further emphasized that building good relationships between project stakeholders will create positive project outcomes. It is very important that managers have a good relationship with key stakeholders since it is crucial in ensuring that stakeholders stick into the engagement process. However, A. H. Heravi (2014) argues that it is sometimes difficult to maintain good relationships, especially with external stakeholders. About the renewable energy sector which still new in developing countries as Malaysia, there is a need for project teams to be as transparent as possible and enhance a mutual relationship with other project stakeholders (Joshi, 2018). The extant literature stresses that keeping and promoting positive relationships is success factors for engaging the stakeholders and how it remains critical in ensuring project success. Thus, the following hypothesis is developed:

*H5: Build good relationships is positively related to the renewable energy project success*

## 2.6. Analyzing Changes

Changes are unavoidable during the project's life cycle. Extant research has indicated that analyzing the changes in the stakeholder environment, for example, the information, influence, relationships, and behaviors, are necessary (Aaltonen & Kujala, 2016; Aaltonen & Sivonen, 2009; Cabrera-Nguyen, 2010; D. H. T. Walker, Bourne, & Rowlinson, 2008). Mok et al., (2015) emphasized that to avoid any project planned issues, there is needs to reveal any changes in the stakeholder management processes, methods, and activities so that necessary adjustments can be made in the planning phase (Lehtinen, Aaltonen, & Rajala, 2018). One such method is providing high technology-applied solutions which benefit the project teams to analyze changes. However, Sherriff, (2012) mentioned that if the project teams failed to adopt advanced technology into managing changes, the project success could not happen. Therefore, properly managing and analyzing changes will boost the stakeholder engagement process and achieving project success. Based on the literature discussed above, the following hypotheses have been formulated:

*H6: Analysing changes is positively related to the renewable energy project success*

## 2.7. Risk Mitigation

Risk mitigation describes as the mechanism of stakeholder engagement. Mojtahedi & Oo (2017) describes risk mitigation as the solution to how well stakeholders can be managed and engaged. The function of risk mitigation is important to evaluate and incorporate environmental, political, social, and reputational risks triggered by stakeholder engagement (Molwus, 2014b; Sherriff, 2012). Apart from that, Toor & Ogunlana (2010) highlights that stakeholder engagement is an important element of risk management since stakeholder's behavior and attitude are always regarded as project risks. By understanding and potential restraining uncertainty, related risks triggered by project stakeholders, especially during the pre-execution phase will help project teams mitigating the risks (Bal et al., 2013). Pertaining to this study, renewable energy is considered as the national to agenda and identified as high-risk project which potentially interject the successful implementation of project. Therefore, risk mitigation is essential approach during the stakeholder engagement process in early planning

phase of project. Based on the literature discussed above, the hypothesis below is developed:

*H7: Risk mitigation is positively related to the renewable energy project success*

## 2.8. Compromise Conflicts

Conflicts are a major cause of disputes and litigations in projects (Senaratne & Ruwanpura, 2016). Aaltonen (2011) highlighted that conflicts or resistance from the public can poorly affect the project since the public is part of an external stakeholder who always lacks any formal project authority. Similarly, El-Sawalhi & Hammad, (2015) as well as A. H. Heravi (2014) emphasized that identifying and analyzing possible conflicts and coalitions among stakeholders during the pre-execution phase is a critical approach. Compromising conflicts of interest and objectives through appropriate legal resolution is indicative of stakeholder engagement performance and can lead to project success. Therefore, the hypothesis below is developed:

*H8: Compromising conflicts is positively related to the renewable energy project success*

## 2.9. Understand Project Success

Generally, the criteria of project success are often measured by considering the final cost, time, and quality outcomes which known also as triple project constraint. However, Davis, (2014) and Bourne (2017) mentioned that project success can be measured by examining the project stakeholders' value that contributed to the organizations that invested in it. Yu et al. (2017) mentioned that the value of the project stakeholders should be continuously evaluating stakeholder's satisfaction. Such evaluations will present the progress performance of the project and effectively inform the project teams. Besides, the literature confirmed that by understanding project success, project teams could assess the degrees of key stakeholder group's specialties and evaluate the stakeholders' expectation in delivering project success. Therefore, the hypothesis below is formulated:

*H9: Understand project success is positively related to the renewable energy project success*

## 2.10. Good Project Governance

Good project governance is currently seen as the main key in any project management. In the previous study by J. Yang (2014) showed that good project governance provides clarity of responsibility, accountability, lines of communication, and decisions making among project stakeholders involved. Additionally, organizations that fulfill the corporate social responsibilities (CSR) programmes which include values of economic, legal, environmental, ethical and cultural is very crucial in engaging project stakeholders (Aragonés-Beltrán, García-Melón, & Montesinos-Valera, 2017; J. Yu & Leung, 2015). About this study, good project governance is a crucial approach during the stakeholder engagement process especially during the pre-execution phase of renewable energy projects. Therefore, based on the literature discussed above, the hypothesis below is developed:

*H10: Good project governance is positively related to the renewable energy project success*

## 3. Methodology

This study has been operationalized using three phases, which were a literature review, data collection and lastly, data analysis. The first phase is the literature reviews. In this phase, the identification of the main research problems is discovered, and relevant secondary data were analyzed to develop research objectives and initial survey questions. The systematic literature reviews on the secondary data help to develop a framework for the intended research. Next, the survey questionnaire was utilized for data collection purposes. In this phase, survey instruments were established based on the literature reviews and sampling method with an appropriate sample size was decided. The last phase is data analysis. All data collected are classified and analyzed by using both SPSS ver.23 and SmartPLS 3.0 software.

### 3.1. Population and Sampling Technique

There were 390 of a total population of all service providers known explicitly as Renewable Energy Power Producers (REPPs), mainly located in Peninsular Malaysia, Sabah and Sarawak. REPPs were selected as targeted respondents due to multi-disciplinary roles as project providers, energy service providers, technology providers, project consultant, and acts as the main contractor for interconnections. The unit analysis is the individuals



of organization member in REPPs specifically from the groups of the management level who have directly or indirectly involved in the decision making process and have professional experience in managing the renewable energy projects. In selecting the respondents, stratified random sampling was adopted, and a list of respondents was provided by Energy Commissioning and Sarawak Energy official website. By using G\*Power software version 3.1, 118 samples size was used in this study.

### 3.2. Research Instrument

Quantitative research methodology approach was adopted in this study. Therefore, the survey questionnaire was employed for data collection to indicate the influence of stakeholder engagement critical construct towards the renewable energy project success. The survey questionnaire contained 30 measurement items for stakeholder engagement variables, grouped into ten critical constructs. Table 1 shows the details of the measurement of constructs used in this study were adapted from previous studies. Besides, the range of response on Likert scale was used from the lowest to the highest as 1 = Not Important; 2 = Slightly Important; 3 = Moderately Important; 4 = Important; 5 = Very Important.

TABLE 1: Measurement of Constructs.

| Types of Variable         | Construct              | Measurement Items                       | Sources                              |
|---------------------------|------------------------|---|--------------------------------------|
| Independent Variable (IV) | Stakeholder Engagement | Effective communication                 | Heravi (2014)                        |
|                           |                        | Continuous consultation                 | Heravi (2014); Sheriff (2012)        |
|                           |                        | Understand the intentions and behaviors | Molwus (2014); Heravi (2014)         |
|                           |                        | Implement strategies plan               | El-Gohary, Osman, & El-Diraby (2006) |
|                           |                        | Build good relationships                | Molwus (2014); Heravi (2014)         |
|                           |                        | Analyze changes                         | Sheriff (2012)                       |
|                           |                        | Risk mitigation                         | Sheriff (2012)                       |
|                           |                        | Compromise conflicts                    | Hammad (2013); Sheriff (2012);       |
|                           |                        | Understand project success              | Heravi (2014); Hammad (2013)         |
|                           |                        | Good project governance                 | Heravi (2014); Hammad (2013)         |
| Dependent Variable (DV)   | RE Project Success     |   | Maqbool & Sudong, (2018)             |

### 3.3. Data Collection and Analysis

Pre-test and pilot test were conducted in March 2019 for the purposed of content validation of the measurement items. The pre-testing was conducted with the industry experts, particularly in the Malaysia renewable energy sector. Notably, three respondents were selected based on a convenience sampling technique, and face-to-face interviews were used to get fast and clear feedback from the respondents. Pilot testing was carried out with an actual group of respondents which are REPPs. The results of the pilot test provide an overall satisfactory depiction of the survey questionnaires. Then, the Cronbach's alpha coefficient was used for reliability analysis and revealed that all items have higher reliability values of  $p > 0.70$ , which is 0.937. This is consistent with the previous studies. Majority of the participants found the survey questions clear and easy to respond. Nevertheless, few changes are required in some of the questions, and after modifications, the survey questions were finalized. After all, data were collected, firstly using SPSS Version 23 software that was used to analyse the descriptive statistics. Secondly, the SmartPLS 3.0 software was used for testing the goodness of the model and hypothesis testing.

## 4. Results

Out of the 200 distributed questionnaires, 74 questionnaires were returned and used for statistical analysis, indicating a response rate of 37%. A filter question was applied in the questionnaires which targeted the organizations of Renewable Energy Power Providers (REPPs) that were practicing stakeholder engagement. There were few reasons existed for non-response. These were due that some organization's policy was confidential and resisted to share information with outsiders and also due to the person in charge was not being interested in participating in the survey questionnaires. Before assessing the measurement model, the common method bias (CMB) is detected through a full Collinearity assessment approach (Kock, 2015). The indicative that the model is free from CMB is when the VIF values should be lower than the 3.3 threshold (Hair et al., 2017, Kock, 2015). Any value greater than 3.3 means the model is affected by CMB. Table 2 shows the demographic information of the respondents. The number of male respondents was higher than female respondents, with 45 male respondents (67.6%) and 28 female respondents (41.79%). Most of the respondents held a degree or professional qualification (47 or 64.38%), followed by a diploma (14 or 19.18%), postgraduate (12 or 16.44%), and high school or below (16 or 8.9%). In terms of years of experience in the

renewable energy sector, 47 (64.38%) of them have less than five years. Meanwhile, 25 respondents have 11 to 15 years of work experience (34.25%) and other 5 respondents have 16 to 20 years of experience (6.85%). Most of the respondents of the survey were the project manager (42 or 57.53%), followed by a senior manager (18 or 24.66%), CEO/Director of the organization (9 or 12.33%) and lastly, supervisor (4 or 5.48%). With the regards of type of organizations, most of the respondents came from private operator companies (53 or 72.60%). Secondly from public utility companies (12 or 16, 44%) and from both public-private partnership and associations (4 or 5.48%). Lastly, in regards to the area of renewable energy specialization, most of the organization were into solar photovoltaic (PV) sources with 37 numbers (50.68%), biomass with 19 numbers (26.03%), next is biogas sources with 11 number (15.07%) and mini-hydro with 6 number of organizations (8.22%).

TABLE 2: Demographic Profile of Respondents.

| Demographic variables  | Category                             | Respondents (N = 73) |                |
|------------------------|--------------------------------------|----------------------|----------------|
|                        |                                      | Frequency            | Percentage (%) |
| Gender                 | Male                                 | 45                   | 67.16%         |
|                        | Female                               | 28                   | 41.79%         |
| Academic qualification | High school or below                 | 0                    | 0.00%          |
|                        | Diploma                              | 14                   | 19.18%         |
|                        | Degree or professional qualification | 47                   | 64.38%         |
|                        | Postgraduate                         | 12                   | 16.44%         |
| Years of experience    | <5 years                             | 43                   | 58.90%         |
|                        | 6 – 10 years                         | 25                   | 34.25%         |
|                        | 11 - 15 years                        | 5                    | 6.85%          |
|                        | 16–20 years                          | 0                    | 0.00%          |
|                        | >20 years                            |                      | 0.00%          |
| Job position           | CEO/Director                         | 9                    | 12.33%         |
|                        | Senior Manager                       | 18                   | 24.66%         |
|                        | Project Manager                      | 42                   | 57.53%         |
|                        | Supervisor                           | 4                    | 5.48%          |
| Type of organization   | Public utility                       | 12                   | 16.44%         |
|                        | Private operator                     | 53                   | 72.60%         |
|                        | Public-private partnerships          | 4                    | 5.48%          |
|                        | Associations                         | 4                    | 5.48%          |
| Area of specialization | Biomass                              | 19                   | 26.03%         |
|                        | Biogas                               | 11                   | 15.07%         |
|                        | Mini-Hydro                           | 6                    | 8.22%          |
|                        | Solar Photovoltaic                   | 37                   | 50.68%         |

#### 4.1. Assessment of Measurement Models

In this study, the confirmatory factor analysis (CFA) was conducted to test the reliability, convergent validity, and discriminant validity of the measures. For assessing the convergent validity Hair, Babin, & Krey, (2017) has suggested using of factor loadings, Average Variance Extracted (AVE), and Composite Reliability (CR). To be considered acceptable, the items of factor loadings have to close to or more significant value of 0.50 (Hair Jr., Matthews, Matthews, & Sarstedt, 2017). Besides, all AVE must exceed the value of 0.50, and the CR for the items must exceed value 0.70 (Hair, Hollingsworth, Randolph, & Chong, 2017; Bagozzi, Yi, & Phillips, 1991). As indicated in Table 3, the results of the measurement model show that the constructs were valid since the loadings, CR, and AVE values surpassed the cut-off value  $\alpha$ . However, it were exception for CC3, ISP1 and SUCC4 which their factor loadings were below 0.5 and therefore, were removed from the construct's structure.

In addition, this study used the Heterotrait-Monotrait Ratio to test for discriminant validity which was illustrated in Table 4. A value of or less than 0.85 for HTMT should be confirmed. Henseler, Ringle, Roldán, & Cepeda, (2015) suggested a threshold value of 0.90 if constructs are conceptually very similar and 0.85 if the constructs are conceptually more distinct. Referring to Table 4, it can be deduced that the HTMT criterion is met, thus indicating that the discriminant validity is established. Overall, the measurement model of this study was considered acceptable with the evidence of satisfactory reliability, convergent validity, and discriminant validity.

#### 4.2. Assessment of Structural Models

Table 5 shows the results of testing the structural models. The results revealed that ten hypotheses were supported and significantly related to renewable energy project success. This study utilized the R-squared ( $R^2$ ) of regression analysis to determine how well the data collected fit with the regression model. The relationship between stakeholder engagements critical constructs and renewable energy project success was analyzed. In this study,  $t$ -value  $> 1.65$  which was equivalent of a 1 tailed was used as the cut-off of acceptance level. The hypothesis was rejected if the  $t$ -value was lower than 1.65. Based on the results shows in Table 5, H1, H2, H3, H4, H5, H6, H7, H8, H9, and H10 were positively supported. The finding indicates that effective communication, understand intentions and behaviors, implement strategies plan, build good relationships, analyze changes, risks mitigation, and good project governance

TABLE 3: Results of Measurement Model.

| Items  | Constructs | Outer Loadings | Composite Reliability (CR) | Average Variance Extracted (AVE) |
|--|------------|----------------|----------------------------|----------------------------------|
| Effective Communication (EC)                             | EC1        | 0.857          | 0.829                      | 0.619                            |
|  | EC2        | 0.769          |                            |                                  |
|  | EC3        | 0.730          |                            |                                  |
| Continuous Consultation (CC)                             | CC1        | 0.920          | 0.848                      | 0.737                            |
|  | CC2        | 0.792          |                            |                                  |
|  | CC3        | Item deleted   |                            |                                  |
| Understand the Underlying Intention and Behaviours (UIB) | UIB1       | 0.738          | 0.824                      | 0.611                            |
|  | UIB2       | 0.719          |                            |                                  |
|  | UIB3       | 0.878          |                            |                                  |
| Implement Strategies Plan (ISP)                          | ISP1       | Item deleted   | 0.854                      | 0.745                            |
|  | ISP2       | 0.809          |                            |                                  |
|  | ISP3       | 0.914          |                            |                                  |
| Building and Sustaining Good Relationships (BSR)         | BSR1       | 0.707          | 0.807                      | 0.583                            |
|  | BSR2       | 0.833          |                            |                                  |
|  | BSR3       | 0.746          |                            |                                  |
| Analysing the Changes(AC)                                | AC1        | 0.813          | 0.860                      | 0.672                            |
|  | AC2        | 0.812          |                            |                                  |
|  | AC3        | 0.834          |                            |                                  |
| Risk Mitigation (RM)                                     | RM1        | 0.826          | 0.766                      | 0.527                            |
|  | RM2        | 0.568          |                            |                                  |
|  | RM3        | 0.758          |                            |                                  |
| Compromising Conflicts (CO)                              | CO1        | 0.730          | 0.838                      | 0.633                            |
|  | CO2        | 0.842          |                            |                                  |
|  | CO3        | 0.811          |                            |                                  |
| Understand Project Success (UPS)                         | UPS1       | 0.872          | 0.824                      | 0.611                            |
|  | UPS2       | 0.858          |                            |                                  |
|  | UPS3       | 0.854          |                            |                                  |
| Good Project Governance (GPG)                            | GPG1       | 0.846          | 0.830                      | 0.621                            |
|  | GPG2       | 0.829          |                            |                                  |
|  | GPG3       | 0.678          |                            |                                  |
| RE Project Success (SUCC)                                | SUCC1      | 0.859          | 0.869                      | 0.689                            |
|  | SUCC2      | 0.870          |                            |                                  |
|  | SUCC3      | 0.756          |                            |                                  |
|  | SUCC4      | Item deleted   |                            |                                  |

were most significant stakeholder engagement constructs. These critical constructs

TABLE 4: Discriminant Validity: Heterotrait-Monotrait ratio (HTMT) Results.

|                                    | AC    | BSR   | CO    | CC    | EC    | GPG   | ISP   | REPS  | RM    | UIB   | UPS |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| Analyzing Changes                  |       |       |       |       |       |       |       |       |       |       |     |
| Building & Sustaining Relationship | 0.843 |       |       |       |       |       |       |       |       |       |     |
| Compromise Conflict                | 0.758 | 0.408 |       |       |       |       |       |       |       |       |     |
| Continuous Consultation            | 0.387 | 0.525 | 0.477 |       |       |       |       |       |       |       |     |
| Effective Communication            | 0.670 | 0.669 | 0.622 | 0.841 |       |       |       |       |       |       |     |
| Good Project Governance            | 0.771 | 0.744 | 0.811 | 0.464 | 0.725 |       |       |       |       |       |     |
| Implement Strategic Plan           | 0.702 | 0.830 | 0.744 | 0.810 | 0.570 | 0.754 |       |       |       |       |     |
| RE Project Success                 | 0.726 | 0.818 | 0.666 | 0.359 | 0.597 | 0.662 | 0.550 |       |       |       |     |
| Risk Mitigation                    | 0.710 | 0.838 | 0.775 | 0.782 | 0.673 | 0.634 | 0.686 | 0.657 |       |       |     |
| Understand Intention & Behaviour   | 0.554 | 0.848 | 0.823 | 0.680 | 0.680 | 0.709 | 0.796 | 0.420 | 0.754 |       |     |
| Understand Project Success         | 0.743 | 0.751 | 0.779 | 0.552 | 0.672 | 0.690 | 0.724 | 0.642 | 0.735 | 0.645 |     |

also were confirmed as drivers that positively contribute to the successful development of renewable energy projects.

TABLE 5: Summary of Hypotheses Testing of PLS Path Model.

| Hypotheses | Path       | Path Coefficient | Standard Deviation | t-value (1 tailed) | Supported |
|------------|------------|------------------|--------------------|--------------------|-----------|
| H1         | EC → REPS  | 0.187            | 0.376              | 2.310              | Yes       |
| H2         | CC → REPS  | 0.036            | 0.070              | 2.507              | Yes       |
| H3         | UIB → REPS | -0.178           | 0.084              | 2.121              | Yes       |
| H4         | ISP → REPS | -0.246           | 0.116              | 2.112              | Yes       |
| H5         | BSR → REPS | 0.284            | 0.740              | 1.830              | Yes       |
| H6         | AC → REPS  | 0.137            | 0.159              | 1.865              | Yes       |
| H7         | RM → REPS  | 0.470            | 0.179              | 2.624              | Yes       |
| H8         | CO → REPS  | 0.136            | 0.070              | 1.707              | Yes       |
| H9         | UPS → REPS | -0.211           | 0.156              | 1.654              | Yes       |
| H10        | GPG → REPS | 0.556            | 0.136              | 4.086              | Yes       |

## 5. Discussion

In order to provide insight and investigate the influence of the stakeholder engagement for delivering successful renewable energy projects in Malaysia, this study was conducted to examine the relationship between the critical constructs of stakeholder engagement and renewable energy project success. In general, the findings presented that all ten hypothesized were statistically supported. The analysis of direct effects

showed that the effective communication, continuous consultation, understand intention and behaviors, implement strategies plan, build good relationships, analyzing changes, risk mitigation, compromise conflict, understand project success and good project governance have a positive direct relationship with renewable energy projects success.

Consistent with previous findings, the development and deployment of renewable energy projects can be successfully implemented if project managers emphasize effective communication among all key stakeholder involved (Heravi, Coffey, & Trigunaryyah, 2015). Apart from that, the importance of effective communication among stakeholders will help the project managers to identify and salient the stakeholder's groups. Heravi et al., (2015) mentioned that it was found that if relevant stakeholder groups are systematically identified then the owners and decision-makers can efficiently interact with them and decide upon the significance and the importance of each group. Bal (2014) reinforced this view and stated that a proper identification process is an important step to distinguish between the parties to be involved and the parties not be involved. If the project members are clearly identified, then it will be easier for the leaders to involve and communicate with them.

The analysis also shows that continuous consultation has a positive impact on a renewable energy project. Since the renewable energy projects are known as national agenda, there may be situations where diverse expectations and various interpretations of project requirements create a controversial situation, which brings of confusion and conflicts of what stakeholder primarily want. An essential step to overcoming this issue is to continuously consult the relevant stakeholders by getting their needs, requirements, and expectations. Aaltonen & Kujala, (2016) and Lehtinen et al., (2018) stated that by collecting needs and preferences from project stakeholders, conflicts to plans and other issues that sometimes happen in the execution and operation phase will be minimized. This is also can be implemented when strategizing the stakeholder engagement plan. Since it is proven in the analysis, the stakeholder engagement plan is directly contributed to the project success, especially in renewable energy projects.

The results also shown that building good relationships within project stakeholders has a significant contribution to project success. Based on the previous literature, public perceptions conveys important aspects in developing and deployment of renewable energy initiatives. Previous research has strongly focused on the internal stakeholders while little has been given attention to the effect on the legitimate 'secondary stakeholders,' which is the public. (Mojtahedi & Oo, 2017; Jami & Walsh, 2014; Richard & David, 2018; Di Maddaloni & Davis, 2017). In the context of renewable energy initiatives, Pagnussatt, Petrini, Santos, & Silveira (2018) in their research found that by building and

sustaining a good relationship with the public will bring significant value to the initiated renewable energy projects in terms of economy, social and environment.

Apart from that, the results also agreed that analyzing changes and mitigation of risk are essential in determining the renewable energy project success. This results consistent with the extant literature that emphasized the needs of these approaches during the early stages of projects were crucial (Molwus, 2014b; Sherriff, (2012). Similarly, Cuppen, et al., (2016) elaborates that early action in managing risks and changes may result in the financial and technical benefits and achieved the project sustainability. Next, the findings also showed that compromising conflict has significantly impacted renewable energy project success. It is suggested that by providing alternative dispute resolutions such as facilitation, negotiation, mediation and arbitration will resolve a difference among stakeholders before and after it reaches the stage of a dispute (Heravi, 2014). Understand project success will result in the positive effect of renewable energy project success; which has been proven in the results while the development of renewable energy projects brings a wide variety of economic, environmental, and social benefits, the challenges in implementing these projects also inevitable. Therefore, based on the results, it is proven, good project governance is the proper mechanism for engaging all stakeholder involved.

Overall, the analysis of the data in this study also reveals that the respondents were aware of the significance of early engagement, but their understanding of the issues was constructed through experience, and not based on any framework, standards or other formal instruction/documentation. The stakeholder engagement activities presented in this study has grouped into ten components which represents the hypotheses of this study that is contributing the improvement stakeholder engagement; by applying more competent decision-making strategies in the initial and planning process phases of projects. Apart from that, these critical factors were frequently highlighted by the literature review and by the respondents as being important attributes for improving and removing the barriers of stakeholder engagement and accordingly impacted upon the successful implementation of renewable energy projects in Malaysia.

## 6. Conclusion and Implications

In summary, this study considers stakeholder engagement in the context of renewable energy projects in Malaysia; by providing insights into ten critical factors that influence stakeholder engagement towards renewable energy project success. The results obtained from this study as the empirical testing of the conceptual framework showed



significant positive direct effects between the independent and dependent constructs. Therefore, the hypothesized of this study show that effective communication, continuous consultation, understand intentions and behaviors, implement strategies plans, build good relationships, analyzing changes, risk mitigation, compromise conflict, understand project success and good project governance were positively significant towards the renewable energy project success.

From the discussion above, this study recognizes a few essential contributions to the theoretical and social perspectives. Firstly, it advanced the theoretical understanding of stakeholder theory by Freeman (1984) by empirically validating an amplified conceptual model consisting of ten critical factors of stakeholder engagement. Different from the previous literature, the stakeholder engagement was considered as stakeholders management attributes, and no critical success factors were determined. Associated with that, this study contributed to stakeholder engagement and management literature by providing a measurement model that may be replicated within the further research. Compared with past stakeholder management studies, that have only concentrated entirely on the stakeholder management process in a specific sector such as construction, manufacturing, and information system let alone systematic empirical investigations to test the relationship of critical stakeholder engagement approaches in the context of renewable energy sectors; which is currently trending worldwide. Therefore, the examination of this novel conceptual model may yield findings that contribute to the discussion on knowledge-based of stakeholder engagement within renewable energy initiatives.

Secondly, the findings of this study are very relevant in the present time by offering significant input for projects decision-making. The findings of this research produced valuable information to the project professionals in their pursuit of improving sustainability and achieved project success. Mainly, this study will give benefits or societal contribution, specifically to the stakeholders involved in renewable energy projects in Malaysia. The results of this study will generate greater awareness among key players in the renewable energy sector especially to the Renewable Energy Power Providers (REPPs) on the importance of having useful stakeholder engagement framework for successful development of renewable energy project in Malaysia. Lastly, this study is an attempt to highlights on the roles of stakeholder engagement in development and deployment of renewable energy projects and helping Malaysian government to achieve the target of renewables' proportion of generation mix to 20% by 2025 to 2030.

## Acknowledgement

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

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## Conference Paper

# An Empirical View of Business Ethics on Press Freedom: A Case Study

Diyana Kamarudin<sup>1</sup>, Faiz Azizul<sup>2</sup>, and Wan Khairul Anwar<sup>1</sup><sup>1</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia<sup>2</sup>Faculty of Business Management, University College of Yayasan Pahang, Taman Gelora Campus 25050 Kuantan, Pahang, Malaysia

## Abstract

Press freedom in Malaysia is bound under several regulations and restrictions ever since Malaysia granted independence in 1957. Due to this, a few media and press laws were also inadvertently inherited from the draconian colonial law or introduced in controlling any extremist actions during emergency periods and also used in silencing any political rivals. Based on the report compiled by Reporters without Borders (RSF), Malaysia jumped 22 places to 123<sup>rd</sup> of the World Press Freedom Index in 2019, better than all of our South East Asian neighboring countries. The success of Malaysia press freedom movement triggered by the reformation of a few media institutions, laws, and practices throughout the year. The enhancement of Malaysia press freedom assisted in the development of the country and led the nation in becoming more progressive and transparent alongside other developing nations worldwide. In this research, a case study conducted at one of a privately-owned media organization headquarters in Kuala Lumpur, Malaysia is aimed to analyze the ethical issues regarding business ethics involving informal interviewing methods performed towards internal staff. The case recorded will then be categorized into four different setups. Each case from each category analyzed will discuss, in detail, the business ethic concept and ethical principles. In this study, the discussion aims to strengthen moral values and business ethics that has supposedly implemented in the media industry sector in Malaysia.

**Keywords:** business ethics, press freedom, media, ethical principle.

## 1. Introduction: Company Background

The media organization chosen for the research is a public listed media organization located in Kuala Lumpur, Malaysia. The studied media organization owned television stations, newspapers, out-home advertising, radio stations, content creation, content provider, and digital media companies. For the 2019 revenue target, the media organization targeted to achieve 40 % of market share from all televisions products, reflected the 9.6 million viewers across the country. As the main media provider in the country, the media organization relies on the advertisement and sponsorship to survive in the

Corresponding Author:

Faiz Azizul

faizazizul@outlook.com

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

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challenging globalization. From the view of competition, this media company always need to be reliable, transparent, and accountability with their report, publishing, broadcasting, etc. as appraising the press freedom practice in the country. More than that, the media organization also need to become an influential organization to complement and compete with the new media like social media in providing competence and accurate news to the public. The media organization also committed to delivering quality products through digital and was awarded for the mobile content choice in the previous year. Moving forward, the media organization will strengthen the digital platform and commerce strategies as the income generator and contributed to the group up to 20% from the previous year by multiple digital platforms relating to the media group.

## 2. Case Study

### 2.1. Case One (1)

The first case is referred to morally right/good and legally right and explaining about the financial scandal case in Malaysia related to few of government high ranking officers and was mentioned by the United States Department of Justice (DoJ) previously. The media report should be based on the facts from the Malaysia court statement, police report, evidence, etc. which legally receives from the reliable resources before publishing it to the public. In ethics, morality, and value, the media also need to be fair and equally treat the accuser in their reporting to the public.

### 2.2. Case Two (2)

The second case is discussed morally legal but is wrong/bad action by referring to the news or stories published for the public. Few media has publicly shared the stories based on the facts and legally get the documents from authorities for the publication. However, for the issues relates to ethics, morality, and value, few presses starting to play a role in headlining the issues with few articles titles that lead to misconception or pre-judgment from public. For example, the merger and acquisition (M & A) of the two most essential telecommunication companies discussion is excellent publicity to the company in public coverage of their merger discussion and the merging issues also publicized at all major media in the country. However, few presses were also highlighting the potential doom or downfall of their competitors if the merger becomes into reality.

### 2.3. Case Three (3)

The third case is about actions made are morally right/good but is illegal. This case was explained by the exposure of other media organizations in the leaking of the secret document relates to the graft and abuse of public fund to the public. However, the basis and genuine of facts of the materials is not recognized by the authority during that time. More than that, the authority through prosecutor office also drop all the accusation made by the media organizations about the involvement of higher-ranking officer. The media organization studied is reluctant to publish the report as stated in the other media organization but condemning the efforts by informing on leaking will lead to the national security issues.

### 2.4. Case Four (4)

The fourth case is discussed about the actions made are morally wrong/bad and also illegal. The fourth case studies are from the business view, which the situation referred based on the advertising sides. To sustain as the free based media group, the company is relying on advertising as the primary income for the company. The media is promoting the uncertified product through their media tools. For examples, there have few companies is selling the health product or cosmetic, which not certifies and legally recognize by an authority like the Ministry of Health (MoH) and publicly promote into several media channel. Make it worst, few products also been claimed as the alternatives and replacement of the medical medication certified by the authorities. More than that, the exaggerate marketing of the product like becoming the remedy for specific health disease and issue without clinical proven can giving adverse effects to the public.

## 3. Literature Review

### 3.1. Right or Wrong

Fisher and Lovell (2012) have provided a guidelines grid formulated from the two of the continua. The first dimension mentioned by Fisher et al. (2012) focused on the difference between ethics and morality. The other dimension introduced by Fisher et al. is referring to the covering of the "right and wrong," which also related to the action made. The perspective covered into illegal or illegal activity and right or wrong of ethical action. As mentioned in the second dimension and introducing grid, Fisher et al. recognize

the positions of four actions on this continuum, the action as specified are: The actions made are morally right/good and legal, (even not the legal commitment), The actions made are morally wrong/bad and also illegal, The actions made are morally legal but is wrong/bad and The actions made are morally right/good but is illegal. Referring to the second dimension grid developed by Fisher et al. (2012), the cases will be examining through the legalizations and rules views, and also highlighting to the ethical, moral and value dimension.

### **3.2. Media Freedom Ethics**

Based on the McQuail (2005) concluded the doctrines of the media freedom ethics by identify the recognition of media to accomplish of the social responsibility, benchmarking for the higher standard of professionalism in requiring or accessibility to information, transparency, factual, accountability, fair and shall be objective. McQuail also identifies that media supposedly become an independent organization and regulated based on the legal or codes framework, also preventing from giving any invasive content that causes to the bad influence or action to the public. Lastly, McQuail reminded media to have become the medium for respecting other views and ideology which in return give the society diversification and make the media organization is accessible to the public even different in their views and opinions, lead to the exchange of idea and maturing the society.

### **3.3. Ethical Principles in Business**

Business Ethics, as defined by Crane and Matten in 2016 is the study about business activities, decision, and situation in the several issues of right and wrong raised and address. They also stated that the understanding of bad and good is different between organization to another like government body or private institution. Sivadas, Kellaris, Kleiser, and Dahlstrom (2003) found that there few factors relating in determining of the business ethics which are the situation of the individual, culture, age, marital status, gender, etc. In the view of the company, Juscius and Snieska (2008) stated about the company that aims to save all the globally received of ethical standards, may expect the positive attitude including the support from the society.

### 3.4. Utilitarian Principles

The utilitarian principle basis introduced by Jeremy Bentham (1748-1832) and John Stuart Mills. The concept of Utilitarian considered as the policies that concern and evaluate the benefits and cost that will inflict to the people. The ethics as view by Bentham are placed human into two plan, which is pleasure and pain. The idea of pleasure and bad distinguish between on the aspect of good or bad. The view of good shall give the pleasure or, supposedly contributed to pleasure or pain prevention. Equally, the view or bad shall give the pain or contributing to pain or pain prevention. From the perspective of Bentham, the ethics or the sight of right and wrong will be significant if the application of the Utilitarian principle adapted to any idea of ethics. In another term, any action that will improve the additional pleasure is a right act and anything that contributed to the decreasing of pleasure considerably wrong. (Solomon, 1993). There are also few critics regarding on the utilitarian principles and based on Sen (1970) called the “welfarism” doctrine that only relies on the utilities, and no consider about other values that relate to social welfare. More than that, the utilities can be the basis of social welfare, which can be considered as misleading information.

### 3.5. Kantian Principles

The theories by Kant principles as introduced by Immanuel Kant (1724-1804) that mentioned about actions related to needs, or requirement considers as restricted act and should not treat as free. Otherwise, the lucid action only can be treated as a free action but shall be based according to the law (Legge, 1997). Other than that, the appropriateness of any actions only based and depends on benefits with any regulation regardless of any outcome and consequences. Kant also emphasizes on the principles of respecting other people with dignity and treat others equally to achieve their interest while the moral rights at the human being will specifying and identify the benefit of individual specifically because human is entitled freely to meet their interest.

### 3.6. Egalitarianism

Brennan and Lo in 2016 mentioned that egalitarianism should treat all the living creature equal and free based on their functions and benefits, among others. The concept is adaption from the idea of Naes (1973) emphasized on the importance of the living creature or even organism because of the dependence tendency between each other.

Naes also mentioned that the social functions are to create the concept of dependent between each other in ensuring a better relationship. Based on the idea of equality, Velasques (2014) justified that there has two equality can practices which political equality or economy equality and any equality should be given even it good or bad. Valesquez (2014) and Feinberg (1998) also found the critics on the idea equalitarianism by stated the equality should define by merit and efforts, not giving equality for everyone.

### 3.7. Libertarianism

Based on the Nozick (1974) and Velasques (2014) defines libertarianism as the appropriate or relevant decision made by the individuals to achieve fair treatment and deliberately based on their free choice. In the context of media, Christian, John, and Mark (1993), the press should cherish on the concept of libertarianism and individualism that have been implemented previously by the liberalist in the history like Kant, John Stuart Mill, etc. Christian and Clifford (2010) also stated on the function of media to any social responsibility primarily when related to the broadcasting policy for the public. From other libertarian views, the press should become the ombudsman for the public (Curran, 2000). In term of the sustainability of media freedom and the organization, the media shall maintain themselves as the medium for a healthy democracy and political liberty (Craft, 2010).

### 3.8. Justice as Fairness

Based on John Rawls (1971) in Theory of Justice have listed several items of human need as a necessity, including many useful and also political freedoms. More than that, Rawls also stated that people are needs more space of speech to ensure that they can get the necessity required. The Rawls is almost similar to the approach by the idea and concept of utilitarianism but more space provided in allowing on the human need into the arguments and speech. More than that, Rawls also based on the principles that every human should have an equal right for basic necessity and liberty and the inequalities for any distribution is to give benefits for all. In the media sides, Rawls in 1993 mentioned that as the media, the biggest challenge is to be fair for the editorial write-up or called as “reflective equilibrium” in journalism because of the ideology and perception.

### 3.9. Virtue Theory

Gomez (2002) mentioned that Aristotle found the moral action done by people is inclusively relating to coherent choice and consideration. Moreover, Gomez (2002) also found on the critical virtue states by Aristotle create a human relationship to cooperate smoothly and the right way by practicing people in bravery, liberality, impressiveness, serenity, etc. Any involuntary act should not be liable for the people responsible because of many factors like ignorance, outside coercion or avoidance for the more significant harm (Swift, 2012). The excellence of the human being is based on the principles and believes in what they stand for (Rest, 2002).

### 3.10. Findings

Based on Case One (1) scenario, the findings mostly focused on credibility and transparency. Malaysia has jumped 22 places to the place 123rd on the Press Freedom index on 2019. The press freedom indicators are to show how the media is credible and can reporting freely to satisfying the public or civilians. Civilian seems interested in the cases related to and the abuse of people money. As the media practitioner, the media shall report the facts from the official court statement, police report, evidence, etc. which legally receives from the reliable sources before publishing it to the public. In Malaysia, few regulations need to be abiding by the media practitioners, especially when dealing with the reporting public interest issues like Printing Presses and Publications Act 1984, Communication and Multimedia Act 1998, Penal Code, Evidence Act 1950 and Defamation Act 1957. Any documents published to the public also need review and endorse by several parties before releasing to the public like Bank and Financial Institution Act (BAFIA) 1989 that relates to people personal bank account that needs the related people consent or several legal advice. The government will revoke any organization that breach of this law, the operating license in the media company. The media organization should be a concern on the matter relates to the regulations or legal issue before any publication made. In ethics, morality and value, the media also need to be fair in their reporting and not been influenced of surrounding people, and the trial even feels irritated because of the evidence or truth prevail during the process. The excellent report to the public will create a good perception along the process, and the mass media report that brings no emotion or sympathy value will help the process to went smoothly without any judgment and discussion created from the public made that caused to the sub judice of trial. Referring to the presumption by the canonical jurist

and cardinal, C.Jean Lemoine in the phrase of "*item quilbet presumitur innocens nisi probetur nocens*" defines that a person is recognized innocent until they are proven guilty.

Referring to Case 2, the public listed companies that involve in the merger have informed the Bursa Malaysia in details about the merger. The details of the merger already get the approval from Bursa Malaysia to be announced at one of the press conferences. The data obtained by media is factually based on the report from the companies and in the right consequence order of authority to avoid any manipulation or the market speculation of the company shared. The press conference also can inform the discussion or company future planning to the shareholder as well. However, based on the news of the merger, the media become a manipulative instrument in playing the issues to raise or lower the company share price values. From the business view sides, the press also may lead to the bad or good review from the shareholders or potential shareholder to the specific business or interest that they already have intention into it. The media also write the article relates to the competitors may lead to an increase of shares between merger companies, which lead to the rise of the value of the stock. For the particular circumstances, few Media also get benefits by increasing of the advertisement from the related company after the story been write-up and published. The monopoly of the issues also been played around by consumer association and been raised to the authority like Malaysia Communication and Multimedia Commission (MCMC) and Malaysia Competition Commission (MyCC). The authorities influenced the merger will avoid both companies from the issues of monopoly in the future.

More than that, refer to Case 3, to acknowledge the public into scandal matter, two of the other media company aggressively publish the report based on the confidential document by the whistle-blower to the leak of the scandal. In 2015, the whistle-blower arrested for blackmail charges of his previous employees after finding billion of people money stolen for the scandal between 2009 and 2011. After the leakage of the documents, the media organization that involves into the publishing of stories like the web portal have blocked by the government and media organization that owned two newspaper also unlawful suspended for three months over their report in the scandal in the basis of Printing Presses and Publications Act 1984. However, both media companies that leak the document have shown the credibility and transparency of the media organization. As an established organization in reporting of the fair and transparent stories to the public, one of the media organization that deals with the business, market and share stories found their credibility in reporting to the public and business leader as well. By practicing the transparency and fair publication, the private-owned group



company can be sustainable and reliable as for their independent reporting in the future too. As the media organization that not reporting and condemning the effort from other media shown the loss of the revenue of last year and the credibility also been questioned by the public which low trust of reporting have given for the company. For the previous year, the media organization has also been influenced and owned-shared by the, which lead to the reporting decision of the company. However, early this year, the media freed from any form of the political party money into the media organization because of the shared selling from the political party to the media organization shareholders.

Lastly, based on the Case 4, the media organization that practicing of advertisement to related health and beauty product should abide by Medicines (Advertisement & Sale) Act 1956, which governed by the Ministry of Health (MoH). In 2017, one of the founders of the health product has claimed the product benefits that can cure the disease or any health problem without any consultation or approval by MoH. The founder found guilty after been charged in court. The media organization also have been warned by several authorities like Malaysia Communication and Multimedia Commission (MCMC) and the Ministry of Health (MoH) for not repeating the same mistake when related to the public health. Based on the report MoH, they are also increasing the health problem associated with the use of an unregistered and unqualified product like diabetic, cancer, high blood pressure, heart attack, etc. This product mostly not tested or clinical proven by the authority and sell to the public by an appointed agent or stockist which not under authorized of the MoH. The target to sell the product are focusing on the television viewer like the older generation and also for those who do not have not much of medical, health or scientific knowledge.

## 4. Discussion

### 4.1. Case 1

As referred by McQuail (2005) about the doctrines of media freedom ethics by identify the recognition of media to accomplish of the social responsibility, benchmarking for the higher standard of professionalism in requiring or accessibility to information, transparency, factual, accountability, fair and shall be objective. The media is practicing the doctrine of McQuail (2015) to ensure the company accomplishes media freedom. In the view of the business ethics, Juscius and Snieska (2008) stated about the company that aims to save all the globally received of ethical standards, may expect the positive attitude including the support from the society which applied to the company in reporting

of the stories for their business sustainable which also build the credibility and trust to the public. The utilitarianism principles can be shown through the case study when the press practised fair, truth, and factual reporting based on the trial report that following the principle rule of law. For the long term, the readers, public and the accuser will found that the media is credible and accountability on the reporting without getting the evidence from hearsay or public opinion. The report at the other level will become intuitive to the needs of the readers and not breach any law related to the facts. Moreover, based on the Kant moral principles, we can found that the press is conducting the fair and factual report by left equally of the individuals to pursue their interest without pressure with any internal and external pressure that lead harm or damages of the reporting. The Kant moral principles also can be related to the Kant's categorical imperative (Second Version) on the ideas that humans have a dignity that makes them from the small objects. Since the accuser is not found guilty with the judgment of the court, the accuser should be treated fairly by media that implemented the theory of Brennan and Lo in 2016 that mentioned on egalitarianism on treat all the living creature equal and free based on their functions and benefits among other creatures.

## 4.2. Case 2

The utilitarianism principles can be shown through the case study when the press practiced fair, truth, and factual reporting based on the trial report that following the principle based on Bursa Malaysia. For the long term, the readers, public and the accuser will found that the media is credible and accountability on the reporting without getting the evidence from hearsay or public opinion. The report at the other level will intuitive to the needs of the readers. However, the utilitarian concept in the study found when the company more focus to increase the advertisement, and business even needs to report about the merger implication, which is not wrong from in the term of media freedom. The theories by Kant principles emphasize on the principles of respecting other people with dignity and treat others equally in order to achieve their interest while the moral rights at the human being will specifying and identify the interest of individual specifically because human are entitled freely to achieve their interest should be implemented in the media write-up to the company that will be effected to the merger.

### 4.3. Case 3

Based on the McQuail (2005) that media supposedly become an independent organization and regulated based on the legal or codes framework and preventing from giving any invasive content that causes to the bad influence or action to the public. The two media organization that involves document leaking is not related to any political party and move freely in their reporting to make better Malaysia, in contrast with the company that condemns the other company effort since they have the political relationship. McQuail reminded media to become the medium in respecting other views and ideology, which in return to give the society diversification and make the media organization is accessible to the public even different in their views and opinions, and lead to the exchange of idea and build the civilized society. During the information leak, the two media that involves in the leaking of the controversial scandal is aggressively discussed about these issues in their publication. Juscius and Snieska (2008) stated about the company that aims to save all the globally received of ethical standards, may expect the positive attitude, including the support from the society. Both media organization involves in leaking shown the credibility and integrity and respected by the public. The utilitarian principle is not applied to this cases because, during the leaking, the company is facing the bad reception and criticizes by the government until few actions are taken to the both of media organization lead to the previous action taken to the company. More than that, from other libertarian views, the media should become the ombudsman for the public (Curran, 2000), which have been done successfully by both companies to inform the public. In term of the sustainability of the media freedom and the organization, media shall maintain themselves as the medium for healthy democracy and political liberty (Craft, 2010) and the media organization that relates to any political party is more focus on protecting their stakeholder rather than public as proof in the media organization that we are studied. Lastly, the media company implement the virtue theory to ensure the public is protected and not abused by the government which found the moral action done by people is inclusively relating to the coherent choice and consideration Gomez (2002). Both organization also found on the first virtue states by Aristotle create a human relationship to cooperate smoothly and the good way by practicing people in bravery, liberality, impressiveness, equanimity, etc. (Gomez, 2002). The excellence of the human being is based on the principles and believes in what they stand for (Rest, 2002) and practiced by both organization and not the other media organization in Malaysia.

#### 4.4. Case 4

The media organization can consider the theory by McQuail (2005) that concluded the doctrines of the media freedom ethics by identifying the recognition of media to accomplish the social responsibility as the media. McQuail (2015) also identifies that media supposedly regulated based on the legal or codes framework, also preventing from giving any invasive content that causes to the bad influence or action to the public. In the view of the company or media organization that advertised on illegal and morally wrong content, Juscius and Snieska (2008) stated about the company that aims to save all the globally received of ethical standards, may expect the positive attitude including the support from the society. The utilitarian principle that implements in the advertisement or marketing to the product evaluate the benefits and cost that will inflict to the media organization without consider about other values that relate to social welfare by advertised the harmful product which considered as misleading information. By implementing the wrongful and illegal act, the media organization is denying the Kant principles of respecting other people with dignity and treat others equally to achieve their interest. On the libertarian view, as mentioned by Christian and Clifford (2010) stated on the function of media to any social responsibility and not harm the public.

### 5. Conclusion and Implication

The media organization shall practice the transparency, fair, and fair reporting to sustain in the business without any influence of the political interest. The media shall free to make any decision on the write-up and the organization direction without neglect of the rules and regulations of the country. Media organization should give the people the right to express their view, ideology and condemn but need on a legal basis. The media conduct council act that will be drafted and tabled in parliament soon will help the media organization to remain free even after any new government or political party appointed, and the media will remain free without any influenced of the government that wins the election. Despite to get the revenue by write-up or reporting, the company not supposedly play the role as the medium to help the practices of monopoly or condemning other products. The media organization should give fair treatment even need to express the concern or idea to the public. The harm occurs to the company that will create suffers to the organization in the future like loss and reduction. The media organization is also responsible for educating the people and becoming credible

since the alternatives media like social media (Facebook, Twitter, etc.) loss the sense of credibility. The integration of the moral values, code of ethics, and legalization should be synchronized to create good media freedom practiced in this country.

### 5.1. Limitation of the research

1. There is a need a proper and in-depth study regarding media freedom with research design and appropriate statistical analysis.
2. The research should be based on the perspective on the media practitioner and the management to better understanding.
3. The relationship between media association and ethical media conduct.
4. There is no implication of the particular legal statue influenced to practice the media freedom in the country and effect on the reporting.

### 5.2. Further research

1. There are proper design and in-depth study regarding media freedom with research design and appropriate statistical analysis.
2. The effect of media conduct council act that established to the media practitioner and the relation to the ethics.
3. Any code of ethics relates to the media organization on it effected to the business or organization.
4. The implication of the legislation imposed to press in practice of media freedom.

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## Conference Paper

# Manufacturing Outsourcing to Achieve Organizational Performance through Manufacturing Integrity Capabilities

Muralitharan Shanmugan<sup>1</sup>, Muhammad Shabir Shaharudin<sup>2</sup>,  
Yuvaraj Ganesan<sup>1</sup>, and Yudi Fernando<sup>2</sup>

<sup>1</sup>Graduate School of Business, Universiti Sains Malaysia, 11800, Penang, Malaysia

<sup>2</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

Manufacturing companies outsource their manufacturing process to achieve organizational performance. Companies can focus on improving their core business processes while leaving manufacturing process to companies that are more efficient and cost-effective. However, this leaves manufacturing companies with a dilemma as those outsourcing companies are also producing for competitors and companies' brand is liable to the integrity of outsourcing companies. By having integrity capabilities, it is argued that companies can achieve organizational performance. This paper investigates the relationship between manufacturing outsourcing and organizational performance with the mediating effect of manufacturing integrity capabilities. This paper contributes to the body of literature by investigating the impact of manufacturing integrity capabilities with resource-based view and transaction cost economics theories. Furthermore, this paper also is practically useful for companies to understand integrity capabilities that are useful to increase organizational performance in the era of the dynamic business environment.

**Keywords:** manufacturing performance, manufacturing capability, manufacturing outsourcing, resource-based view, conceptual paper.

Corresponding Author:

Muralitharan Shanmugan  
shabir.shaharudin@gmail.com

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Integrity in operations is a critical issue in the manufacturing industry. This is due to the hypercompetitive market and complex customer requirements. While companies try to sustain in the business by engaging in the supply chain with other companies, part of that business also involves outsourcing part of the supply chain process or capabilities. Thus, when a company involved in shady business strategy or unethical issue deemed by society, not only that company but the whole supply chain will be affected. For example, Foxconn, a Chinese company producing electronic products for Apple from the United States of America, had trouble with its handling of employee suicide case.

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As a result, Apple organizational performance was also affected due to consumers' backlash. That is the reason why it is important for companies in the supply chain to protect and uphold its integrity.

Companies all over the world have shown interest in upholding the integrity and extend it to its supply chain partners (Cherrafi, Elfezazi, Chiarini, Mokhlis, & Benhida, 2016). Due to that, each supply chain partner has guarded its integrity capabilities to ensure that the networks or alliances remain strong and overall performance can be expected. Integrity capabilities in manufacturing are ensuring highest standards in every aspect of companies' operations such as quality, cost-effective, flexibility and responsiveness without neglecting responsibilities toward its stakeholders (Gunasekaran, Subramanian, & Rahman, 2015). Ensuring integrity capabilities among manufacturing companies are critical because manufacturing has a complex and vast network of the supply chain. Nowadays, with outsourcing among manufacturers becoming a norm in the industry, the complexity of ensuring integrity (Srinivasan, Giannikas, Kumar, Guyot, & McFarlane, 2018) capabilities have become more challenging. Integrity capabilities are difficult to manage as outsourcing companies produce mass products for multiple companies and even for competitors (Wu, Yang, & Olson, 2018). This has raised issues among companies that its product design and features might be at risk (Liu, Blome, Sanderson, & Paulraj, 2018). This will lead to negative organizational performance.

On the other hand, society is a concern that companies might shift the blame when there is an issue to outsourcing companies (Liu et al., 2018). Also, companies might collide with each other becoming too big to fall and dictate terms and product offering to consumers (Fu, Kok, Dankbaar, Ligthart, & van Riel, 2018). This will lead to a lower choice of products and unacceptable performance by companies to offer good products. Therefore, outsourcing companies need to ensuring integrity capabilities to achieve organizational performance (Ali, Tan, & Ismail, 2017).

In Malaysia, the performance of manufacturing companies is important. This is because the manufacturing industry in Malaysia is one of the most developed in the ASEAN region (Rusli, Rahman, & Ho, 2012). Having said that, there are vast companies, whether international or local, that participate in the global supply chain. As a result, it ties the performance of the overall supply chain with each company's performance. Companies that are unable to increase or sustain their organizational performance will drag other supply chain companies down (Saeidi, Sofian, Saeidi, Saeidi, & Saaeidi, 2015). This is a critical issue in the industry as Malaysian manufacturing companies are producers for other companies or in other words, an outsource company for another company locally or globally. Without integrity capabilities, both local and global



companies will seek other outsource companies that can ensure their companies remain competitive and perform well.

Nevertheless, Malaysia manufacturing industry is still lagging in terms of technological advancement and adoption of better operational excellence criteria such as flexibility due to its practice ties to the demand of its customer rather than undertakes its own decision in operational improvement (Fernando, Wah, & Shaharudin, 2016). The low value-added Malaysian manufacturing industry is directly linked to the weak development of new product and technology cluster (Ahmad, Mohammad, Maidin, Zainol, & Noor, 2013). Despite this industry is performing excellent in the past two decades, the manufacturing industry in Malaysia confronted substantial challenges in sustaining growth (Shaharudin & Fernando, 2015). Improvement in organizational performance can contribute to the sustainability of growth. This is because the improvement in organizational performance will directly increase productivity and reduce the production cost. Outsourcing is one method to reduce manufacturing or production cost. This approach will have a positive impact on organizational performance (Wang & He, 2018). Also, Malaysian American Electronics Industry reported that manufacturing companies faced gaps in their outsourcing practices (Hassan, Razali, & Talib, 2015) as these companies were not able to rise local sourcing by 50 percent and being inflexible to customer needs, despite substantial investment by companies and government agencies. By increasing the local sourcing, the manufacturing cost of the product can be reduced, and this will translate the effect of overall organization performance in term of revenue. These arguments show that manufacturing outsourcing performance in Malaysia needs improvement (Hassan et al., 2015; Karim, Smith, Halgamuge, & Islam, 2008). In the survey done by Deloitte (2016) on global manufacturing competitiveness index, Malaysia position in 17th place below Thailand in 2016 and expected to move to rank 13 below Vietnam in 2020. Thailand and Vietnam are emerging economy countries as Malaysia. The competitiveness index showed the result of the organizational performances of that has a direct relationship with the manufacturing performance (Galankashi, Memari, Anjomshoae, Ma'aram, & Helmi, 2014). Following that, Malaysia needs to improve its competitiveness by ensuring more companies in achieving organizational performance and adopting integrity capabilities (Padhi, Pati, & Rajeev, 2018). On the other hand, integrity capabilities have been widely accepted in the literature to increase the performance of the company. However, limited studies on the empirical evidence on whether integrity capabilities are improving organizational performance and whether it has an impact on outsourcing practice (Giovanni, 2012; Shi et al., 2019; Yin, Zhao, Xi, & Zhang, 2018).

This study objective is to address these issues by providing empirical evidence and theory alignment so that it can contribute to the literature. Also, companies can achieve organizational performance by practicing outsourcing and focusing on integrity capabilities. This paper is divided into four sections; introduction, literature review to discuss current knowledge regarding organizational performance, outsourcing, and integrity capabilities. This will follow with methodology and expected the outcome of the study.

## 2. Literature Review

### 2.1. Organizational Performance

Organizational performance can be defined as the ability of companies to meet stakeholders' requirements and achieving competitive advantage (Gunasekaran & Ngai, 2012). In today's dynamic competitive environment, companies are not only responsible for improving their operational performance but overall performance, including economic, environmental, and social (Zhu, Sarkis, & Lai, 2013). Even though the environment and society are becoming more important, the company's performance has been consistently evaluated through the lens of its success in operations and economic profits (Fernando, Jasmi, & Shaharudin, 2019). As a result, financial measures are critical for the evaluation of organizational performance. Economic, financial measures include return on assets (ROA), return on investments (ROI), return on equity (ROE), market share, sales and profitability of the business (Jasmi & Fernando, 2018). Increasing the performance of manufacturing companies is important due to the manufacturing industry plays an important role in the economy (Jabbour, Frascareli, & Jabbour, 2015). Malaysia, the third-largest economy in South East Asia and the 29th largest in the world, is emerging as one of the most stable economies in the Asian region with its manufacturing industry being one of the most well-developed in ASEAN region (Department of Statistics Malaysia, 2018b). Its GDP has been growing steadily for the last 10 years at five to six percent. (MIDA, 2017). Manufacturing activity is an important factor in the economy due to its contribution to GDP external trade and job creation. Based on the contribution of the manufacturing industry, the GDP trend is increasing (Department of Statistics Malaysia, 2018a). This shows the importance of ensuring that manufacturing companies continue to perform as it has a high impact on the economy.

## 2.2. Manufacturing Outsourcing

Manufacturing outsourcing can be defined as production process of company undertaken by another company that is specialize in manufacturing product that results in benefits such as cost reduction, efficient process, more technological advance process and technology and better yield of product (Bigliardi & Bottani, 2010; Kamalahmadi & Parast, 2016; Liu et al., 2018). Nowadays, with competition intensifies, companies are looking for supply chain partner that would be able to improve its efficiency in the production of products so that it can sustain in the business and achieve better performance (Zhang, Wang, Yin, & Su, 2012). As a result, manufacturing outsourcing has become critical and norm among companies in the manufacturing industry. Nevertheless, outsourcing to other company needs to be taken seriously as it also impacts on the brand and performance of the company (Cherrafi et al., 2016). Scholars have long found that collaboration and integration of the production process in supply chain networks are important (Padhi et al., 2018). However, specific outsourcing studies about improving organizational performance is still scarce (Zhu et al., 2013). This is due to many outsourcing companies are in a developing country, and the response rate from developing countries companies are limited. Therefore, an investigation of organizational performance from the perspective of outsourcing companies are empirically needed to contribute to the literature. On the other hand, companies are not solely outsourcing its production process, but companies also outsource its key activities or processes such as information technology, marketing, customer service, distribution network and logistics (Gunasekaran, Subramanian, & Ngai, 2019; Gunasekaran et al., 2015). Due to that, companies can focus on their core business and contribute to the overall organizational performance.

## 2.3. Integrity Capabilities

Integrity capabilities refer to the ability of a company to ensure that the product or service offered is consistent with the norms and expectations of its stakeholders (Biesenthal, Clegg, Mahalingam, & Sankaran, 2018; Zhu et al., 2013). Externally, integrity capabilities also serve as an unwritten agreement between the company with other companies in the same industry to better serve its customer by adopting selected criteria that are deemed important by stakeholders. In that sense, quality, cost reduction, the flexibility of the company, and responsiveness to address stakeholders' demand are expected by stakeholders (Gunasekaran et al., 2015). It has been found that integrity capabilities

enable companies to achieve their operational performance and contribute to the overall organizational performance.

## 2.4. Resource-Based View Theory

This study underlined theory is derived from the resource-based view theory (RBV). This theory considers company competitive advantage as a result of company performance in managing its resources and innovation (Liu et al., 2018; Padhi et al., 2018). Also, companies that can improve their supply chain process to fully optimized their resources can achieve organizational performance. On the other hand, through the adoption of integrity capabilities that tap into company's ability to meet the operational performance will result in higher capabilities of companies to meet performance and stakeholders' requirements (Huo, Ye, Zhao, & Shou, 2016). This study used of RBV can be explained in Figure 1 where manufacturing outsourcing is considered as an enabler for capitalizing on unique resources that help companies to achieve performance. Furthermore, with integrity capabilities, companies can distinguish its product or service offering better than its competitors. Thus, enabling the company to achieve better performance.

## 2.5. Theoretical Framework

Based on the literature review and research problems, an integrated framework is presented in Figure 1. The focus of the study is to investigate the organizational performance of manufacturing companies in Malaysia. The performance of manufacturing companies can be achieved or improved through practicing manufacturing outsourcing, and through the adoption of integrity capabilities, companies can obtain better performance. Thus, organizational performance serves as the dependent variable while manufacturing outsourcing and integrity capabilities serve as the independent variable and mediating variable in this study.

## 2.6. Hypothesis Development

### 2.6.1. Manufacturing Outsourcing Activities and Organization Performance

Manufacturing outsourcing has been found to contribute largely to the operational performance of a company (Wang & He, 2018). Previous studies have found that companies involved in outsourcing to improve its performance that only happen when

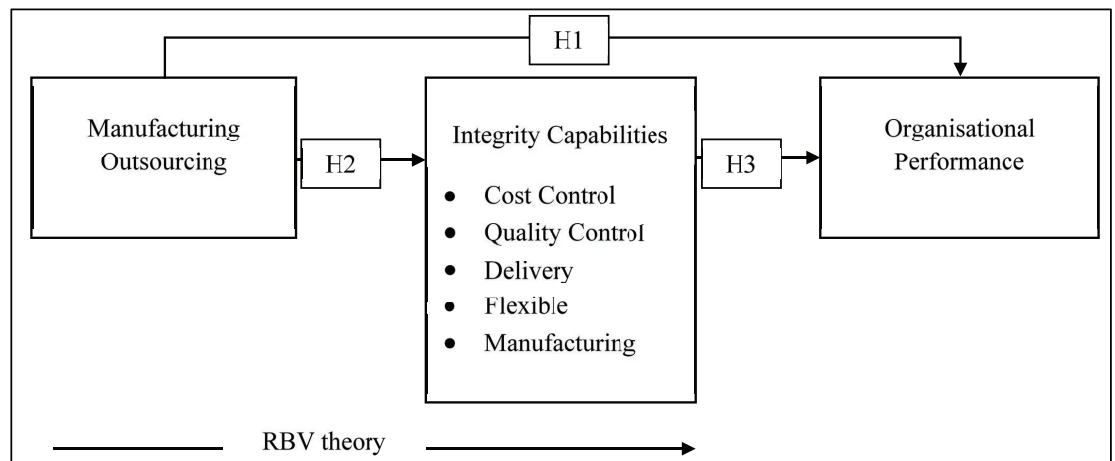


Figure 1: Theoretical Framework.

companies collaborate with other companies that are more efficient in certain business activities especially production process (Li, Su, & Ma, 2017). Companies that outsource its production process or certain business activities are more likely to attain operational goals such as quality, cost reduction, flexibility, and responsiveness (Gunasekaran & Ngai, 2012). Thus, it can be hypothesized that:

H1 Manufacturing outsourcing activities positively and significantly influence organization performance

### 2.6.2. Manufacturing Outsourcing Activities and Integrity Capabilities

Scholars have found that manufacturing outsourcing enables companies to achieve operational performance as there are vast companies that outsource its manufacturing process to other companies that are able to produce products at a cheaper price, better quality, more advance in production technology, have expertise that enable companies to produce sophisticated products and flexible in design and features of the product (Ahi, Jaber, & Searcy, 2016; Allur et al., 2018; Dissanayake & Cross, 2018; Huo et al., 2016; Tosarkani & Amin, 2018). As a result, companies that outsource can meet stakeholders' requirements for quality, delivery, cost-effective, flexible, and responsive in its operations (Gunasekaran & Ngai, 2012). This, in return, ensures consumers to put more trust and improve the company's integrity. Thus, it can be hypothesized that:

H2a Manufacturing Outsourcing activities positively influences Cost Control

H2b Manufacturing Outsourcing activities positively influences Quality Control

H2c Manufacturing Outsourcing activities positively influences Delivery

H2d Manufacturing Outsourcing activities positively influences Flexible Manufacturing

### 2.6.3. Integrity Capabilities and Organization Performance

Previous studies have found that operational performance leads to overall attainment in organizational performance (Gunasekaran & Ngai, 2012; Zhu et al., 2013). Since companies need to first achieve its economic performance in terms of profits, companies tend to focus on improving its product offering to its customers. To improve the product offering, companies adopted several operational criteria such as cost reduction or cost control, the flexibility of its production process, responsiveness to customer demand, delivery of its promise to customers and producing a quality product. The operational criteria that companies adopt to ensure its customers that the product offering can meet customer requirements are known as integrity capabilities (Cherrafi et al., 2016; Wu et al., 2018; Shi et al., 2019; Yin et al., 2018). Scholars have found that there are two school of thought where scholars found that when companies achieve integrity capabilities are able to achieve economic performance including profits while the other school of thought found that when companies focus on economic performance, it increases the ability of companies to achieve other performances such as integrity capabilities, environment and social (Nishitani, Kokubu, & Kajiwara, 2013; Zhu et al., 2013). Taken into consideration, both school of thoughts, it is believed that companies that adopt integrity capabilities can achieve organizational performance. Thus, it can be hypothesized that:

H3a Cost Control positively influences Organization Performance

H3b Quality Control positively influences Organization Performance

H3c Delivery positively influences Organization Performance

H3d Flexible Manufacturing positively influences Organization Performance

### 2.6.4. Mediation effect of Integrity Capabilities on Manufacturing Outsourcing Activities and Organizational Performance

Companies that have high integrity that consumers trust or that has a good brand image will have good organizational performance (Cherrafi et al., 2016; Zhao, Zhao, Davidson, & Zuo, 2012). This is because trust comes from the ability of companies to ensure its customers that it can deliver quality, cost-effective, responsive to the requirements of customers and able to be flexible. Since outsourcing has become a norm in the

manufacturing industry, more companies are finding outsourcing companies to be part of their supply chain networks to improve its performance (Kamalahmadi & Parast, 2016; Xiao, Yang, Zhang, & Kuo, 2016). Finding good outsourcing companies are not the enabler to positive organizational performance but the ability of that company to have better integrity capabilities. Thus, it can be hypothesized that:

H4a Cost Control mediate the relationship between Manufacturing Outsourcing Activities and Organization Performance

H4b Quality Control mediate the relationship between Manufacturing Outsourcing activities and Organization Performance

H4c Delivery mediate the relationship between Manufacturing Outsourcing activities and Organization Performance

H4d Flexible Manufacturing mediate the relationship between Manufacturing Outsourcing activities and Organization Performance

### 3. Methodology

This study employs a quantitative methodology by performing statistical analysis. The population for this study is manufacturing companies as listed in the Federation of Malaysian Manufacturers (Federation of Malaysian Manufacturing, 2017) database. The sampling frame is Electric and Electronic (E&E) companies registered with FMM database. This study uses stratified random sampling, and data collection is undertaken through the use of mail and e-survey (Google form) following the methodology of (Fernando et al., 2019). The unit of analysis is top management in E&E companies. In this research, the survey questionnaires consist of five parts. There are A. Respondent Profile, B. Profile of the Organization, C. Organization Performance, D. Outsourcing Activity, E. Integrity Capabilities, and F. Additional Comments. The variables of the research study was measured on five-point Likert scale, i.e., (1) strongly disagree to (5) strongly agree, were organization performance and outsourcing activities. The variables which measured on seven-point Likert scale, i.e., (1) strongly disagree to (7) strongly agree were cost control, quality control, delivery, and flexible manufacturing. A measurement model and structural model will be tested using PLS-SEM. The software, smart PLS 3.2.8, and statistical package for social sciences (SPSS) version 24 will be used for data analysis. The SPSS software will be used for descriptive analysis.

## 4. Conclusion

Maximizing the available resources (man, machine, method, and material) is the key factor for managers to improve the profitability of the company. Globalization in most industries has sparked heightened awareness of the various risks and vulnerabilities that products are exposed to as they move along the supply chain link from design and sourcing to manufacturing, transportation, distribution and final sale to the consumer. The chain of supply networks is long and complex (Kamble, Gunasekaran, & Gawankar, 2018; Richardson, 2015). The purpose of this research is to examine the impact of outsourcing activities on organizational performance with the mediating effect of integrity capabilities. Finding of this research likely to be useful for managers for deciding or managing outsourcing activity.

Furthermore, this research is expected to give knowledge to the organization on understanding the impact of outsourcing activities and their effect on organization performance. The knowledge will be useful in understanding the importance of supply chain management for successful outsourcing activity that meet the organization objective mainly on cost reduction and improvement of core function for business sustainability and growth. This research can be used as a guide for the future researcher or organizations that are facing problems related to outsourcing activities and can benefit government agencies. Finally, when this study is concluded, it will be able to assess the hypothesized relationships described in this paper and consequently be able to provide detailed research and practical implications, including suggestions for future research agendas. Furthermore, the finding will be able to shed lights on the establishment of integrity capabilities and its impact on the company's performance.

## Acknowledgement

We would like to thank Yayasan Bank Rakyat for the financial support by sponsoring this paper to be presented in the FGIC 2<sup>nd</sup> Conference on Governance and Integrity 2019.

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## Conference Paper

# Multi-Approach Formulation in Dynamic Personality-Situation Interaction for Personnel Selection

**Mohd Hanafiah Ahmad, Gusman Nawanir, and Mohd Rashid Ab Hamid**

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

### Abstract

The purpose of personnel selection is to measure knowledge, skills, and abilities that are necessary to perform a job effectively. The process involves various assessments, including personality assessment. This conceptual paper discussed the potential of using a learning factory to develop multiple simulations for assessment center activities in assessing personality in different situations. Although traditional personality assessment contributes to the effectiveness of selection decisions and prediction, it tended to ignore that trait-related behaviors may differ across situations. Study on dynamic personality is essential as empirical studies showed that within-person fluctuations in personality states relate to a variety of work outcomes, including job performance. To further understand this fundamental issue, this paper discussed further how personality–situation interplay influences performance by using a learning factory assessment center method. This study also discussed how the adaptation of exploratory mixed methods approach could be used. The mixed exploratory methods are suitable as this topic is related to fundamental research and empirical study, besides the investigation on this area is still limited. This paper could benefit other researchers, industry players, and policymakers in understanding better how dynamic personality may influence performance, especially in the activities related to Industry 4.0.

**Keywords:** personality dynamic, situation specific, assessment centre, learning factory.

Corresponding Author:  
 Mohd Hanafiah Ahmad  
 hanafiah@ump.edu.my

Received: 5 August 2019  
 Accepted: 14 August 2019  
 Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Personnel selection aims to assess whether a candidate has the knowledge, skills, and attitudes (KSA) required for a particular job. In this context, personality traits are among these KSA that being assessed. Typically, the selection procedure includes a wide variety of assessments, with personality assessment being a commonly used one (Ahmad, 2018; Lievens et al., 2018; Sosnowska, Brussel, Hofmans, Brussel, & Lievens, 2018). Scholars suggest that personality assessment will add incremental value above and beyond general mental ability when predicting work performance (Judge &

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Zapata, 2015). Furthermore, personality traits assessment also crucial for legal and social reasons as it shows little discrepancy as a function of ethnic or racial group (Roth, Bobko, & Buster, 2013). Therefore, personality assessments are generally considered as a valid, reliable, and legally sustainable approach for assessing applicants' capabilities to perform effectively at work.

Although personality assessment contributed to the effectiveness of selection decisions, however, it ignores that trait-related behaviors may differ across contexts and also within one context across situations and time (Pulakos, Mueller-Hanson, & Arad, 2019; Sosnowska et al., 2018). Instead of dismissing within-person fluctuations as measurement error, several scholars suggest that the lack of stability in behavioral manifestations is meaningful because it results from the interaction between personal characteristics and people's perceptions of the situation (Lievens et al., 2018). In the same vein, previous studies also show that local context across various situations may influence the view of fairness and acceptance of personnel selection process (Ahmad, 2018; Ahmad, Ab Hamid, & Azizan, 2018).

This paper will discuss the potential of using a learning factory to develop multiple simulations for assessment center activities in assessing personality in different situations. Learning factory is a simulation factory to prepare students to be ready for industry application, including for industry 4.0. The suggestion to utilize learning factory method is in line with the National Policy on Industry Revolution 4.0 (Industry 4WRD) in which to enhance productivity, job creation and high-skilled talent pool in the manufacturing sector and its related services (Ministry of International Trade and Industry, 2018). However, in the context of Upskilling Existing and Producing Future Talents Industry 4.0, the policy focuses on knowledge and skills only. From a human resource management perspective, on top of these two elements, the focus should also be given on attitude and personality assessment. Therefore, the study on dynamic personality using learning factory may be useful to provide an empirical result to support that within-person fluctuations in personality states relate to a variety of work outcomes including job performance, especially for industry 4.0.

## 2. Literature Review

### 2.1. Background of Personnel Selection

Personnel selection typically focuses on evaluating candidates' performance related to knowledge, skills, and abilities (KSA) including their personality (Ahmad, 2018; Lievens

et al., 2018; Sosnowska et al., 2018). To reach their goal, personnel selectors use prespecified procedures to assess whether the candidates have the required KSA to perform the job effectively. This goal creates an essential difference in personality research. In personality research, the focus of interest is on personality itself, typically on how and why personality is structured, developed, and manifested throughout life. Furthermore, personality research has also examined situations outside the job context in which, such as how employee making friends in new environments or how they resolve conflicts (Sosnowska et al., 2018). In this context, it shows that there is lacking integration between research on personnel selection and personality.

## 2.2. Overview of Big Five Personality Assessment

Big five personality or big five model factor is a model that has been developed to determine key human personality traits. According to Stidham, Summers, and Shuffler (2018), the Five-Factor Model (FFM) measures personality using five traits as represented by the OCEAN acronym: Openness, Conscientiousness, Extraversion, Agreeability, and Neuroticism. Openness relates to intellect, imagination, and independent-minded thinking. Being conscientiousness reflects orderly, responsible, and dependable people. Extraversion is typically characterized as being someone talkative, assertive, and energetic. Agreeableness is characterized as being good-natured, cooperative, and trustful. Finally, high levels of neuroticism show anxiety, being unhappy, and having negative emotions (Stidham et al., 2018). The personality Five-Factor Model (FFM) is the most prominent measure for the personality study as it has been validated for various populations, and both self-reports and peer evaluations.

## 2.3. The Need to Improve Personality Assessment

Several scholars argued that there are several reasons why the current personality assessment during personnel selection need to be improved.

The first reason is related to distortion in self-report personality inventories. Most of the previous studies found that self-reports of personality are vulnerable to intentional response distortion (Sackett, Lievens, Van Iddekinge, & Kuncel, 2017). Such distortion has been shown to result in higher scores on job-relevant traits, lower standard deviations of scores, and higher inter-trait correlations. More important, fakers among candidates tend to rise to the tops of the score distributions, making likely better and honest candidates less likely to be selected (Sosnowska et al., 2018). Therefore,

alternatives to traditional generalized self-report personality inventories that are less prone to faking good have been required.

The second reason is the need to incorporate work situations into personality assessment. Scholars have argued that incorporating work situations directly into personality assessment can improve the ability to hire the best applicants over-dependence on generalized personality self-report measures (Lievens, 2017b; Lievens et al., 2018). They further argued that contextualized personality inventories that add situational keywords and specify to candidates might improve prediction on their performance.

The last reason is related to candidates' perception toward selection procedures. Previous studies have found that how candidates view selection procedures affects their test motivation/test performance and may influence the validity of the selection procedure (Ahmad, 2018; Ahmad et al., 2018). Moreover, candidates use selection procedures as signals to make inferences about employer culture (Ahmad, 2018). In the same vein, meta-analysis research by Hausknecht, Day, and Thomas (2004) revealed that self-report personality inventories received an average favorability rating and work samples received among the highest ratings. Common reasons put forward by candidates for this relatively low rating include perceived low job-relatedness, rather impersonal nature compared to employment interviews, and lack of opportunity to demonstrate competence compared to work samples. Given lower favorability ratings of personality inventories, therefore, alternatives method is needed, which might be more favorably perceived by candidates.

## 2.4. Dynamic Personality Assessment

The perspective of dynamic personality focuses on the influence of situational and contextual factors on behavior. According to Sherman, Rauthmann, Brown, Serfass, and Jones (2015), the view of dynamic perspective holds the belief that traits are situation-bound, with psychologically active characteristics of situations triggering trait-relevant behavior. As opposed to the traditional trait method, the dynamic perspective recognizes that people respond in different ways to situational activates. It is not only in their behavior, feeling, and thinking, but also in other aspects like the variability of their behavior across situations in a different time. By taking into account the situation-specificity of personality displays, the dynamic perspective on personality has the potential to further improve the predictive validities of personality measures in personnel assessment (Sosnowska et al., 2018).



## 2.5. Assessing Dynamics Personality using Assessment Center Exercises

Assessment center (AC) is a technique used in human resource management which involves multiple assessment processes, where a group of participants takes part in various exercises and is observed by a team of trained assessors who evaluate each participant against a number of predetermined, job-related behaviors (Ahmad, 2018; Martin Kleinmann & Ingold, 2019; Thornton III, Rupp, Gibbons, & Vanhove, 2019). These job-related behaviors are selected through job analysis and are deemed essential for successful performance in the target job. The effectiveness of a participant concerning these dimensions is evaluated in simulation exercises designed to replicate on-the-job situations. Although simulation exercises may differ considerably across AC, the most commonly used are case analyses, in-baskets, oral presentations, role-plays, and group discussions. After finishing all the exercises, the judgments are pooled in a discussion-based meeting among assessors, by a statistical integration process, or a combination of both approaches (Ahmad, 2018; Martin Kleinmann & Ingold, 2019; Thornton III et al., 2019).

Researchers have suggested that AC can be used for various purposes in organizational settings. For example, Thornton, Rupp, and Hoffman (2014) provided examples of the use of AC in recruitment, selection, placement, training and development, performance appraisal, organizational development, human resource planning, promotion and transfer, and redundancies. Generally, these AC tasks are also referred to as behavioral stimulations, which means that they resemble actual job-related tasks that should enable making predictions about applicants' proficiency in these job-related areas (Kleinmann et al., 2011; Sosnowska et al., 2018).

In the context of this paper, multiple assessments in AC exercises are proposed to be used in learning factory activities to represent different situations to measure candidates' personality-situation specific. Concerning dynamic personality-situation specific assessment, AC methodology can be used to measure dynamic personality in two different ways, as below:

### 2.5.1. Assessing Within-Person Stability and Change Using Assessment Centre

Traditionally, discrepancies in candidates' scores on the same dimensions across exercises were considered measurement error and were believed to weaken convergent

and discriminant validity (Jackson, Ahmad, Grace, & Yoon, 2011). However, more recent findings suggest that inconsistencies score recognized that people's behavioral inconsistency across assessment exercises might provide meaningful information about candidates (Sosnowska et al., 2018). Scholars suggest that this situation might indicate how applicants adjust their behavior to differing situational requirements (Gibbons & Rupp, 2009; Sosnowska et al., 2018). They pointed out that consistency should not be expected from candidates' scores and suggested that researchers and practitioners should instead focus on incorporating different patterns of behavioral to get a better grip on the dynamics of how applicants' traits interact with the situations in the AC exercises and affect their performance. In this context, Lievens (2017a) suggested that methodologies that strongly resemble the multiple assessments in the AC procedure have already been applied in personality research on within-person stability and change. He further suggests that it should be possible to develop an AC to measure the full range of applicants' work-related variability.

### **2.5.2. Assessing Person-Situation Interactions Using Assessment Centre**

As AC involves multiple assessments, it may also provide another way to study personality dynamics. The aim is then to focus on the overall pattern of behavioral responses in the AC exercises and on "if... then..."-contingencies, indicating under which situations an individual may engage or disengages in specific behaviors (Sosnowska et al., 2018). In the same veins, Gibbons and Rupp (2009) argued that connecting applicants' behavior with appropriate contexts allows examining their proficiency signs, which represent individual differences in successful performance-situation contingencies (e.g., effective communication of someone in one-on-one but not in group settings). Sosnowska et al. (2018) also suggested that to be able to study person-situation contingencies; it is necessary not only to measure candidates' behavior but also to measure the situational characteristics systematically. In this context, it is also important for the assessors to include ratings of situational characteristics alongside ratings of the candidate.

## **2.6. Learning Factory Assessment Center as a Context or Situation**

### **2.6.1. Overview of the Learning Factory Assessment Centre**

To reduce the shortage of talent to support Industry 4.0, higher learning institutions play an essential role in providing the required knowledge and skills (Razali Hassan &

Asnidatul Adilah Ismail, 2018). One of the approaches is by using the learning factory. Several universities in Malaysia has introduced a learning factory in their teaching and learning, including Universiti Malaysia Pahang (UMP). Faculty of Industrial Management (FIM), UMP, for instance, develop their learning factory to support student's competency development, especially in the area related to Industry 4.0. Based on real industry environment. Learning factory is a simulation of actual work with the aim is to transfer theoretical knowledge into a practical context and thus contribute to bridging the theory-practice gap. This learning style can be a useful approach when real-life training is costly and of some risk for companies (Tvenge & Ogorodnyk, 2018). Workplace-related scenarios can be mapped through practical learning. The implementation of a learning factory is in line with the Malaysian policy on Industry 4.0 (Industry4WRD) targeting the high-skilled talent pool in the manufacturing sector (Ministry of International Trade and Industry, 2018).

Therefore, learning factory can be utilized to study dynamic personality by developing various activities and multiple assessments related to Industry 4.0. to assess candidates KSA and in different situation and context.

### **2.6.2. Learning Factory Assessment Centre Activity Using Design Thinking**

In designing learning factory activities related to Industry 4.0, the model of design thinking can be used. According to Lee (2019), design thinking is a way of identifying human needs and creating solutions using design tools and thinking. This method will utilize personal creativity, social interaction, and commercialization aspect. Design thinking has brought great attention to the business press and has been announced as a new problem-solving approach that is well adapted to the many business challenges in fostering innovation and growth (Liedtka, 2015).

Wrigley and Straker (2018) explained that there are several phases in developing design thinking activities. Liedtka, Salzman, and Azer (2017) specified the phases involved in the initial idea exploratory, which focuses on idea generation by collecting data to identify the issue and specific requirements. It is then followed by prototyping and testing. The final activity will involve a presentation and communication of the design.

### **Activity 1: Idea Generation.**

This phase involves producing various ideas that are possible to solve the problems that have been identified. Creating the broadest possible range of ideas is essential at this level. This activity will require the researchers to use their imagination and look beyond available solutions, which will lead to more innovative suggestions. This phase may include various innovation methods, including prototypes, brainstorming, mind mapping, and sketching.

### **Activity 2: Prototyping**

Prototyping is essential as it provides new views and possible solution to the problems. It could range from post-it notes to a tangible product. However, the more realistic prototype to the requirement of the actual user, the better the feedback will be received for improvement. This activity will allow the team members to identify faults in their design activity and improve the design of their product.

### **Activity 3: Presentation and Communication**

The primary purpose of presentation and communication is to get feedback related to the idea and prototypes created in the previous stages. It will allow design improvement based on users' experience, and more importantly, indicate whether the defined problems are addressed correctly.

The above design thinking activities will require candidates to face various situations and context (e.g., time, requirements, end-users). Therefore, from these activities, it may give valuable information on which traits are suitable for each activity, and how candidates change their personality traits to fit the situations. Consequently, a conceptual framework to assess the interaction between dynamic personality and learning factory AC using a learning factory is proposed in Figure 1.

### 2.6.3. Design Thinking Activities Assessment Using Behaviorally Anchored Rating Scale (BARS)

To measure the candidates’ performance during design thinking activities, the Behaviorally Anchored Rating Scale (BARS) is proposed to be used. BARS was initially developed to minimize the effect of construct-irrelevant variance in measuring job performance. Scholars explained that currently BARS has also been used for various purposes, including job interview performance, motivation, classroom teamwork and teaching evaluation practices (Lubbe & Nitsche, 2019; Martin-Raugh, Tannenbaum, Tocci, & Reese, 2016; Toumbeva, Ratwani, Diedrich, Flanagan, & Uhl, 2018).

Critical incidents technique which involves subject matter experts (SME) can be used to develop BARS. This technique will be useful to identify required job behavior in a given in the work situations (Aguinis & Solarino, 2019; Kell et al., 2017). Related to this, it is suggested that during the development of BARS, SME should be involved to identify criteria and develop performance standards that will be used to evaluate candidates during design thinking activities. As scholars reported that there is increasing attention to the importance of soft skills for 21st-century work environment (Hirsch, 2017); therefore, this paper suggests the following dimensions be assessed during design thinking activities. The dimensions are teamwork, communication, persuasion and negotiation, and leadership.

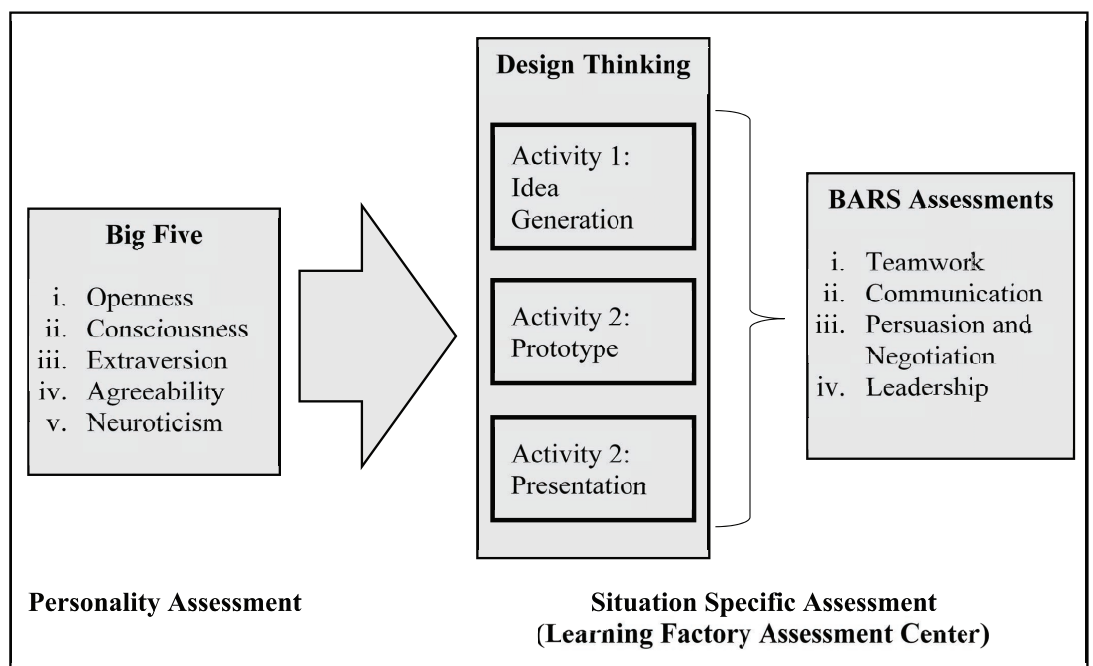


Figure 1: Conceptual Framework for Personality-Situation Specific Assessment (Source: Authors’ work).

### **Dimension 1: Teamwork**

Kalisch and Lee (2009) defined the team as a group of people who support each other to attain a goal. As today's business environment is influenced by innovation and international competition. Therefore, this situation requires a good team culture in which they are not only responsible for performing their functions, but also to contribute to broader organizational success. The excellent teamwork environment is essential as the good teams are likely will achieve an organization's objectives than individuals (Jordan & Ashkanasy, 2006). They are also more likely to generate more innovative ideas, which are essential for organizational success (Taylor & Greve, 2006).

### **Dimension 2: Communication**

Lee, Thomas, Zachariah, and Cooper (2019) explained that the form of communication could be in term of written communication, verbal communication, and non-verbal communication. In the 21<sup>st</sup> century workplace, communication is consistently identified as a critically required skill (Carnevale, Smith, & Strohl, 2013). More specifically, the empirical study found that listening and interpreting information is the most critical element in effective communication. Kell et al. (2017) explained that effective communication is not only by expressing ideas effectively and accurately but also as listening to the ideas and information provided by others. This skill is essential for teamwork because effective communication is needed to create strong group bonds.

### **Dimension 3: Persuasion and Negotiation**

Zohar (2015) defined that negotiation is a way of settling conflicts between two or more parties. During this process, both sides need to deal with suggestions and counter-proposals in order to achieve agreement. Negotiation and persuasion skills have often been identified as crucial to work success (Finegold & Notabartolo, 2010). There are often arise issues in different perspectives, needs, and opinions when team member interacts with others. Hence, negotiation and convincing skills are needed to ease these differences (Kell et al., 2017).

## Dimension 4: Leadership

Leadership is widely used to facilitate change and is typically combined with authority power (Redmond & Dolan, 2016). Leadership dimension is also regularly evaluated during selection interviews. Evaluation of leadership skill also includes motivating, coaching, meeting objectives, task delegation, and problem-solving (Huffcutt, Conway, Roth, & Stone, 2001). Kell et al. (2017) commented that in recruiting future leaders, it is critical to evaluate leadership skill.

### 2.7. Situation Strength and Proposition Development

As design thinking activities in learning factory, AC will involve various situation, and it is expected that situation strength will influence how dynamic personality of the candidates. Judge and Zapata (2015) suggested that situation strength represents the degree to which situational restrictions are present in the work setting, including rules, structures, and expected behavior. In contrast, weak situations contain environments in which social roles are unstructured, organizational structures are decentralized, and the job provides considerable discretion with limited external control over one's behaviors. Meanwhile, central to weak situations is that the situation where context is vaguely structured. Concerning the conceptual framework as Figure 1, this paper suggests the following proposition:

Proposition 1: The relationship between conscientiousness, emotional stability, extraversion, agreeableness, and openness with job performance will be stronger in activities in which situation strength is required (i.e., the output of the work is delivered, and the process of how the work is done is clear).

Proposition 2: The relationship between conscientiousness and job performance relationship is stronger for activities that require independence and strong attention-to-detail requirements.

Proposition 3: The relationship between emotional stability and job performance is stronger for activities require strong social skills.

Proposition 4: The relationship between extraversion and job performance is stronger for activities that require strong social skills and competitive requirement.

Proposition 5: The relationship between agreeableness and job performance is stronger for activities that require strong social skills and weaker in activities require a competitive requirement.

Proposition 6: The relationship between openness and job performance is stronger for activities require independence and innovative requirements.

### 3. Methodology

Given the fact that study related to dynamic personality-situation specific is still limited, it is suggested that sequential exploratory mixed methods approach should be used. The study should start with a qualitative method and then followed with a quantitative method. According to Creswell (2008), this research approach is suitable to discover a phenomenon as it begins with the qualitative study and then followed with a quantitative approach. Scholars also explain that exploration is needed because guiding theories or framework are not fully established, or due to instruments, variables, or measures are unknown and not available.

#### 3.1. Qualitative Research Design

The focus of the qualitative stage is to identify core competencies (knowledge, skills, attitude) required for job success for Industry 4.0. The initial stage of the study should start with a case study method. The case study will involve a series of in-depth data collection from various sources using different techniques including interviews and focus group discussions with subject matter experts, and document/website reviews (Creswell & Poth, 2017).

In developing interview protocol to explore the required core competencies for Industry 4.0, research by Erol, Jäger, Hold, Ott, and Sihn (2016) and Nørgaard and Guerra (2018) can be used as guidance. These scholars suggested four groups of competencies, namely personal competencies, social competencies, action competencies, and domain competencies.

Based on feedback from the initial interviews, the research team can develop learning factory AC activities, assessment methods and performance standards related to Industry 4.0 based on the design thinking model (Elsbach & Stigliani, 2018; Garrette, Phelps, & Sibony, 2018). As mentioned previously, design thinking model is suitable for this study as it involves idea generation, creativity, problem-solving, prototyping, testing, and presentation. Therefore, it will allow various activities to be designed which involve different contexts, situations and involve various interactions (between individuals, within groups, between groups).



These multiple assessment activities should be later presented to the subject matter experts from industries. The purpose of this process is to verify the assessment activities, assessment methods, and performance measurement standards are suitable to measure related KSA in Industry 4.0 environment.

### **3.1.1. Respondent for Qualitative Research**

In-line with the case study approach, a purposeful sampling technique should be applied to select the research participants. Guided by its protocols, a series of face-to-face and focus group interview need to be carried out to the selected companies who involve or in the stage of adapting Industry 4.0. Interview with officer-in-charge for Industry 4.0 in the Ministry of International Trade and Industry (MITI) should also be conducted. This is to understand the fundamental and implementation of Industry 4WRD policy further.

### **3.1.2. Qualitative Data Analysis**

This qualitative data collection will generate two types of qualitative data (i.e., interviewer field notes, transcripts of interviews, focus group discussions, and document/website reviews). Subsequently, the qualitative data will be analyzed by using content analysis procedure following the analysis spiral suggested by Creswell and Poth (2017), which includes data managing; reading and memoing; describing, classifying, and interpreting; and finally representing and visualizing the data. The qualitative data analysis software Atlas.ti 8 will assist the process of data analysis.

## **3.2. Quantitative Research Design**

After the qualitative data analysis, the quantitative phase should be conducted. By using the assessment center approach, this quantitative study aims to get data related to personality-situation interaction (Lievens et al., 2018; Sosnowska et al., 2018). To perform this activity, it will involve two groups; the first group is candidates that will involve in learning factory assessment center activities using the design thinking method. The second group will be the assessors that will involve in observing and recording personality-situation interaction for each candidate in each activity.

### 3.2.1. Respondent for Quantitative Research

For the first group, a total of 30 candidates need to be recruited to perform multiple activities. The candidates will be divided into five groups consist of four candidates per group. This number is suitable enough to ensure interaction among candidates, and the assessors will be able to manage and observe the candidates during the activities. The candidates will perform three activities related to the design thinking model.

The second group is the assessors. For each activity, two assessors will be assigned for each group and will involve in observing and recording personality-situation interaction for each candidate.

### 3.2.2. Measurement Development

In the second stage of the study, three sets of measurements will be used. The first set of measurement is using existing Big Five personality test. The second and third set is a measurement that will be developed based on the results of the qualitative stage with support from the relevant previous studies. The second measurement focuses on dynamic personality – situation interaction, which will be answered by the candidates after each activity. The third set of measurement is an evaluation of dynamic personality – situation interaction by the assessors for each candidate in each activity.

In order to enhance the content validity and reliability, the instrument should be reviewed by a group of specialists in the area of industrial psychology, operations management, and Industry 4.0 and pre-test should be conducted. This process will include consultations and interviews with the respondents to examine the following aspects of the questions, (1) whether there are any questions that need to be included or excluded, (2) whether the content of the questionnaire is sufficient, (3) whether the right questions being asked, and (4) whether the questions are easy to understand. Also, a pilot test will be conducted in order to ensure the construct validity before the dissemination of the instrument in the real study. The feedback from the respondents from both pre-test and pilot test will be used to develop the better instrument by clarifying the wordings, and some measurement items might be added, discarded, or modified.

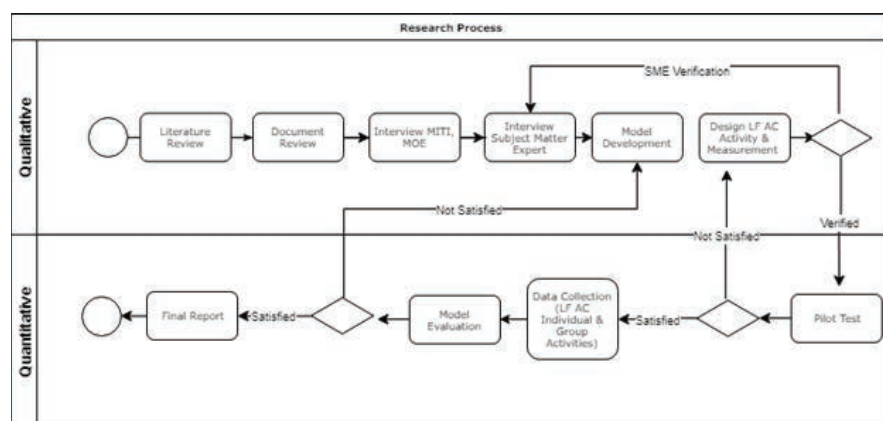
### 3.2.3. Quantitative Data Collection

The quantitative study will start with assessing respondents' personality using the Big Five Model (Tasselli, Kilduff, & Landis, 2018). This self-assessment is to record their personality without any situation interaction.

The next process will involve learning factory assessment centers activities. During these activities, respondents will be required to perform the activity and respond to the questions related to personality in a particular situation and activity. The purpose of this process is to gather data related to personality-situation interaction. In the same time, assessors will record data related to personality-situation interaction for each candidate.

### 3.2.4. Data Analysis

Three phases of quantitative data analysis need to be conducted in the second stage of the study. In the first phase, analysis of personality traits from self-respond Big Five personality test. In the second phase, the relationships among the variables can be examined by using the Structural Equation Modeling (SEM) approach with SmartPLS 3.2.8. Subsequently, based on the qualitative and quantitative findings; a finalize model of dynamic personality – situation interaction can be developed. The diagram in Figure 2 summarized suggested research flow for this study.



**Figure 2:** Suggestion of Research Flow for Personality-Situation Specific Assessment (Source: Authors' work).

## 4. Discussion

This conceptual paper aims to provide fundamental knowledge and research framework on personality dynamics in different situations, specifically in the context of Industry

4.0 by using the assessment center approach and learning factory. As research on personality dynamics in Industry 4.0 is still new, therefore it will provide huge room for exploration and contribute to new knowledge and theory expansion.

As this study focuses on exploring the fundamental issue of why people change their behavior in response to situations, it is hoped that findings from this research will contribute to the expansion of the related theory (e.g., trait activation theory) by exploring interaction during learning factory assessment center activities will influence personality and behavior.

## 5. Conclusion and Implications

As the focus of Industry 4WRD policy is more on knowledge and skills, this study will enhance the policy by incorporating attitude assessment from a personality perspective. Besides that, the findings serve as a platform to design talent assessment program in a more comprehensive way by not only focusing on knowledge and skills related to Industry 4.0 but also personality and behaviors of the candidates. This will help employers to improve their human resource activities (e.g., selection, development, promotion).

## Acknowledgement

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

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**Conference Paper**

# Corporate Social Responsibility and Financial Performance: The Case of ASEAN Telecommunications Companies

Fathyah Hashim<sup>1</sup>, Essia Ahmad Ries<sup>1</sup>, and Ng Teck Huai<sup>1,2</sup>

<sup>1</sup>Graduate School of Business, Universiti Sains Malaysia, 11800 USM, Penang, Malaysia

<sup>2</sup>Dorf Ketal Chemicals Pte. Ltd., Singapore

## Abstract

This paper examines the relationship between corporate social responsibility and financial performance in ASEAN (The Association of Southeast Asian Nations (ASEAN) is a regional intergovernmental organization comprising ten countries in Southeast Asia, which promotes intergovernmental cooperation and facilitates economic, political, security, military, educational, and sociocultural integration among its members and other countries in Asia) telecommunications companies. Corporate social responsibility (CSR) dimensions assessed in this study include community, corporate governance, employee relations, and the environment. Meanwhile, financial performance is obtained by analysing the organisation's return on assets (ROA). Although there have been past studies, investigate the relationship between CSR and Financial Performance (FP), cross-country, and through structural equation modeling, there is still a lack of data focusing in ASEAN telecommunications industry. Therefore, using 17 telecommunications companies in ASEAN countries based on their five years' annual reports (2013-2017), this study attempt to provide empirical evidence on the possible relationship between CSR and FP. However, this study found no significant relationship between the two. This study provides a more in-depth understanding theoretically and practically on corporate social responsibility on financial performance in ASEAN telecommunications industry.

**Keywords:** corporate social responsibility, financial performance, ASEAN

Corresponding Author:

Fathyah Hashim  
 fathashim@usm.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

CSR has fascinated an abundance of thought over the past decade. Recently, in this changing global economic environment, numerous companies have increasingly participated in relentless efforts to characterize and incorporate CSR into all traits of their businesses. In today's economic landscape, the corporate board of directors has received enormous demands from stakeholders to bestow resources to fulfill social responsibility. The concept is precisely bred by a handful of ethical conscious NGOs, the

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union of labours, activists and encouraged stakeholders such as employees, suppliers, customers, communities, governments, and even stockholders to deliver pressure to the corporation (Zu & Song, 2009; Grayson & Hodges, 2017; Quazi & Richardson, 2012). CSR is believed to be a phenomenon varied across different cultures; people from different part of the world may carry different perceptions and expectations towards CSR (Crane, Matten, & Spence, 2019). In western countries, CSR has been a central awareness when business activity is being carried out. However, in Asian countries, especially in the ASEAN region, CSR is in a relatively lower perception in both at corporate and state levels (Waworuntu, Wantah, & Rusmanto, 2014; Visser, & Tolhurst, 2017). As most of the past studies on CSR were conducted in the context of western economies, there is none as of known is discussing CSR in the post-colonial, small and emerging developing state (Jamali, Karam, Yin, & Soundararajan, 2017; Belal, 2011). Thus, there is a need to investigate CSR in developing countries, as it will serve as an invaluable insight into how the growing economies are reacting towards the rising demand for CSR in their business conduct.

The growth of CSR in ASEAN region is traceable through the entry of multinational corporation (MNC) into the area as it marks the beginning of liberation and globalisation where the stakeholders are demanding higher expectation towards business organisations (Giri, & Anjanappa, 2017). In this study, CSR was targeted to have more reachability to most of the corporate stakeholders in where telecommunications sector appeared to be involved in almost everybody in the targeted group as in the last 20 years; mobile phones have emerged from an expensive device to easily affordable and accessible. In addition, the ASEAN member countries government has launched initiatives to develop info-structure to harness economy advantage (Wang, 2016). To satisfy consumer needs in the region, internet calling has slowly replaced the traditional calls especially with the introduction of messenger services and drew many customers in the place. Some developing markets in ASEAN such as Indonesia and the Philippines particularly have directly moved into mobile technology territory and bypassed the fixed telephony line to improve market penetration with increasing consumer demand (Graham, 2018). Although there have been past studies, investigate the relationship between CSR and Financial Performance (FP), cross-country, and through structural equation modeling, there is still lack of data focusing in ASEAN telecommunications industry (Lee, Cin, & Lee, 2016; Hou, 2018). ASEAN telecommunications is one of the fastest-growing among other regions due to lower cost of ownership and government initiatives to connect everyone (Roca, 2018). As going into the era of digitalisation, the increasing number of subscribers could play an essential factor in CSR, and financial performance as more are expected to

be benefitted especially in developing country region such as ASEAN (Fuzi, Habidin, & Ong, 2018; Jensen, 2001). Therefore, this research serves as a study to close the gap in CSR impact towards FP to enhance the lack of literature on ASEAN telecommunications industry. In addition, this study serves as an attempt to help managers in the ASEAN telecommunications industry to fulfill their social responsibility part and concerned. It will help the manager to decide if there is any adverse effect on the financial performance when the company is engaged in CSR activity. Correspondingly, this study contributes to further development of theoretical knowledge in corporate social responsibility and financial performance. It is also striving to provide concrete contribution which can help to strengthen organisational performance.

## 2. Literature Review

This section offers a review of preceding literature that has been shown on relevant topics such as corporate social responsibility and financial performance. It is then trailed by an analysis of the essential theories to underpin the theoretical framework and research hypotheses which has been developed and tested accordingly.

### 2.1. Corporate Social Responsibility (CSR)

CSR is an equivocal concept that can be explained in several ways which offer differing views concerning the social role of the corporation (Clarkson, 1995). The dispute is often relative to stakeholder-shareholder theories where corporate should focus on increasing shareholders' wealth through corporate instruments (Wilcke, 2004; Jensen, 2001); or through fulfilling various stakeholders' requirement, it will generate greater business returns (Castelo & Lima, 2007; Freeman, 2010). Kinder, Lydenberg, of Domini, Inc (KLD) is an independent rating firm that appraises the benchmark the social responsibility of a firm and they had developed a reputable index called KLD index named after the firm and was widely used by CSR studies of other scholars. KLD index judges by measuring the CSR dimensions and a decisive factor through quantitative analysis on the mentioned criteria (Waddock & Graves, 1997). The KLD performance index is measured on a basis which is conducted using content analysis method to collect the data with relevant to CSR dimensions which aligns with this study including community, corporate governance, employee relations, and environmental sustainability. There were another four dimensions in KLD which is not suitable in the context of this study

and hence excluded namely human rights, diversity, product safety and controversial business issues (Lim, 2011).

### 2.1.1. Community

CSR in community effort is an ordinary course of activities and programs, strategies formulation, and process to develop community sustainability as a base when marketing the potential growth of locally intensive effort to promote economy return. The comprehensive attempt to community development is seen as a real way of corporate to build the social foundation in the civilian population. Community development may be explained as a progression of stimulating the unwelcomed and objectionable discrepancy of a scenario where the quality of community can be deteriorated with corporate growth without good CSR practices. It will enhance the sense of community cohesion where all levels of society and citizen are drawn (Haugh, 2012).

### 2.1.2. Corporate Governance

CSR is seen as necessary to the estrangement of ownership and control when principal-agent conflict is discussed according to Ingley (2008) which a handful of scholars has supported the same view (Mahoney & Thorne, 2005, Elkington, 2006, Kakabadse, 2007, Mackenzie, 2007, Jamali et al., 2008). These studies suggested that the board's agenda always included CSR priority and they intended to accomplish it with the support of the board majority.

Indeed, Jamali et al. (2008) observed that managers and directors have targets and purposes of fulfilling CSR agendas along with good driving factor from the core leader of the organisation. Hung (2001) mentioned the role of board management is contemplated as the decision-maker party which generates a wide range of contributed activity with the intention that brings good to the society and aligns with corporate social interest in CSR reputation. An extensive amount of evidence also exists supporting the positive correlation of corporate governance assignment to CSR (Johnson & Greening, 1999; McKendall et al., 1999; Webb, 2004; Dunn & Sainty, 2009; Huang, 2010).

### 2.1.3. Employee Relations

A myriad of the analysis revealed that the employee stakeholders could be affected by corporate schemes and tactics, it can be segregated that firm's corporate atmosphere

and working environment are linked to activities and tasks assigned especially with those aiming to achieve higher societal goals for greater CSR endeavour. Matten and Moon (2008) categorised the activities with theories proceeding through implicit and explicit CSR. Implicit CSR is implanted in the patterns, ethics, and governs of a society and its anticipations for firms as a whole. Hence, it is often manifested in a company's workplace atmosphere, including its conventional human resource systems and its performance management accordance. Therefore, there is a sizeable commonality between employees' work-related experiences and the concept of implicit CSR. Explicit CSR embroils prudence decisions made by firms that answer to precise collective interests to potential gains in business and social perspective. Included in decisions may involve programs for instance donations to the charitable organisation, community services, environmental preservation, volunteerism program, establishing safe work and good co-work space and practising good code of human resource conduct (Ellen, Webb, & Mohr, 2006). Explicit CSR is parallel with CSR literature that advocates corporates held the ultimate responsibility to society beyond legal compliance and monetary attentiveness should practice behaviours that benefit the employee as part of the stakeholders. (Carroll, 1979; Wartick & Cochran, 1985; Wood, 1991).

#### **2.1.4. Environment**

Environmental issues and sustainability are gaining in importance in corporate social responsibility commitment. In the last decade, the environmental threat is only under scrutiny by the public for high-risk sectors such as oil and gas industry, mining and automotive manufacturers, and today it was seen to be applied to every industry with increasing ecological awareness (Montiel, 2008). In 1987, World Commission on Environment and Development initially termed environment sustainability in CSR as advancement that come across "the needs of the present without compromising the ability of future generations to meet their own need" and firms should recognise how corporate sustainability is composed in this environment context and inject sustainable development as one of the core values throughout every level in the organisations in every business decision being made (Eweje, 2015).

#### **2.2. Financial Performance (FP)**

Financial performance is frequently illustrated as a positive representation of business and economic success of a corporate. It is a complex measurement which will be

affected by several financial activities as such economy landscape, audit and accounting standard and even marketing a new product or territory. As a whole, business performance is often measured through financial and non-financial perspective, and most scholars attempted to measure business performance through both standpoints (Prieto & Revilla, 2006). Financial performance when used to measure in an organisation is ambiguous as it will be easily impacted by other factors, hence quantitative approach as such return of assets (ROA), business revenues, profitability when compared to other similar industry, cost of goods sold and some several parameters being used by Prieto and Revilla (2006) along with customer and employee satisfaction, product quality and service reputability are assessed for non-financial perspective. Likewise, Solakoglu and Demir (2016) conducted their analysis by using ROA and Return of Equity (ROE) as parameters to determine the financial position of the firm is selected. In a nutshell, financial performance is widely used with ROA as an indicator, and hence, it was selected in this study to assess the business performance of the firm.

### **2.3. Relationship between Corporate Social Responsibility and Financial Performance**

The traditional perspective of CSR, when perceived to the corporate governance and management, implies it will incur additional expenses and affect financial performance. This conventional view justified “competitive disadvantage” and eventually leading to deteriorating profitability when corporate conducted CSR (Alexander & Buchholz, 1978). On the contrary, Freeman (1991) proposed stakeholder theory to oppose the CSR-FP relationship as he believed that the stakeholder group could dictate the company’s future and affect economic return if the corporation is deemed not socially responsible. Therefore, CSR is necessary for warranting the business sustainability and potentially directed to enhanced financial performance (Aver & Cadez, 2009). For instance, satisfied employees will dedicate more to corporate function and improving performance. Meanwhile, customers will make more purchase; satisfied suppliers will provide an extra discount in this context. The main findings of prior literature to support empirical relationship are summarised in Table 1.

### **2.4. ASEAN Telecommunications Industry**

ASEAN consumers in the telecommunications landscape have been shifted towards online content including shopping, entertainment, and pay services including the related

TABLE 1: CSR- FP Relationship in Prior Literature.

| CSR-FP Relationship              | Prior Literature Support  |
|----------------------------------|---|
| Positive                         | McWilliams and Seigel (2000); Simpson and Kohrer (2002); Mahoney and Roberts (2007); Burnett and Hansen (2008); Erhemjamts et al. (2013); Rodgers et al. (2013) |
| Negative                         | Subroto (2003); Baird et al. (2012); Peng and Yang (2014)   |
| No relationship                  | Alexander and Buchholz (1978); McWilliams and Siegel (2000); Sun et al. (2010); Soana (2011)  |
| <b>Source:</b> Authors' own work |   |

governmental transaction. Mobile penetration has grown as subscribers are commonly engaged in more than one mode of communication platform with the blooming accessibility and number of features offered which surpassed developed markets in term of growth annually (Rajan & Sen, 2002). Most of the government in ASEAN member countries have warranted telecom operators with exclusive operational licenses and implemented protectionist policies and given a chance to monopolise the market. Nonetheless, with increasing contest entering the scenario, their market position has been tremendously challenged. For instance, in Indonesia, Telkomsel, Indosat Ooredoo, and XL Axiata, which accounted for 80 percent of overall market stake immensely compete. This inter competition is altering the profitability of ASEAN telco, where conventional business approach aimed at assuring progression through aggressive price war is no longer working. In the more developed market such as Singapore, Singtel struggles with competition from over-the-top (OTT) offshore players such as Facebook and Whatsapp, which made an entry to split their market share. Whatsapp has integrated new e-finance business which trying to draw more consumers away from traditional telecom services (Hukill, 2018).

## 2.5. Control Variables

Adding a control variable limits the potential of drawing opposite conclusions regarding the effect of testing the main variables on dependent variables. Therefore, as mentioned by Brooks (2014), firm size as a control variable is important to be tested in the model because it may have a significant effect on the dependent variable. Thus, in this study, firm size and leverage are selected as control variables in this study (Ang, Cole, & Lin, 2000; Bhagat & Black, 2001).

Siregar and Bachtiar (2010) examined the impact of the size of firm, profitability, and leverage on the level of corporate social responsibility reporting. The study analysed annual reports by using content analysis method and multiple regressions to examine

the hypotheses. The finding predicted that the firm size had a positive effect on CSR. Moreover, the findings revealed that leverage and profitability did not have a significant influence on CSR reporting. In the same vein, Ferrier, Smith, and Grimm (1999) show the importance of firm size as a control variable to measure market share; in that, as they explained, the firm size has its effect on the market share. However, using a control variable in the analysis is important because it may have an effect on results (Guest, 2009). Leverage is the ability of the firm to maximise the profit through debt, and it is termed as the ratio of debt over equity in financial analysis. Companies with high leverage if unable to repay the interest, is on the verge of bankruptcy in this context and will be facing the potential of bought over and losing the business owner. Wieland and Flavel (2015) stated with debt financing, most companies can achieve higher ROE and tend to give a good impression to investors and it is seen as a double-edged sword if managed well. As borrowing leverage is eligible for tax advantages, shareholder wealth can be improved potentially.

### 3. Underlying Theories

There are several approaches used by prior researchers to correlate with CSR theories, and some are conflicting, and there was never one perfect criterion to fix every scenario (Chand, 2006). Hence, the two arguments identified to support CSR-FP relationship are Ethical Theory and Shareholder-Stakeholder Theory.

#### 3.1. Ethical Theory

Ethical theory suitable to be used in explaining enhanced business relationships and community ties, namely, and generally consisting of the common good approach, the normative stakeholder approach and the universal rights approach. A business is termed as good when there is no harmfulness and exerting an adverse effect on the community and instead, become a constructive backer towards the society (Garriga & Mele, 2004). Donaldson and Preston (1995) stated that the first normative stakeholder theory is based on two main ideas where firstly, a stakeholder is a person or group that sensibly has legitimate interest over business conducted by a corporate entity and secondly the importance carries intrinsic value. The second normative stakeholder approach expanded, which suggests that stakeholders, such as customers, employees, business suppliers, shareholders, local and foreign communities have an entitlement on the firm. The universal rights approach has been acknowledged globally as the



foundation to conduct CSR practices (Cassel, 2001). Human rights were prioritised as the leading company societal responsibility when considering business practices. Corporation, when doing business should work together in society, social attentive groups or community to contribute to a collective right approach.

### 3.2. Shareholder-Stakeholder Theory

There is always an argument when the stakeholder-shareholder theory is used to describe CSR. In shareholder theory, the only responsibility of managing board is to ensure the highest level of shareholder benefit is maintained, and wealth is created with corporate resources for profit maximisation (Wilcke, 2004). Garriga and Mele (2004) classified three main objectives to maximise share value within the legal and ethical custody of the country is operated. The maximisation of value which is also short term goal profit was identified as the first objective, followed by strategic economic advantage in the long run when conducting business if CSR is held with profit intention. Thirdly, cause-related marketing to protect shareholder benefit by contributing to society to make customers interested if labelled as a good corporate citizen.

Meanwhile, stakeholder theory conveying that CSR is meant for every party which will be affected by any solid business practices including the local community, employees, suppliers, governments are all equally important aside as compared to shareholder theory which put profit and wealth as a top priority (Castelo & Lima, 2007; Freeman, 2010).

### 3.3. Hypotheses Development

Based on the theoretical framework as developed above, there are two hypotheses developed for the direct effects and moderating effects, respectively. The predictions were built upon the combination of theory, as discussed in the previous section. Prior literature from Mahoney and Roberts (2007), Burnett and Hansen (2008), Erhemjamts et al. (2013) and Rodgers et al. (2013) supported the positive relationship between corporate social responsibility and financial performance. Hence, it can be summarised that corporate social responsibility is correlated positively with financial performance in the firm of ASEAN telcos as below:

**H1:** *Corporate social responsibility is positively influencing financial performance in ASEAN telecommunications industry.*

## 4. Research Methodology

This research was intended with an analytical approach to identify the direct effect between corporate social responsibility and financial performance within ASEAN telecommunications industry. This section discusses the research sampling and population method, data analysis approach and quantitative analysis which was used in this study. As this study will formulate a hypothesis to test the relationship between corporate social responsibility and business performance, the quantitative positivistic approach was chosen. In this study, secondary data research analysis method was selected as it facilitates the quantitative analysis and maintains the independence of the researcher’s perspective as only data provided in the annual report will be analysed and the info is widely available for verification for company management and investor which are the primary audience of this paper.

### 4.1. Population and Sampling Frame

In this study, the identified population would be all the public listed telecommunication companies on the equities market of stocks exchange in the ASEAN region as being presented in Table 2. In the context of ASEAN countries, Brunei, Vietnam, Cambodia Myanmar and Laos are not included in the study as they do not fulfill second criteria of having publicly listed telecommunications company in the sampling frame and hence was excluded from the study.

TABLE 2: Sample Size for ASEAN Telecommunications Industry.

| No.          | Country     | No. of Telco (N) | Observation (n) |
|--------------|-------------|------------------|-----------------|
| 1            | Indonesia   | 4                | 20              |
| 2            | Malaysia    | 4                | 20              |
| 3            | Thailand    | 4                | 20              |
| 4            | Singapore   | 3                | 15              |
| 5            | Philippines | 2                | 10              |
| <b>Total</b> |             | <b>17</b>        | <b>85</b>       |

Source: Authors’ own work

The sampling frame of telecommunications companies must fulfill the following criteria: first, the companies must be listed on the stock exchange markets in ASEAN region such as Bursa Malaysia, SGX (Singapore Exchange), SET (The Stock Exchange of Thailand), PSE (Philippines Stock Exchange), IDX (Indonesia Stock Exchange), HOSE (Ho Chi Minh) Stock Exchange and HNX (Hanoi Stock Exchange) from year 2013 to

2017. Secondly, the information available or report published must be published in the English language.

## 4.2. Measurement of Variables

On the other hand, content analysis is the most common technique used in previous studies to access corporate social responsibility disclosure (Amran et al., 2008), as the financial reports accompanied will explain how the expenditure of the firm will be used, and in some cases it is encouraged to disclose CSR and sustainability for better corporate image and branding. In this study, dependent variable which is financial performance was identified in this study by analysis Return of Assets (ROA) of the firm to understand the level of CSR involvement in corporate will actually affect the firm business return which has been positively proved by Mahoney and Roberts (2007), Burnett & Hansen (2008), Erhemjamts et al. (2013) and Rodgers et al. (2013), but firstly for telecommunications industry chosen for ASEAN region. Independent variable identified in this study is Corporate Social Responsibility (CSR) which four dimensions were being chosen in this study according to the KLD index which was proposed by Lim (2011). The other aspects in the KLD index are not suitable in the telecommunications context and hence was not selected in full. An index of “1” is indicating sentence characteristic presence and “0” indicating sentence characteristic absence will be constructed for each observation through secondary data analysis. Table 3 listed the sentence characteristics when the content analysis is being employed towards the annual report of companies. Firm size and leverage are two of the control variables being identified in this study, and the data are extracted through secondary data analysis from the financial report. Firm size is characterised by a number of employees in the firm and for less than 100,000 will be given as “1” and “0” for the larger firm; similarly, “1” will be given for firm with financial leverage ratio more than 10% and “0” vice versa in the data analysis.

## 4.3. Data Analysis

In this study, statistical analysis is done with the assistance of IBM SPSS® Statistics and Smart PLS software for data interpretation. IBM SPSS® Statistics was employed to conduct descriptive analysis to provide a summary of corporate social responsibility in four dimensions of CSR, which has been identified as an independent contributive variable in the KLD index. Frequency, mean, and standard deviations are summarised

TABLE 3: Corporate Social Responsibility Dimension.

| CSR Dimension  | Sentence Characteristics   |
|--|--|
| Environment  | Clean Energy/ Energy Saving  |
|  | Carbon emission reduction  |
|  | Wastewater re-use  |
|  | Management Systems   |
|  | Pollution Prevention/Control   |
|  | Recycling Program  |
| Corporate Governance   | Regulatory Compliance Systems  |
|  | Operational Transparency   |
|  | Respect for Shareholder Rights   |
|  | Implement Informational Transparency   |
| Employee Relations   | Social and Environment Performance Measure   |
|  | Employee Health and Safety   |
|  | Physical Health  |
|  | Mental Health  |
|  | Retention Programs   |
|  | Establishment of Safety Department/ Committee/ Policy  |
|  | Compliance to OSHA Act   |
|  | Receiving Health and Safety Award  |
|  | Employee Involvement in Decision Making  |
|  | Providing Healthcare for Employee  |
| Learning and development program/training employees through in-house/e-learning programs |  |
| Community  | Giving financial assistance to employees in educational institutions; continuing education courses |
|  | Support for School, Education  |
|  | Volunteer Programs   |
|  | Charitable giving to charitable organizations  |
|  | Industry associations sponsor community health moreover, green space preservation programs         |
|  | Sponsors public artists and conferences  |
| Public welfare   |  |

Source: Lim (2011)

respectively for each aspect in the community, corporate governance, employee relations and community. Hypothesis testing with the usage of Smart PLS was used to test the direct effect of CSR of financial performance and also the moderating influence of a number of subscribers in this context. Bootstrapping approach function was used in the software to conduct one-tailed t-test at 5% significance level to examine the path coefficients. There is one independent variable, corporate social responsibility with four

sub-dimension and it is expected to have a positive effect on the financial performance of ASEAN telecommunications company.

## 5. Findings

After the data has been acquired by content analysis of the annual financial report by ASEAN telcos, IBM® SPSS software was used to conduct descriptive statistics to summarise the variable to show the mean and standard deviation for analytics.

### 5.1. Descriptive Analysis

In Table 4, the independent variable is corporate social responsibility dimensions of environment, corporate governance, employee relations and community which had their minimum and maximum indicating a number of times sentence characteristics appeared during data collection. Meanwhile, controlled variable leverage is calculated as the ratio of total liabilities over shareholders' equity and had a minimum of 0.14 and maximum of 21.37 and a mean of 2.74 times among the 85 financial results, and firm size had a minimum of 1551 and maximum of 27000. The dependent variable in the study is a financial performance which characterised in Return of Assets (ROA), and the minimum is -9% which indicated a net loss and maximum of 47% and a mean of 10% among all the sample sets. Lastly, the moderating variable of number subscribers has a minimum of 1.49 million and a maximum of 318.3 million and a mean of 46.5 million subscribers.

TABLE 4: Descriptive Statistics (N=85).

|                       | Minimum | Maximum  | Mean    | Std. Deviation |
|-----------------------|---------|----------|---------|----------------|
| Environment           | 0.00    | 5.00     | 0.51    | 0.50           |
| Corporate Governance  | 0.00    | 4.00     | 1.88    | 1.17           |
| Employee Relations    | 0.00    | 5.00     | 2.45    | 1.23           |
| Community             | 0.00    | 6.00     | 3.47    | 1.35           |
| Leverage              | 0.14    | 21.37    | 2.74    | 3.04           |
| Firm Size             | 1551.00 | 27000.00 | 8997.40 | 8679.75        |
| ROA                   | -0.09   | 0.47     | 0.10    | 0.11           |
| Number of Subscribers | 1.49    | 318.30   | 46.50   | 62.61          |

Source: Authors' own work

## 5.2. Measurement Model Evaluation

The theoretical framework was constructed in Smart PLS with variable and structural links to test on the representativeness of the model of the construct in this study. PLS algorithm was applied with a maximum of 300 iterations through the path weighting scheme to verify the model's validity and reliability, as shown in Figure 1.

After the PLS model being applied, an R-squared ( $R^2$ ) value is attained to identify the variation of the model-dependent variable which can be explained by independent variable effect and according to Cohen (1992),  $R^2$  of more than 0.26 is widely accepted as substantial, while less than 0.02 is weak and in between can be term as moderate effect.

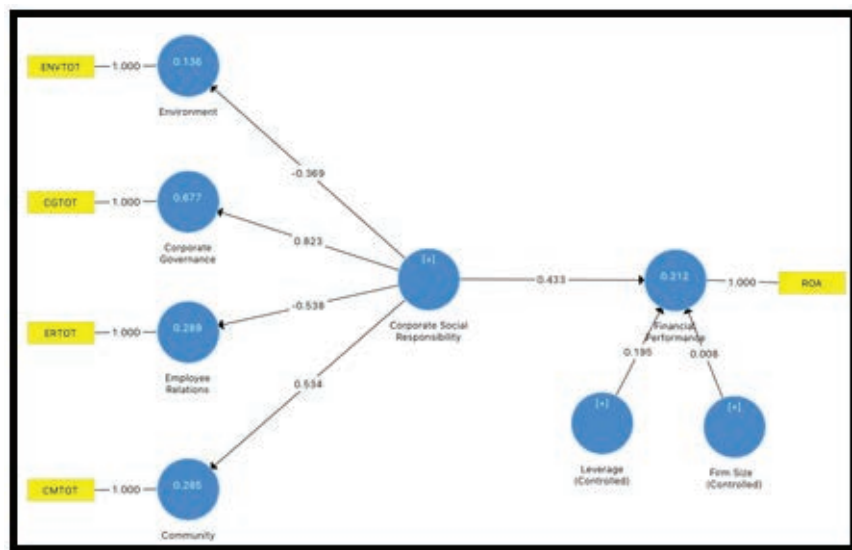


Figure 1: Direct Effect (PLS Algorithm Applied) (Source: Authors' own work).

From Figure 1, Corporate Social Responsibility and Financial Performance have a favorable path coefficient of 0.54, indicating the independent variable identified affects the dependent variable. Also,  $R^2$  value is detected to be 0.225, indicating 22.5% of the variation in financial performance can be explained by corporate social responsibility in this model, and the model fitness is substantial.

In one-tailed T-test for hypothesis testing, the T-value must be higher than 1.645 to be statistically significant at 0.05 level of significance. The results after bootstrapping applied are tabulated in Table 5 below.

Hypothesis H1 predicts that corporate social responsibility is positively influencing financial performance in ASEAN telecommunications industry. The analysis result showed that H1 is not supported, although it is positively related. Hence, it is said

TABLE 5: Path Coefficient and Hypothesis Testing (Direct Effect).

| Hypothesis | Path  | Path Coefficient | T-Values (1-tailed) | Results                    |
|------------|---|------------------|---------------------|----------------------------|
| H1         | Corporate Social Responsibility → Financial Performance | 0.433            | 1.106               | <b>H1 is not supported</b> |

**Source:** Authors' own work

that economic performance in ASEAN telecommunications industry is not positively influenced by corporate social responsibility.

## 6. Discussion of Findings

This objective of this research is to identify if there is a positive relationship in between corporate social responsibility and financial performance in ASEAN telecommunications industry to fill the gap of the study in this area of research. The hypothesis constructed earlier was tested with bootstrapping, and one-tailed T-test has rejected the relationship.

H<sub>1</sub>, which predicted corporate social responsibility is positively influencing financial performance in ASEAN telecommunications industry. However, the hypothesis was not supported through bootstrapping analysis, which indicates that the CSR is not affecting the financial performance of the company. In ethical theory as suggested by Garriga and Mele (2004), the companies which conducted CSR can be through common good, normative stakeholder and universal rights approach.

In ASEAN telecommunications industry, it was found that most of the CSR activities are done in community dimension compared to the other three dimensions, namely environment, employee relations, and corporate governance. This observation supported the normative stakeholder approach of ethical theory, where the telecommunications company actually behave ethically in business conducts to ensure the community, all stakeholders include customers, suppliers, employees are having intrinsic values and companies have the responsibility to preserve their human rights in giving back to the community.

However, in shareholder-stakeholder theories, the only responsibility of the managing director is to ensure the shareholder wealth is well taken care of, with maximum profitability through corporate resources. In this way, the CSR activities being conducted in the company is seen as a tool to improve the image of the corporate and with the intention to boost benefits, while not sincerely done as what mentioned as a common good approach in ethical theory. Also, it might be also due to the legal regulations that certain percentage of earnings or corporate should comply CSR activities to get tax

rebates which made the companies conduct CSR despite the management knowing that CSR will impact the profitability of the company. In order to protect shareholder benefit, they are forced to become a good corporate citizen.

The outcome of the hypothesis testing is consistent with the view of several scholars in a similar area of study. McWilliams and Siegel (2001) have found a neutral relationship in the CSR and FP relationship by regressing the effect of CSR and financial performance through their studies. Sun et al. (2010) used corporate governance and environmental dimensions to assess the relationship with earnings and also find no statistical association in the measurement and concluded the neutral relationship. Soana (2011) measured the ethical rating of the American banking sector to examine the proxies of CSR that correlate the corporate financial performance and also supported with no significant link.

However, according to Friedman (2010), if the firm does not conduct CSR activities because of profit concern, then it is said to be socially irresponsible. There are still many managers willing to conduct CSR base on ethical theory, even if opposed by shareholder theory. Mackey et al. (2007) stated, shareholder, can comply with ethical responsibility and conduct CSR if they can find a way that reduces this expense and not impacting firm financial performance. Hence, this study is giving an insight of the management of ASEAN telco that despite the negative impact of CSR on financial performance, it can be managed if CSR cost is optimized before they decide whether to conduct the activity at their social responsibility.

## 7. Conclusion

The influence of CSR on financial performance has always been a top concern of the managers, and this study will help when they are deciding to conduct CSR. Since there is no empirical relationship that defines this relationship well, this study adds to the existing literature in the telecommunications industry, as it seems that the magnitude of CSR is larger among other sectors. Upon all, this will help to characterise the relationship in developing nations, especially in the ASEAN region.

This study will help the government to determine whether the companies are willing to allocate their costs toward CSR. Moreover, this study emphasizes the level of activities through CSR in ASEAN companies. Thus, this study helps the government in ASEAN to focus on the level of social activities through CSR as an important matter. This study will be useful to the companies that will consider and identify the corporate governance



characteristics that will enhance the level of CSR. Thus, the result of the study has some implications on the government, public listed companies, and the regulatory bodies.

As this study was done through content analysis which gives flexibility for a researcher, it will be limited if there are non-disclosure CSR items in a financial report published and affects the impression management when evaluating the corporate social responsibility dimension. As there is no empirical relationship exactly decided thus far, CSR and financial performance is the case on a case basis, and it requires a significant amount of research that consistently found similar relationship to be more accurate. Perhaps a more comprehensive analysis could demonstrate how different governance characteristics interact in analysing the level of CSR in the ASEAN context.

This study serves as the first exposure to corporate social responsibility and financial performance studies in the ASEAN region, which can be done for more industries in the region. Future study can consider investigating other variables such as level of technology employed, number of devices held by subscribers.

In conclusion, this study found that there is no relationship between corporate social responsibility and financial performance in ASEAN telecommunications industry. Managers of the telecommunications companies of ASEAN or other industry can take note of this relationship and discuss the ways to conduct CSR at ethical responsibility or at optimization to ensure that shareholders benefit also well protected. This study extended the CSR field in the developing nation region and added to the limited studies, especially in the telecommunications industry and ASEAN region, which can be further explored in another context.

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## Conference Paper

# How Cultural Divergence Influences Expatriate's Performance in Malaysia

Umme Salma Sultana<sup>1,3</sup>, Tarnima Warda Andalib<sup>2</sup>, and Mohd Ridzuan Darun<sup>3</sup>

<sup>1</sup>Faculty of Business Management and Professional Studies, Management and Science University, 40100, Shah Alam, Selangor, Malaysia

<sup>2</sup>School of Management, Universiti Sains Malaysia, Georgetown, 11800, Pulau Pinang, Malaysia

<sup>3</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

Malaysia is one of the countries which welcome expatriates from all over the world to fill the need for skilled employees. This paper provides an overview of how cultural divergence influence expatriates performance in Malaysia. The main purpose of this study is to identify the important issues which directly or indirectly, positively or negatively influence expatriate's performance in day to day work. This study reviewed 55 papers related to cultural divergence, employee performance, cultural intelligence, and human resource management practices in Malaysia. The finding highlights that expatriates experience cultural clashes between foreign and local values, which pose direct influences on expatriates' performance. This study contributes to the body of knowledge in the cross-cultural management field as well as practical implications to expatriating firms. Finally, this research is beneficial and informative, especially for Malaysian researchers and managers in International Human Resource Management (IHRM) field.

**Keywords:** cultural divergence, expatriates in Malaysia, job performance, human resource management.

Corresponding Author:

Umme Salma Sultana  
umme\_salma@msu.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Culture can be referred to as a collection of attitudes and beliefs that affects individual behaviors and views. In an organization, the employees' work culture influence their job performance and working styles, especially for expatriates. Previous researchers believed that it is vital for a leader in a company to understand the importance of culture in his organization (Ramlan, Abashah, Samah, Rashid, & Radzi, 2018). Unlike the legal environment and political views, cultural borders cannot be easily removed. This is because, just like identity, culture is an essential part of an individual which is learned and assimilated into oneself through the environment. When people from different cultures are working together, there might be some complications due to the

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differences in behaviors, values, and ethics. Therefore, a strong control of managerial power is important in ensuring that employees can work together harmoniously despite their cultural differences. To become successful in today's challenging and competitive environment, an organizational manager who can see beyond surface-level cultural differences is of the necessity (Jyoti & Kour, 2015). Inability to overcome the cultural borders may result in poor business performance, ineffective communication among employees, and low job involvement.

In the obtained literature, the authors have defined an 'expatriate' as an individual who is assigned to work and live in a foreign country (Tahir & Ismail, 2007). The expatriate contributes a significant part in "maintaining the organizational structure and philosophy of multinational corporations (MNCs) while following the rules and regulations of work within the host country" (Ghemawat & Reiche, 2011). In the private sector, the expatriate managers are mostly positioned in MNCs while in the public sector, they are primarily positioned in diplomatic posts.

## 1.1. Background of the study

For multinational firms, expatriates play important roles that help to expand their operations and connections. Due to this significant contribution of expatriates, the number of expatriates has increased dramatically over the years (Harvey & Moeller, 2009). In order to ensure the success of this program, the leader of an organization must oversee the performance of their expatriate employees. Previously, numerous studies on expatriates have been conducted in many countries, including Nigeria, Spain, and Bangladesh. Due to the limited literature available on Malaysians context, this research intends to focus on expatriates' issues in Malaysia.

## 1.2. Research Problem

Previous studies have demonstrated that expatriates often face difficulties in adapting to a new place with a vastly different culture from their native countries. These adaptations in terms of lifestyle changes are required to ensure that they can perform their best as an employee in a foreign organization (Ng, Wang, & Chan, 2017; Ward, Bochner, & Furnham, 2005; Ward & Rana-Deuba, 2000; Warren, 2017). There are a few core factors or challenges that expatriates face from time to time everywhere in the world. In Malaysia, expatriates also do face and feel certain factors, which cannot be ignored



and must be carefully observed and discussed thoroughly. This circumstance instigates some apparent questions and searches throughout the study.

### 1.3. Research Questions

This review paper seeks to address the following questions:

1. What are challenges faced by the expatriates regarding the differences in culture?
2. How cultural divergence influences expatriate's performance in Malaysia?
3. How the expatriates adapt to cross-cultural differences in the country?

Despite numerous researches conducted on this topic, there is limited reliable information available at the moment according to the Malaysian context. Hence, the results of this study are of the essence to contribute to the existing knowledge on the topic of expatriate's management in Malaysia. Additionally, it is aimed to create awareness regarding cross-cultural adjustments among employees according to the Malaysian context.

### 1.4. Research Objectives

In general, the scope of this review is to investigate the extent of cultural divergence in affecting the expatriates' performances in Malaysia. The following are the specific objectives:

1. To assess the challenges that are experienced by the expatriates.
2. To determine core components that influence the expatriates' performances.
3. To determine the expatriates' adjustment factors in Malaysia.
4. To study how expatriates' performances can be enhanced by cross-cultural training and adjustment programs.
5. To establish the effects of culture, adjustment patterns, and security on expatriates' success.
6. To examine the expatriates' satisfaction regarding the level of support from organizations and how this affects their commitment to their assignments.

This research paper is divided into six sections. Following the introductory section, Section 2 presents an in-depth review of papers related to cultural divergence, employee performance, cultural intelligence, and human resource management practices in Malaysia. The methodology of this research is explained in Section 3. Next, the findings of this research are presented in Section 4 and are discussed in details in Section 5. Finally, the last section provides the conclusions and implications of the study.

## 2. Literature Review

### 2.1. Culture

In general, previous researchers have described culture as a shared collection of personality traits, views, and beliefs in a society (Deari, Kimmel, & Lopez, 2008). In their study, Wang et al. (2009) have reported that culture is a form of value “are manifested in practices, behaviors, and various artifacts shared by members of an organization or a nation.” In a society, culture helps to shape the behavior and characteristics of the members (Ramlan et al., 2018; Shafiq & Qureshi, 2014; Zaman, Qureshi, & Bhatti, 2011). From the corporatist perspective, the differences in cultural background and values influence one’s working style, such as communication skills, time management, body language, and problem solving (Ramlan et al., 2018). Furthermore, culture is vital because it also influences one’s job performance and satisfaction (Ramlan et al., 2018; Shafiq & Qureshi, 2014; Zaman, Qureshi, & Bhatti, 2011). Hence, it is imperative for the management to show initiatives in understanding the employees’ cultural differences as this will result in better management style, facilitating communication, developing effective reward systems, and improving the performance of the company as a whole (Ramlan et al., 2018).

### 2.2. Expatriation in Malaysia

Expatriation is not an uncommon practice in Malaysia. For the past decade, the country has experienced three distinctive phases of incoming expatriates. Initially, the earliest group of expatriates that came to Malaysia was the Britons who served in the private sectors, such as ICI, Harrison and Crosfield, Shell, Guthries, British Petroleum, and Dunlop. In the government sector, they are primarily playing the roles of technical specialists, diplomats, advisors, and academics (Rostamzadeh, Anantharaman, & Tong,

2012; Shephard, 1996). The second wave was represented by expatriates from the United States of America and other European countries who were placed in global organizations. Several gigantic organizations that are involved in expatriation including, Siemens, Esso, Nestle, Phillips, and Volvo. Finally, Malaysia accepted the visits of Asian managerial expatriates from Europe and America (Jatmiko, 2018; Rostamzadeh et al., 2012; Shephard, 1996; Tahir & Ismail, 2007). This final expatriation wave has inspired our government to adopt the “Look East” policy in the 1980s. This decision was also influenced by the enhancement of our country’s electronics industry and close relationships between Malaysia and Australia and the Newly Industrialized Asian countries (Jatmiko, 2018; Rostamzadeh et al., 2012; Shephard, 1996; Tahir & Ismail, 2007).

Interestingly, expatriates often gain new experiences and stand a chance of adopting a different lifestyle, especially when the cultures in a new environment differ vastly from their home country. In order to thrive in a challenging work atmosphere, expatriates need to adapt to their surroundings. This changes may pose as a source of distress for some individuals since the changes involve time, energy, and financial sacrifices. Without perseverance and passion towards ones’ profession and job responsibilities, it is difficult for them to stay committed in their career. Hence, it is understandable that there are expatriates who had to reconsider staying in the foreign country due to the differences in culture (Aycan, 1997; Berry, Berry, Poortinga, Segall, & Dasen, 2002; Gelfand, Erez, & Aycan, 2007). Furthermore, several studies on expatriation have indicated that people from different cultures may encounter challenges in understanding each other’s’ views and behaviors, which may result in “cultural clash” (Elashmawi, 2000).

### 2.3. Cultural Intelligence

One of the previous studies has defined cultural intelligence as an individual’s capability in interacting with people from a different culture effectively. This particular concept consists of several constructs, namely meta-cognitive, cognitive, motivational, and behavioral dimension (Earley & Ang, 2003). The first dimension is meta-cognitive cultural intelligence, which refers to one’s awareness, knowledge, or ability to process information relating to culture (Ang, Van Dyne, & Koh, 2006). According to Ang et al. (2006), individuals with this ability tend to think critically and express concerns about cultural assumptions. Capabilities that are relevant to this cultural intelligence are revising and observing the cultural models for a particular society or country. These capabilities are useful in generating coping strategies (Ng & Earley, 2006).

The next dimension is the cognitive cultural intelligence which reflects one's knowledge on the conventions and norms of different cultures (Ang et al., 2006). This includes knowledge of the cultural values, social systems, legal, and economic aspects of a certain culture. Individuals with high cognitive cultural intelligence are capable of differentiating and appreciating the uniqueness of other people's cultures (Ramlan et al., 2018).

The third dimension is the motivational cultural intelligence. This construct is considered to be exceeding the boundaries of merely recognizing cultural differences. Ang et al. (2006) have described motivational cultural intelligence as one's interest in engaging with another culture. Interestingly, this feature of cultural intelligence motivates an individual to adapt to a new cultural setting (Earley & Ang, 2003; Ng & Earley, 2006). This third dimension includes three main motivators: self-enhancement, self-growth and improvement, and life continuity (Earley & Ang, 2003).

The final aspect is the behavioral dimension, which involves the ability to exhibit adaptive behaviors for the appropriate cultural settings. According to Earley and Ang (2003), individuals with high behavioral cultural intelligence tend to use politically and socially acceptable words, facial expressions, tone, and gestures.

The overview of available literature showed that cultural intelligence has been connected with expatriates' work behaviors such as task performance (Ang et al., 2006; Ang et al., 2007), cultural judgment and decision-making (Ang et al., 2006), and cultural adaptation (Ward, Fischer, Zaid Lam, & Hall, 2009).

## 2.4. Job Performance

In theory, individual job performance can be described as a function of abilities, aspiration, and knowledge which influence one is expected behavior that is relevant to a company's goals, such as formal job responsibilities (Campbell, 1999). As proposed by Borman and Motowidlo (1993), job performance consists of two dimensions, which are task dimension and contextual dimension. Also known as "in-role," task dimension is a construct that is driven by deadlines. On the other hand, the contextual dimension or "extra-role" is sometimes seen as a discretionary construct. This theory is commonly applied in an international setting (Caligiuri, 1997). Numerous studies have been conducted to investigate the relationship between cultural intelligence and job performance (Ang et al., 2006; Ang et al., 2007; Rose, Sri Ramalu, Uli, & Kumar, 2010; Lee & Sokoco, 2010). These studies have concluded that cultural intelligence significantly influences job performance.

Conforming the role expectations is a crucial aspect in assessing one's job performance (Ramalu, Rose, Uli, & Kumar, 2012). At the workplace, expatriates may receive greater expectations in terms of job performance from their superiors and fellow workers. On top of the aforementioned constructs, international assignees are also expected to achieve particular tasks such as transferring knowledge and technology to the locals (Ghemawat & Reiche, 2011). Unfortunately, expatriates are often perceived as having poor job performance when they have a different cultural background, fail to meet the role expectations, and unable to understand cultural differences in role expectations (Stone-Romero, Stone, & Salas, 2003). This situation is more common among individuals who are working in an unfamiliar culture and work environment, which are vastly different from the host country. Since expectations for performing role prescribed behaviors often differ across cultures, cultural intelligence will help individuals to do in their tasks more effectively.

## 2.5. Job Satisfaction

Despite its wide usage in scientific research, the whole body of the research community has not accepted the exact definition of job satisfaction. This is because different authors have varying approaches and perspectives in defining this terminology. Job satisfaction can be defined as any combination of physiological, environmental, and psychological circumstances that influence one's level of satisfaction towards their work (Hoppock, 1935). Another researcher defined job satisfaction as individuals' attitudes (George et al., 2008), orientations (Vroom, 1964), level of contentment (Statt, 2004), behavior (Davis et al., 1985) and feelings (Armstrong, 2006) toward their current work roles. Earlier studies have indicated that employees' job satisfaction is often affected by their material and psychological needs (Aziri, 2008) such as their relationships with coworkers and employers, work roles and responsibilities, salary (George et al., 2008) and sense of achievement (Mullins, 2005). These factors, both intrinsic and extrinsic, may result in either positive or negative perceptions, ranging from extreme satisfaction to extreme dissatisfaction. When an employee shows desirable behaviors and positive looks towards their job, this indicates job satisfaction, and vice versa (Armstrong, 2006).

One's satisfaction towards their work is important because according to Kaliski (2007), job satisfaction is a vital element that drives employees to achieve career advancement, better income, recognition, and personal sense of fulfillment. Moreover, it is also linked to ones' personal well-being, mental health, and work productivity (Kaliski, 2007). To sum, when an employee is content with his career roles and displays a positive attitude

towards his work, he is more likely to perform his best in playing his roles. Ultimately, this will benefit the organization by enhancing the organization's efficiency, reputation, and productivity.

## 2.6. Innovation Performance

Since the early twentieth century, innovation has been seen as a vital aspect that helps an organization to thrive. In general, many researchers in the economic and business literature have agreed that innovation can simply be described as something new (Hauschildt & Salomo, 2007; Kotler & de Bes, 2003; Littkemann & Holtrup, 2008; Porter, 1990; Rogers, 2003; Schumpeter, 1912; Valenta, 1969; Whitfield, 1975). According to Schumpeter's theory, innovation has been defined as the introduction of a novel or improved process, products, or methods that can be implemented in a certain organization or business practices (OECD, 2005).

Innovative capability is regarded as the main element that supports enterprises' performance and competitiveness (Andergassen, Nardini, & Ricottilli, 2009). Numerous studies have indicated that there is a relationship between innovative capability and innovation market success (Baden Fuller & Pitt, 1995; Barker III & Duhaime, 1997; Christensen & Raynor, 2003; Drucker, 1999; Epstein, Davila, & Matusik, 2004; Markides, 1997; Nicolescu & Nicolescu, 2012; Tushman & Anderson, 2004). This correlation is accepted widely by many researchers because, in order to maintain the company's great reputation and success in a competitive environment, the company has to implement systemic innovation. By managing the process differently than the next company and continually making new changes through innovative capability, this allows the company to come out on top (Fiorentino, 2010). For instance, small- and medium-sized enterprises (SMEs) can innovate and respond to their clients' needs more efficiently due to their less complex organizational and administrative systems (Audretsch, 2003; Zeng, Xie, & Tam, 2010).

Overall, we can see that a company's ideal objective is to turn innovation inputs (innovation capability) into lucrative outputs (market implementation). This conversion can be termed as innovation performance. In short, innovative performance is an inclusive construct that oversees the processes from all stages, starting from research and development (R&D), patenting, up to the product introduction, without assuming the economic success of innovations (Ernst, 2001; Stuart, 2000). Unfortunately, a majority of organizations do not take innovation performance into account, despite the significance of innovation in enhancing organizations growth (Skarzynski & Gibson, 2008).

Previous findings have shown a continual dedication is necessary in order to ensure the company's sustainable innovation efforts (Davila, Epstein, & Shelton, 2013).

## 2.7. Employees' Rights

For decades, the rights of a human being has been a major issue in the industrial sector. In the olden days, employees were treated as slaves with little to no recognition and appreciation from the employer. Fortunately, a few decades ago, people have started to gain awareness on employees' rights, and revolutionary concepts and standards have been improvised.

According to Andalib and Darun (2018), a few universal standards have been established where employee rights are significantly mentioned and nurtured, which are the Universal Declaration of Human Rights<sup>14</sup> and International Labour Organization (ILO). These standards have presented some basic protocols, which are significantly important for employees who are fighting for their rights. In this study, the Universal Declaration of Human Rights<sup>14</sup>, ILO protocols, conventions, and articles were analyzed. The articles have discussed rights to life, right to liberty, right to choose work based on workplace condition, remuneration, sanitation right to receive permanent and long-term benefits in addition to the regular ones.

## 3. Methodology

This paper aims to investigate the core components of cultural divergences by analyzing and reviewing 50 published articles and scholarly works. Data were collected from various sources using standard techniques. Andalib et al. (2018) have stated that this methodology can be considered as systematic qualitative analysis since philosophical paradigms with the interpretative technique have been used to summarize relevant information.

### 3.1. Steps of Data Collection

In the current study, data were collected and analyzed by following these steps:

1. A computerized database search was performed using Proquest, Emerald, and Elsevier.

2. The literature search was conducted by using the specified keywords: cultural divergence, expatriates in Malaysia, job performance, human resource management.
3. All articles found were stored in NVIVOMac tool.

### 3.2. Analyze Data

According to Andalib (2018), NVIVOMac serves as a reliable platform to analyze any data. In this study, reports or scholarly papers were stored, sorted, and analyzed through NVIVOMac. Before data analysis was conducted, several selection steps were taken:

1. Categorizing articles by external and internal components.
2. Highlight and run the articles by keywords.
3. Derive components from NVIVO tool.
4. The prioritized components are highlighted and carefully observed to draw the result subjectively.

## 4. Results

Categorizing and grouping the components have been done based on soft coding that validates and justifies data with generalizability (Andalib, 2018; Auerbach & Silverstein, 2013). The findings were extracted from published articles and summarized systematically to aid comparison. Data regarding the challenges faced by expatriates are presented in Table 1.

Next, Table 2 presents the data extracted from published articles on the impacts of cultural divergence. Findings show that the core components are local culture, cultural intelligence, and cultural intelligence with job performance.

## 5. Discussion

Several significant components are found in this paper, which reveals the impacts on expatriates' performance in Malaysia. Based on the data collected, six challenges faced by expatriates have been determined. These six components are the impact of local culture (LC), cultural intelligence (CI), job performance (JP), job satisfaction (JS), innovation performance (IP) and employees' rights (ER). Researchers' have followed



TABLE 1: Challenges faced by expatriates in Malaysia.

| Scholars' References   | Challenges                   | Problems faced  | Solutions  | Rate Experience (Good/Moderate/Bad) |
|------------------------|------------------------------|---|--|-------------------------------------|
| Heirsmac & Agwu (2015) | Foreign language             | Bahasa Malayu is widely used when communicating with the expatriates.   | More usage of English is required.                                   | Moderate                            |
| Guardian (2013)        | Security                     | Most areas are safe except for some suburb areas.   | Monitoring devices can be used as surveillance to increase security. | Good                                |
| Muniapan (2015)        | Racial                       | Negative interracial interactions have been observed.   | A more harmonious interaction must be instilled at workplace.        | Bad                                 |
| Muniapan (2015)        | Employees' (Labours' rights) | Expatriates are discriminated as flexible working hours are applied for locals only. Conversely, expatriates have long working hours with low income. | The implementations of UDHR and ILO are necessary.                   | Bad                                 |
| Heirsmac & Agwu (2015) | Cultural shock               | Expatriates have to deal with preconceived or prejudiced cultural issues.   | Racial or cultural stereotypes must be eliminated.                   | Moderate                            |

TABLE 2: Impacts of variables on expatriates' performances, extracted from previous scholarly works. Data are presented following Miles, Huberman, and Saldana (2014) technique where the impacts have been analyzed by ranges: Positive (++); Negative (+); Mixed (#).

| Expatriation in Malaysia (EM) | LR of Malaysia | LR of Asia | Other Western LRs |
|-------------------------------|----------------|------------|-------------------|
| Impact of Local Culture (LC)  | #              | ++         | +                 |
| Cultural Intelligence (CI)    | ++             | ++         | #                 |
| Job Performance (JP)          | ++             | #          | #                 |
| Job Satisfaction (JS)         | #              | #          | +                 |
| Innovation Performance (IP)   | +              | +          | #                 |
| Employees' Rights (ER)        | #              | #          | ++                |

miles, Huberman and Saldana (2014) technique to analyze and explain the variables' influences and impacts.

According to the findings, the local culture poses mixed impacts on expatriates' performance in Malaysia, while globally, it has a negative impact. Interestingly, the impact of local culture has a positive result on expatriates' performance in Asia. The result shows that from the literature, it is clear that the impact of cultural divergence has a positive impact on expatriate performance living in Malaysia and overall Asia.

Next, we can see that job performance is positively influenced by cultural diversity in Malaysia. However, cultural diversity has a mixed impact on expatriates' job satisfaction in Malaysia and Asia. Meanwhile, this variable has a negative impact on western countries. According to the result, cultural diversity has a negative impact on innovation performance in Malaysia and Asia. Last but not least, employees' rights have posed a mixed result in Malaysia and Asia. Interestingly, it receives a positive result globally. As per Andalib et al. (2019) the eastern influences are significantly distinct than that of western influences because of the cultural and religious dimensions. The other challenges faced by the expatriates in Malaysia are distinct as well, mainly because of the three parallel races with distinct three local practiced languages and practiced distinct religions that lead to various dimensional cultural practices as well. The constant maintenance of constitutional and religious bars together itself is a difficult task. Therefore, keeping pace with various foreigners' dimensions are also quite interesting and difficult from various organizations' perspectives. The expatriates through face these challenges like cultural shock, racial distinctions, security issues, and language barriers in Malaysia; expatriates also experience feelings of brotherhood, flexible timing, leisure family hours, etc.

## 6. Conclusion and Implications

With the completion of this study, the researchers believed that the aforementioned research objectives have been achieved. This study aims to enhance our knowledge of how cultural divergence influences expatriates' performance in Malaysia. By knowing the effects of cultural differences on their performance, this allows the company managers to gain insights on the aspects that can be improved at the workplace to accommodate the expatriates physical, physiological, and social needs. Besides, this study highlights the expatriates' perceptions and the challenges that they face in experiencing cultural divergence. The expatriate and the host nation should more aware and receptive towards the differences. To lessen the challenges, awareness of cultural differences should be instilled among the expatriates and the employee in the host nation. This can be achieved by introducing a cross-cultural training program. Looking into the future, it is suggested to be taken into account to conduct that comparative studies on the expatriates' adjustment and adaptation process while serving in Malaysia. Also, the challenges and adjustments experienced by the expatriates' family members should be included in future research.

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## Conference Paper

# Ethics in Procurement: A Case Study in a Logistic Company

Nor Rokiah Hanum Md. Haron and Iman Haddad Qaisara Dhia Mohd Mahzan

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

This paper is part of a preliminary study for the awareness of ethical behaviors in procurement process specifically in a logistic company in Malaysia. Ethic is a critical behavior in a business transaction where most of the people misconduct the behavior unintentionally. The objective of this preliminary study is to get an insight view of a logistic case company, where it is found that ethics is being implemented in the daily procurement process. A structured interview question with various research of past problems concerning ethical behavior addresses the responsiveness of employees behaving ethically by following the ethical guidelines set by the company. This paper proposes that the company need to emphasize the importance of implementation of ethics and also create more awareness by having an official ethical guidelines of the company, despite the fact that the company is small and has a small number of employees. The company has gained many benefits such as cost reduction and maintaining a company-supplier relationship through the implementation of ethics in procurement.

**Keywords:** ethics, procurement, survey.

Corresponding Author:

Nor Rokiah Hanum Md. Haron  
rokiahhanum@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

In this globalized world, many companies or organizations have finally realized the importance of portraying ethical behaviors in business practices, and it is becoming increasingly difficult to ignore the unethical behaviors of employees in an organization because of the scandals that have arisen previously due to ethical issues in business practices. As a result, these scandals have given a great shock and impact to the whole world, such as the Enron Scandal. Besides that, Enron Corp., which is one of America's largest company deteriorates after the scandal. There is also a new law regulated to prevent such misfortune from happening again in the future, which is the Sarbanes-Oxley Act (Segal, 2019). Thus, it is certain that the ethical behavior of employees and managers is important in ensuring the success of the organization.

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In recent years, companies are eventually aware of the importance of implementing ethical behavior in procurement. However, some companies are still unaware of the importance of ethics and its benefits in procurement. Therefore, in ensuring that companies can implement ethical practices in procurement, the employees and managers must follow the company rules and regulations first besides having high integrity in the workplace. Law-abiding workers will give advantages to the organizations because they are working in an environment which priorities integrity and honesty. Hence, increasing the productivity of a company. By acting ethically, a company can also increase its competitive advantage (Schulze et al., 2014) because they are trusted by the customers, suppliers, and other stakeholders.

Nevertheless, the question is, why do the employees or managers portray ethical practices? Is it because of individual awareness or because they are influenced by the organization culture? Also, if they do behave ethically, is it benefiting the organizations? So far there has been little discussion about implementation of ethical behaviors in procurement in Malaysia because some companies refuse to disclose any information regarding ethics and procurement since they consider that it is a sensitive issue for them. Therefore, this paper will focus on the ethical behaviors implemented in a logistic company and their procurement process in Malaysia.

## 1.1. Research Objectives

The first objective of this paper is to determine the motivation a company implement ethical behaviour in procurement. Implementing ethical behaviours in the procurement process can be because of many reasons. For example, a company implements ethical behaviours in the procurement process because they want to avoid getting involved in any financial or accounting scandals that can ruin the company image. An organisation may also implement ethics in procurement because the leaders have nurtured the importance of portraying ethical behaviours into the organisation's culture. As a result, the people in the organisation are aware that they are not allowed to behave unethically during the procurement process, such as accepting gifts or bribery from the suppliers or business partners. Besides that, the rules or regulations or awareness campaigns made by the government or non-government organisation may be the reason a company implements ethics in procurement. When a company or any individuals in the company commit a white-collar crime, they can be punished by the law according to the severity of their crimes. Therefore, the awareness campaign is vital in order to promote the importance of promoting ethical behaviours in the procurement process.



The second objective of this paper is to determine the methodology used by a company in order to implement ethical behaviours in procurement. Whether they follow the rules or regulations made by the government or they create a new set of rules based on the rules and regulations made by the government. Either way, an organization follows the rules and regulations or any procedures regarding ethical behaviours in procurement in order to avoid themselves from getting caught in any bribery scandals. Without rules and regulations, which is a medium to define how an individual should act, society cannot survive (Brecher, 2014). Any poor individuals or groups can be the victim of oppression by any organisations if the law does not exist. For example, without law, an organisation can easily exploit their workers by denying their rights in getting the wages even though they have worked hard.

The last objective is to determine the impact of implementing ethics in procurement towards the organisation. There are many benefits that can be gained if an organisation decides to portray ethical behaviour in procurement. One of them is improving the company image. The stakeholders will trust the company because they believe that there will be no problem if they decide to do any business transactions with the company. As a result, the company will be preferred by the stakeholders because of their good image. Besides that, by having a good company image, a company can increase its profits because the company is trusted by the stakeholders. Workers turnover rate can also be reduced because the workers are working in a conducive environment. When they are satisfied and happy with the company, the workers will behave ethically so that they will not ruin the image of the company that they are working for. Therefore, they are less likely to quit (I/O AT WORK, 2015).

## 1.2. The Case Company

For this study, a local small maritime and logistic company, Logistic Company which was established in early 1999, has been chosen. The headquarter of Logistic Company is located in the West of Malaysia. They have three branches, and two of them are located in the East and South of Malaysia, while one of the branches is located in Singapore. Their core business is marine services and consultancy. Logistic Company is equipped with knowledgeable consultants and recent technologies. Their consultants are an expert who has more than 30 years of industrial experiences.

Besides that, Logistic Company is specialized in ship chartering, brokerage and management, and port and terminal management and consultancy. They have carried

cargoes such as the bulk of cement, bulk urea, project cargoes, and other general cargoes in the ship chartering business.

Also, Logistic Company is also an expert in cargo handling and procurement. This company has to implement ethics in their business practices and also procurement process. They also have their own ethical guidelines. Therefore, the company has been chosen in order to observe how they implement ethics and what is the impact on the company.

Logistic Company has a vision of being a reputable company in the maritime and offshore industry. Therefore, in order to be a recognized company, Logistic Company has created a mission to provide efficient yet cost-effective and reliable services to the industry. Furthermore, the company is registered with the Ministry of Finance and Petronas and their aim is to work closely with Petrons besides offering Petronas high-grade marine and consultancy services.

### **1.2.1. Ethical Guidelines in the Company**

During the site visit to the company, it is observed that the company has ethical conduct, which serves as a guideline in the procurement process. In the guideline, it is stated that all employees who are involved in the procurement process must behave according to the purchasing procedures besides portraying the following principles: Employee must portray loyalty and respect for rules and regulations. Besides that, the employee must be transparent and maintain confidentiality during the procurement process. Next, the employee must have integrity and avoid the appearance of impropriety during any business transactions. Lastly, the employee must promote impartiality and fairness besides exercising due diligence. By following these principles during the procurement processes, the company can avoid the employees from committing any white-collar crimes.

## **2. Literature Review**

### **2.1. Ethics and Business Ethics**

There are no exact definitions to define ethics and the definitions are different in each study (Sparks & Pan, 2010). Ethics is defined as the discipline which deals with what is virtuous or evil. Ethics is also the principles of conduct which governs an individual or a group of people ("Definition of Ethic," n.d.). Ethics is a study about what should be done

and what should not be done by an individual (Coscarella, 2005) which is also supported by (Velasquez, 2012) stating that ethics is the rightness or wrongness of behavior which is set by moral standards of an individual or a group. Almost all professional fields, such as legal, accounting, and medical, are embedded with ethics (Fountain, 2011).

According to Trevino and Weaver (2003), business ethics is a new concept which only appears in the early of the twentieth century (Schulze et al., 2014). However different industries and fields have their definitions and the way of implementing business ethics, and in order to determine ethical issues in an organization and find a solution to solve them, it is important to study business ethics (Dean, 1997). Business ethics is defined as the good and bad behaviors according to moral standards which are implemented in a company (Velasquez, 2012) and (Andrews, 2014) also notes that how ethics are implemented in a corporation differs between large organizations and small businesses. Top managers and employees in a company must portray good behaviors in setting their missions and objectives and accomplishing their work (Alzola, 2015). It is apparent that not only the top management are required to behave ethically but also the employees, regardless of how big or small the organization is.

## 2.2. Supply Chain Management and Procurement

Procurement is a part of the supply chain management, and supply chain management is essential in every business. Procurement is the entire procedure of acquiring goods and services (Procurement Basics, 2015), which includes activities that occurred before and after two parties reaching an agreement (Kidd, 2005). Purchasing or buying is a small part of the procurement process while procurement involves contract as well as establishing and maintaining the relationship between the company and the suppliers (Kidd, 2005). However, some people assume that procurement is a simple process which is not important. They even make an assumption that the procurement process can be done by everyone and experts are not required during the process. There are also managers who have not realized yet the importance of the procurement process in the supply chain management (Msimangira, 2003). Employees and managers need to be exposed to the significant procurement process because procurement experts are required in every procurement process. They need to come out with various purchasing plans. This is because different plans are being applied on different suppliers depending on the relationship of the company and the suppliers, the types of goods and services that will be procured and also the risks faced or might be faced by the company in order to acquire the goods and services (Wagner, Padhi, & Bode, 2013).

### 2.3. Ethical Issues in Procurement

In supply chain management, specifically procurement, procurement officers are easily exposed to committing unethical behaviors due to the fact that they are given the trust to use the company's financial resources (Miniussi, Siegler, Csillag, 2012). In making sure that the workers are aware of the right procurement strategy, they must be educated on ethical procurement process (Lillywhite, 2004). Managers also play an important role in setting the standard of ethics that is implemented in the company (Ndolo & Njagi, 2015). However, Özlen, Tulić, & Čengić (2013) argue that some workers might overestimate their knowledge of ethics and human right issues. This is due to the fact that they might not realize that there are ethical issues happening in their company even though they have the knowledge of ethics.

In order to reduce ethical issues in the procurement process, the transparency of the process must be improved. Therefore, the company should establish policies that can improve the transparency of the procurement process to prevent any possible corruption activities (Hui, Othman, Omar, Rahman, & Haron, 2011). An organization can be transparent by disclosing information regarding the procurement strategy and its progress, such as improvements in the annual and sustainability reports (Lillywhite, 2004). Besides that, a proper record of the whole procurement process should be documented (National Public Procurement Policy Unit, 2005)

The company must also ensure that the established policies are being enforced in their company effectively. However, the company tends to implement ethical behaviors only when it gives advantages to the company, such as cost reduction (Roberts, 2003). In order to support the statement, Schulze et al. (2014) state that portraying ethical behavior in the procurement process can give an impact to the business' competitiveness because procurement and logistics activities are a significant influence to the organization's success. Ndolo & Njagi (2015) also supports that statement by arguing that one of the main elements of business success is by implementing ethics in Supply Chain Management. This is due to the fact that behaving ethically in the procurement process can help to improve the organizations' performance. Furthermore, customers are more confident to buy from a company that behaves ethically as they are trustworthy.

However, according to Lillywhite (2004), the most significant method to develop an ethical procurement process is by cooperating with the stakeholders such as government organizations, non-government organizations (NGOs), and others. For instance,

through the rules and regulation enforced by the governments and awareness campaigns done by the NGOs, employees, and companies will realize that it is essential to behave ethically not only during the procurement process but also in the workplace.

### 3. Methodology

The research methodology used in this paper is using structured interview where the respondent is interviewed and become part of a preliminary study for procurement ethics. Also, secondary research is used to explain the fundamentals of ethics in procurement as per the literature review. The chosen respondent is a Procurement and Account Executive who is actively involved in the procurement process happening in the company. He has been working for the company for several years. He has vast experiences on purchasing matters as he has undergone various training and purchasing conference. Therefore, he is quite experienced in the procurement area.

It is also said that through qualitative research, the respondent can express their experiences, thoughts, and feelings (Tiley, 2017). Qualitative research is used when a researcher wants to understand the reason behind a problem, especially in a case study basis. Besides that, when a researcher wants to investigate the reason behind the trend in thoughts and opinions, qualitative research is being used. Thus, the researcher can investigate the problem thoroughly (DeFranzo, 2011). Furthermore, a secondary research method also being used in order to get more information regarding the topic. Past academic papers, newspapers, and also articles are being used to support the research.

### 4. Results

An interview has been done during the site visit to Logistic Company. The following table records the findings during the interview.

#### 4.1. Demographic background

The respondent is a male whose age is within 25 to 30 years old. He has been working for the company for more than a year as a procurement and account executive. He was working for the company as an intern previously before finishing his studies, and he is a degree holder. Although his experiences are quite limited, he is one of the reliable workers in the company where he is in charge of the procurement and its whole cycle.

## 4.2. Awareness

Below table shows results for discussion

TABLE 1: Awareness of Ethics in Business Practices and Procurement Process.

| Scope  | Description  |
|--|--|
| <b>Awareness</b>   |  |
| Familiarity with terms 'ethics' and 'procurement'                        | The respondent is familiar with the terms 'ethics' and 'procurement' because he is involved with the procurement activities directly.  |
| Familiarity with ethical guidelines of company and procurement process   | The respondent says that he is familiar with the ethical guidelines of the company and the procurement process. For example, they are not allowed to accept any gifts from the supplier.   |
| Awareness of the importance of ethics in company and procurement process | The respondent thinks that it is important to behave ethically in both company and procurement process because it is easier to follow the rules than breaking them. Besides that, he says that procurement process can be done smoothly. |
| <b>Source:</b> Authors' own work   |  |

Table 1 shows the result of awareness of the Logistic Company. The company already have their ethical guideline however the awareness of using the guideline still can be improved. The guideline is also aligned with their company mission to act accordingly with the government standard.

Table 2 shows the application of ethics in business practice and the procurement process. It discussed the implementation, challenges, and also issues of implementing ethical behavior in Logistic Company.

## 5. Discussion

During the interview, the researcher found out that the company decided to implement ethics in the procurement process because they want to avoid any unethical behavior of the workers. The respondent says that he is familiar with the terms 'ethics' and 'procurement.' He also says that he is also familiar with the ethical guidelines of the company and its procurement process. This is because the company implements ethics in the procurement process by having the employees to follow the procurement ethical guidelines and procedures. It is stated in the guidelines that all employees involved in the procurement process must maintain transparency, confidentiality, integrity, impartiality and fairness. However, from the observation during the site visit to the company,

TABLE 2: Application of Ethics in Business Practices and Procurement Process.

| Scope  | Description  |
|--|--|
| <b>Application</b>   |  |
| Implementation of ethics in business practices and procurement process                   | The respondent says that the company does not have a department that monitor ethics but the manager is the one who monitor them since the company is a small company.  |
|  | Every job with suppliers will require a business contract which in it will be stated the ethical guidelines.   |
| Effectiveness of ethical guidelines in the company and procurement process               | The respondent thinks that the guideline is effective enough to curb the unethical behaviors happening in the company and procurement process since the company emphasizes the importance of behaving ethically.   |
|  | The respondent said that workers will be send a warning letter if they behave ethically while the suppliers will be send a reminder if they deliver bad services.  |
| Challenges in implementing ethics in company and procurement process                     | The respondent says that they do not face any challenges because the company is small and the workers think that following the rules is easier than breaking them.   |
| Unethical issues happening in the company and procurement process and ways to solve them | The respondent says that so far there is no unethical issues happening in the company. If there are any issues happening, the issues will be discussed and solved in the weekly meeting. There are no unethical issues happening between the company and the suppliers because they have worked with them for a long time. They have successfully maintained a good relationship with the suppliers so there is no problem with them |
| Impact of implementing ethics in company and procurement process towards the company     | The respondent says that procurement process can be done smoothly, company and supplier relationship can be maintained, and company can generate profit because suppliers sell them goods at a cheaper price. This is because of the good relationship maintained between the company and suppliers  |
| <b>Source:</b> Authors' own work   |  |

only ethical guidelines in the procurement process are found, and no ethical guidelines of the company is found.

The reason is that the company is a small company which only has about 15 employees in the office. Since it is easy to manage a small company with a very small number of employees, the ethical guidelines are being informed verbally by the manager. It is true that the respondent is familiar with the ethical guidelines of their company, but the guidelines are not in a written form. Besides that, the employees are already aware that it is important to behave ethically at the workplace because it can make

the procurement process to run smoothly. They also personally think that following the rules is easier than breaking the rules. Therefore, there are no unethical behaviors occur in the company. The company is depending on the awareness of its employees to behave ethically, which might be the reason why the company does not create an official ethical guideline. Even though there is only a small number of employees in the company and they are aware of the importance of behaving ethically, it is vital for the company to write their official ethical guideline because there are many possibilities that could happen in the future.

Furthermore, there are many benefits gained by the company after implementing ethical behaviors in the procurement process. The benefits are that the company can experience a smooth procurement process and able to reduce the cost because the suppliers offer them goods and services at a lower price besides preserving the customer-supplier relationship. The relationship between the company and the supplier is maintained successfully based on trust. The main reason is that the company and the suppliers have worked together for a long time. That is also why the company can get goods and services at a lower price. Even though the supplier is trusted, it is better if the company always to be cautious and priorities professionalism in any business transactions because any worst scenarios can happen.

## 6. Conclusion and Implications

Through this research, it can be concluded that the company implements ethics in the procurement process because they want to avoid any unethical behaviors of the employees that could deteriorate the image of the company. Besides that, the employees in the company implement ethical behaviors in the procurement process by following the ethical guidelines in the procurement process of the company besides having the awareness that it is important to behave ethically. However, it is important for the company to create an official ethical guideline of the company even though the company only has a small number of employees. This is because the behaviors of the employees in the company could affect the procurement process since the company does not have a separate procurement department.

Through this research, it can be seen that there are several impacts gained by the company when implementing ethical behaviors in the procurement process. For instance, a smooth procurement process can be done, the company-supplier relationship can be maintained, and the cost can be reduced. Thus, gaining more profits for the company. The researcher suggests that the company must emphasize the



implementation of ethical behaviors by having an official ethical guidelines of the company. The company must always remind the employees of the importance of behaving ethically even though the employees are already aware of its importance. Lastly, the company must always remain cautious and maintain professionalism even though they trust their suppliers.

## Acknowledgement

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

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## Conference Paper

# The Effectiveness of the Environmental Management System (EMS) Implementation in Green Supply Chain: A Case Study

Sarbani Daud, Nurfaizah Yusof, and Mazita Mokhtar

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

Environmental awareness rapidly increased worldwide these recent decades. Likewise, individuals but also business organizations have begun practicing "Green" initiatives in their organization's operations to reduce environmental impact. The implementation of the Environmental Management System (EMS) in the Green Supply Chain (GSC) is an approach to adopt the green initiatives in the business operations that beneficial to the organization, not just regarding the environmental benefits, but economic and social as well. In an example where EMS improves the environmental performance of the organization, previous research suggests that improvements not only occur within the limits of the organizational operation but also need to be extended throughout the supply chain. The effectiveness of EMS implementation in the green supply chain boosts the environmental performance of the organization. Ultimately, EMS and GSCM practices are complementary to each other. Organizations that implemented EMS have more signs of improving the environment not only at the boundaries of their organizations but also across their network of buyers and suppliers. This research explains the debate by empirically assessing the relationship between EMS and GSCM practices.

**Keywords:** Environmental Management System, Green Supply Chain Management, Sustainability, Environmental Performance, Continuous Improvement.

Corresponding Author:

Sarbani Daud  
sarbani@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

In this era of globalization, environmental awareness has been increased since it is becoming an important global issue not only in daily activities but also in any organization's operations of the supply chain. The public nowadays becomes more sensible with the environmental issues and global warming that are resulting the consumers questioning about the sustainability of the product they are purchasing and how green the product is. Implementing environmentally friendly practices in the supply chain's operations is becoming more essentials to drive success in the company. The "Green" initiatives are implemented in the organizations by merging the environment thinking

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into supply chain management that covers the dimensions of environmental and economics (design of the products or services, resources, and selection, manufacturing process, logistics, and transportation) (Green Jr, Zelbst, Meacham, & Bhadauria, 2012)

The implementation of Environmental Management System (EMS) is no longer a new subject since it is a requirement for organizations to comply with applicable laws, and other environmentally oriented regulations and policies, and also constraints from an organized group that made organizations shifting in adopting the Environmental Management System (EMS) in their Green Supply Chain Management (GSCM). EMS addresses the process standard on how overall business activities, including products and services, will affect the environment. ISO 14000 are guidelines to achieve good EMS and minimize the negatives impacts of the organization operations on the environment that covered two areas of the series standard, which are organization evaluation standard and product evaluation standard. The integration of EMS elements and Green Supply Chain Management (GSCM) in business strategy organization is to balance the social and economic factors in orders to reduce the environmental impacts(Hui, Chan, & Pun, 2001).

The Green strategy was introduced to improve the businesses world reputation. The expertise as a pillar, quality of the product, and customer services are not sufficient anymore. Organizations are moderating the profit and playing their role in spreading environmental awareness in recent decades. In other words, organizations are expressing through actions that not only being environmentally friendly is required, but also to preserve the environment is predominant. These practices would give benefits to organizations and firms develop environmental management strategies in response to the changes in environmental requirements and their impacts on supply chain operations.(Cooper & Ellram, 1993)

## 1.1. Problem Statement

The integration of Environmental Management System (EMS) and Green Supply Chain Management (GSCM) has been implemented commonly in any large organizations today especially when their company's operations relate to the environment to reduce the environmental effect. However, some research was conducted, and the result showed that not all the environmental management systems helped the organization to improve the environment and their business performance. The implementation of EMS becoming less effective in some organizations due to external and internal factors such as (industrial associations, types of equipment for environmental monitoring, training,

and education competition, and top management support). These organizations also still have a limited basic understanding of how important the EMS in their green supply chain and not fully practicing it in their operations (Famiyeh, Kuttu, & Anarfo, 2014). Therefore, a study is needed to clarify whether applying the EMS in the green supply chain can reduce the environmental impact and driven to the success of green initiatives. This would lead the study to discuss how effective the implementation of the Environmental Management System (EMS) in Green Supply Chain

## 1.2. Objective

The objectives of this case study are to compare the Environmental Management System (EMS) with Green Supply Chain Management (GSCM) and to establish their relationship in an organization's operations. Another objective is to measure the effect of the Environmental Management System (EMS) in Green Supply Chain Management (GSCM).

## 1.3. Scope of the Study

The focus of this study is on the Environmental Management System (EMS) in the Green Supply Chain of one selected well-known chemicals company in Malaysia. A case study will be conducted in BASF PETRONAS Chemicals Gebeng Site, based in Kuantan, Pahang. The performance of the EMS in their green supply chain operations will be measured based on their effectiveness of the implementation towards the 'environmental effect. This study can improve the company's performances and proliferate the awareness about the green initiatives in the organization operations. The information gained from this case study can help better understanding of other company as well about the importance of EMS in the green supply chain.

## 2. Literature Review

### 2.1. ISO 14000 Environmental Management System (EMS) as a Management Tool for Continuous Improvement.

The Environmental Management System (EMS) is one of the quality management tools that consist of a few elements, such as environmental policy, plans, implementations corrective actions, management review, and continuous improvement. These elements are interrelated to each other to achieve the goals of EMS to reduce the environmental

impacts of the organization’s operations towards our environments. The ISO 14000 were established in 1996 for the development of an effective EMS by International Standards Organizations as a guideline to improve the environment (Tung, Baird, & Schoch, 2014).

EMS ISO 14000 implementation follows the standard of conventional improvement cycle called Plan-Do-Check-Act cycle. The Plan-Do-Check-Act cycle model (PDCA) was introduced by W. Edwards Deming in 1939 for learning and improvement and referred to as a “process approach” or the continuous improvement process (Moen, 2009).

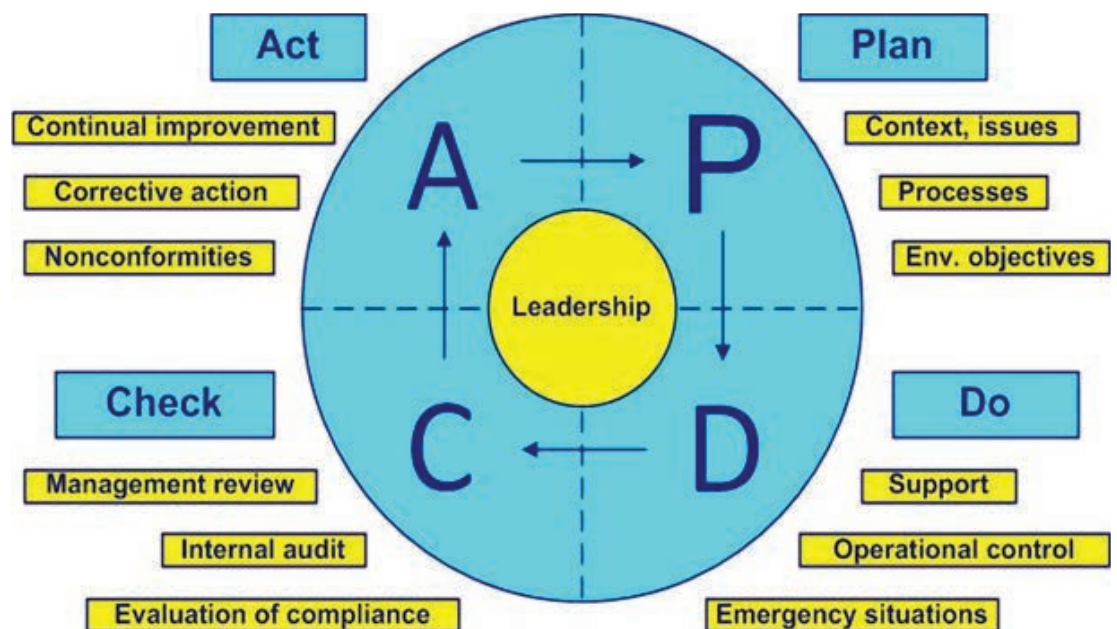


Figure 1: The PDCA Cycle according to ISO 14001: 2015.

**Source:**

**Plan:** Organizations are required to identify the objectives and determine their EMS scope. Organization’s goals and the process should be aligned with the environmental policy that had been set to achieve the environmental targets. The ISO 140001 environmental policy showed the management commitment, leadership, and direction for the ecological activities (Clause 4.1 – 7.5).

**Do:** The processes of EMS are implemented and to ensure the negatives impact towards the environment can be controlled, operational control is needed and executed as a starting point (Clause 8 – 8.2).

**Check:** The performance evaluations method takes place which monitor, measure, analysis, and evaluate the performance of the organization comply with the environmental policy. The performances are checked and recorded by an EMS audit to ensure that the EMS conforms to plans is being properly implemented and maintained. Audit should cover the scope, frequency, methodologies, responsibilities, requirement, and reporting

results. The management reviews are included in the final part of the evaluation to ensure the continuing suitability, adequacy, and effectiveness of EMS, and it is really important for the continuous improvement of the organizations (Clause 9 – 9.3).

**Act:** Non-conformance, corrective, and preventive actions take place in this final part. Improvements are made regarding the performance evaluation's results. This PDCA cycle of improvement showed that on the Act stage, the plans could be modified and the cycle can start from the beginning again (Clause 10.2).

The PDCA cycle methods can help an organization to improve the overall process and increase the effectiveness of EMS implementation in its operation. This beneficial method protecting the environment and reduce the environmental impacts (Eng Ann, Zailani, & Abd Wahid, 2006)

## 2.2. Green Supply Chain in Supply Chain Management.

The concept of supply chain management was introduced in 1980 by R.K Oliver and M.D Weber from the logistics field. The supply chain concept includes the logistic and operation management where defined as the flow of process production from raw material to the end products or services and delivered to the end customers. The natural resources are extracting and exploiting in this process. Supply chain's environment burden will be influenced by the extracting the resource, to manufacture, using and reusing, recycling and disposing of in the stage of product's life cycle (Zhu & Sarkis, 2004)

Environmental sustainability is the ability to keep maintains natural resources and protects them for the next generations. The supply chain's process in an organization's operations gives impact to the sustainability of the environment where extremely exploitations towards natural resources threatening the environment and jeopardizing the eco-system. The environmental thinking was applied in the supply chain management and the whole process operations for sustainable development. Integrating the Green Supply Chain in the organization's operation generate the "Green" initiatives that not only strengthen the economy that bring the profit to the organizations but also maintaining the sustainability of natural resources and reducing the risks to the environment(Hervani, Helms, & Sarkis, 2005)

In general, Green Supply Chain management defined as the integration of environmental thinking in supply chain management from the beginning of production's process to the final product and delivery to the end customers(Srivastava, 2007). Green Supply itself refers to "how innovations in supply chain management and industrial purchasing



may be considered in the context of the environment”(Quarshie, Salmi, & Leuschner, 2016).GSCM plays a huge role past recent decades because of the acceleration of environmental degradation, increase in pollution, excessive pressure from consumers and deescalating raw material; accumulate more waste, environmental standards and the legal regulations (Negi & Anand, 2015).

### 2.2.1. The Best Practices in the Green Supply Chain Integrative review

The successfully implemented the green supply chain practices can help organizations gain a competitive advantage and increase sustainability development. Hence, several best practices in green supply chain implementation were identified.

First of all, the business goal must be aligned with the Green Supply Chain System. It is impossible to achieve the goals of green initiative if the business goals are separated with the green supply chain. These both should be parallel to each other to make it successful. Business goals should not only merely for profit yet have to identify the role of the environment of their business's operation. The company has to create the strategic value of the environment that not against the concept of the green supply chain(Chen, Shih, Shyur, & Wu, 2012).

Secondly, the supply chain must be evaluated as a single life cycle system. This is mainly because the supply chain is a group of operational processes that relate to one another to create one chain or a system, from raw material to the end product and delivered to the consumer. The system consisted of the output of one operation and was using as the input for another operation(Blass & Corbett, 2018). This whole business operation process involves high costs. The operation process should minimize the wrong input and output and maximize the good of outputs. The company needs to recognize the end-to-end impact of the green supply chain to grab the competitive advantage and able to reduce the costs of the business operation process.

Thirdly, the continuous improvement of green supply chain analysis should be aimed at waste material and energy, as well as underutilized resources. Green supply chain analysis giving room to overlook processes, materials, and operational elements. It is important for the company to examine its supply chain operation process where the green initiative should apply to enhance their business. The green process improvement approach started with identifying the waste streamline in each of the operations processes. The analysis also involved measured or identified the opportunity cost of the

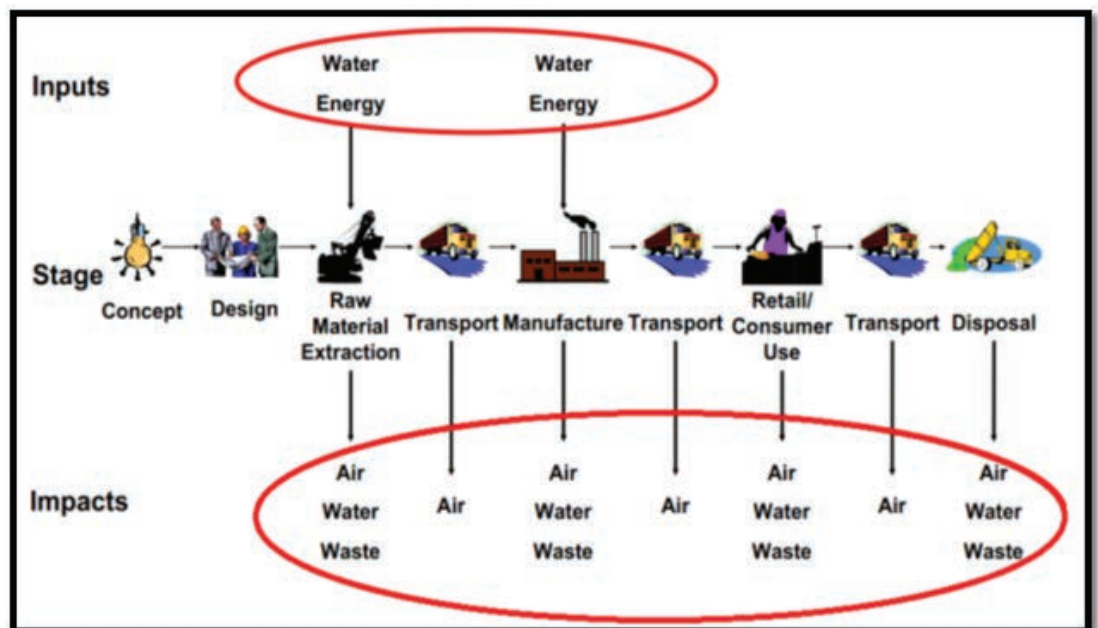


Figure 2: Environmental Life Cycle (Source: Negi (Negi & Anand, 2014)).

waste. The company may create innovation or do treatment to reduce waste and pollution. This strategy brings effectiveness and efficiency in managing the environmental effect (Song & Gao, 2018).

Another practice that should be implemented is waste reduction. 3R (Reuse, Recycle, Reduce) program is widely used all over the world for decades. This waste prevention programs helped the company to manage their waste and optimize the usage of resources. The company should examine how the material should be used, how products being purchased and how the business is running. Focusing on waste prevention programs propelled higher value improvements in every phase of the business operations process. Prevention and management are essential in minimizing the waste which helps the business to reduce the cost and associated societal and environmental harms of recycling, municipal composting, landfilling, and incineration (ten Hoeve, Bruun, Jensen, Christensen, & Scheutz, 2019).

### 2.2.2. Green Supply Chain Management Performance Measurement System

A company needs to evaluate its performance to measure the effectiveness of the management system are used in the company's operation. According to (Harrington, 1991), "Measurement is the first step that leads to control and eventually to improvement.

If you cannot measure something, you cannot understand it, you cannot control it. If you cannot control it, you cannot improve it.”

It is acknowledged that how supply chain management is essential to propel the competitiveness of the company and the measurement of the performance helped the company to enhance their effectiveness and efficiency (Kafa, Hani, & El Mhamedi, 2013). These recent years, the researchers discovered that the importance of studying performance measurement has inflated. The omission of this important element in supply chain management caused a lack of effectiveness in the management system (Hervani et al., 2005). The incomprehension of deciding on the number of metrics to be used and the deficiency of the technique that coherence between financial and non-financial performance measures are the reasons for this supply chain performance measurement requirement (Gunasekaran, Patel, & McGaughey, 2004).

The internal and external process in the green supply chain management should be evaluated, which any factors would affect the entire supply chain should be considered as well (Olugu, Wong, & Shaharoun, 2011). The previous studies explained the performance measurement system in different approaches. Many researchers identified GSCM as the power to improve competitiveness and to comply with the environmental regulations (Hervani et al., 2005). Performance measurement has the benefit of maintaining the GSCM process and determining the windows of opportunity for enhancement in the system. To ensure the effectiveness of the GSCM, the evaluation of the entire performance of the whole supply chain should be taken into account (Olugu et al., 2011).

The presence of ways to measure the sustainability performance in the supply chain falls in four groups: “(i) the use of the Global Reporting Initiative (GRI 2007); (ii) the use of the International Organization for Standardization (ISO) like ISO 14031 (ISO 2004);(iii) the use of performance measurement system like Green SCOR (SCC 2008), and Sustainability Balanced Scorecard (SBSC); (iv) The use of others approach such as decision-making tool.” There is no specific literature founded regarding the standards of measurement of the total impact of green supply chain management. However, despite that, regarding (Qinghua Zhu, 2007) highlighted more studies for the relationship between GSCM concepts and measurement performance of the system. The GSCM practices bring impact on the sustainability performance from three different perspectives of SD: “Economic, Environmental and Social.”(Kafa et al., 2013). Few things rest in isolation from historical precedent. Historical literature reviews focus on examining research throughout a period, often starting with the first time an issue, concept, theory, phenomena emerged in the literature, then tracing its evolution within the scholarship of a discipline. The purpose is to place research in a historical context to

show familiarity with state-of-the-art developments and to identify the likely directions for future research.

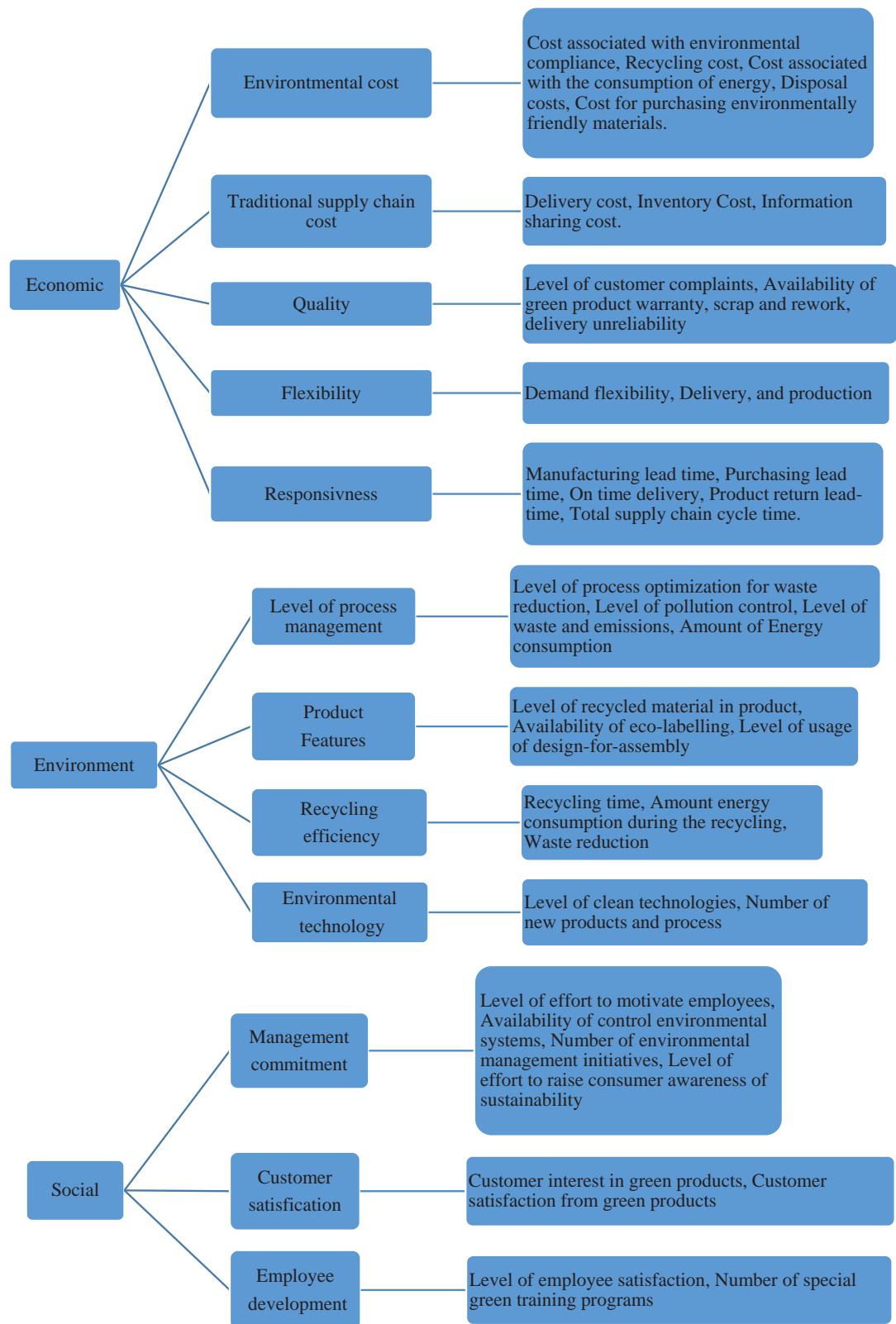
### **2.3. Integration ISO 14000 Environmental Management System (EMS) and Green Supply Chain**

More than 88,800 organizations globally already adopt their Environmental Management System (EMS) to ISO 14000 in the year 2005 (Kamal & Fernando, 2015). Some of the organization implemented the EMS to win the competitive advantage, to improve their environmentally sustainable as well as to improve their environmental performance. The pressure from consumer and regulations from the government that organizations have to comply with also become the reasons why they implemented this ISO 14000 as guidelines to reduce the impacts on the natural environment.

The operational competencies required to engage with EMS might also support the organization's efforts to minimize the environmental impact along its supply chain. Organizations that practice EMS directly adapt the green initiatives within their organizational supply chain operations. Therefore, EMS carriers may rely more on knowledge-based capabilities that match them to work with their supplier and client networks to reduce the environmental impact of the entire world. On the other hand, organizations that choose to use EMS can withstand institutional pressure as an organization that practices the green supply chain management (GSCM), so they use environmental management practices at the same time (Darnall, Jolley, & Handfield, 2008).

The green supply chain management (GSCM) practices and environmental management system are complements to each other. These relationship influential implications for the environmental sustainability of the organization as both of them provide a more encyclopedia way of explaining and developing the sustainability amidst business networking organizations. On the flip side, the EMS implementation without the GSCM would be less useful to reduce the environmental impact because it would be impossible to achieve the environmental goals and the sustainability of environment without integrating with the GSCM practices (Malviya & Kant, 2015). The entire supply chain, including supplier and buyers, should have that responsibility to comply with the EMS and the GSCM practices to make integration of both management systems more effective and efficient.

There are few resemblances between the implementation of the environmental management system and the green supply chain management that make these two system management completing each other. The commitments of the organization are



**Figure 3:** The Sustainability Performance Measures for Green Supply Chain Management (**Source:** Kafa (Kafa, Hani, & El Mhamedi, 2018)).

essential to attain successfully the implementation. Stakeholders should work together,

participating, and sharing their knowledge of the organization's internal operations to reduce environmental impacts. It is also important to commit the organization to continuously improve environmental performance and comprehensive understanding and monitoring resources, constraints, production capabilities, and organizational processes. Apart from that, the successful adoptions need strong inventory control system. The system reduces excess stocks, and no input is needed in the production process. The company that depends on this system manages material, productive capabilities, and other information. The integration of EMS and GSCM practices motivate organizations to minimize the usage of input and reduce associated with input options (Darnall et al., 2008).

Both EMS and GSCM practices share the same continuous improvement model, EMS is a process management system that allows organizations to further reduce their impact on the environment. Likewise, GSCM adopts a continuous improvement process that decreases the supplier's input effect on the organization's end product. These two practices need an organization to think "holistically" about the environmental impacts of their organizations' operations. Implementation of EMS and GSCM strategically designs for the long term and develops the ability to evaluate their performance to achieve the goals. Organizations have also developed a culture that includes an internal assessment that helps drive the organization towards achieving better efficiency - in and around the operating unit which is essential for continuous improvement of environmental performance. It is essential to have good association across business units. For example, in adopting green supply chain practices, the organization must assert its product design unit with its marketing department and its suppliers to reduce waste at each point in the supply chain (Darnall et al., 2008).

One way the organization manages this relationship is to create a "product design team" that includes authorized from both internal units and suppliers, to talk through about environmental concerns throughout the process of product design. These teams constantly depend on life cycle analysis to guarantee the less impact of extracting raw materials into final disposal. The organization that complies with EMS can leverage their investments to train its employees to adopt GSCM. The improvement of environmental performance requires training for the employees to make them understand and practicing GSCM effectively and efficiently. By encouraging employees to work in teams and continuously improve their organization's environmental performance, the company can use pollution prevention skills and environmental knowledge on GSCM practices. Thus, EMS offers management structures to assist supply chain management decisions that affect the environment (Al-Sheyadi, Muyldermans, & Kauppi, 2019).

The organization needs to comprehend the integration of EMS and GSCM practices since there are pressures from the internal and external stakeholder to manage their environmental performance. The implementation of both EMS and GSCM practices can be one approach for organizations to show stakeholders that their environmental management practices are strong (Al-Sheyadi et al., 2019).

## 2.4. The Case Company

BASF PETRONAS Chemicals Sdn. Bhd is a huge chemical company integrated oils and gas that was established in 1997. This company is the collaboration between BASF SE Aktiengesellschaft of Germany and Petroliam Nasional Berhad (PETRONAS), Malaysia's National Oil Company located in Gebeng, Kuantan, Malaysia. They produce highly reactive polyisobutene (HR-PIB), which are essential for high-performance fuel and lubricants additives in market chemical products.

This plant is the first in South East Asia, produced about 50, 000 metric tons total annual capacity of HR-PIB with total areas 150 hectares Integrated Chemical Site including the port tank farm in the Kuantan Port. The BASF PETRONAS now has more than 12 plants, including Toray-BASF PBT Resins that integrated the Aroma Ingredients Complex (Citronellol and L-Methanol) (BASF PETRONAS chemicals, 2016). They are the largest integrated chemical site that is producing the raw materials for manufacturing industries such as adhesives, coatings, and other products that required chemical compositions (acrylics acid/esters, oxo-alcohols, syngas, plasticizers, and butanediols). The company also exported 80% of the products to the Asia Pacific region.

BASF PETRONAS has been received the ISO14001:2015 for its Occupational Safety & Health Management System and the ISO9001:2015 certification for its Quality Management System. In 2016, Kosher also certified their adherence to comply with the standards and received the Halal Certification for the Aroma Ingredients Complex plants(PETRONAS, 2017).

## 3. Methodology

This study used the qualitative research approach to collect information about the effectiveness of EMS implementation in Green Supply Chain. Data that are collected from this study are subjective. The interview technique was carried out on the focal person from the quality management department in BASF PETRONAS Chemicals Company. The significance of this technique where clear information could be obtained

since it is direct contact of verbal communication between partners (Langos, 2014). Data collection methods and tools like the research questions and a few additional questions are provided as a guideline to collect the data information accordingly to the scope and objectives of the study. Besides that, data collected in an observational study. Observation method can be used in setting the physical environment, social interactions, physical activities, non-verbal communication, planned and unplanned activities (Tracy, 2019). The study started with the particular observation inside of the chemical's plant of the company to obtain the information on how the company's operations aligned with the EMS 14000 policy and Green Supply Chain management. Then proceeded with the interview session with the person in charge in that company. The entire interview is recorded to keep the data information and as a proof to the authenticity of the information from the company.

#### 4. Discussion

Organizations should be concerned about the environmental impacts of their business operation for the entire supply chain. The "Green" initiatives that applied in the supply chain process are important to reduce the effect on the natural environment. The integration of environmental management system (EMS) and green supply chain management (GSCM) in the organization enhanced the environmental performance.

BASF PETRONAS Chemicals Sdn. Bhd. has complied with the EMS ISO 14000 since they first established the joint venture between BASF SE and PETRONAS Malaysia in 1997 and had certified with ISO14001:2015 for their Occupational Safety & Health Management System and the ISO9001:2015 certification for their Quality Management System.

An interview session has been made with the focal person that responsible in the compliance management system, Ms. Asmindar Binti Hanapi, The Senior Executive of Quality Management in BASF PETRONAS Chemicals. She made a clear explanation about their organizations' supply chain operation that aligned with EMS and GSCM practices and given the researcher better understanding of how important the implementation of EMS in the green supply chain in an organization. As they are very committed on environmental awareness, their company has been aligning their company goals with the EMS and GSCM practices such as reducing the greenhouse gas emission by using the energy resources efficiently and control the air emission in their business operations.

Their EMS can be dissected from two viewpoints:

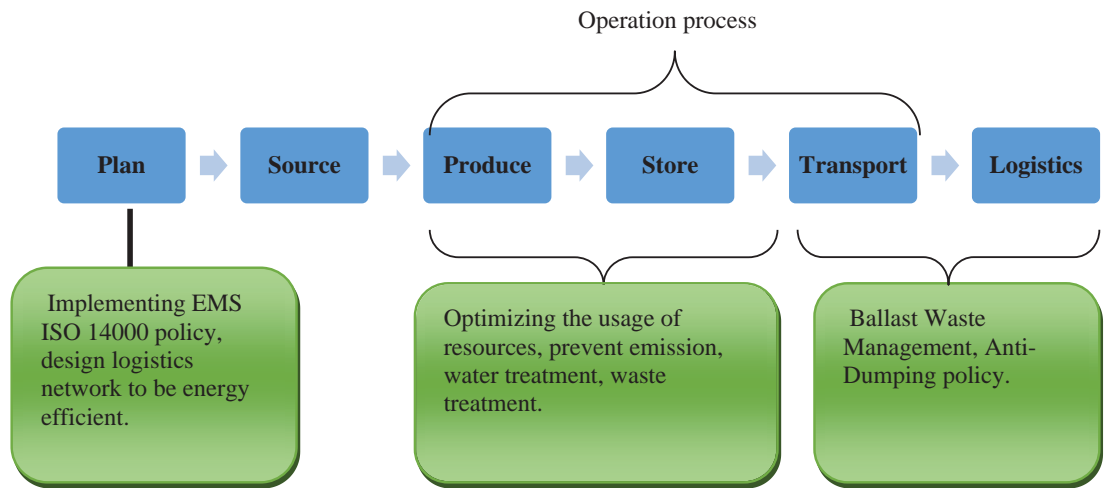


1. Compliance on ISO 14001 (system compliance, environment protection, etc)
2. Green Supply Chain (scheduled water waste, materials used for packaging, etc)

The environmental management system (EMS) ISO 14000 applied not only in the office but also in of their chemical plant. To comply with ISO 14001, they used Health, Safety and Environmental (HSE) policy as their guidelines. Under this policy, their company strives to provide environmental protection, internal planning, and execution as their part of the commitment to comply with the EMS ISO 14000. They are really committed to ensuring that the safety and environment are protected during the planning and execution of the organizations' business operation in compliance with all the relevant requirements. This is aligned with their organizations' goals and objectives where they want to have ZERO reportable adverse environmental impacts. The HSE team is a well-trained team that is responsible for looking up the environmental issues especially in the chemical plants. Apart from that, the company also act under The Environmental Quality Act (EQA) 1974, (Act 127) for the clean air regulation and schedule waste management. Every new project has to come out with the Environmental Impact Assessment (EIA) to ensure they fully comply with all the requirements that related to the environment, for example, the effect of the chemical substance that they used to the natural resources (air, water, and soil), or even the society.

The company has its own direction towards the sustainability environment protection to reserve the resources for the future as their trademark chemistry drives sustainability. They integrate sustainable development in the green supply chain to enhance more their environmental performance and achieving their goals to protect the natural environment. As mentioned before, they implement the EMS in the entire supply chain. The processes started with the sourcing, move to operation process and end with the product and deliver to the customer. The suppliers are given the CODE of Conduct for them to comply with the EMS ISO 14000 regulations and fulfill all the requirements to protect the resources and natural environment. In the operation process, they have to make sure to minimize and prevent pollution during the operation. For example, before them releasing the water from the chemical plants to the river, they have to undergo the water treatment process to make sure the water discharge from the plant to the river is clean and will not harm the environment. The schedule wastes need proper treatment before being transferred to the disposal place. They endeavor as possible as they can to reuse and recover all the waste and used them as an energy source to avoid waste and saving more costs. This as proof that their company very efficient in handling their waste production. The final unit in the supply chain is the logistic where the end products are delivered to the customer. To support the green supply

chain, their logistics management has to comply with the Ballast Waste Management and Anti-Dumping policy where this is very important for the shipments to follow the regulations to protect the marine ecological. The entire process of the whole supply chain is shown as below:



**Figure 4:** Overview of The Green Supply Chain Process in BASF Petronas Gebeng (Source: Authors' own work).

The compliance of EMS ISO 14000 as standard guidelines that the company used to achieve its goals of green initiatives in their business operation. The company has to identify its internal and external issues and relevant interested parties'. Other than that, the leadership management also important to drive the success of the implementation EMS in the company where the top management should provide clear direction to all employees to commit to the policy. Top management also needs to provide all the resources to establish a management system. The PDCA cycle is followed, from Plan-Do-Check-Act to continuously improve their environmental performance. The evaluation of the environmental performance will be assessed by the recognize auditor year. Their company needs to undergo the Environmental Aspects Significant Impacts Assessment to each of the operation processes to control and take actions due to any harm towards the environment.

One of the approaches that the company used to keep maintains the effectiveness of EMS implementation in GSCM by providing the employees with training programs related to the environmental. They are devoted to spreading environmental awareness among their employees. Moreover, they also provide programs that involved the society to be more concerned towards the environment. For example, mangrove planting and Kuantan river adoption. This shows that BASF PETRONAS Chemicals really committed to protecting the natural environment and eco-system.

In essence, the implementation of the environmental management system (EMS) in the green supply chain in BASF PETRONAS Chemicals Company is effective in terms of protecting the natural environment, improving the sustainability and also beneficial in reducing the costs. The researcher believes that it is really important to comply with the EMS ISO 14000 and follows the continuous improvement cycle that the company applied to boost the company performance.

## 5. Recommendation

The researcher has recommended the new idea to enhance their environmental performance by developing the new technology for incinerating hazardous waste. For instance, the chemical incineration processes treat the waste material from the operations and turn it into something useful for energy source or else further analysis to use the waste for future use. This could help save more natural resources and develops the sustainability of the environment. Apart from that, integrating the Corporate Social Responsibility (CSR) ISO 26000 with Environmental Management System (EMS) ISO 14000 can assist the company in term of risk management since ISO 26000 not only addresses to the social obligation yet still concerned about the environmental protection and sustainable development.

## 6. Conclusion

To put it succinctly, the integration between the green supply chain management system and the performance of the environmental management system as a dynamic exchange of links, materials, energy, and information exchange among them often occurs. This research discloses that organizations that practice EMS are more commonly practicing GSCM practices, no matter how long EMS has been provided. These results show that EMSs and GSCM are complementary to each other, and EMS executives have a stronger probability of improving the environment not only within the boundaries of their organizations but across their network of buyers and suppliers. The effects might be a holistic improvement in environmental sustainability due to existing mechanisms to improve environmental performance across the network.

## Acknowledgment

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

## Appendix 1 – Interview Transcripts

a) How does the business goal in the company aligned with the Environmental Management System (EMS) in the Green Supply Chain?

Answer: BASF PETRONAS Chemicals Company has been aligning their company goals with the EMS and GSCM practices such as reducing the greenhouse gas emission by using the energy resources efficiently and controls the air emission in their business operations.

b) How does the Environmental Management System (EMS) affect the Green Supply Chain in the company's operations?

Answer: The compliance of EMS ISO 14000 as standard guidelines that the company used to achieve its goals of green initiatives in BASF PETRONAS business operation. The entire supply chain has to follow and obey all the policy that has been documented in the early stage of EMS implementation in the company.

c) What are the challenges for the company to maintain the effectiveness of the Environmental Management System in the Green Supply Chain?

Answer: The challenges that have to encounter to maintain the effectiveness of the EMS in GSCM is they have to make sure the suppliers, contractors, and also the buyers obey with the environmental policy that has been set. They have to maintain their company reputation that aligned with the company goals related to environmental protection.

d) How does the company evaluate the effectiveness of the EMS in their Green Supply Chain operations?

Answer: The evaluation for the environmental performance of the company will be review and check by the expert, the recognized auditor from Germany. The auditor will review the environmental performance of the company every year and measure the effectiveness of the EMS in the GSCM operations as well.

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## Conference Paper

# Factors Influencing the Effective Leadership Succession Planning: Study on A Malaysian GLC

Shamsulkahar Abdul Shukor and Suhaidah Hussain

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

Factors influencing effective Leadership Succession Planning (LSP) of one main Malaysian Government Linked Companies (GLC) becomes the focal scope of this research paper. The need to understand external factors, among others, on Malaysian economic policy itself, has a great influence on LSP program. It is not sufficient for the leaders in GLCs to only master their business operations knowhow. With the great interest to discover the actual practice of a successful GLC, researcher took this subject as this qualitative research is aimed to study the current factors and the gap that is influencing the effectiveness of current LSP initiatives by a service-oriented of GLC, and to highlight some key critical factors as proposed in the literature. Factors influencing the effectiveness of LSP are also subject on the ability of the leaders to adopt to external changes particularly in the era of a borderless economic and faster rate of technology changes, and there are some differences among the industries and organizations, subject to the nature of the business and their stakeholders. Nevertheless, some important concept in LSP can be used as guidelines and practices be it from the primary data or the research literature. In view of this, the researcher is determined to conduct a qualitative study in meeting the research objectives and to answer the research questions. An interview with the Group Chief Executive Officer (CEO) of one GLC, who is the subject matter expert. The recording from the interview was transcribed and further analyzed using ATLAS.ti software. The findings evidence that there is the current practice of leadership succession planning in the company, anyhow there is a gap between the aspirations of the Group CEO and the availability of C-level replacement from within, and between the reality and the theories. Results of the findings identify the outcomes that need to be taken into action for a more effective LSP program. In the future, similar research approach can be conducted to other GLCs in order to analyze the similarities and complementary aspirations with regards to LSP.

**Keywords:** leadership succession planning, Malaysian government linked company.

## 1. Introduction

Leaders in any organizations may come and go, but the organizations itself need to continue to exist and grow, particularly business organizations whose existence is dependent on their business revenue. The leaders are being held responsible for ensuring the continuity and growth of their companies. Because of this, owners or

Corresponding Author:  
Shamsulkahar Abdul Shukor  
shamsulkahar@ump.my

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

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leaders of business organizations including stakeholders and Board of Directors, must have the awareness and need to know how to best develop it across all C-levels (C-suite, also called C-level is commonly referred to high-ranking executive titles within business organization who are responsible for the organization's performance. C refers to chief, which in this study is Chief Executive Officer, Chief Financial Officer, Chief Operating Officer and to some extent Chief Technology Officer, Chief Marketing Officer and others, subject to the size of the organization. It goes to the same for President, Senior/Vice Presidents or alike for some organizations.), in order for the organization to survive and thrive. Leadership Succession Planning (LSP) is a key processes in assessing and developing an organization's leadership talent (Lewis & Heckman, 2006). Continuous performance of business organizations, which is much dependent on the strong leadership, becomes the focus of interest of various references by many. Findings by literature stated that transformational, well trained and proactive leadership influences organizational performance positively (Avey, Avolio, & Luthans, 2011; Carmeli, Schaubroeck, & Tishler, 2011; García-Morales, Jiménez-Barrionuevo, & Gutiérrez-Gutiérrez, 2012). Besides the business operation knowhow, the C-level leaders of the business organizations should be able to manage the dynamism and complexity of business challenges mainly external factors. The leaders must be able to always updating their strategic business planning using measures such as PESTLE, which is developed to evaluate the impact of 'Political, Economic, Social, Technological, Environmental and Legal' factors (Rastogi & Trivedi, 2016).

## 1.1. Background of the Study

Malaysian economic, to some extent, is partly moved and influenced by Government-Linked Companies (GLC) (GLCs are managed and supervised by the Government of Malaysia's strategic investment fund of, namely Khazanah Nasional Berhad. They are entrusted to undertake strategic investments on behalf of the nation and to hold and manage the commercial assets of the Government, (Khazanah, 2018)). Malaysian government, through its formed GLCs, acquire stakes in some Malaysian companies particularly those serving basic utilities, goods and services to the general public, in ensuring national aspirations, social needs and to ensure sustainability in facing global challenges are fulfilled (Centre for Public Policy Studies, 2006; Vietor, 2007; Beh, 2007). Malaysia's GLCs function as part of the government's strategic move and mechanism to better manage its economic performance, in ensuring balanced socioeconomic ingredients which include the fact of being a multi-racial nation, political factors, education,

and social well-being factors. For a start, the researcher is interested in learning how LSP is practiced in one of the GLCs, by focusing on the effectiveness of the company’s current LSP and what is the gap that exists between the current performance and the aspiration of its newly appointed Group Chief Executive.

### 1.2. The Company

Figure 1 shows the organization structure of the Company, to give an idea of how the C-level is structured. The biggest shareholder of this organization is Khazanah Holdings, an investment company wholly owned by Malaysia Government through Finance Department, which is 33.2% of the total quantity of 1.66 billion shares, followed by another Malaysian Government wholly owned organization namely Employees Provident Fund which is 10.8%.



**Figure 1:** Organization Structure of the Company (Source: The Company’s Website).

In order to meet the expectation of their main stakeholders, particularly the government through Khazanah Holdings, GLC leadership be it current or in future, to be filled with the right candidate who are trained and instituted a framework for investment decision making, that all investments and divestments having to go through several “decision gates,” including the executive committee and a number of board members, which is composed of a mix of renowned private sector personalities and senior relevant government officials (Hayat, 2013).

### 1.3. Situational Analysis and Challenges of GLCs

Leaders of the GLC must ensure that their companies enjoy continuous excellent financial performance and shareholders value, which is the government, even though the Company does not have competitors. Poor LSP will cause inefficiency of company performance, which leads to some perception impact on government integrity and on its business viability.

Malaysian Government own some percentage of ownership in the GLCs, and also has the final say on the appointment of GLC top management, through its investment arm Khazanah Holdings. Thirty six percent of the market capitalization of the Malaysian stock market in 2017 is owned by Khazanah, thus play a significant role in the development of the country's economy (Mokhtar, 2005).

Appointing candidates for the appointment of CEOs in GLCs to have to go through a stringent process. The government already has proper recruitment procedures and techniques in place, thus ensuring transparencies and accountability of the appointments (The SUN, 2017). Another aspect to be looked into is that political leaders must abide by their limit in the involvement in making some very important decisions. It is more significant to have greater decentralization in the GLC's decision making to achieve faster implementation and effectiveness even though it may cause dilution of the federal government power (Malaysia National Economic Advisory Council, 2008).

#### 1.4. Research Objectives

The objectives of this paper are:

1. To learn the company's current practice of LSP
2. To identify LSP effectiveness factors
3. To identify the gap between reality and aspirations on LSP program by their leader.

#### 1.5. Research Questions

Research questions are:

1. How does the Company carry out its current LSP strategies or program?
2. Why there is a gap between the expectation and the outcome of LSP, and how effective is it?
3. How will succession planning be able to prepare the next generation of CEO and general managers to be competent and able to function on the next higher level of management?

## 2. Literature Review

Leadership succession planning (LSP) become an important subject need to be taken into account by the stakeholders and top management of any organization, when a replacement for C-levels is needed be it based on the planned or sudden requirement (Galagan, 2010; Bocatto, 2010). Developing employees to assume leadership role is very important for any organization's LSP which is pertinent tool in preparing for future changes in employee demographics (Calareso, 2013; Beheshtifar, 2012; Fink, 2011), and due to the fact that their companies have committed, dedicated and high-functioning trustees who work toward great outcomes for the plan (Brent, 2013).

### 2.1. Existing LSP Sourcing Strategies

Identifying and developing high potential internal employees becomes an integral task of organizational planning and performance (Risher, 2015; Yamkovenko & Hatala, 2015). Competencies and skills of high potential managers of the future leaders are critical components of LSP where the process need to be assessed accordingly and continuously (Moradi, 2014; Hanson, 2013). It is an important business sense for having a list of internal candidates from time to time for the talent pipeline (Saratun, 2016). The company should be willing to invest in systematic and synergistic practices for sourcing high potential internal talent through LSP (Cho & Poister, 2014).

When we talk about coaching, constant engagement in an active leadership development planning process with those high-potential managers brings about motivated and trust their higher-level management particularly their mentors with their career progression (Saratun, 2016). Top management needs to leverage it to motivate and develop future leaders, and executive coaching is one of the most effective methods for developing high potential internal managers for multiple job levels and promotions (Chung, 2012).

### 2.2. Addressing Gap in the Current LSP Implementation

Leadership skills gap among the immediate subordinates to the C-levels can be reduced and addressed through formal coaching and mentoring, series of relevant training, executive interviews (Stewart, 2016). While addressing development gaps and improving the connection between performance and potential, relationship building is fostered and nurtured and can be developed during the one-to-one session, and along the

way could be a transactional exchange of information between the top management and those high potential employees (Allio, 2012). Similarly multigenerational workforce will lead to gaining the opportunities to take on special assignments to sharpen skills and wider exposure (Quintana, 2014), and meeting the needs of them to enrich new skills and capabilities and gain exposure to other leaders across the organization via cross-training and talent awareness session (Dewah & Mutula, 2014).

Remediation of their learning gaps via new skills exposure and development, improves performance, where they will become more promotable employees thus creating a win-win culture and preparing LSP actual talent for the company (Blattner, 2015) and cultivating leadership skills, makes employees from degrees of potential to emerge and shape as leaders (Jing & Avery, 2016). Bi-directional relationship between potentials and top management would be able to reduce leadership gaps as they are to be accountable for sharpening, training, and development of qualified high-potential managers through succession planning (Moradi, 2014).

### 2.3. Meeting Organizational Needs

The capabilities of high-potential employees and leaders by having replacement planning strategies become a norm when it is tied up with the winning culture (Sheth, 2016). Cultivating replacement planning strategy where high-potential employees can be generated, is also become another winning culture that benefits the organization (Nold, 2016).

LSP needs to have the preparation for the leaders to accomplish the organizational needs, to strive to accomplish organizational targets and goals (Metcalfe & Metcalfe, 2013). The behavior of constant communication is also important to be cultured between leaders and high-potential employees linked, and drives to the business needs affect its efficiencies and effectiveness, leads towards win-win workplace climate (Stumpf, JR, Ehr, & Dam, 2016; Blattner, 2015; Quintana, 2014).

Business organizations must keep alert and be prepared in making operational decisions when it comes to external factors as well. Besides political changes as happened in Malaysia as happened in the recent General Election in May 2018 as discussed in Chapter 1, their potential leaders need to have pro-active ability to face the globalization openness market, disruption of technologies, and workforce. Rate of changes and external influences is unpredictable, urging the need for organizational agility that influences internal operation disruption (Bass, 2008; Ariss, Cascio, & Paauwe, 2014; Greenhalgh & Jantti, 2012).

### 3. Methodology

#### 3.1. Research Design

The research design used for this study will apply qualitative research. It is usually considered as inductive approach, with the underlying assumptions being that reality is a social construct where it is difficult, complex and interwoven to measure its variables, that there is a primacy of subject matter and that the collected data shall consist of insiders' point of view and knowledge (Rovai, Baker, & Ponton, 2014), which provide a content and context-rich breadth of information is current and practical although subjective (Tracy, 2013), aimed at instead of the surface description of a large sample of a population, it is aimed at achieving deep understanding of a specific organization or event. Qualitative has five areas, namely case study, ethnography study, phenomenological study, grounded theory study, and content analysis (Bhawna & Gobind, 2015).

Besides the above, researcher applies exploratory type of research which is the method to clarify and define the nature of the problem in the research, as opposed to descriptive research which is to describe characteristics of the studied population or phenomenon, and causal research is carried out to study the link of cause-and-effect relationships among variables post-identification of the research problem (Zikmund, Carr, & Griffin, 2013). Conceptual Framework

The following diagram, as in Figure 2 illustrates the conceptual framework for the study, demonstrates three independent variables are identified and classified in answering the objectives and questions that testify the scope of the study's topic.

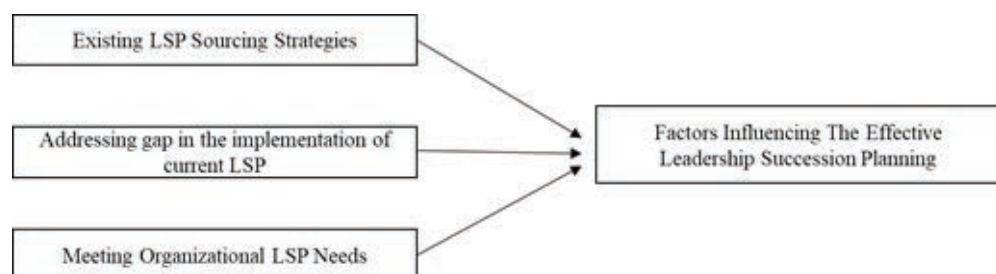


Figure 2: Conceptual Framework (Source: Authors' own work).

##### 3.1.1. Data Collection

The interview was conducted in this context can be understood as the nature of qualitative research. Types of the interview are structured interviews, unstructured

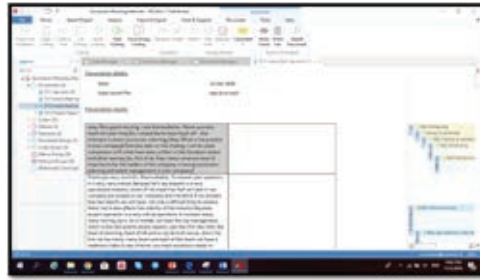
interviews, and semi-structured interviews (Haron, Khalid, Ganesan, & Fernando, 2017; Neale, 2006).

In this study, an individual interview was carried out. The outcome of the interview is very informative and contains relevant data required for the study. The Group Chief Executive Officer (CEO) with a manpower strength of approximately 10,000, is the participant for this study. He is the subject matter expert and the right person to fulfill the objectives of research questions adequately. The outcome and analysis cannot be generalized, and anyhow the findings served as a very reliable reference.

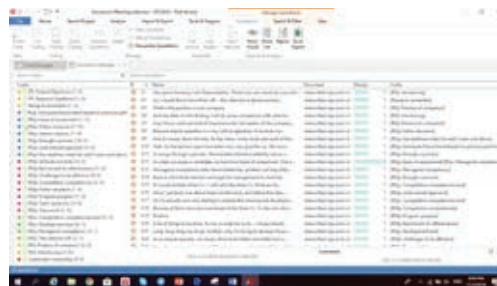
### 3.1.2. Data Analysis

'Themes' are identified at the beginning of the process and are classified in qualitative research, and are used as an element, descriptor, attribute, and concept. Themes provide a path to smoothen researchers to analyze for the answers of the study questions in a more structured manner, in a way as an implicit topic that organizes a group of repeating or relevant ideas accordingly (Ryan & Bernard, 2003). Having themes is with the purpose that the research participants' subjective meanings and social reality are linked, structured and appropriately conveyed in the research report (Horsburgh, 2003), as data alone may not merely provide meaning and answers to the questions. Themes are formed to convey the meanings of data analysis. So, themes are constituted by a group of codes that have a common point of references and answers to the research questions based on the data collected, which is the interview and from literature review, and has a high level of generality that unifies ideas pertaining to the subject of inquiry (Bradley, Curry, & Devers, 2007).

An interview session with the respondent on 6 April 2019 in Shah Alam, Selangor, on one to one and face to face session, was the beginning of the data gathering process. It went smoothly and was recorded for 23 minutes and 34 seconds. The audio record was sent to an online system called '*TranscribeMe!*' for transcribing the conversation record into text form. The full transcribed text is uploaded into ATLAS.ti application, as shown in Figure 3. Researcher opens the file in the system, go through the text, and select one text passage (quotation) to another passage, which is relevant to the research questions. The researcher needs to define keywords for each passage and grouped them into themes and further followed by coding, as illustrated in Figure 4.



**Figure 3:** The Transcribed Voice Recording Document In The Software (**Source:** Author's own work in the software).



**Figure 4:** List of Codes (**Source:** Author's some timework in the software).

### 3.1.3. Significant Statement (Quotations)

The key component in qualitative data analysis is compiling and assigning quotations or statements to the respective group of Codes, by using ATLAS.ti that can use and process discrete interaction with text or multimedia segments. Researcher and analysts can understand the full context of every single document with the help of those quotations, before considering categories that cut across the entire research project.

### 3.1.4. Reliability of Research Instrument

Initial research questions and objectives have been commented by two senior lecturers of UMP. Further to that, the interview questions were reviewed by two other senior lecturers.

Feedback on the summary of research objectives, interview questions, and framework by the participants was also taken into account during the presentation session in the International Conference on Business Intelligence, Industrial Engineering & Management (ICBIEM) 2018 on 11 December 2018.

The interview voice recording was sent for transcription to an American based *Transcribe. Me!* Software as shown in Figure 5, with minor manual edit on the unclear pronunciation and usage of Malay language.





Figure 5: Transcribe.Me! software (Source: TranscribeMe!).

The use of ATLAS.ti application for analyzing and processing the qualitative gathered data with direct guidance by a certified ATLAS.ti trainer.

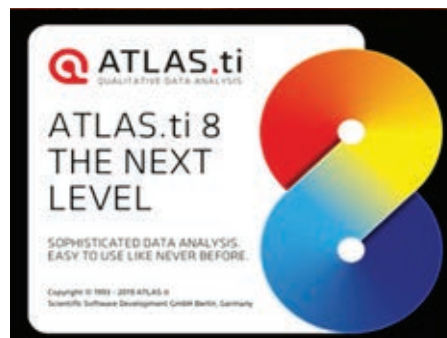


Figure 6: ATLAS.ti software (Source: ATLAS.ti).

## 4. Results

### 4.1. Formation of Themes and Codes

The main data collection in this Leadership Succession Planning is rooted in the interview with Group Chief Executive Officer, who is the lead of the company's business and operations. The researcher sought and presented the findings based on the questions (which were pointed based on the research objectives), grouped the data that answered the questions into themes and further into its respective codes, as shown in the table below.

There are two documents uploaded into ATLAS.ti for analysis, which are the transcribed interview document, and Literature Review of the research is also uploaded. The table shows how many quotations are there in each Codes. 'Through a Process' code scores the highest number in both Transcribed Voice Text and Literature Review, followed by 'Challenges to be effective.'

TABLE 1: Themes and Codes (Source: Author’s own work in the software).

| Themes                                   | Codes  | Number of                       |                            |           | Totals    |  |
|--|--|---------------------------------|----------------------------|-----------|-----------|--|
|  |  | Transcribed Voice Text<br>Gr=49 | Literature Review<br>Gr=14 | Per Code  | Per Theme |  |
| Current Implementation of LSP strategies | • RQa: Anticipate future trend based on previous performance. Gr=1 | 1                               | 0                          | 1         | 24        |  |
|  | • RQa: bases of assessment. Gr=1                                   | 1                               | 0                          | 1         |           |  |
|  | • RQa: Follow structure. Gr=1                                      | 1                               | 0                          | 1         |           |  |
|  | • RQa: interim solution. Gr=1                                      | 1                               | 0                          | 1         |           |  |
|  | • RQa: through a process. Gr=16                                    | 12                              | 4                          | 16        |           |  |
|  | • RQa: unstructured approach. Gr=3                                 | 3                               | 0                          | 3         |           |  |
|  | • RQa: Use readiness index for next 3 years and above. Gr=1        | 1                               | 0                          | 1         |           |  |
| Tension between reality and application  | • ROb: Attitude and traits. Gr=5                                   | 3                               | 2                          | 5         | 23        |  |
|  | • ROb: Benchmark for effectiveness. Gr=1                           | 1                               | 0                          | 1         |           |  |
|  | • ROb: Challenges to be effective. Gr=9                            | 9                               | 0                          | 9         |           |  |
|  | • ROb: Competitive competencies. Gr=2                              | 1                               | 1                          | 2         |           |  |
|  | • ROb: Follow structure. Gr=1                                      | 1                               | 0                          | 1         |           |  |
|  | • ROb: Program progress. Gr=1                                      | 1                               | 0                          | 1         |           |  |
|  | • ROb: Team dynamics. Gr=2   | 1                               | 1                          | 2         |           |  |
|  | • ROb: Teamwork. Gr=2  | 2                               | 0                          | 2         |           |  |
| Sustainability leadership                | • RQc: Competitive competencies tool. Gr=2                         | 2                               | 0                          | 2         | 14        |  |
|  | • RQc: Development tool. Gr=6                                      | 2                               | 4                          | 6         |           |  |
|  | • RQc: Managerial competency. Gr=4                                 | 3                               | 1                          | 4         |           |  |
|  | • RQc: The need for LSP. Gr=2                                      | 2                               | 0                          | 2         |           |  |
| <b>Totals</b>                            |  | <b>48</b>                       | <b>13</b>                  | <b>61</b> | <b>61</b> |  |

#### 4.1.1. Data Analysis Network Diagram

Representation and exploration of conceptual structures are simplified and summarized using network illustration used in ATLAS.ti. Network diagram adds a heuristic ‘right-brain’ approach is used in qualitative analysis. A psychologist and Nobel Prize winner, Robert W.Sperry, according to research in the 1960s, suggests that the right brain is more intuitive and visual, and also connected to imagination, intuition, holistic thinking, rhythm, art and feelings visualization (Pietrangelo, 2017). The researcher can use the structural properties of code-networks to enhance the quotations retrieval, besides using the network for the visual design of theoretical models and ‘mind-mapping,’ for a summary view on the overall link of the themes, codes, and quotation by the readers.

Each of the research themes which constitute part of the research objectives and questions, and list of codes that constituted each of the themes, is summarized in the

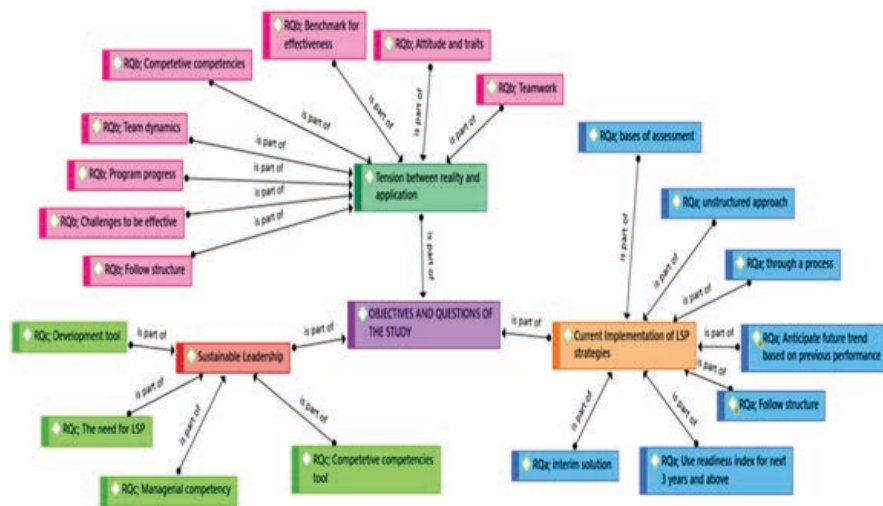


Figure 7: Network Diagram of Themes and Codes (Source: Author’s own work in the software).

network diagram, as shown in Figure 7. Three themes are identified in answering the research questions, (i) Current Implementation of LSP Strategies, (ii) Tension between Reality and Application, and (iii) Sustainable Leadership. Codes are assigned in each of the themes. Some codes are relevant to more than one theme.

#### 4.2. Theme: Current Implementation of SLP Strategies

An overview on ‘Current Implementation of SLP Strategies’ theme and those codes linked to it is shown in the network diagram in Figure 8, which further connected by a list of selected quotation summary connected to each of the relevant code, with the time that respective statement was stated during the interview recording.

#### 4.3. Theme: Tension between reality and application

‘Tension between reality and application’ theme and those codes linked to it, is illustrated by the network diagram as shown in Figure 9, followed by a list of selected quotation summary connected to each of the relevant code, with the time that respective statement was stated during the interview recording.

#### 4.4. Theme: Sustainability Leadership

‘Sustainability leadership’ theme and those codes linked to it, is illustrated by the network diagram Figure 10 below, and further connected by a list of selected quotation

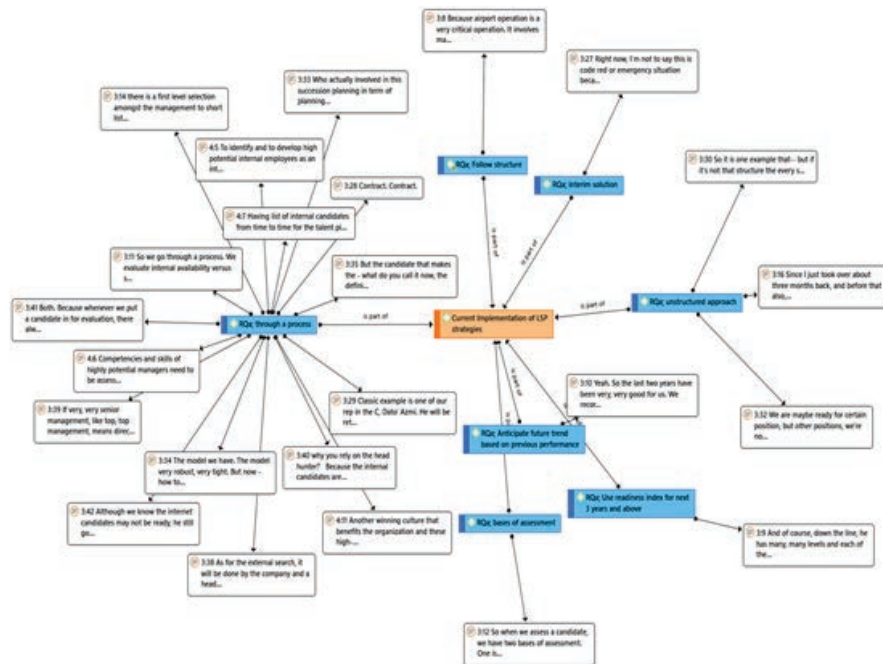


Figure 8: Current Implementation of SLP Strategies (Source: Author's own work in the software).

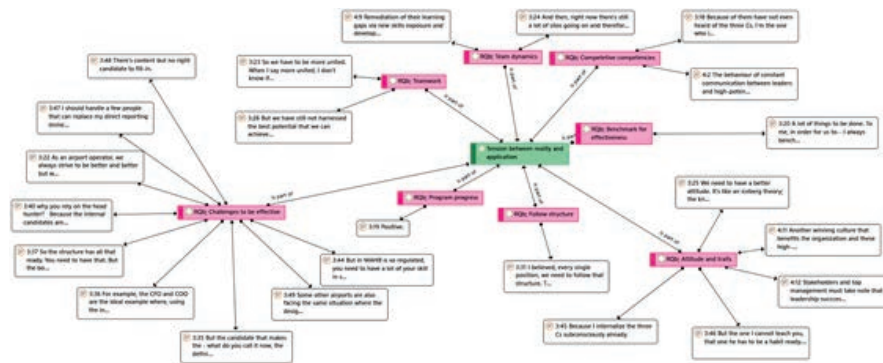


Figure 9: Tension Between Reality And Application (Source: Author's own work in the software).

summary which connected to each of the relevant code, with the time that respective statement was stated during the interview recording.

## 5. Discussion

The study on the factors influencing the effective leadership succession planning on a Malaysian GLC covers three main areas which are known as themes. The researcher highlighted the importance of leadership succession planning, particularly on the external factors that have an impact on the company's business direction and operation. The world is currently facing the dynamism of technologies and applications, and the political climates such as a change in the ruling government, the impact of any major incidents like earthquake and many others, potential leaders of a business company must be

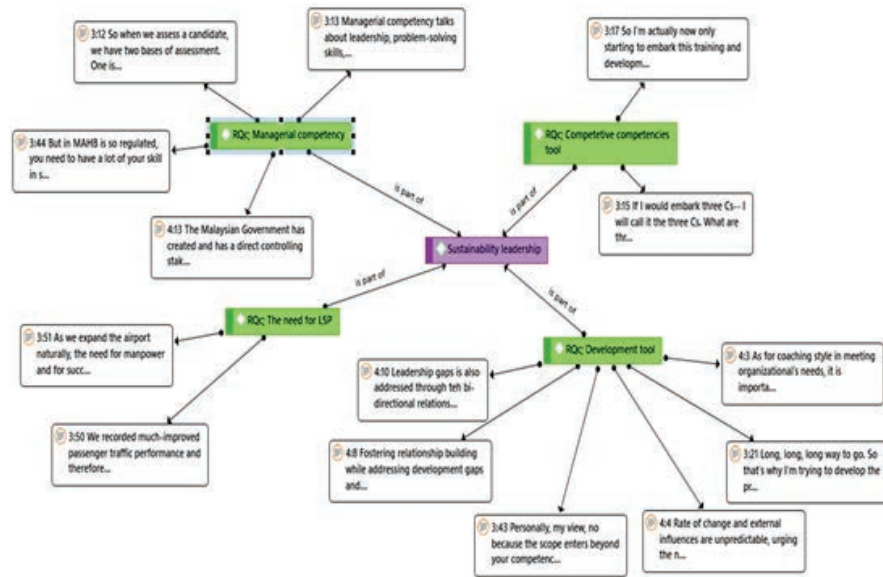


Figure 10: Sustainability Leadership (Source: Author’s own work in the software).

quality of making a right and fast decisions. Within the time constraint in conducting the study, the researcher managed to dig some valuable information that is beneficial theoretically (academic implication) and practically (managerial implication).

It is important to understand that the requirement for providing effective LSP in ensuring leadership quality and capability keeps changing in responding to the macro-economic factors, the research on LSP needs to be carried out from time to time. Theories and literature might be debatable after some time. The researcher conducted this study as to give some ideas on the changes in the leadership aspects, for the academicians to blend the learning module to meet the industrial needs.

The discussions are based on the overall analysis of data, as in the Attachment I.

## 6. Limitation of the Study

The researcher had experienced some limitations in conducting the study which has an impact on the level of accuracy of the study’s output or conclusion. The most critical limitation in conducting any study is time and references. Time constraint for the researcher to comply conduct the study within a semester, being a part-time student. Time constraint is also experienced in scheduling for the interview with the respondent, due to his hectic schedule to spend time for the interview.

Confidentiality of some operational information also contributes towards the limitation. Business organizations, like the Government-Linked Companies are not willing to share their approach due to the highly competitive environment globally. Another

limitation is, there is a very minimal number of previous studies on LSP topic, as the result of the difficulties in getting information. This will limit the study on the gap to be analyzed. Researcher proceeded with the study despite those limitations, since LSP topic is very important for any organizations, particularly those who have a direct interest by the government. The researcher had also spent some extra effort and time to learn a new application system for data analysis.

## 7. Recommendation for Future Study

As highlighted in the Implication section earlier, output or implication of the study has given valuable information to the LSP subject. Thus, it gives greater impactful information if a further and thorough study to be carried out, such as y having more respondents particularly C-levels, since they are the subject matter expert and have vast experiences in ensuring their organization to progress well and to meet stakeholders expectations. At the same time, a mixed research method can be conducted as well in order to come out with a more practical and accurate leadership succession planning strategies.

The combination of the above recommendations will yield triangulation results that can give greater understanding and analysis on the shortcomings or challenges in having a comprehensive LSP and to sustain the company's performance in the long run. As this is a qualitative study, the findings cannot be generalized into other industry or organization. More study needs to be to other organization. To provide a matched analysis, future researchers can conduct research on other Government-Linked Companies as well. Even though the nature of business might be different among GLCs, C-level candidates share about the same competencies and skills in managing their organizations and to remain competitive.

## 8. Conclusion and Implications

Referring to section Research Aims and Objectives earlier, the objectives of this study have been achieved through the qualitative research methods as described in chapter Research Methodology. Interview and literature had been compiled and analyzed, as stated in Section Analysis, is done using *ATLAS.ti* analysis tool to sort out and to arrange the quotations or excerpt those relevant data into themes and codes. The outcome of the findings and analysis is obtained using this system.

The success of the study is contributed by the interview participant, who is chosen by the researcher due to the proven track record of performance and from a very dynamic

organization, and at the same time, has to comply with the government strict policy, so that the interviewee's experiences and his way forward strategies can be learned by other practitioners, academicians and himself. It is beneficial to learn the challenges he has been facing, the areas that need to be focused, and how he plan to overcome those shortcomings.

Conclusively, the study has given a good beginning exposure for further researches to come out with the realistic strategy sharing and theories that can be benefited by any organization, in order to ensure there are an effective LSP and continuous performance growth. The subject of this study will always subject to revision and improvement in lieu of the development of the technologies, borderless world, business dynamism, and complexity of the overall system.

## Acknowledgement

I wish to sincerely thanks to my research supervisor, Dr. Suhaidah Binti Hussain from the Faculty of Industrial Management, Universiti Malaysia Pahang, for the valuable guidance, expertise, and knowledge sharing and encouragement throughout the research. She is very supportive who always ensure the progress of conducting and writing this research. She has introduced and recommended me to use ATLAS.ti software to analyze my collected qualitative data effectively. I would like to take this opportunity to express my warm thanks to my family for their understanding and moral support particularly it was very time consuming, to manage the time for family, work and research. I sincerely appreciate their unceasing encouragement, support, and attention that lead me toward the success of this research.

## Funding

I would like to express my sincere appreciation to the Bank Rakyat for funding my participation in the presentation of my research paper in this FGIC 2nd Conference on Governance & Integrity.

## ATTACHMENT I

### HOW DATA IS ANALYSED

**Theme: Current Implementation of LSP strategies.**

Quotations from the interview in this sub-section are responding to the Research Question: *How does the Company carry out their current LSP strategies or program?* Each selected quotation or statement is linked to the research objectives as elaborated in the *Interpretive Meaning* column in Table 2 below.

TABLE 2: Significant Statement and Meaning from Current Implementation of LSP Strategies Theme.

| Significant statement  | Interpretative Meaning  |
|--|---|
| <b>Current Implementation of LSP strategies</b>  |   |
| <ul style="list-style-type: none"> <li>• “Yeah. So the last two years have been very, very good for us. We recorded much-improved passenger traffic performance and therefore that resulted in us earning a great profitability and we anticipate this trend to continue in the next few years. So far year-on-year we have been recording growth. There is no year-on-year decline in passenger traffic volume hence the results have been very, very encouraging. Yeah. It’s been positive”. <i>Document Source:</i> Transcribed Voice Text (3:10).</li> </ul> | <p>LSP current strategy practice is equipped with the ability to anticipate future trend based on previous performance. This is the only quotation this RQa code (refer to Error! Reference source not found.).</p> |
| <ul style="list-style-type: none"> <li>• “So when we assess a candidate, we have two bases of assessment. One is the technical competency and the other one is the managerial competency”. <i>Document Source:</i> Transcribed Voice Text (3:12).</li> </ul>   | <p>LSP current strategy practice have bases of assessment on technical competency and managerial competency. This is the only quotation this RQa code (refer to Error! Reference source not found.).</p>            |
| <ul style="list-style-type: none"> <li>• “Because airport operation is a very critical operation. It involves many, many moving parts. So in &lt;the Company&gt;, we have the top management, which is the CEO and his direct reports. Like the CFO, the COO, the head of planning, head of HR and so on”. <i>Document Source:</i> Transcribed Voice Text (3:8).</li> </ul>  | <p>LSP current strategy practice follows structure. This is the only quotation this RQa code (refer to Error! Reference source not found.).</p>   |
| <ul style="list-style-type: none"> <li>• “Right now, I’m not to say this is code red or emergency situation because– yes, I do not have a ready successor - and that is worrying - but the people supporting them is strong enough to cover them. Let’s say, somebody leaves next week or crisis happen, the airport will not be at a standstill. But it is not ideal because I need to have a successor ready actually to take over, but I do not have a successor ready”. <i>Document Source:</i> Transcribed Voice Text (3:27)</li> </ul>                     | <p>LSP current strategy practice does have interim solution for the fulfilment of candidate. This is the only interview quotation for this RQa code (refer to Error! Reference source not found.).</p>              |
| <ul style="list-style-type: none"> <li>• “So we go through a process. We evaluate internal availability versus some resources externally. And from that pool, we will select those who are most eligible to fill up that position. But we never ignore internal candidates”. <i>Document Source:</i> Transcribed Voice Text (3:11).</li> </ul>   | <p>LSP current strategy practice goes through a process. There are 12 quotations from the interview and four LR statement for this RQa code (refer to Error! Reference source not found.).</p>                      |



| Significant statement  | Interpretative Meaning |
|--|------------------------|
| <b>Current Implementation of LSP strategies</b>  |                        |
| <ul style="list-style-type: none"> <li>• “There is a first level selection amongst the management to short list candidates, namely me and the HR head. And then after that, we will recommend the candidates to the - what they call the - BNRC which is the Board Nomination Remuneration Committee. They will meet and they will interview those shortlisted candidates. And if they make the cut, they will go along with management recommendation. If they don’t make the cut, in their point of view, they will start the process all over again”.<br/><i>Document Source:</i> Transcribed Voice Text (3:14).</li> </ul> |                        |
| <ul style="list-style-type: none"> <li>• “Classic example is one of our rep in the C, Dato’ Azmi. He will be retiring in about years’ time. We’ve really identified three potential successors, and we are starting to train them. We are giving all the managerial development skill, coaching. We send coaches to them”.<br/><i>Document Source:</i> Transcribed Voice Text (3:29).</li> </ul>   |                        |
| <ul style="list-style-type: none"> <li>• “Who actually involved in this succession planning in term of planning and implementing it? HR. HR head”.<br/><i>Document Source:</i> Transcribed Voice Text (3:33).</li> </ul>   |                        |
| <ul style="list-style-type: none"> <li>• “The model we have. The model very robust, very tight. But now - how to say it? - The process is there. The content it’s not there yet”.<br/><i>Document Source:</i> Transcribed Voice Text (3:34).</li> </ul>  |                        |
| <ul style="list-style-type: none"> <li>• “But the candidate that makes the - what do you call it now, the definition? - R2, R3, R4 readiness level, okay, we have not fill up the boxes nicely because there are some people who are not ready yet”.<br/><i>Document Source:</i> Transcribed Voice Text (3:35). <i>Also for code RQb; Challenges to be effective.</i></li> </ul>   |                        |
| <ul style="list-style-type: none"> <li>• “As for the external search, it will be done by the company and a head hunter? And a head hunter. And a headhunter”.<br/><i>Document Source:</i> Transcribed Voice Text (3:38).</li> </ul>  |                        |
| <ul style="list-style-type: none"> <li>• “If very, very senior management, like top, top management, means direct report to the CEO, mainly head hunter. But if it’s a senior manager level, it’s mixed. Some head hunter, some internal”.<br/><i>Document Source:</i> Transcribed Voice Text (3:39)</li> </ul>  |                        |
| <ul style="list-style-type: none"> <li>• “Why you rely on the head hunter? Because the internal candidates are not ready. Because our succession planning process is not robust enough to make them ready”.<br/><i>Document Source:</i> Transcribed Voice Text (3:40). <i>Also for Code RQb; Challenges to be effective.</i></li> </ul>  |                        |

| Significant statement  | Interpretative Meaning  |
|--|---|
| <b>Current Implementation of LSP strategies</b>  |   |
| <ul style="list-style-type: none"> <li>• “Both. Because whenever we put a candidate in for evaluation, there always will be an internal candidate or two, right? And, see, when you do an evaluation, you do two. You do an interview evaluation and a psychometric test evaluation”. <i>Document Source:</i> Transcribed Voice Text (3:41)</li> </ul>   |   |
| <ul style="list-style-type: none"> <li>• “Although we know the internet candidates may not be ready, he still go through the process of interview as well as a psychometric test. The psychometric test is like a leadership-style test, whether you are a situation leader, you are a task leader, people person leader because even if he doesn’t make the cut yet, at least from the psychometric test, he knows where to improve himself to make himself ready. The test itself would show whether he is ready or not to go for the– what do you call it? Development. Development. Even if he’s not ready now, at least his development plan is more clearly charted out from that result”. <i>Document Source:</i> Transcribed Voice Text (3:42).</li> </ul> |   |
| <ul style="list-style-type: none"> <li>• To identify and to develop high potential internal employees as an integral tasks of organizational planning and performance (Risher, 2015; Yamkovenko &amp; Hatala, 2015). <i>Document Source:</i> Literature Review</li> </ul>  |   |
| <ul style="list-style-type: none"> <li>• Competencies and skills of highly potential managers need to be assessed accordingly and continuously, serve as critical components of LSP process (Moradi, 2014; Hanson, 2013). <i>Document Source:</i> Literature Review</li> </ul>   |   |
| <ul style="list-style-type: none"> <li>• Having list of internal candidates from time to time for the talent pipeline creates good business sense. Top management should be willing to invest in application and synergistic practices for sourcing high potential internal talent through LSP, as social exchange does contribute towards this purpose.(Saratun, 2016) (Cho &amp; Poister, 2014). <i>Document Source:</i> Literature Review</li> </ul>  |   |
| <ul style="list-style-type: none"> <li>• To another winning culture that benefits the organization and these high-potential employees can be generated via a cultivating replacement planning strategy (Sheth, 2016) (Nold, 2016). <i>Document Source:</i> Literature Review (also for RQb; Attitude and traits)</li> </ul>  |   |
| <ul style="list-style-type: none"> <li>• “Since I just took over about three months back, and before that also, I think, for the seven months prior to that, so this is quite a new thinking from me. Previously, there isn’t such a structured approach in this manner or that manner”. <i>Document Source:</i> Transcribed Voice Text (3:16)</li> </ul>  | <p>LSP current strategy practice does experience unstructured approach. There are three quotations from the interview for this RQa code (refer to Error! Reference source not found).</p> |

| Significant statement  | Interpretative Meaning   |
|--|--|
| <b>Current Implementation of LSP strategies</b>  |  |
| <ul style="list-style-type: none"> <li>• “So it is one example that– but if it’s not that structure the every single position”. <i>Document Source: Transcribed Voice Text (3:30)</i></li> </ul>   |  |
| <ul style="list-style-type: none"> <li>• “We are maybe ready for certain position, but other positions, we’re not ready. So in short, our succession training process is not ideal yet”. <i>Document Source: Transcribed Voice Text (3:32)</i></li> </ul>  |  |
| <ul style="list-style-type: none"> <li>• “And of course, down the line, he has many, many levels and each of the levels we have a readiness index to see whether you have successors ready to replace your position in two year time. And there are people ready in three year time and four year time and so on”. <i>Document Source: Transcribed Voice Text (3:9)</i></li> </ul> | LSP current strategy practice uses readiness index for next 3 years and above in advance. There is one quotation from the interview for this RQa code (refer to Error! Reference source not found.). |

### Theme: Tension between reality and applications

Quotations from the interview in this sub-section are responding to the Research Question: *Why there are gap between the expectation and the outcome of LSP, and how effective is it? What does the literature express on succession planning? What are the issues or variables that are important determinants of effective implementation of LSP initiatives?* Each selected quotation or statement is linked to the research objectives as elaborated in the *Interpretive Meaning* column in Table 3 below.

TABLE 3: Significant Statement and Meaning from Tension between Reality and Application Theme.

| Significant statement   | Interpretative Meaning   |
|---|--|
| <b>Tension between reality and application</b>  |  |
| <ul style="list-style-type: none"> <li>• “We need to have a better attitude. It’s like an iceberg theory; the knowledge is the top side of iceberg. Attitude is the bottom of the iceberg. So your attitude can actually make a difference although you may not enjoy some of the macroeconomic factors which are beyond our control like you mentioned”. <i>Document Source: Transcribed Voice Text (3:25).</i></li> </ul> | Explaining element and importance to reduce the gap between reality and application in term of attitude and traits. There is three quotation from the interview and two quotations from LR, for this RQb code (refer to Error! Reference source not found.). |
| <ul style="list-style-type: none"> <li>• “Because I internalize the three Cs subconsciously already”. <i>Document Source: Transcribed Voice Text (3:45)</i></li> </ul>  |  |
| <ul style="list-style-type: none"> <li>• “But the one I cannot teach you, that one he has to be a habit ready. Habit. But in order to become habit, they must be exposed and so on”. <i>Document Source: Transcribed Voice Text (3:46).</i></li> </ul>  |  |

| Significant statement  | Interpretative Meaning  |
|--|---|
| <b>Tension between reality and application</b>   |   |
| <ul style="list-style-type: none"> <li>• Another winning culture that benefits the organization and these high-potential employees can be generated via a cultivating replacement planning strategy. (Sheth, 2016) (Nold, 2016). <i>Document Source:</i> Literature Review. Also for code RQa; through a process.</li> </ul>   |   |
| <ul style="list-style-type: none"> <li>• Stakeholders and top management must take note that leadership succession planning is very important due to the fact that their companies have committed, dedicated and high-functioning trustees who work toward great outcomes for the plan (Galagan, 2010; Bocatto, 2010) Calareso, 2013; Beheshtifar, 2012; Fink, 2011) (Brent, 2013). <i>Document Source:</i> Literature review.</li> </ul>  |   |
| <ul style="list-style-type: none"> <li>• “A lot of things to be done. To me, in order for us to– I always benchmark or set against Changi because Changi is the best airport in the world in terms of both what you call the ASQ ranking which is Airport Service Quality as well as the Skytrax ranking, they are always number one. So we have to benchmark. So if you ask me whether how I rate Malaysia Airports against Changi, these 3 Cs as example”. <i>Document Source:</i> Transcribed Voice Text (3:20).</li> </ul>   | <p>Explaining how the gap between reality and application could be reduced by having a benchmark for effectiveness of the business operation and service. There is one quotation from the interview for this RQa code (refer to Error! Reference source not found).</p> |
| <ul style="list-style-type: none"> <li>• “As an airport operator, we always strive to be better and better but we are somewhat to face Malaysian environment is a bit more challenging because in Changi you are able to collect a lot more airport tax for any traveler. In Changi, all international travelers anyway are taxed at SingD 47 or equivalent 140 ringgit Malaysia. For us, when we travel to Singapore we only pay 35 ringgit airport tax. They collect four times more airport tax than us. And because of that they are able to refurbish and redo and regenerate the terminal much more frequently, they have much more money for training and development to upscale for new products and so on. We want to get that as well but our environment is so regulated, difficult to increase airport tax. So it is not an airport to airport comparison. If you give me the same airport tax as Changi, of course, I can do it like Changi”. <i>Document Source:</i> Transcribed Voice Text (3:22).</li> </ul> | <p>Explaining how the gap between reality and application could be reduced by overcoming the challenges to be effective. There are nine quotations from the interview and one excerpt from LR for this RQb code (refer to Error! Reference source not found).</p>       |
| <ul style="list-style-type: none"> <li>• “But the candidate that makes the - what do you call it now, the definition? - R2, R3, R4 readiness level, okay, we have not fill up the boxes nicely because there are some people who are not ready yet”. <i>Document Source:</i> Transcribed Voice Text (3:35). Also for code RQa; through a process.</li> </ul>   |   |

| Significant statement   | Interpretative Meaning   |
|---|--|
| <b>Tension between reality and application</b>  |  |
| <ul style="list-style-type: none"> <li>• “For example, the CFO and COO are the ideal example where, using the internal model of readiness, the internal candidate is not ready. And therefore, immediately, it triggers an external search”. <i>Document Source:</i> Transcribed Voice Text (3:36).</li> </ul>  |  |
| <ul style="list-style-type: none"> <li>• “So the structure has all that ready. You need to have that. But the boxes or the actual not fill up”. <i>Document Source:</i> Transcribed Voice Text (3:37).</li> </ul>   |  |
| <ul style="list-style-type: none"> <li>• “Why you rely on the head hunter? Because the internal candidates are not ready. Because our succession planning process is not robust enough to make them ready”. <i>Document Source:</i> Transcribed Voice Text (3:28). Also for code RQa; through a process.</li> </ul>   |  |
| <ul style="list-style-type: none"> <li>• “But in &lt;the Company&gt; is so regulated, you need to have a lot of your skill in stakeholder management”. <i>Document Source:</i> Transcribed Voice Text (3:44). Also for RQc; Managerial competency.</li> </ul>   |  |
| <ul style="list-style-type: none"> <li>• “I should handle a few people that can replace my direct reporting immediately, right? But not quite yet, which shows that our process is still process-oriented. I mean, but not enough content-oriented”. <i>Document Source:</i> Transcribed Voice Text (3:47).</li> </ul>  |  |
| <ul style="list-style-type: none"> <li>• “There’s content but no right candidate to fill-in”. <i>Document Source:</i> Transcribed Voice Text (3:48).</li> </ul>   |  |
| <ul style="list-style-type: none"> <li>• “Some other airports are also facing the same situation where the design capacity is now been overtaken by the actual capacity. And therefore we need to expand the airport. As we expand the airport naturally, the need for manpower and for succession planning becomes even more critical”. <i>Document Source:</i> Transcribed Voice Text (3:49).</li> </ul>        |  |
| <ul style="list-style-type: none"> <li>• “Because of them have not even heard of the three Cs. I’m the one who introduced three Cs. So to answer your question, no. I don’t think it is so robust yet, this application”. <i>Document Source:</i> Transcribed Voice Text (3:18)..</li> </ul>  | <p>Explaining how the gap between reality and application could exist if the Company is unprepared to have the skills in competitive competencies. There is one quotation from the interview and one from LR, for this RQb code (refer to Error! Reference source not found.).</p> |
| <ul style="list-style-type: none"> <li>• The behavior of constant communication between leaders and high-potential employees linked and drives to the business needs affect its efficiencies and effectiveness, leads towards win-win workplace climate.(Metcalfe &amp; Metcalfe, 2013)(Stumpf, JR, Ehr, &amp; Dam, 2016; Blattner, 2015; Quintana, 2014)”. <i>Document Source:</i> Literature review.</li> </ul> |  |

| Significant statement  | Interpretative Meaning  |
|--|---|
| <b>Tension between reality and application</b>   |   |
| <ul style="list-style-type: none"> <li>• “I believed, every single position, we need to follow that structure. Then it’s more organized”. <i>Document Source:</i> Transcribed Voice Text (3:31).</li> </ul>  | <p>Explaining how the gap between reality and application could be reduced if the Company follow the current structure of LSP. There is one quotation from the interview for this RQb code (refer to Error! Reference source not found.).</p> |
| <ul style="list-style-type: none"> <li>• “Positive”. <i>Document Source:</i> Transcribed Voice Text (3:19).</li> </ul>   | <p>Explaining progress of LSP program in reducing the gap between reality and application. There is one quotation from the interview for this RQb code (refer to Error! Reference source not found.).</p>                                     |
| <ul style="list-style-type: none"> <li>• “And then, right now there’s still a lot of silos going on and therefore we don’t harness the best ability amongst team dynamics. You can have every individual brilliance but you do not enjoy the team dynamics”. <i>Document Source:</i> Transcribed Voice Text (3:24).</li> <li>• Remediation of their learning gaps via new skills exposure and development, improves performance where they will become more promotable employees thus creating a win-win culture for the company and cultivating leadership skills makes employees from degrees of potential to emerge and shape as leaders (Jing &amp; Avery, 2016). <i>Document Source:</i> Literature review</li> </ul> | <p>Explaining shortcoming in the team dynamics, in reducing the gap between reality and application. There is one quotation from the interview and one from LR, for this RQb code (refer to Error! Reference source not found.).</p>          |
| <ul style="list-style-type: none"> <li>• “So we have to be more united. When I say more united, I don’t know if it is connected with succession planning but we cannot have too much silo mentality. We need to work more as a team”. <i>Document Source:</i> Transcribed Voice Text (3:23).</li> </ul>  | <p>Explaining how to reduce the gap between reality and application of LSP by having to include teamwork. There are two quotations from the interview for this RQb code (refer to Error! Reference source not found.).</p>                    |
| <ul style="list-style-type: none"> <li>• But we have still not harnessed the best potential that we can achieve shift together as a team”. <i>Document Source:</i> Transcribed Voice Text (3:26).</li> </ul>   |   |

**Theme: Sustainability leadership.**

Quotations from the interview in this sub-section are responding to the Research Question: *How succession planning will be able to prepare the next generation of CEO and general managers to be competent and able to function on the next higher level of management? What are the most important success factors that will have a positive effect on sustaining companies performance?* Each selected quotation or statement is linked to the research objectives as elaborated in the *Interpretive Meaning* column in Table 4 below.

TABLE 4: Significant Statement and Meaning from Sustainability Leadership Theme.

| Significant statement   | Interpretative Meaning  |
|---|---|
| <b>Sustainability Leadership</b>  |   |
| <ul style="list-style-type: none"> <li>• “If I would embark three Cs– I will call it the three Cs. What are three Cs? Number one, in this future of work where things are getting more and more competitive, they need to have - to me - three Cs which are number one, critical problem-solving– critical thinking, sorry, critical thinking skills, means higher order thinking skills. Number two, the ability to solve complex problems. So complex problem-solving skill, the second C. And the third C is what I call a competitive culture. It means you need to have a competitive attitude. So these are some of– apart from the usual technical skill, I would assess the candidate on these three attributes.” <i>Document Source:</i> Transcribed Voice Text (3:15).</li> </ul> | <p>Explaining how LSP can be effective through competitive competencies tool as to ensure sustainability leadership. There are two quotations from the interview for this RQc code (refer to Error! Reference source not found.).</p> |
| <ul style="list-style-type: none"> <li>• “So I’m actually now only starting to embark this training and development programs in order to sharpen the three Cs”. <i>Document Source:</i> Transcribed Voice Text (3:17).</li> </ul>   |   |
| <ul style="list-style-type: none"> <li>• “Long, long, long way to go. So that’s why I’m trying to develop the programs whether using external help or in-house in order to bridge that gap”. <i>Document Source:</i> Transcribed Voice Text (3:21).</li> </ul>  | <p>Explaining how LSP can be effective through development tool as to ensure sustainability leadership. There are two quotations from the interview for this RQc code (refer to Error! Reference source not found.).</p>              |
| <ul style="list-style-type: none"> <li>• “Personally, my view, no because the scope enters beyond your competency skill but also a lot on stakeholder management in terms of managing various ministries. And, somehow, maybe in a way I am also, in a way, I should do my part more by bringing them along with me so that I can be sort of training them, coaching them”. <i>Document Source:</i> Transcribed Voice Text (3:43).</li> </ul>   |   |
| <ul style="list-style-type: none"> <li>• “As for coaching style in meeting organizational needs, it is important for the top management to leverage it to motivate and develop future leaders, and executive coaching is one of the most effective method for developing high potential internal managers for multiple job levels and promotions (Chung, 2012)”. <i>Document Source:</i> Literature review (4:3).</li> </ul>  | <p>Explaining how LSP can be effective through competitive competencies tool as to ensure sustainability leadership. There are four quotations from LR for this RQc code (refer to Error! Reference source not found.).</p>           |
| <ul style="list-style-type: none"> <li>• Rate of change and external influences are unpredictable, urging the need for organizational agility that influence internal operation disruption (Bass, 2008; Ariss, Cascio, &amp; Paauwe, 2014) (Jantti &amp; Greenhalgh, 2012). <i>Document Source:</i> Literature review (4:4)</li> </ul>  |   |

| Significant statement  | Interpretative Meaning  |
|--|---|
| <b>Sustainability Leadership</b>   |   |
| <ul style="list-style-type: none"> <li>• Fostering relationship building while addressing development gaps and improving connection between performance and potential, can be developed during one-to-one session, as a transactional exchange of information between the top management and those high potential employees (Allio, 2012). <i>Document Source:</i> Transcribed Voice Text (4:8).</li> </ul>  |   |
| <ul style="list-style-type: none"> <li>• Leadership gaps is also addressed through the bi-directional relationship between them and top management, as they are to be accountable for sharpening, training and development of qualified high-potential managers through succession planning. (Saratun, 2016)(Stewart, 2016) (Quintana, 2014) (Dewah &amp; Mutula, 2014) (Blattner, 2015) (Moradi, 2014). <i>Document Source:</i> Transcribed Voice Text (3:10).</li> </ul> |   |
| <ul style="list-style-type: none"> <li>• So when we assess a candidate, we have two bases of assessment. One is the technical competency and the other one is the managerial competency”. <i>Document Source:</i> Transcribed Voice Text (3:12). Also for Code RQa; bases of assessment.</li> </ul>  | <p>Explaining how LSP can be effective through managerial Competency as to ensure sustainability leadership. There are three quotations from the interview for this RQc code (refer to Error! Reference source not found.).</p> |
| <ul style="list-style-type: none"> <li>• “Managerial competency talks about leadership, problem-solving skills, commercial orientation, and so on”. <i>Document Source:</i> Transcribed Voice Text (3:13).</li> </ul>  |   |
| <ul style="list-style-type: none"> <li>• “But in &lt;the company&gt; is so regulated, you need to have a lot of your skill in stakeholder management”. <i>Document Source:</i> Transcribed Voice Text (3:44). Also for Code RQb; Challenges to be effective.</li> </ul>  |   |
| <ul style="list-style-type: none"> <li>• The Malaysian Government has created and has a direct controlling stake in GLCs and the companies have a primary commercial objective. <i>Document Source:</i> Literature review (4:13).</li> </ul>   | <p>Explaining how LSP can be effective through managerial Competency as to ensure sustainability leadership. There is one quotation from LR for this RQc code (refer to Error! Reference source not found.).</p>                |
| <ul style="list-style-type: none"> <li>• We recorded much-improved passenger traffic performance and therefore that resulted in us earning a great profitability and we anticipate this trend to continue in the next few years”. <i>Document Source:</i> Transcribed Voice Text (3:50).</li> </ul>  | <p>The Need for LSP Explaining clearly the needs for LSP as to ensure sustainability leadership. There are two quotations from the interview for this RQc code (refer to Error! Reference source not found.).</p>               |
| <ul style="list-style-type: none"> <li>• “As we expand the airport naturally, the need for manpower and for succession planning becomes even more critical”. <i>Document Source:</i> Transcribed Voice Text (3:51).</li> </ul>   |   |



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## Conference Paper

# Does Commitment to Anti-Corruption Matter?

Susela Devi<sup>1</sup>, YoungKyung Ko<sup>1</sup>, and Ravichandran Subramaniam<sup>2</sup><sup>1</sup>Center for Accountability and Governance Research, Department of Accounting, Sunway University Business School, Sunway University, Sunway City, Selangor Darul Ehsan, Malaysia<sup>2</sup>Finance Department, Monash University, Sunway City, Selangor Darul Ehsan, Malaysia

## Abstract

The Malaysian capital market regulators take great efforts to continuously enhance corporate governance codes and practices to improve transparent reporting and enhance board responsibility and investors' protection. In 2017, the Malaysian Institute of Corporate Governance published a report assessing the transparency of reporting by top 100 listed companies in respect of anti-corruption, organizational disclosure, and sustainability. This study uses this unique set of data on scores on anti-corruption commitment, organizational transparency, and sustainability to investigate the association between corporate transparency and firm value, and whether political connections moderate this relationship. Not surprisingly, findings show that listed government-linked companies (GLCs) have higher scores than non-GLCs, such as family and foreign firms. Firms with enhanced anti-corruption commitment are more likely to have higher firm value, and this relationship is stronger for politically connected firms. The implications for investors and regulators are discussed in this paper.

**Keywords:** transparency, firm value, anti-corruption, government-linked companies.

Corresponding Author:

YoungKyung Ko

ykkko@sunway.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by

Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Most emerging markets face challenges to implement credible policy-directives on transparency in financial reporting and anti-corruption measures. Corruption erodes the growth potential of emerging economies and poses major challenges (Transparency International, 2016). These challenges are intertwined with corporate governance. Even large and profitable corporations in emerging markets are more likely to be undervalued because of lower governance level and less transparency. Good corporate governance is key to upgrading competitiveness and access to capital in markets and hence, the significance of transparency and disclosure. OECD (2004) posits that a firm's disclosure of contractual and governance structure leads to a reduction in uncertainty and capital costs by decreasing related risk premium. Furthermore, firms with high levels of integrity and transparency are more likely to maintain their competitive advantage in the global market where unfair or opaque business practices hinder ways to success (Transparency

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International,2016). For example, the Brazilian state-owned oil company, Petrobras was involved in a corruption scandal, which resulted in not only damage to its reputation but also loss of an estimated US\$1.5 billion. The stock prices of Samsung and LG Electronics in Korea were much lower compared to those of global competitors in developed markets, exhibiting a phenomenon known as the 'Korean Discount' (The Economist, 2012), referring to the existence of Korean Chaebols, controlled by a family holding small proportion of stakes, which expropriate other shareholders' wealth and their subsidiaries' value.

Consequently, it is widely accepted that corruption imposes substantial economic costs and economic growth (Mauro, 1995). Many studies examine the impact of anti-corruption campaigns on firm value but find little evidence on the success of anti-corruption campaigns (Ke et al., 2018; Ramalho, 2004; Xu and Go, 2017; Pan and Tian, 2017). However, these studies are event-based, focusing on events such as the anti-corruption campaigns to examine the impact on firm value.

Increasingly, the extant corporate governance literature focuses on the prevalence of family-controlled, institutional owned, state-owned, and politically connected firms. One strand of the literature examines the relationship between ownership and firm value (Lemmon and Lins, 2003; Villalonga and Amit, 2006; Wang et al., 2018; Pan and Tian, 2017; Schmidt and Fahlenbrach,2017). Some argue that ownership structures pose different agency costs (Schmidt and Fahlenbrach, 2017); advantages or benefits (for example from maintaining political ties in business operations (Wang et al., 2018); levels of monitoring (for example, Institutional and foreign ownerships (Boone and White, 2015; Vo, 2015).

The 2018 Corruption Perceptions Index Report by Transparency International shows that Malaysia is ranked 61 out of 175 countries. From 1995 to 2017, the average rank for Malaysia is 44.04 while the highest rank was the 62 in 2017 and the lowest the 23 in 1995 (Trading Economics, 2019). It has a well-established capital market, encompassing both conventional and Islamic financial products. The Malaysian government and business sector strive to attract foreign and domestic investors, sovereign funds to Malaysia. A comparative advantage for Malaysia is its commendable corporate governance policies and practices. Since, the Malaysian Code of Corporate Governance released in 2000 soon after the 1997 Asian Financial Crisis, various reforms have been introduced such as enhanced anti-corruption rules, board responsibility, financial reporting with more information of shareholders and subsidiaries.

The corporate governance climate appears to be improving as the largest Malaysian company, Petronas received commendations in the *Transparency in Corporate Reporting in Emerging Markets Report* (Transparency International, 2016). Despite the institutional efforts, the scandals such as 1MDB and failure cases of corporate governance may raise concerns amongst investors about corporate transparency, especially in respect of companies' commitment to anti-corruption (The measures of commitment to anti-corruption are discussed in the Methodology section).

The state-owned enterprises' (SOEs) or, in the Malaysian context, the government-linked companies' role (GLCs) in the Malaysian economy has been discussed extensively (Gomez et al., 2017). Malaysia is in the fifth rank out of the countries with the highest ratio of SOE to their largest firms (Menon, 2013). Additionally, corporate Malaysia has a high proportion of family firms, which poses a challenge to corporate governance (Liew et al., 2017).

Gomez et al. (2017) found that the Government's involvement, especially through the Minister of Finance Incorporated in the economy is significantly immense based on data up to 2013. In 2013, at least 35 listed firms are linked to the Government and they account for about 42% of the total market capitalization of all listed firms. Ultimately, the Malaysian government is connected to more than 68,000 other companies through these 35 GLCs. However, there is limited evidence on whether investors are concerned about these companies' anti-corruption commitment. The relationship between a firms' commitment to anti-corruption, ownership, and firm value is scarcely examined.

Therefore, this study examines whether there is a relationship between a firm's commitment to anti-corruption and its firm value and whether this relationship is moderated by ownership. The uniqueness of this study is that it draws on published data on the top 100 public listed companies' commitment to anti-corruption. The data is obtained from the *Transparency in Corporate Reporting by Public Listed Companies in Malaysia Report* published by the Malaysian Institute of Corporate Governance in 2017 (MICG, 2017) (hereafter referred to as the MICG Report) (The MICG Report assesses the public disclosure practices of top 100 Malaysian public listed companies based on three dimensions: first, the reporting of key elements of their anti-corruption programmes; second, the disclosure of their company structures and holdings; and, third, the disclosure of sustainability commitment to the United Nation's sustainable development goals espoused, This information was gathered from corporate websites and other publicly available sources by a team of researchers (including the first two authors) commissioned by MICG. Section 3 gives more details).

Prior studies show that firms with good corporate governance have better firm performance, and pay attention to their commitment to anti-corruption. Therefore, this study investigates whether MICG 2017 transparency score as a proxy of corporate governance is associated with firm value and whether this association matters for GLCs and non-GLC firms. The study finds evidence that GLC firms with a commitment to anti-corruption have a higher firm value.

The remainder of this paper is organized as follows. Section 2 describes the Malaysian corporate governance and transparency in reporting landscape and provides brief reviews of the extant literature on transparency in anti-corruption commitment and firm value. Section 3 explicates the research design and data collection. Section 4 reports the results, including robustness test results, and interprets findings. Section 5 concludes with a discussion of the implications and suggestions for future research.

## 2. Literature Review and Hypotheses

### 2.1. Background on Corporate Governance in Malaysia

The Malaysian corporate governance landscape changed significantly with the introduction of the Malaysian Code of Corporate Governance (MCCG) in 2000. This code was revised in 2007 (Securities Commission, 2007). The MCCG 2007 called for the board of directors and audit committees to be competent and fulfill their duties effectively (Liew et al., 2017; Securities Commission, 2007). Additionally, to enhance the reforms comprehensively, the Securities Commission (SC) released the Corporate Governance Blueprint 2011 in 2011 (Securities Commission, 2011a). This blueprint focused on the rights of equity holders, responsibility of institutional shareholders, the responsibility of the board in corporate governance, enhancing proper disclosure and transparency, the responsibility of important stakeholders and quality of implementation (Asian Corporate Governance Association, 2012). To expedite the Corporate Governance Blueprint 2011 implementation, the SC made additional amendments to the MCCG 2007 in 2012 (Securities Commission, 2012). The MCCG 2012, replacing the 2007 code, spelled out the procedures for the board of directors to practice good corporate governance in their firms' business activities and related activities inside their firms (Liew et al., 2017; Securities Commission, 2012). In 2016, the SC further revised the MCCG 2012 (Liew et al., 2017; Securities Commission, 2016). The MCCG 2016 introduced additional procedures for good board practice (Liew et al., 2017), namely, the additional approval process for



independent directors with tenure more than nine years and the requirement for large companies to appoint 30% women directors on their boards (Foo, 2017).

Despite all these efforts, good corporate governance remains elusive because the adoption and implementation of these codes are only optional. The SC only required public-listed firms either to comply or to explain any deviation from the codes with regards to their firms’ activities in their annual reports (Securities Commission, 2007, 2012; Wahab et al., 2007). Given the codes are not mandatory, an opportunity arises for Malaysian controlling shareholders to expropriate minority shareholders. Table 1 shows the corporate governance reforms in Malaysia since 1999. Bursa Malaysia, through its listing requirements, proactively enhances corporate governance structure and practices among Malaysian listed firms (Liew et al., 2017). While Bursa’s requirements are mandatory the MCCG codes are voluntary. Bursa Malaysia issued amended Listing Requirement (LR) in commencing on 30 April 2016. The new LR is expected to raise not only the standards of disclosure but also corporate governance practices in alignment with the enhanced international standards of auditing relating to key audit matters and going concern. These enhancements are likely to promote greater transparency of significant matters highlighted in the auditor’s report.

TABLE 1: Corporate Governance Reforms.

| Year | Corporate Governance Reforms  |
|------|---|
| 1999 | Establishment of the Minority Shareholder Watchdog Group (MSWG)   |
| 2000 | Code of Corporate Governance (MCCG) announced by the Securities Commission Malaysia and adopted by listed companies.  |
| 2007 | Revision of Code of Corporate Governance <ul style="list-style-type: none"> <li>• strengthening the board of directors and audit committees</li> <li>• Eligibility criteria for appointments of directors and the role of the nominating committee and audit committee.</li> </ul>  |
| 2011 | The Corporate Governance Blueprint 2011 <ul style="list-style-type: none"> <li>• Enhancing shareholder rights, role of institutional investors, board’s role in governance,</li> <li>• Improving disclosure and transparency, role of gatekeepers and influencers and public as well as private enforcement (Asian Corporate Governance Association, 2012).</li> </ul>  |
| 2012 | MCCG 2012 (Revision of MCCG 2007) <ul style="list-style-type: none"> <li>• Principles on structures and processes for companies’ board</li> </ul>   |
| 2016 | MCCG undergoes comprehensive review <ul style="list-style-type: none"> <li>• Change in approval process for independent directors’ tenure more than 9 years and the requirement for large companies to possess 30% women directors on their boards</li> </ul>   |
| 2017 | MCCG 2017 adopted for the first batch of companies that are expected to report their application of the practices in the new code with financial year ending 31 December 2017. A key feature of the new code is the introduction of the Comprehend, Apply and Report (CARE) approach, and the shift from “comply or explain” to “apply or explain an alternative”. This is meant to encourage listed companies to put more thought and consideration when adopting and reporting on their corporate governance practices. |

**Source:** Adapted from Liew et al. (2018)

The Malaysian Code for Institutional Investors 2014, an outcome of the Blueprint of 2011, aiming to improve institutional investors' accountability by disclosing how they have carried out effective corporate governance mechanisms. Institutional investors, one of the key players in capital markets, are able to make an influence on corporate governance of their investee firms (Institutional Investors Council Malaysia, 2016).

The Code gives institutional investors guidance on discharging their stewardship responsibilities to ensure a sustained long-term value to their stakeholders. However, the Bursa Malaysia guideline is subject to judicial review. Hence, listing requirements are not entirely effective, resulting in reduced judicial efficiency (Klapper and Love, 2004; Liew et al., 2017).

Further, Bursa Malaysia launched several Corporate Governance Initiatives to enhance corporate governance practices for listed companies. In 2009 the Minority Shareholders Watchdog Group (MSWG) developed a Malaysian Corporate Governance Index, which aimed to encourage best practices of corporate governance for listed companies. Nevertheless, evidence to suggest that these initiatives have been effective is limited (Liew et al., 2017).

### **2.1.1. Government–linked and Non-Government Linked Companies: implications for corporate governance**

The GLCs'role has been discussed in the extant literature as the Malaysian economy is heavily dependent on these entities. Malaysian GLCs are defined as companies with the primary commercial objective with the Malaysian Government's direct controlling stake through government-linked investment companies (GLICs). (GLICs are Khazanah Nasional, Ministry of Finance, Kumpulan Wang Amanah Pencen (Retirement Fund), Bank Negara Malaysia, Employees Provident Fund, Lembaga Tabung Haji, Permodalan Nasional Berhad, Lembaga Tabung Abgkatan Tentera (Gomez et al., 2017)) Increasingly, these state-owned enterprises remain one of the largest as well as the fastest-growing multinational companies. SOEs face increasing competitions with private firms for resources, business ideas, skills and consumers in international as well as domestic markets.

GLCs in Malaysia take up eight out of the 10 largest listed companies and make up for about 50% of the total market capitalization of the Malaysia stock market (Bursa Malaysia). Therefore, many studies examine the performance of GLCs compared to non-GLCs and their economic impact considering corporate governance mechanism. However, the evaluation of GLCs performance remains controversial over the decades.

Lau and Tong (2008) show that GLCs outperform non-GLCs from 2000 to 2005, while Razak et al. (2011) and Isa and Lee (2016) report that GLCs underperform non-GLCs. Najid and Rahman (2011) show that GLCs generally have lower performance than non-GLC counterparts but the government involvement of Khazanah Holdings' ownership has a positive relationship with firm performance for GLCs. On the contrary, Ting and Lean (2015) find that government ownership has a negative impact on firm performance from 257 listed companies from 1997 to 2009.

These divergent results may be driven by the difference in sample selection and period, controlling variables, and methodology. Additionally, the GLC Transformation Program may not be completely implemented as it was adopted in 2005 to improve governance, financial status, and operational efficiency. The effect of the GLC Transformation Program on firm behavior and performance is not consistent (Bhatt, 2016; Mohamad et al, 2012; Khoo, 2018).

## Corporate Transparency in Malaysia

Corporate transparency ascribes the extent to which actions of a corporation are made known to outsiders. Transparency is an important element of corporate governance to deter management's engagement in improper or unlawful behavior as their conduct will likely be subject to scrutiny. To be more transparent, a firm has to adopt accurate accounting methods, disclose relevant complete and timely information, including conflict of interests of the directors or controlling shareholders. Thus, as a principle, transparency, enables a system of checks and balances amongst all stakeholders of the financial reporting process, including the board, management, and auditors (Fung, 2014).

Bursa Malaysia (2018) confirms the regulators focus increasingly on not only businesses behavior and strategy but also the effect of businesses on the economy, environment, and society. The UN Sustainable Development Goals ("SDGs"), the recommendations of the Task Force on Climate-related Financial Disclosures ("TCFD") and other initiatives are close to the hearts of the Malaysian regulators. There is a push for business to adopt a comprehensive approach to business management which considers their economic, environmental and social ("EES") opportunities and risks as well as financial performance. The Malaysian capital market regulators are cognizant of these measures to generate long term benefits in terms of business continuity and value creation.

There is a growing interest in transparency in reporting by multinationals (Transparency International, 2016). MICG replicated the Transparency International (2016) and

issued MICG Report 2017. MICG 2017 captures the transparency scores of the top 100 listed firms in Malaysia.

## 2.2. Literature Review & Hypotheses Development

### 2.2.1. Transparency and Firm value

A firm's information environment has important implications for investment, liquidity and risk (Balakrishnan et al., 2014). Firms determine their information environments by making voluntary disclosures over and above that required by existing regulations, thus, increasing liquidity. This increased liquidity is a result of reduced information asymmetries among minority and institutional investors. Liquidity has close relations with firm value and so cost of capital may be reduced through voluntary disclosure.

Equity investment is an aspect of major capital markets which requires good corporate governance. According to the definition by Denis and McConnell (2003), corporate governance is a set of mechanisms based on institution and market which motivate and lead the self-interested managers to make decisions for maximizing firm value on behalf of their shareholders. Shleifer and Vishny (1997) define corporate governance as a way of assuring that investors would receive a return on their investment in the financial market. Fundamentally, good mechanism of corporate governance requires credible disclosure by the issuer and legal code for investor protection (Glaeser et al., 2006; La Porta et al., 1997, 1998a, b). Economic growth can be achieved based on capital market development supported by transparent corporate governance mechanism (Levine and Zervos, 1998).

When the credible disclosure by issuers is not transparent, financing via external or internal capital markets will not lead to substantial development of new industries (Gilson, 1996). The institutions supporting disclosure credibility need to comply with legally mandated disclosure requirements and good accounting standards with independent audits and effective enforcement.

In order to improve the credibility of reporting for investors, legal codes for investor protection and responsibility as well as disclosure has been enhanced (OECD, 2004). Investor protection is an important pillar to sustain good corporate governance. In particular, shareholder rights protection is critical to the investment decision of large institutional investors and foreign investor which play a significant role in emerging markets (La Porta et al., 1997).

Prior studies examine to what extent capital market development is related to the corporate governance level, which is subject to legal institutions (La Porta et al., 1997, 1998a, b). The level of corporate governance among countries can be measured in terms of ownership concentration of listed firms, the development of capital markets, corporate payout policies, and access to external finance. The differences in these criteria are related to the legal protection of shareholders and creditors by prohibiting the managers and controlling shareholders from expropriating. From an emerging markets context, the origin of laws and the effectiveness of their enforcement are more likely to be related to the different levels of corporate governance and its reform rather than financial systems such as bank-centered or market-based (La Porta et al., 2000). Consistent with this argument, countries with weaker legal systems exhibit lower average firm-level governance (Klapper and Love, 2004).

Using S&P 500 firms' data from 2012 to 2015, DeBoskey et al. (2018) evidence that a firm's transparency in corporate political disclosures has a significantly negative association with its cost of debt. This association is stronger for firms which are smaller in size with high sensitivity to government economic policy and entrenched CEOs.

In particular, financial reporting and disclosures are the most significant channel to signal firm performance and governance to outside investors. Healy and Palepu (2001) argue that demand for financial reporting and disclosures results from alleviating information asymmetry and agency problem between managers and outside investors. The credibility of management disclosures is enhanced by regulators, auditors and financial intermediaries. Empirical evidence suggests that financial statement information such as earnings, book value is "value relevant" (Lev and Zarowin, 1999; Brown et al., 1999). Furthermore, compensation, loan contracts, and political cost also are the variables to affect accounting decision (Holthausen and Leftwich, 1983; Watts and Zimmerman, 1990; Smith and Watts, 1992; Skinner, 1993). Arguably, voluntary disclosure is associated with proprietary costs, capital market transactions, corporate control market competition, remuneration, and shareholder litigation (Bhushan, 1989; Lang and Lundholm, 1993).

Cheung et al. (2010) question whether transparency matters among Chinese listed companies. They assess the transparency of 100 listed firms in the Chinese stock market using a comprehensive scorecard based on the OECD Principles of Corporate Governance during 2004-2007. Their assessment reveals that a firm's transparency has a significant positive relationship with its market value. Furthermore, a firm's market valuation is related not to the Mandatory Disclosure Index but the Voluntary Disclosure Index. Not surprisingly, firms with higher profitability, overseas-listing, and separation of CEO and board chairman are more likely to disclose information voluntarily.

Yu, Guo and Luu (2018) examine the impacts of environmental, social and governance (ESG) transparency and the extent of ESG disclosure on firm value using a sample of 1996 large-cap companies across 47 developed and emerging countries. They find that the benefits from ESG disclosure outweigh their costs. Using Bloomberg ESG disclosure scores, ESG transparency leads to the reduction in investors' information symmetry and agency costs, which potentially is related to firm value. The evidence that greater disclosure of ESG issues is related to the increase of firm value. Furthermore, firms with a larger size, higher liquidity, higher R&D intensity, fewer insider holdings, and good past financial performance are found to be more transparent in disclosing ESG related information.

Therefore, the following hypothesis is developed:

*H<sub>1</sub>: There is a positive relationship between corporate transparency and firm value in Malaysian firms.*

### 2.2.2. Ownership and firm value

In Malaysia, GLCs account for 36% of the Malaysian stock exchange's market capitalization and 54% of entities to make up the Kuala Lumpur Composite Index. Considering the market presence of GLCs, the Malaysian government propelled the GLC Transformation Program from 2005 to 2015. It emphasizes 10 initiatives including improvement and enhancement of corporate governance. Family firms are defined as companies controlled by individuals or families holding not less than of 20% voting rights (Chakrabarty, 2009; Liew et.al., 2015, 2017) as well as family involvement in their firms' management.

Furthermore, in the Malaysian institutional context, arguably, after the Transmile scandal, corporate reputational effects are seen as positively moderating family controlling shareholders' ownership on firm value. This applies to family firms where the family owns a large shareholding. Family owners with large shareholding would like to improve their reputation as they and their family members can be affected by negative reputation hence incentives for greater transparency in reporting (Gomez, 1999; Loy, 2010; Liew et al., 2018).

Therefore, the following hypothesis is developed:

*H<sub>2</sub>: There is a positive moderating effect of ownership on the relationship between transparency and firm value.*

### 2.2.3. Corporate transparency, Firm Value and Ownership in Malaysia: Role of political connection

The recent collapse of many firms in the United States signals the importance of information transparency. Information asymmetry, together with managerial incentives may restrain the effective functioning of corporate governance (Jensen, 1993; Miller, 2005). Consequently, corporate governance activities have been accelerated, coupled with a convergence of best practices over the years (Hermalin, 2005).

The extant literature shows that effective corporate governance reduces agency problem, protects shareholders' interest, tunes stakeholders' engagement and resolves the conflicts between shareholders and non-investing stakeholders (Jo and Harjoto, 2011). There is growing evidence that firm-level corporate governance practices are related to firm value (Black et al., 2006a; Durnev and Kim, 2005) and demonstrate the impact of firm-level corporate governance, especially in countries with weaker legal protections for investors (Klapper and Love, 2004). However, there is a difference in optimal governance between developed and emerging markets, and amongst emerging markets (Bebchuk and Hamdani, 2009; Durnev and Fauver, 2007). Black et al. (2012) found that corporate governance index in Brazil predicts the market value of non-manufacturing, small, and high-growth firms. This suggests that the country's institutional context influences the governance of predictive power on firm market value.

### 2.2.4. Political connections and Firm Value

Wang et al. (2017) examine the relationship between political connections and firm value and find that the termination of political connections negatively impacts firm value by approximately 2% decline. This result may be interpreted that there are benefits from maintaining political ties in business operations.

Niessen and Ruenzi (2009) also investigate politically connected firms in Germany using the information on additional income sources for all members of the German parliament. They find that politically connected firms in Germany are more likely to have a larger size, less risk, lower market valuations, and fewer growth opportunities, but better accounting performance compared to unconnected firms. The politically connected firms significantly outperformed unconnected firms in stock market but the gap was reduced in 2007 when the new transparency law was adopted. This implies that the investors and stock market reflect political connection as significant information for valuation.

Goldman, Rocholl and So (2009) investigate whether political connections of firms in the United States influence their respective stock returns. Using data on the political affiliation (Republican or Democratic party) of board members of S&P 500 firms, they show that the announcement of the nomination of a politically connected individual to the board is followed by a positive abnormal stock return. Specifically, firms connected to the Republican Party reveal value increases whilst those linked to the Democratic Party experience value decreases when the Republican won the presidential election in 2000.

Du and Girma (2010) examine whether political connections influence the performance of private startups in China. They find that firms with political affiliation have higher growth and survival probability while politically neutral startups improve productivity faster.

MICG Report 2017 focused on three criteria: anti-corruption, organizational transparency, and sustainability. Investors perceived the level of corruption in Malaysia has increased, as reported by the 2016 Global Corruption Barometer Survey – Asia Pacific. Therefore, anti-corruption discipline is important to all stakeholders. In addition, Malaysia's top public listed companies operate in other countries where corruption risks are similarly perceived to be high. Organizational transparency deal with full reporting of a listed company's structures and holdings in subsidiaries, associates, and joint ventures. This reporting affect heavily reputation, market valuation, and accountability. Furthermore, disclosure of the processes in the new appointment of directors, the Board's evaluation of its effectiveness as the ultimate decision-making body and how it orchestrates succession planning builds further trust with all stakeholders. Sustainability reporting has the subject of increased regulatory intervention in recent years (Bursa Malaysia, 2018).

Therefore, the following hypothesis is developed:

*H<sub>3</sub>: If there is a positive moderating effect of ownership on the relationship between transparency and firm value, this positive moderating effect is likely to be stronger in politically connected firms compared to non-politically connected firms.*

### 3. Methodology and Data

The study uses the MICG 2017 data on the Malaysian Transparency Index (Refer to Table 3).



### 3.1. Malaysian Transparency Index

Following the Publication of the *Transparency in Corporate Reporting – Assessing Emerging Market Multinationals* by Transparency International in 2016, the Malaysian Institute of Corporate Governance embarked on a study to assesses the transparency of corporate reporting by 100 largest Malaysian listed companies. This is the first assessment of Malaysian listed companies in term of governance and transparent disclosure. In line with the pillars of corporate governance: ethical behavior, accountability, transparency, and sustainability, as identified in the MCCG 2017.

The MICG report assessed Bursa Malaysia's top public listed companies based on 3 dimensions: Reporting of the company's anti-corruption programme; Organizational transparency with regards to succession planning, Board evaluation of its effectiveness as well as disclosure of company structures and holdings; and Sustainability, particularly with regards to human rights and environmental protection in business. The full list of questions used in respect of each of the three dimensions can be found in Appendix 1.

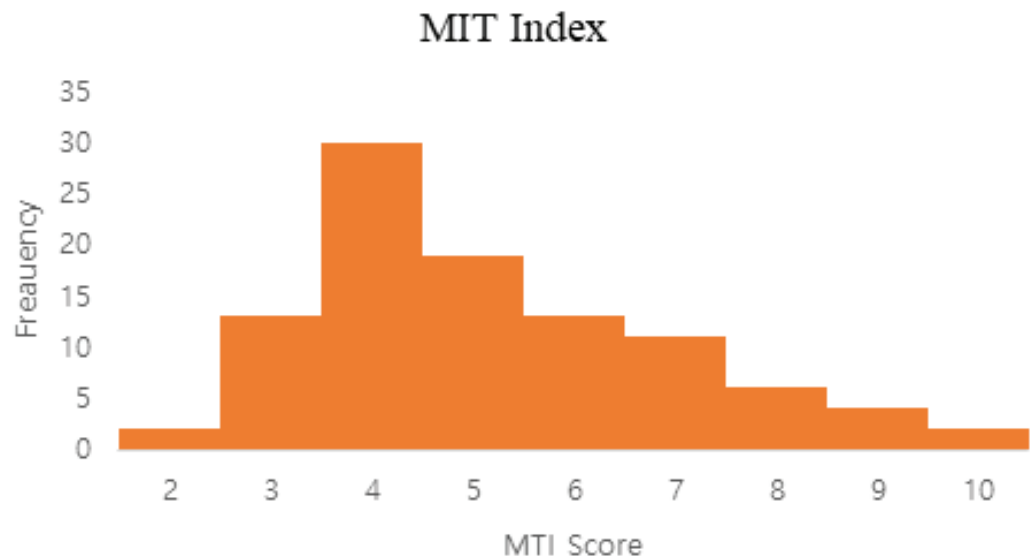
The assessment was based on information gathered from company websites, annual reports available through Bursa Malaysia and other publicly available sources. All information contained in the MICG report was as of April 2017. The assessment score for firms is referred to as the Malaysian Transparency Index (MTI). Table 2 provides additional details on the index. The MTI index is composed of three sub-indices, which in turn reflect 100 firm disclosure of related information.

The criteria relating to anti-corruption and organizational transparency are consistent with that used in the *Transparency International 2016 Report* (Transparency International, 2016). The same 13 questions were used for the anti-corruption dimension while for organizational transparency, in addition to the eight questions that were used in (Transparency International, 2016), further 3 questions were added in this assessment relating to Board governance practices. The third dimension on Sustainability was introduced in this assessment, given recent regulatory initiatives on sustainability reporting (Bursa Malaysia, 2018). The three categories of disclosure or public announcement of the policies related to the three areas is a signal toward investors and stakeholders though it does not necessarily lead to implementation. The transparency score is scaled from zero to 10, and the weight has given to each of these dimensions are 40% for the anti-corruption program, 30% for organizational transparency and sustainability, respectively to reflect the emphasis and focus desired in this assessment. The lower score indicates that a company has low level of related policy disclosure for each category.

TABLE 2: Malaysian Transparency Index.

| Categories/variables                                   |  | Mean |
|--|--|------|
| <b>1. Anti-Corruption Program</b>                      |  |      |
| 1  | Commitment to anti-corruption, extended throughout its supply chain        | 0.77 |
| 2  | Commitment to compliance with laws, including anti-corruption laws         | 0.26 |
| 3  | Leadership support   | 0.44 |
| 4  | Code/policy applies to all employees and directors                         | 0.71 |
| 5  | Policy applies to agents   | 0.13 |
| 6  | Programme applies to suppliers   | 0.12 |
| 7  | Anti-corruption training for employees and directors                       | 0.12 |
| 8  | Policy on gifts, hospitality and expenses                                  | 0.41 |
| 9  | Prohibits facilitation payments  | 0.19 |
| 10   | Confidential reporting channel   | 0.79 |
| 11   | Prohibition of retaliation for reporting                                   | 0.70 |
| 12   | Regular programme monitoring   | 0.03 |
| 13   | Prohibition or disclosure of political contributions                       | 0.18 |
| <b>2. Organizational Transparency &amp; Disclosure</b> |  |      |
| 14   | Succession planning for Board and executive management                     | 0.49 |
| 15   | Annual performance evaluation of board and board members                   | 2.42 |
| 16   | New appointment of directors process                                       | 0.73 |
| 17   | Disclosure of subsidiaries   | 1.00 |
| 18   | Disclosure of % owned in subsidiaries                                      | 1.00 |
| 19   | Disclosure of countries of incorporation of subsidiaries                   | 0.94 |
| 20   | Disclosure of countries of operations of subsidiaries                      | 0.21 |
| 21   | Disclosure of associates, joint-ventures                                   | 0.96 |
| 22   | Disclosure of % owned in associates, joint ventures                        | 0.95 |
| 23   | Disclosure of countries of incorporation of associates, joint ventures     | 0.90 |
| 24   | Disclosure of countries of operations of associates, joint ventures        | 0.24 |
| <b>3. Sustainability (New Criteria)</b>                |  |      |
| 25   | Publicly stated commitment to respect human rights                         | 0.33 |
| 26   | Support & respect for the protection of human rights to the supply chain   | 0.22 |
| 27   | Due diligence to identify & address human rights on its business operation | 0.08 |
| 28   | Diversity policy   | 0.61 |
| 29   | Grievance mechanism for adverse human rights impact                        | 0.20 |
| 30   | Publicly stated commitment to environmental protection                     | 0.89 |
| 31   | Report at least 2 indicators of environmental performance                  | 0.59 |
| 32   | Sustainability taken into consideration in the company's business strategy | 0.83 |
| ☒ 33   | Adopt fair trade principles in its business operations                     | 0.11 |

Source: MICG 2017



**Figure 1:** Distribution of Malaysian Transparency Index.

Each sub-category (variable) ranges from zero to 10 and, we sum the sub-category scores depending on its weight to calculate the overall MTI score. Full MTI score is 10 but scores of our sample range from 1.38 to 9.04. Figure 1 provides a histogram showing these scores for the 100 firms and the scores show substantial variation. Table 3 provides data on MTI scores. Panel A provides summary statistics for the index as a whole and each sub-category. The mean and median are 4.64 and 4.31 respectively for the top 100 listed firms. Panel B provides Pearson correlation coefficients between MTI and sub-indices. The correlation remains very high at above 0.50 for all sub-indices. The inter-sub-category correlations are positive, but collinearity between anti-corruption and sustainability remains.

The maximum score in each category is 10, which indicate full marks of each question. The total score is also scaled to 10. Despite the institutional enhancement in corporate governance, the average score of the top 100 listed firms is less than 5 (mean total score is 4.64). The average score in anti-corruption is the lowest amongst the three criteria, indicating a commitment to anti-corruption in terms of reporting such policies relating stakeholders, suppliers and contractors are not well established despite the calls to support the Malaysian Anti-Corruption Commission's initiatives (Star Online, 2017). Most of the firms record higher score in Transparency & Disclosure because Malaysian financial reporting standards relating to consolidated financial reporting, including associated and joint company are mandatory for all listed firms. However, in respect of sustainability reporting, the lowest score is zero, which indicate some firms

TABLE 3: Malaysian Transparency Index.

| Panel A. Summary statistics |      |        |                    |         |        |
|-----------------------------|------|--------|--------------------|---------|--------|
| ☒                           | Mean | Median | Standard Deviation | Highest | Lowest |
| Total score                 | 4.64 | 4.31   | 1.74               | 9.04    | 1.38   |
| Anti-corruption             | 3.03 | 3.03   | 2.66               | 8.75    | 0.00   |
| Transparency & Disclosure   | 7.17 | 7.69   | 1.67               | 10.00   | 2.31   |
| Sustainability              | 4.28 | 4.44   | 2.44               | 10.00   | 0.00   |

| Panel B. Correlation among MTI and sub-category. Significant results (at 5% or better) are shown in boldface. |                 |              |                |             |
|---|-----------------|--------------|----------------|-------------|
| ☒   | Anti-Corruption | Organization | Sustainability | Total score |
| Anti-Corruption   | 1               | <b>0.26</b>  | <b>0.59</b>    | <b>0.89</b> |
| Organization  |                 | 1            | <b>0.21</b>    | <b>0.53</b> |
| Sustainability  |                 |              | 1              | <b>0.81</b> |
| Total score   | ☒               | ☒            | ☒              | 1           |

**Source:** MICG Report 2017

have yet to publicly declare a policy for human right nor non-discrimination as well as environmental protection. Table 4 reports the summary statistics of GLC and non-GLCs. Overall, GLCs outperform significantly non-GLCs, and the differences between the two groups are significant in transparency & disclosure and sustainability. This result indicates that GLCs are more likely to adopt the transformation program and guideline enforced or recommended by Security Commission Malaysia and the government-linked investment companies (Government-linked investment companies (GLICs) are major and large shareholders of GLCs. The Malaysian government controls and monitors GLCs through GLICs. Seven GLICs are namely Minister of Finance Incorporated (MOF Inc), Permodalan Nasional Berhad (PNB), Khazanah Nasional Berhad (KNB), the Employees Provident Fund (EPF), Lembaga Tabung Angkatan Tentera (LTAT), Lembaga Tabung Haji (LTH) and Kumpulan Wang Persaraan (Diperbadankan) (KWAP). \*, \*\*, and \*\*\* indicate significance levels at 10%, 5%, and 1% levels).

However, the higher score of GLCs does not mean that improved governance mechanism is working and good governance results in better performance, but that GLCs adopt apparently more policies for the transparent system rather than private companies.

The dependent variable of firm value is Tobin’s q and ROA(Return on Asset).

$$Y_i = \beta_0 + \beta_1 X_i + \beta_2 (MTI)_i + \mu_i$$

$$Y_i = \beta_0 + \beta_1 X_i + \beta_2 (MTI\_sub-categories)_i + \mu_i$$

As firm characteristics affect Tobin’s q, ROA, an extensive set of control variables is included in this study. Log of total assets(size) is used to control for the effect of firm size

TABLE 4: Malaysian Transparency Index: Comparison by ownership.

|                 | Family | GLC  | Other | Foreign | GLC vs Non-GLC  | Family vs Non-Family | Family vs GLC   |
|-----------------|--------|------|-------|---------|-----------------|----------------------|-----------------|
|                 | Mean   | Mean | Mean  | Mean    | t-test          | t-test               | t-test          |
| Anti-Corruption | 2.03   | 4.00 | 5.63  | 3.83    | <b>-3.10***</b> | <b>4.34***</b>       | <b>-4.02***</b> |
| Organization    | 7.32   | 7.28 | 6.92  | 6.19    | -0.52           | -0.93                | 0.13            |
| Sustainability  | 3.54   | 4.77 | 4.44  | 5.74    | -1.52           | <b>3.10***</b>       | <b>-2.32**</b>  |
| Total_Score     | 4.07   | 5.21 | 5.66  | 5.11    | <b>-2.63***</b> | <b>3.41***</b>       | <b>-3.02***</b> |
| N               | 49     | 38   | 1     | 12      | ☒               | ☒                    | ☒               |

and leverage is measured as debt to total assets. For profitability, return on equity(ROE) is used. Capital expenditure is included to control growth. The study includes ownership by the largest shareholder such as government, institutional ownership, and foreign ownership. To consider the Malaysian political economy surroundings, political connection is also included. Board size, independent director proportion to board, big 4 audit firm is also included for governance measurement.

#### 4. Analysis and Results

Table 6 reports the result of regression on firm value. Firms with a smaller size, high lever leverage, and political connection are more likely to have higher Tobin’s q and ROA. Strikingly, the anti-corruption score is positively related to firm value. This indicates that investor is more sensitive to corruption issue in Malaysia rather than disclosure and sustainability. Regarding ownership and political connection, GLC with political connection or family-controlled firms with the political connection has a negative association with firm value while the political connection with enhanced anti-corruption is positive related. This result is consistent with DeBoskey et al. (2018).

#### 5. Conclusion

Transparency in reporting is a core element of the revised corporate governance MCGG 2017. The emphasis on intertwining transparency and corporate governance is important to the development of the capital market and economy. Enhanced corporate governance regulation and practice are propelling the better performance of companies and the financial market. The Malaysian Securities Commission calls for greater transparency and governance requirement and practice compared to any other country in emerging markets. Malaysian Transparency Index in 2017 is a pilot by the MICG to assess the top

TABLE 5: Summary of Statistics of Variables.

| Variables         | All Sample |        |        | GLC    | Family | Non    | GLC vs Non-GLC | Family vs Non-Family | Family vs GLC |
|-------------------|------------|--------|--------|--------|--------|--------|----------------|----------------------|---------------|
|                   | Mean       | Median | STD    | Mean   | Mean   | Mean   | t-test         | t-test               | t-test        |
| Size              | 16.069     | 15.865 | 1.642  | 16.647 | 15.922 | 14.955 | -2.82***       | 0.85                 | -2.08**       |
| Leverage          | 0.521      | 0.511  | 0.229  | 0.569  | 0.475  | 0.549  | -1.68*         | 1.95*                | -1.93*        |
| Capex             | 0.051      | 0.028  | 0.060  | 0.0394 | 0.057  | 0.0605 | 1.47           | -0.99                | 1.30          |
| ROA               | 0.073      | 0.046  | 0.095  | 0.0345 | 0.069  | 0.1979 | 3.3***         | 0.41                 | 2.96***       |
| ROE               | 0.188      | 0.096  | 0.379  | 0.079  | 0.1445 | 0.659  | 2.28**         | 1.11                 | 2.03**        |
| Tobin q           | 2.077      | 1.383  | 1.890  | 1.3805 | 1.8868 | 4.744  | 2.96***        | 0.96                 | 2.16**        |
| Political_dum     | 0.278      | 0.000  | 0.451  | 0.4865 | 0.1489 | 0.1538 | -3.82***       | 2.84***              | -3.57***      |
| Govt_own          | 11.577     | 5.000  | 17.881 | 22.297 | 4.0426 | 8.3077 | -5.24***       | 4.39***              | -5.02***      |
| Inst_own          | 36.124     | 44.000 | 24.941 | 29.324 | 37.979 | 48.769 | 2.15**         | -0.71                | 1.53          |
| Anti-Corruption   | 3.067      | 2.813  | 2.452  | 3.961  | 2.114  | 3.966  | -2.81***       | 4.02***              | -3.68***      |
| Organization      | 7.157      | 7.692  | 1.673  | 7.225  | 7.357  | 6.243  | -0.30          | -1.14                | 0.38          |
| Sustainability    | 4.296      | 4.444  | 2.479  | 4.7748 | 3.5461 | 5.641  | -1.45          | -0.69                | -2.25**       |
| Total_Score       | 4.663      | 4.308  | 1.740  | 5.184  | 4.117  | 5.152  | -2.37**        | -3.13***             | -2.90***      |
| GLC_dum           | 0.220      | 0.000  | 0.416  | 1      | 0      | 0      |                | 4.52***              |               |
| Family_dum        | 0.280      | 0.000  | 0.450  | 0      | 1      | 0      | 4.52***        |                      |               |
| For_dum           | 0.071      | 0.000  | 0.258  | 0.000  | 0.000  | 0.923  | 1.92*          | 2.26**               |               |
| Board_size        | 7.186      | 7.000  | 2.480  | 8.189  | 6.553  | 6.615  | -3.29***       | 2.52**               | -3.05***      |
| IDR               | 1.364      | 1.200  | 0.572  | 1.339  | 1.409  | 1.276  | 0.34           | -0.74                | 0.53          |
| No of Observation | 97         | ☒      | ☒      | 37     | 47     | 13     | ☒              | ☒                    | ☒             |

Note: Size is log of total asset and leverage is total liability to total asset. Capex is capital expenditure to total asset. Cash is cash holding to total asset. Current liability and long-term debt is scaled by total asset. ROA and ROE is net income to total asset, equity respectively. Tobin's q is equity and liability market value to total asset. Political\_dum has 1 if firm has political connection, otherwise zero. Govt\_own is government ownership and Inst\_own is institutional ownership (%). GLC\_dum has 1 if it is government-linked company, otherwise zero. Family\_dum has 1 if family ownership is more than 20%, otherwise zero. For\_dum has 1 if foreign ownership is largest shareholding, otherwise zero. Board\_size is total number of board member and IDR is independent directors' ratio. Big4\_dum has one if firm uses one of big 4 audit firms, otherwise zero. \*, \*\*, and \*\*\* indicate significance levels at 10%, 5%, and 1% levels.

100 listed firms in terms of corporate governance adoption and disclosure. The results show that the positive relations between corporate governance and market value for the firm, especially with better disclosure of the firms' policy on anti-corruption initiatives rather than financial or sustainability disclosures.

This research has limitations of sample selection bias, one-year data, endogeneity, and omitted control variables. Further research may employ more variables to improve the research model. However, the study implies that commitment to anti-corruption programs and publicly disclosing this commitment does matter to investors and GLCs

TABLE 6: Regression on Firm Value.

| Variable                        | Tobin's Q |     |         |     | ROA     |     |         |     |
|---------------------------------|-----------|-----|---------|-----|---------|-----|---------|-----|
|                                 |           |     |         |     |         |     |         |     |
| <b>Intercept</b>                | 10.221    | *** | 10.063  | *** | 0.499   | *** | 0.477   | *** |
|                                 | (4.23)    |     | (4.43)  |     | (3.68)  |     | (3.81)  |     |
| <b>Size</b>                     | -0.601    | *** | -0.620  | *** | -0.025  | *** | -0.026  | *** |
|                                 | (-5.29)   |     | (-5.8)  |     | (-3.98) |     | (-4.4)  |     |
| <b>Leverage</b>                 | 1.926     | **  | 2.563   | *** | 0.003   | ☒   | 0.036   |     |
|                                 | (2.59)    |     | (3.56)  |     | (0.06)  |     | (0.91)  |     |
| <b>Capex</b>                    | 1.807     |     | 2.022   | ☒   | -0.005  | ☒   | 0.036   |     |
|                                 | (0.73)    |     | (0.85)  |     | (-0.03) |     | (0.28)  |     |
| <b>Political_dum</b>            | -0.209    |     | 3.598   | *** | 0.003   | ☒   | 0.237   | *** |
|                                 | (-0.6)    |     | (3.15)  |     | (0.15)  |     | (3.76)  |     |
| <b>Govt_own</b>                 | -0.0012   |     | -       | ☒   | -       | ☒   | -       |     |
|                                 | (-0.11)   |     | 0.0008  |     | 0.0008  |     | 0.0006  |     |
|                                 |           |     | (-0.07) |     | (-1.38) |     | (-0.99) |     |
| <b>Inst_own</b>                 | 0.0002    |     | 0.0075  | ☒   | -       | ☒   | 0.0002  |     |
|                                 | (0.03)    |     | (1.01)  |     | 0.0002  |     |         |     |
|                                 |           |     | (-0.49) |     |         |     | (0.41)  |     |
| <b>GLC_dum</b>                  | -0.477    |     | -0.077  |     | -0.053  |     | -0.022  |     |
|                                 | (-0.34)   |     | (-0.06) |     | (-0.68) |     | (-0.3)  |     |
| <b>Family_dum</b>               | -0.119    |     | 0.337   |     | -0.037  |     | -0.013  |     |
|                                 | (-0.09)   |     | (0.26)  |     | (-0.47) |     | (-0.18) |     |
| <b>For_dum</b>                  | 1.317     |     | 1.024   |     | 0.045   |     | 0.028   |     |
|                                 | (0.91)    |     | (0.75)  |     | (0.56)  |     | (0.37)  |     |
| <b>Board_size</b>               | -0.107    |     | -0.135  | *   | -0.004  |     | -0.006  |     |
|                                 | (-1.47)   |     | (-1.93) |     | (-1.04) |     | (-1.52) |     |
| <b>IDR</b>                      | -0.108    |     | -0.211  |     | -0.012  |     | -0.017  |     |
|                                 | (-0.38)   |     | (-0.76) |     | (-0.73) |     | (-1.1)  |     |
| <b>Anti-Corruption</b>          | 0.167     | **  | 0.148   | *   | 0.008   | *   | 0.007   |     |
|                                 | (2.13)    |     | (1.97)  |     | (1.88)  |     | (1.63)  |     |
| <b>Organization</b>             | 0.017     |     | 0.015   |     | 0.002   |     | 0.003   |     |
|                                 | (0.19)    |     | (0.18)  |     | (0.33)  |     | (0.53)  |     |
| <b>Sustainability</b>           | 0.107     |     | 0.119   | *   | 0.003   |     | 0.003   |     |
|                                 | (1.43)    |     | (1.7)   |     | (0.73)  |     | (0.89)  |     |
| <b>Inst_own*political_dum</b>   |           |     | -0.016  |     |         |     | -0.001  |     |
|                                 |           |     | (-1.31) |     |         |     | (-0.84) |     |
| <b>GLC_dum*political_dum</b>    |           |     | -3.345  | *** |         |     | -0.239  | *** |
|                                 |           |     | (-3.07) |     |         |     | (-3.99) |     |
| <b>Family_dum*political_dum</b> | 0.522     |     | -3.913  | *** |         |     | -0.237  | *** |
|                                 |           |     | (-3.48) |     |         |     | (-3.83) |     |
| <b>Industry Dummy</b>           | yes       |     | yes     |     | yes     |     | yes     |     |
| <b>Adj R-Sq</b>                 | 0.5479    |     | 0.603   |     | 0.4356  |     | 0.5229  |     |

Note: All variables are described in Table 5. \*, \*\*, and \*\*\* indicate significance levels at 10%, 5%, and 1% levels.

with such anti-corruption program disclosures show a stronger association between anti-corruption transparency and firm value. Public-policy makers and regulators seeking to enhance corporate political disclosure transparency might take it into account to establish a regulation that a company requests or advised to adopt these best practice for an improved corporate governance mechanism

## Acknowledgement

The authors thank MICG for providing them the opportunity to undertake the data collection for the *MICG Report 2017*.

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## Conference Paper

# The Role of Job Embeddedness and Organizational Continuance Commitment on Intention to Stay: Development of Research Framework and Hypotheses

Yuserrie Zainuddin and Ayesha Noor

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

The purpose of this paper is to develop a research framework and hypotheses based on a thorough review of the conceptual and empirical research in organizational behavior literature. Previous research has shown that there is an important relationship between on-the-job, off-the-job embeddedness, organizational continuance commitment, and employee's intention to stay. Organizational continuance commitment is hypothesized to have a mediating effect on the relationship between on-the-job, off-the-job, and intention to stay. Implications for testing these hypotheses are articulated from research and practice perspectives. Research framework from this paper will be used at the preliminary stage of the research on ICT industry that can be expected to contribute to the development of ICT workers in Malaysia.

**Keywords:** job embeddedness, organizational continuance commitment, intention to stay, ICT industry, Malaysia.

Corresponding Author:  
Ayesha Noor  
uayeshanoor@yahoo.com

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under  
the responsibility of the  
FGIC2019 Conference  
Committee.

## 1. Introduction

In Malaysia, online businesses are rapidly displacing the traditional method of carrying out businesses amidst mortal and brick establishments. The Internet transports many useful features which include full accessibility, speed, low cost, and user-friendliness (Alias, Othman & Loon, 2017). The e-commerce and internet are spontaneously dispersing globally, which brings different nations of the world together in a global network economy. Due to the importance of the internet, many establishments in Malaysia are converging towards the implementation of ICTs. Internet usage might be a serious issue in improving a firm's operational efficiency and market reach. The adaption and adoption of ICT in all sectors will assist in the development of a country's economic growth (Alias et al., 2017). Likewise, the government has identified the ICT industry as a key economic area that possesses potentials in boosting productivity and raises the

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country's overall development. This has been initiated through the Eleventh Malaysia Plan (2016-2020) in which Malaysia was recognized as a high-income country (Koen, Asada, Nixon & Rahuman, 2017).

The contributions of the ICT services, media, and content subsectors to the GDP was 5.2% in 2010 and 5.5% in 2015 (Eleventh Malaysia plan: Driving ICT in the knowledge economy 2015). Malaysia has taken the third position in the world's most famous IT outsourcing location after India and China for the last ten years (Yap, Lim, Jalaludin, & Lee, 2016). Besides that, the ICT sector is one of the major sources of employment, with about 60.9% of the total employment rate per annum. The share of ICT to the economy increased to 18.2% in 2016 from 16.5% obtained in the year 2010 (Table 1.1). Similarly, ICT contributed to GDP by 13.4% while e-Commerce contributed 4.8% in the year 2016. However, employment in the ICT industry rose by 4.2% in the year 2016. At the same year, ICT manufacturing recorded the highest employment with a share of 39.7%, followed by ICT service, which was 27.9% (Department of Statistics Malaysia 2015).

TABLE 1: Percentage share of ICT to Economy, 2010-2016.

| Years                   | 2010   | 2011   | 2012   | 2013  | 2014   | 2015   | 2016   |
|-------------------------|--------|--------|--------|-------|--------|--------|--------|
| ICT                     | 12.9   | 11.9   | 11.7   | 12.0  | 12.4   | 13.1   | 13.4   |
| E-Commerce              | 3.6    | 4.0    | 4.2    | 4.4   | 4.6    | 4.7    | 4.8    |
| Contribution of ICT     | 16.5   | 15.9   | 15.9   | 16.4  | 17.0   | 17.8   | 18.2   |
| To economy (RM Billion) | 135.3b | 144.4b | 154.6b | 167.4 | 188.4b | 206.1b | 224.0b |

**Source:** (Dep. Stat. Malaysia 2015-2017)

This study will focus on the ICT industry as it has a greater impact on the Malaysian industrial sector. Besides this, the industry (ICT) may not be accomplishing their target growth due to a lack of skilled professionals. In Malaysian ICT industries, the turnover rate is often relatively high among certain groups of people such as professionals (Lim, 2018). From the last decade to recent, most of the industries are facing the issue related to an employee leaving (Latif, Delaila, & Saraih, 2016). According to the Malaysian employment statistics, the ICT industry showed a 23.1% turnover rate which was the highest of all the organizations in Malaysia (Radford, 2013-2016; Global salary increase and turnover, 2015). It shows that turnover has become a serious problem to the extent that the IT companies in Malaysia are facing the problem of retaining their skilled employees. So, it is essential for IT companies in Malaysia to increase their current employees' decision to stay.

In order to investigate employee intention to stay, several motivations are employed to clarify this technique. Most of the time, employers could not identify the reason

why employees are quitting. Only practical information regarding employees to quit is not enough to separate the terminations of voluntary and involuntary turnover. If the termination records were undecided, then the results of studies can turn out to be wrong (Govaerts, Kyndt, Dochy, & Baert, 2011). Furthermore, the decision to quit might be non-work related issues (family, friends, community activity, etc.) which influence them to go out of the workplace. In the meantime, Job embeddedness was established as one of the best predictors of intention to stay so that the attempt has to be determined to understand the relationship between this predictor variable to other variables. Although, few studies had investigated the relationships among community elements (fit community, sacrifice community and link community), and organization elements (fit organization, sacrifice organization and link organization) which include the employee intention to stay and continuance commitment in Asian's environment, especially in Malaysia's ICT industries with the combination of job embeddedness and social exchange theory. However, this present study investigates the divergence in the knowledge field by distinguishing this relationship (Ahmad & Daud, 2016). Because the two parameters are in a relationship to stay, management of the organization needs to appraise good continuance commitment to the society. Then, it is anticipated that the investigation of these relationships on the intention to stay will provide full knowledge of the best methods (Ramesh & Gelfand, 2010; Naim & Lenka, 2016).

## 2. Literature Review

### 2.1. Intention to stay

Intent to stay is clearly elucidated as the employees are willing to stay in his/her current job (Naim & Lenka, 2017). Most of the previous studies explored job commitment and confirmed that when a member is committed to their work and are pleased with their present job, their tendency of leaving is lower. In the literature on intention studies, the terms leave and stay are being used interchangeably (Ngoc, Phuong, Chi, & City, 2018). Various parameters can affect employees in the interpretation of intention; therefore, when investigating turnover, investigators have a tendency of focusing on turnover intention rather than employee's actual intention to stay. Thus, intention suggests the way an individual behaves in an unconstrained environment. Since the intention to remain on a job is strongly predicted by the turnover, there is a high possibility that the factors influencing worker's intent would affect the turnover and retention (Zin, Pangil &



Othman, 2012; Mika, Vanhala, Heilmann & Salminen, 2016). Therefore, the term intention to stay has been employed for constancy and clarity in this current study.

Furthermore, in search of better control and understanding of the inconsistency in the leaving measure, studies are focusing more on the reasons for staying rather than questioning employees about the reasons for their leaving. Nevertheless, it is primarily indicated that intentions are the best predictors of behaviours (Lee, Burch, & Mitchell, 2014). Besides that, retaining an employee in an organization is an important way for human resource management (HRM) to encourage an aggressive benefit for companies, especially in ICT sectors in the current global market (Naim & Lenkla, 2016). Findings on the advantage of securing employees in the IT industries had significantly designated that IT industries can acquire greater returns on assets, greater operating performance and higher returns on capital used (Yap et al., 2016).

## 2.2. Job embeddedness

### 2.2.1. On-the-job embeddedness

There are three organizational drives in organizational embeddedness (OE) that make workers remain on their jobs. These are fit, links, and sacrifices (Mitchell & Lee, 2001). The ability of an individual to attain the requirement of an organization and interested in the reward of an organization is known as fit. The level or kind of relationship a worker has with his or her colleagues and performances at work is referred to as links. However, the profits a worker is willing to surrender if he or she is leaving an organization is called a sacrifice.

**Fit–organization:** The feeling of being compatible or comfortable with an organization, and the work environment is known as fit (Mitchell et al., 2001). An employee's self-value plans and career goals for the hereafter should fit together with higher organizational culture and instantaneous demand from the worker's job. Hence, the stronger the fit, the greater the possibility of the employees to professionally and personally attached with their organizations. Besides, fit to a firm also signifies the worker's sensitivity of comfort with their firm. Employees take into account how well he/she fits into an organization. According to Terence & Lee, (2001), an employee considers how well his or her plans, career goals, and values for the future fit with the higher cooperate culture and the demands of their current job. Thus, when the fit is better, and the employees perceived comfort with their organization, the possibility

of the employees to be personally and professionally attached to his or her employing institution become higher.

**Links-organization:** The links can be official or unofficial associations an employee has with institutions or others in the institution (Mitchell & Lee, 2001). It is a form of connection between a worker and others, such as members of his or her team, superiors, and his or her colleagues. The healthier the level of links, the more firm and close individuals would be in their various operations in an organization. Also, link to the organization signifies personalities and familial relationships with other individuals in the organization. Mitchell & Lee (2001) also suggested that as individuals have more tenancy in the organization, they tend to have several connections with other individuals (co-worker). Studies in organizational commitment had shown that commitment would develop from normative pressures arising from the socialization process experienced by the employee. Authors suggested that a worker who had been with their employer's firm for a longer period was more likely to have a deep-rooted relationship. Fong et al. (2017) supported this notion by suggesting that organizational tenure would ensure the creation of ties among the organization and their workers.

**Sacrifice–organization:** The cost of either material or psychological reimbursement that a worker is willing to forfeit by quitting a job is the sacrifice organization. For instance, it means quitting an organization possibly will lead to individual losses such as surrendering colleagues, fascinating tasks, or financial dividends. When a worker discovers that what he or she is giving is significant, the workers may not want to quit the organization (Holtom, Tidd, Mitchell, & Lee, 2013). Although a worker may be so concerned about salary and benefits, the control costs, which include new health care or pension plans, should be seriously considered. Other unthinking but very important benefits that potential sacrifices can bring upon individual are stability and improvement regarding the job. Also, when a worker decides to remain on his or her job, benefits such as promotion or pension are thoroughly enjoyed (Albdour et al. 2014).

### 2.2.2. Off-the-job embeddedness

The communities embeddedness were presented by Mitchell et al., (2001) as workplace external constraint that makes persons remain wherever they reside. This construct usually influences both the work and family life of a worker. It includes the following: institutional resources, transportation, the contiguous natural settings, neighbors' and demographic profiles (school systems), professional network services, and social support systems (Gonzalez, Ragins, Ehrhardt, & Singh, 2018).

**Fit-Community:** Physically powerful bond to members of a close extended family gives gratification to the inhabitants as a result of the needs-supplies (babysitting, family gatherings for holidays, dining, or birthday celebrations), thereby making members remain in the immediate geographical location. Certainly, the community-saved viewpoint of urban communities has been known to promote community fits, such as inclusion, compatibility, and belongingness (Mensele & Coetzee, 2014). Therefore, this situation helps to establish employees or their close family members (children and spouses) in a community where they reside. Also, fit to community signifies worker's sensitivity of comfort with his or her environment. Workers are considering how effectively he or she fits into the surrounding and community. The community and environment can make individuals meaningful, which will improve an individual's attachment to them (Treuren & Fein, 2018). When the fit is better, and the community is in comfort, it is highly possible that the employees would experience a relationship with the institutions that employed them.

**Links community:** Regular and strong quality relationship with loved ones (employee's parents and children's cousins) through the social exchange of valued resources, generates unbreakable bond or links. It is asserted by Conservation of Resources (COR) theory that the motivation of people to continually increase their resources will make them desire to invest their resources in the most profitable (Gonzalez et al., 2018). Closing to family members is of great value to individuals (help with childcare and tasks) because they will always want to promote relationships to strengthen links in order to continually receive more benefits including caring for elderly parents by the adult children (Darrat et al., 2017). Additionally, a link to the community represents individuals' formal and informal relationships with their community. Scholar has described that a volume of strand tied a worker and his families in the financial, psychological, and social web that includes non-work friends, groups, and community. When the number of the relationship between the web and individual increases, the individual would become more tied to his/her organization and job Mitchell et al., (2001).

**Sacrifices community:** Due to an excellent family bond that cannot be simulated easily from the community, supplies from the loved ones turn out to be sacrificed (Ghosh & Gurunathan, 2015). This kind of non-transferable assistance from kinships (siblings lending emotional comfort during the divorce, retired parents who drive them to school) are important to the concerned persons to meet the requirements of the job to reduce any form of 'family-to-work' conflict. Also, because persons are encouraged to protect the healthiness and emotional well-being of their family members (children's health,

spouse/partner's health), individuals may not want to relocate their loved ones so as not to forfeit the benefits derived from the family members (Treuren & Fein, 2018).

### 2.2.3. Organizational continuance commitment

Organizational commitment is a common concept for education and commerce, as shown through many previous studies. Though numerous studies have supported organizational commitment, there are several points of contentions regarding explanations, results, and the definition of the variable. Continuance commitment can improve as personnel recognizes not only the cost of leaving but the manner their skills or competencies have improved through their organization membership (Vandenberghe, Panaccio, & Ben Ayed, 2011). What differentiates continuance from affective commitment is that workers with higher affective commitment stay in their jobs because they intend to stay while employees with higher continuance commitment stay because they must remain in their job. Allen & Meyer (2001) have recognized that normative commitment is a kind of commitment that deals with a feeling of moral responsibility to stay in an organization. What all these three dimensions of organizational commitment commonly possess is that they all signpost the level to which employees are willing to remain in an organization. In this study, the one-dimensional technique was employed since continuance commitment is mostly connected to employees' decision to stay.

## 3. Research Framework and Hypothesis

The framework of this research stretches an explanation of how the variable connects. The different variables for this are the independent, dependent, and mediator. Independent variable influences and determines the effect of another variable with the relationship of a mediator.

### 3.1. Hypotheses development

A hypothesis can be referred to as a hesitant description of sophisticated guess about a result of the research problem, or likely result of the study (Sekaran & Bougie, 2016). In another term, the hypothesis is described as a declaration suggested as an observation or a knowledge but has not yet been proved or disproved (Rea & Parker, 2014).

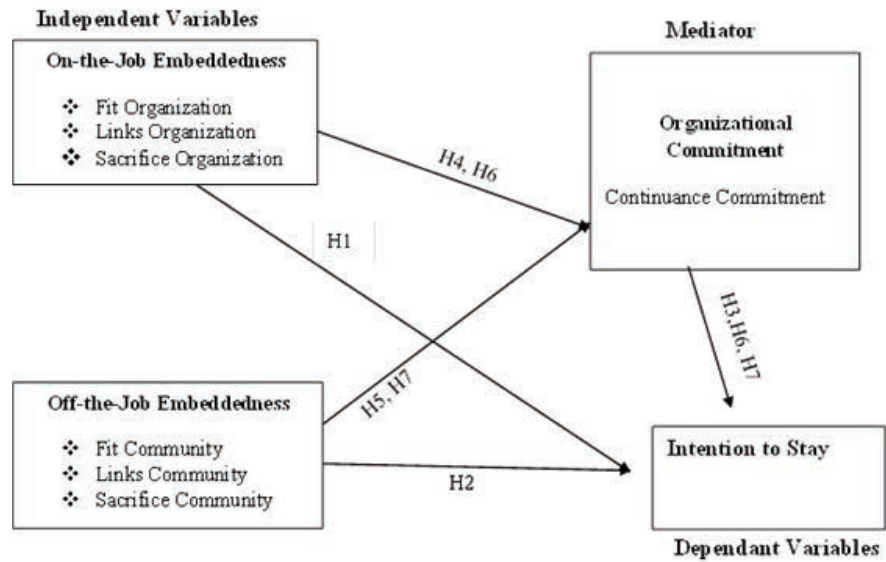


Figure 1: Research Framework.

### 3.1.1. Relationship between on-the-job embeddedness and intention to stay.

H1: There is a significant connection amongst intent to stay and on-the-job embeddedness in the organization.

On-the-job embeddedness is comprised of three dimensions; Fit organization, Link organization, and Sacrifice organization in which all the elements of on-the-job embeddedness will have a positive relationship with employees intend to stay in an organization. Also, it is a proposition that these elements of on-the-job embeddedness would influence the aim to stay. The more the fit, link, and sacrifice between web and person, the higher the bond between an establishment and an employee intention to stay (Heritage et al., 2016). Moreover, when on-the-job embeddedness is higher, satisfied employees would be less likely to turn away from their organization in relative to when on-the-job embeddedness is lesser because employees being highly embedded to their job draw more positive energy from being satisfied with it, which keeps them away from leaving their organization.

Conversely, studies had shown a consequential negative correlation between intention to stay and on-the-job embeddedness (Meyer et al., 1991; Crossley et al., 2007; Halbesleben & Wheeler 2008). On-the-Job embeddedness can estimate retention rate more than ease of movement measure and perceived desirability. It had been emphasized that satisfied employees and highly embedded are not likely to look for another job opportunity (Ramesh & Gelfand, 2010). In contrast, embedded employees

may be emotionally perplexed in unfavourable jobs, and this might lead to frustration and loss of motivations as a result of the anxiety of losing their relationships with the organization or sacrifices they would have to make if they should consider quitting their jobs. Recently, the study centre of attention is on the positive portions of job embeddedness, which are backbones that make people satisfied and to stay in their jobs. Below are the sub-hypotheses depicted for the relationship between intention to stay and on-the-job embeddedness.

$H_{1a}$ : There is a significant connection among the fit organization and intention to stay in the organization.

$H_{1b}$ : There is a significant connection among link organization and intention to stay in the organization.

$H_{1c}$ : There is a significant connection among sacrifice organization and intention to stay in the organization.

### **3.1.2. Relationship between off-the-job embeddedness and intention to stay.**

H2: There is a significant positive relationship between off-the-job embeddedness and intention to stay in the organization.

Off-the-job embeddedness comprised of three dimensions; link, fit, and sacrifice community, which usually influences both the work and family life of a worker. Therefore, it is very clear that individual has more off-the-job embeddedness will have less chance to quit the organization due to more attachment. Based on this assumption, there is the proposition that employee with high off-the-job embeddedness will require a constructive connection in member decides to stay in an organization (Treuren & Fein, 2018). If the level of off-the-job embeddedness is more, there will be lesser turn away from an organization by the satisfied employees in relative to a lower level of off-the-job embeddedness because there will be no reason for leaving. Being strongly tied to communities outside the workplace and satisfied with a person's job can result in a higher chance of staying in the job.

Despite the off-the-job embeddedness–turnover correlation had been invented (Holtom et al., 2006; Mitchell et al., 2001), several studies had suggested that off-the-job parameters are not essential in minimizing turnover intention compared to on-the-job parameters for different reasons. Firstly, powerful community embeddedness can stimulate soft turnover because an individual will possess higher contact based on local job opportunities. Secondly, off-the-job parameters can impose higher impact

only when geographic relocation is necessary (Dawley & Andrews, 2012). Also, previous studies had outlined that off-the-job parameters like integration in a community and family are essential considerations why employees remain with an organization. Studies provided the impacts of family attachments and work-family conflicts. Other non-work commitments are hobbies and religion (Treuren, 2009). These parameters are relationships to work teams, unions, or other colleagues; this was called constituent commitments. The second hypothesis in this study is about the important connection between off-the-job embeddedness and intention to stay in the organization. Below are the sub-hypotheses depicted for the connection between intention to stay and off-the-job embeddedness.

$H_{2a}$ : There is a significant connection among the fit community and intention to stay in the organization.

$H_{2b}$ : There is a significant connection among link community and intention to stay in the organization.

$H_{2c}$ : There is a significant connection among sacrifice community and intention to stay in the organization.

### **3.1.3. Relationship between continuance commitment and intention to stay**

One major objective of this study is to identify the relationship between intention to stay and continuance commitment. The relationship has previously been discussed in a section. There are dense pieces of literature about the relationship between continuance commitment and intention to stay in the organizations (Umoh, Amah, & Wokocha, 2014). Intention to stay and continuance commitment relationships have generally been conceptualized within the 'attitude-intention-behaviour' approach. Accordingly, commitment theory had suggested that the strength of an individual's ties with the organization determines how strongly he or she will engage in withdrawal cognitions, and ultimately whether or not he or she will leave the organization (Allen & Meyer, 2001; Dyk & Coetzee, 2013).

Ruokolainen (2011) investigated a model for employee retention. Their study sample involved 24,829 Chinese employees in the tourism and hotel industries. The obtained results established that continuance commitment was part of the most very important parameters considered in staying in an organization. Similarly, a study carried out in the banking sector by Dyk & Coetzee (2012) showed a positive relationship between these two concepts, it also established that corporate culture had a moderating impact on

the relationship between continuance commitment and intention to stay. Another study conducted by the Chinese researchers who got their surveyed data from nursing staffs about the occupational commitment which is a modified type of organizational commitment concluded that intention to stay and continuance commitment had a positive relationship. However, age and job position are the mediating factors in this relationship. Dyk & Coetzee (2012) studied the relationship between retention and organizational commitment by utilizing surveyed data from 206 employees who work in the ICT and medical companies situated in South Africa. Their obtained results reflected a significant positive relationship between the two parameters and make the claim that factors including race, gender, tenure groups, and age can influence the relationship between the two parameters. Thus, this present study expected that continuances commitment will have a significant positive relationship with the intention to stay in an organization.

H3: There is a significant connection among intention to stay and continuance commitment in the organization.

#### **3.1.4. Relationship between on-the-job embeddedness and continuance commitment.**

H4: There is a significant connection among continuance commitment and on-the-job embeddedness.

On- the-job, embeddedness and continuance are tied in that they seek to define the turnover of a worker in a firm. Generally, the study begins off with a turnover by focusing on work attitudes like organizational commitment and job satisfaction. Job embeddedness is independently related to turnover and other local turnover models. Besides, continuance commitment is different from job embeddedness in that it is a work attitude conceptualized to understand why workers quit. Notably, a study on turnover moved away from forecasting why worker quit to understanding why workers stay and incorporating on-the-job factors in this decision to stay.

Therefore, an employee may willingly stay due to personal investments that are not transferable which include career investments and retirement investments, close working relationship with co-workers, unique acquired job skills known to the organization, involvement in the organization, years of employment in a particular organization, and other benefits that make it too costly for one to leave and seek employment in other places(Ferreira & Coetzee, 2013). This study expected that continuances commitment will have a significant relationship with on-the-job embeddedness in an organization.



Below are the sub-hypotheses depicted for the connection between continuance commitment and on-the-job embeddedness.

H<sub>4a</sub>: There is a significant connection among the fit organization and continuance commitment.

H<sub>4b</sub>: There is a significant connection among link organization and continuance commitment.

H<sub>4c</sub>: There is a significant connection among sacrifice organization and continuance commitment.

### **3.1.5. Relationship between off-the-job embeddedness and continuance commitment.**

H5: There is a significant connection among continuance commitment and off-the-job embeddedness.

Continuance commitment describes the employees' emotional attachments to be involved with the organization and their goals. It emanates the employees' and organizational value congruence. Due to this, it is normal for an employee to become emotionally attracted to his/her job and continuing enjoying membership in the organization (Holtom et al., 2006; Mitchell et al., 2001). Lee et al. (2014) stated the parameters that assist in creating intrinsically rewarding occurrences for employees to be antecedents of continuance commitment. These parameters are task significance, identity, autonomy, feedback concerning employee job performance, skills variety, perceived organizational dependence, or support. Below are the sub-hypotheses depicted for the relationship between continuance commitment and off-the-job embeddedness.

H<sub>5a</sub>: There is a significant connection among the fit community and continuance commitment.

H<sub>5b</sub>: There is a significant connection among links community and continuance commitment.

H<sub>5c</sub>: There is a significant connection among sacrifice community and continuance commitment.

### **3.1.6. "The mediation role of continuance commitment on the relationship between on-the-job embeddedness and intention to stay."**

H6: Continuance commitment mediates the relationship among intention to stay and on-the-job embeddedness.

The three types of organizational commitment, which includes continuance, affective, and normative earlier discussed, can produce various levels of relationship with the different variable; intention to stay (Dockel et al., 2012). The outcomes from their study established that continuance commitment corresponds intending to stay. However, continuance commitment had the best relationship with the intent to stay. The role of continuous commitment can be altered in the presence of different demographics in young age groups; this type of commitment can be less proactive due to inexperience about their value in the organization. The young employee has less likelihood to know about the consequences of leaving the job. Similarly, another study conducted on health professionals affirmed that a continuance commitment had a constructive influence on the intention to stay (Ahmad & Daud, 2016). The variables mediated in the study through separation. Like the other two dimensions of organizational commitments, studies had shown that continuance commitment had a noticeable affirmative correlation with the intention to stay. Also, job embeddedness construct symbolizes “a wider set of impacts on the employees’ decisions to stay on their job” (Tanova & Holtom, 2008).

$H_{6a}$ : Continuance commitment mediates the relationship among the fit organization and intention to stay.

$H_{6b}$ : Continuance commitment mediates the relationship among links organization and intention to stay

$H_{6c}$ : Continuance commitment mediates the relationship among sacrifice organization and intention to stay.

### **3.1.7. ”The mediation role of continuance commitment on the relationship between off-the-job embeddedness and intention to stay.”**

H7: Continuance commitment mediates the relationship between intention to stay and off-the-job embeddedness.

It is a feeling of accountability to continue with an organization” (Allen & Meyer, 2001). Such a feeling of duty often emanates from what is called ”generalized values of duty and loyalty.” This refers to a natural predisposition of being committed and loyal to an institution like marriage, family, employment organization, religion, a country because of cultural socialization that places a premium on devotion and loyalty to the institution”. ”This feeling of moral obligation is determined through the length at which a person feels that he/she should be loyal to his/her organization, making a personal sacrifice to criticize or improve it”(Dyk & Coetzee, 2012). Below are the sub-hypotheses depicted

for the relationship between off-the-job embeddedness, continuance commitment, and intention to stay.

$H_{7a}$ : Continuance commitment mediates the relationship among a fit community and intention to stay.

$H_{7b}$ : Continuance commitment mediates the relationship among links community and intention to stay

$H_{7c}$ : Continuance commitment mediates the relationship among sacrifice community and intention to stay.

## 4. Future Research and Implications

This study represents the research framework that will lead our empirical effort in the area. The testing of this framework will contribute to the literature by examining the relationship of job embeddedness, organizational continuance commitment, and employees' intention to stay.

Many contributions can be made to theory based on the outcomes of this study. Firstly, the use of community psychology and sociological literature enrich the theory of job embeddedness and provide a higher technique to understand the function of community relationships and off-the-job embeddedness in organizational life. These theoretical points of view enhance one another. Social points of view explain a means the relationship between family and friends within a community influence the community attachment; however, the theory of job embeddedness outlines the processes by which community relationships join people to their workplaces. This study also provides an improved analysis by differentiating the relationship with family and friends. This provides a theoretical explanation of the distinct influences of family and friends bonds on the workplace attachment and employees' community. Hence, the current study provides a new hypothetically driven understanding of work-life scholars and job embeddedness in relation to the role of community relations in organizational life.

The result obtained from this study can help to enhance retention programs for both employees and employers. Likewise, the acquired data can reflect the significant factors towards the employee intention to stay. This can assist the ICT companies in focussing more on how the problem will be solved. Furthermore, this will assist the employers in commencing preventive measures that can strengthen the relationship between employer and employee, leading to an improve employee's loyalty. Additionally, the government can employ the results from this finding as a template for re-evaluating the present policy in retaining an employee in an establishment. New policies in ICTs

industries can be developed by the government, which can serve as benefits and compensations that will encourage more commitments from the employees. Moreover, this finding can be generalized in other developing countries of a similar nature. Usually, it would be difficult to generalize the findings of one country to another, but ICT industries are facing a similar type of problems and hurdles in almost all the developing nations. Therefore, it could be considered as the case study of these nations. Findings of this study can be customized according to the situation of the ICT industries in other developing countries.

## Acknowledgement

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

## Funding

Authors would like to acknowledge University Malaysia Pahang, Malaysia for providing financial support through the project GRS130371.

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## Conference Paper

# Sustainability Ethics of Safety in the Building Maintenance Industry: Technical Manager's Perspectives

Diyana Kamarudin<sup>1</sup> and Mohammad Affendy Oмарdin<sup>2</sup>

<sup>1</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

<sup>2</sup>Faculty of Engineering Technology, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

### Abstract

Building maintenance (BM) projects usually involve various technical individuals such as building managers, architects, and building contractors. These individuals are usually concerned with certain issues pertaining to their views and experiences on a range of ethical topics surrounding BM industry activities. The issue of professional ethics plays an important role in quality-related problems in a BM project. Ethics is a vital component in producing a profitable long-term profit in the BM industry. This paper highlights the process practice of professional ethics and sustainability in the BM industry and how ethics influences the activities of BM projects. This qualitative case study recruited four (4) technical managers within the BM organisations. Data for this research were collected through semi-structured interviews with technical managers of the BM organisations. Results indicated that different types of unethical conducts impact BM tasks significantly. This study found that it is important to include professional ethics as a pre-requisite to attaining sustained and acceptable quality in BM. The study also suggests several approaches and methods enhance professionalism among BM professionals, which could help improve the quality in BM projects. The findings provide safety sustainability ethics process to BM organisation on how to address the ethical root issues when confronting the Malaysian BM industry.

**Keywords:** ethics, sustainability, building maintenance, expert panel, technical managers.

## 1. Introduction

The Building Maintenance (BM) industry is a challenging trade sector. Therefore, ethical practice in BM is extremely important, as with other disciplines. In reaching professional quality, it is vital that BM practitioners not only focus on technological developments but also including ethics in their achievements. Problems with poor work delivery are one of these ethical issues. Shah (2017) stated that the building industry faces ethical issues such as poor work delivery. The need to consider the BM process on time at

Corresponding Author:

Mohammad Affendy Oмарdin  
 affendi@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
 Knowledge E

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early phase thus avoid delaying in tasks delivery and fit for sustainability. The unethical conduct evidenced by the BM manager's perspectives is lack of safety ethics during the BM operation on the BM site.

In Rosli Ahmad (2008)'s research, he highlighted the benefits of safety programs and how it could help reduce operations site injuries. There is also a need to look into new ways to help improve BM industry image by reducing the hazards at building sites (Ahmadon Bakri et al., 2006). Nawi et al. (2016) stated that BM workers was the impact of exposed matters in a project and are faced with possible risks and disclosure throughout the BM process.

## 2. Building Maintenance Safety

A BM project needs to integrate ethic safety to ensure safety awareness on the activities. The BM project safety achievement mainly depend on the practice of the workers taking part in the project from the beginning to end (Al-sweity, 2013). Vee and Skitmore (2003) stated in their research that any managers must conduct their work in an ethical manner. Vee and Skitmore (2003)'s research also mentioned that ethics refers to the behaviour projected of an employee in an organisation within the industry is practiced. Unethical practices can take place at BM phase of a project such throughout the pre-maintenance. Hamimah Adnan et al. (2012) stated that unethical practices could take place and affecting the whole life of building project cycle.

The roles of BM managers technically require competent and ethically responsible in order to carry the ethics successful. In the design phase, consideration should be a priority of the quality and workmanship of the work. While on BM operation, the need for awareness of worker's safety on site. Safety and health in the workplace is an important component of the working environment where employees need a safe and healthy environment for their activities (Kamal, 2012). According to George and John (2015) pointed out that the roles of a BM site practitioners must demonstrate to implement sustainable and taking into account social, environmental, economic, and technical dimensions. The concern of ethics responsibility should be the priority of the utmost concern for BM managers (Vee & Skitmore, 2003)

## 3. Safety in BM Ethics

Future BM practitioners should be educated to have better fundamental understanding concerning sustainable development and ethics as this is quite an important part of

BM as it could prevent endangering a person's life. BM practitioner should also update their skills as it is important to manage any uncertainties that could arise. This is so that they are able to make call judgments on the environment design and construct. Devon et al. (2004) stated that the project must aware of ethical concerns such as safety and environmental friendliness that concern the whole BM workplace. In this case, the need to have good application of safety at BM workplace. Dutta and Sengupta (2014) stated that professionals must take into view the eco-friendly considerations for future workers.

According to Fang et al. (2004) pointed out that safety meeting, safety inspection, safety training, and education and safety communication must be in consideration at workplaces. Failure to implement safety briefing as sources of increases in incident frequency in the building industry (Suraji, 2001). Moreover, BM practitioners must carry on their shoulders the responsibility of authorizing the principles of safety culture growth. Affendy et al. (2017) stated that in-house training must be embedded for BM organization thus increase the intention of worker's knowledge ethics.

#### **4. The Integrated of Sustainable and Ethics Safety in the BM**

The application of BM ethics and strategies was based on a sustainable approach. According to Parkin (2000) stated that sustainable practice comprises of social, environmental, and economic. According to Mohd-Isa et al. (2011) stated that a sustainable practice in BM must integrate the ethics maintenance policy and strategies on any maintenance agenda. The important in practice of safety and health on the project must include topics such as prevention of danger in the workplace and safety and health problems (Akasah, Abdul, and Zuraidi, 2011).

Azuin et al. (2013) stated it needs to integrate the built of environmental hazards for the initial screening to help evaluate building safety and healthy activities. Nasser and Aulin (2016) stressed that a precondition for successful safety in a building project to ensure that activities according to deliver the project's scope and activities, thus creating project sustainability. Affendy et al. (2015) highlighted that sustainability knowledge must integrate within a workplace situation, thus provide a holistic process. On the other hand, Bakri et al. (2015) highlight that the mandatory formation of safety training for workers on site. Bottani et al. (2009) pointed out that the execution of safety ethics must comprise safety and security goals. The communication to attain these goals to employees training programmes is also another important factor.

#### 4.1. Ethics in BM project

Ethics in BM industry comprises of the use of language and the safety awareness processes that impact the decisions people and affecting to the others (Wasserman, 2000). This could affect the conflict of interest. The impact of accidents occurred at the workplace not only deferral project completion but also affects the reputation of industries involved (Asanka & Ranasinghe, 2015). Riddel (2016) highlights the need to provide effective communication between project parties.

Due to the high fatality rates in Malaysia building industry, workplace safety should be the main concern of BM managers and practicers. This statement was also supported by Sawacha et al. (1999), where they mentioned that stated that the high fatalities are due to lack of knowledge from the workers, which prevents them from performing and applying safety in the workplace. A study by Perecman (2018) stated the need to conducting safety meetings on workplace or project site. Zeng et al. (2008) highlighted that lack of safety awareness in BM and training caused on-site accidents. Furthermore, the need to have an adequate safety practice at BM workplace thus awareness of safety integrity in BM workplaces.

### 5. Procedure of Building Maintenance Ethics Procedure



**Figure 1:** Integrated procedure of BM Ethics Sustainability (Researchers, 2019).

Figure 1 illustrates the BM ethics on-site safety on BM workplace. The process comprises of BM tasks received ethics on safety and strategies on safety. The process for ethics and strategies in BM workplaces is vital in BM activities.

## 6. Methodology

In this study, the approach of four (4) technical managers was conducted in BM organizations. The semi-structured interviews were conducted as the main data collection method by targeting BM technical managers based on questions as part A- Strategies to implement ethics and safety practices in BM workplace; part B- Ethics for Safety Practice at the workplace and part C- Health and safety hazards and its consequences on BM workplaces

## 7. Results

### 7.1. Part A

TABLE 1: Strategies to Implement Ethics and Safety Practices in BM Workplace.

|   | <b>Strategies and Ethics Safety Practices</b>                                   | <b>Descriptions</b>                   |
|---|---|---------------------------------------|
| 1 | Provide effective communication briefing to workers                             | All workers attend                    |
| 2 | Conducting in-house safety and health training to workers                       | Depends on the time availability      |
| 3 | Full commitment from top management   | Top management instructions mandatory |
| 4 | Providing and explaining safety policies to each of the workers in pocket sizes | Each workers provided                 |
| 5 | Panel display surrounding the BM sites  | Clear display                         |
| 6 | Impose penalty to the workers have offended the safety rules and regulation     | Mandatory to all workers              |
| 7 | Provide safety booklets in various languages                                    | Provide during training               |

Table 1 shows the strategies performed for in safety practices encountered at BM sites are: provide effective briefing to workers; 2 conducting in-house safety and health training to workers;3 full commitment from top management; 4 providing and explaining safety policies to each of the workers in pocket sizes; 5.panel display surrounding the BM sites 6; impose penalty to the workers have offended the safety rules and regulation;7. Provide safety booklets in various languages.

### 7.2. Part B

TABLE 2: Ethics for Safety Practice at Workplace.

|   | <b>BM safety policy</b>   | <b>Ethics</b>            | <b>Evaluation</b> | <b>Findings</b>  |
|---|---|--------------------------|-------------------|--|
| 1 | The preparation of BM safety induction at workplace                                   | Safety Briefing          | Agree             | All of the respondents agreed that the safety induction are vital                                |
| 2 | SOP for BM safety at the work place   | Standard of Procedure at | Agree             | All of the respondents agreed that the organization carry out and provide SOP for BM site safety |
| 3 | Attend training on the BM safety workplace  | Safety training          | Strongly agree    | All of the respondents agreed that several personnel been trained on the safety on site          |
| 4 | Inspection, operation, and maintenance of BM safety equipment conduct by organization | Inspection and Quality   | Agree             | Organization maintain a BM safety plan within the emergency response plan (ERP)                  |

### 7.3. Part C

The interviews were held with four experienced BM site managers on the nature and source of health and safety hazards at Malaysia BM workplaces. The results are indicated in Table 3.

TABLE 3: Health and Safety Hazards and its Consequences on BM Workplaces.

|   | <b>Type of health and safety hazards in BM</b> | <b>BM hazard Consequence</b>            | <b>Possible effect of health and safety hazard consequence</b>  |
|---|--|---|---|
| 1 | Poor housekeeping                              | Fall by object                          | Confined sites<br>Overcrowded workplace<br>Culture and ignorance which BM workers very low education level                  |
| 2 | Falling object                                 | Hit by falling object                   | unprotected body (not wearing safety shoes)   |
| 3 | Equipment tools                                | Hit or cut by object such working tools | Improper use of tools and wrong procedure of operating  |
| 4 | Working at a height place                      | Workers falling from height             | Improper fixed scaffolding<br>Not using personnel protective equipment<br>Collapse of the workbench<br>Unaware of work risk |

## 8. Conclusion and Implications

The study has revealed to improve ethics in the industry, and it should start from the way we educate BM workers on-site by putting ethics in action. In BM, the way forward

is to improve ethics in the industry, and it should start from the way of educating BM workers by putting ethics in action. The BM industry as a contribution to the development of the building industry. Thus, they provide positive scenario in the industry, good ethical practices are vigorous application. Through these findings, the study found that a positive evaluate by safety ethical practices, the need to have good working environment require to achieve. The results have shown that to highlight the ethics practice in BM safety that required technical managers in carrying out their work. The BM industry must have a safety culture in order to reduce the number of fatalities, accidents, and injuries that involves BM workers. The practicing of ethics safety in BM works is important to prevent failure of the BM process, which can lead to hazards consequences, such as human accidents and BM workplaces.

## Acknowledgement

The researchers of this project appreciate the advice provided by Mr. Zulhelme as the Technical managers of building safety consultants. We would also like to extend our utmost sincere appreciation to the personnel's who shared with us their time and experience during the interviews.

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

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## Conference Paper

# Academic Integrity in Higher Education: Analysis of Research Publication and Web Citation

Aziman Abdullah<sup>1</sup> and Asar Abdul Karim<sup>2</sup><sup>1</sup>Faculty of Computer Systems & Software Engineering, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia<sup>2</sup>Centre for Modern Language & Human Sciences, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

Higher education is a critical organization for nation-building, either for economic development or social well-being. However, this noble and vital institution has been affected by the issue of “*academic integrity*” due to digital technology adoption, the Internet. Many research studies have been conducted and published, but the impact on the institution and society yet not been properly reported. This study attempts to assess the impact of research on academic integrity by exploring its relationship with web citation. Quantitative method is adopted by analyzing data collected from Google Scholar, SCOPUS, and aHref web analytics cloud service. A strong positive correlation (Pearson’s coefficient = 0.915) of the published research works on “*academic integrity*” with web citation can be used as an effective strategy to put research into action in academic integrity. Thus, this study suggests that web citation is a potential metrics that can be used as an effective tool to measure the impact of research in academic integrity.

Corresponding Author:

Aziman Abdullah  
aziman@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E**Keywords:** academic integrity, higher education, web citation.

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the responsibility of the  
FGIC2019 Conference  
Committee.

## 1. Introduction

In this 21<sup>st</sup> century, higher education has been challenged with rapid change and constant transformation that opens the door to new opportunities (Wang & Wan Wart, 2007) as well as risks (Downes, 2017). The advancement of the Internet or digital technology has transformed higher education to become more accessible (Amigud, Arnedo-Moreno, Daradoumis, & Guerrero-Roldan, 2018) and affordable with online services (Hayes, Ruschman, & Walker, 2009; Rajnish Kumar, Pritam Desale, 2013). This progress not only comes with the beneficial impact but also together with new opportunities, challenges and risks that significantly affect the future of higher education (Weller & Anderson, 2013; Zorn, Haywood, & Glachant, 2018). Many higher education institutions

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have addressed the needs to embrace the Industrial Revolution 4.0, which is about digital technology adoption with the right purpose and strategic. This digital technology is a disruptive may induce risks in higher education when the adoption been implemented without being mindful of the potential implications either in a good or bad. Higher education institution must resilience(Weller & Anderson, 2013), ready with the new paradigm shift (Rogers, 2000; Taatila, 2017) that comes with digital technology. Higher education is one of the critical sectors not only for economic development but also in various aspects of national (Mathews & Hu, 2007) and global sustainability development (Sibbel, 2009). The integrity that significantly defines a civilization (Walton, 2001) must be at the center and core values of the institution. In higher education, academic integrity is an issue that attracts many researchers to study about it. This issue is not only about student, academician and administrator, but affected external stakeholders like policy maker, government, parent, guardian and employer. In fact, issues regarding academic integrity or the case of academic corruption claimed to happen in all institutions in all countries, from the top person till the student (Tierney & Sabharwal, 2017). This paper reviews the context of curriculum where related stakeholders in higher education are involved in academic integrity cases or potential being corrupt in the academic system. There are two objectives of this paper: first, to review the existing literature on academic integrity in higher education, and second, to assess the impact of research of academic integrity on the web. To this end, the paper addresses two research questions:

RQ1: What is the relationship between research publication with web citations in “*academic integrity*”?

RQ2: What is the impact of research publication on “*academic integrity*” in higher education in the form of research citation and web citation?

This study is important for higher education to address the issue of academic integrity affected by digital adoption (Housewright & Schonfeld, 2008).

## 2. Literature Review

### 2.1. Integrity Concepts

There are various definitions of integrity, depending on the context of the discussion. The term complexity is challenging to be framed in a single and consistent theory due to different theories advance different aspects of the term (OECD, 2018). In etymology or source of the word, ‘integrity’ comes from the Latin word, *integras*, *integer*, meaning comprehensiveness, consistency, and purity(Sumi & Mesner-Andolšek, 2016). In the

area of computer science or digital technology, integrity means differently as compare to social science. Integrity in computer science is referred to as an assurance that information and programs are changed only in a specified and authorized manner (Council, 1991). It is one of the required criteria in the field of cyber security. While in social science, integrity can be viewed at least from eight perspectives (Huberts, 2018) which all of them are referring to a character or values held by individual, group, or organization. In this paper, however, the dominant one claimed by the literature which defines integrity as “professional exercises his tasks adequately, carefully and responsibly, taking into account all relevant interests.” The definition in computer science and social science differs based on target actors which one for a machine and the later one is for human. Nevertheless, both are referring to a measurable quality value of trust.

## 2.2. Academic Integrity

In Islām, integrity places principally as a code of conduct which leads towards the establishment of human ethics. Once a Muslim tries the best to implement the three (3) Islamic aspects of Islāmic world-view which are *tawhīd* (Islāmic ideology), *khilāfah* (vicegerency) and *‘adālah* (justice); the person becomes an individual who abides Islāmic teachings in the daily life. He/ she then will reach the highest point of a believer should be, i.e., to become the pious man (al-taqwā). Allāh mentions in the Qur’ān: “O mankind, We created you from male and female and made you into nations and tribes, that you may know one another. Verily, the most noble of you in the sight of Allāh, is the most righteous of you. Indeed, Allah is Knowing and Acquainted”- *al-Qur’ān*, 49: 13, adapted from (Alī, 1994). Building integrity in promoting human ethical foundation in this world life. One of the main elements of integrity is truthfulness. According to al-Ghazali, the truthfulness or sincerity has to appear in five aspects: in speech, intent/ will, determination, keeping promises, and action (Mohd Hasrul Shuhari et al., 2019). Integrity avoids the person to do such characteristics associated with those persons without integrity such as corruption, deception, and treachery. The Prophet says: “*Truthfulness leads to al-birr (righteousness), and the righteousness leads to the Paradise; a man keeps on speaking the truth until he becomes a truthful person. Falsehood leads to al-fujūr (wickedness/ evil-doing), and the wickedness leads to the Hell/ Fire; a man may keep on telling lies till he is written before Allah, a liar*” Ṣaḥīḥ al-Bukhārī, ḥadīth no. 6094 (Al-Bukhārī, 1987), Ṣaḥīḥ Muslim, ḥadīth no: 2607 (Muslim, n.d.). In academic, issues associated with integrity like academic corruption (Tierney & Sabharwal, 2017) or also known as academic fraud such as plagiarism (Maurer, Kappe, & Zaka, 2006),

academic dishonesty (Ercegovac & Richardson, 2014) and cheating (McCabe, Treviño, & Butterfield, 2001) are not new. For example, plagiarism had existed ever since more than a hundred year before (Quain, 1831). Academic integrity is not only about academic work by student or academician; it also covers administrative work in the academic system from the starting process of marketing, admission, graduation and till the end of program accreditation. A previous study (Altbach & Vest, 2005) claimed due to high demand to access to higher education; there is much corruption in university or college admission process especially to the most prestigious universities. This over a decade claim become more significant today after recently Department of Justice in the United States uncovered a conspiracy on college entrance exams and admission to elite universities in the United States that linked with academic corruption (DoJ, 2019). Table 1 summarize the context of academic integrity happened in higher education.

TABLE 1: Academic Integrity in Higher Education Context.

| Integrity Case  | Context |        |       |
|---|---------|--------|-------|
|   | Before  | During | After |
| Cheating for admission (Sharma, 2015)                       | X       |        |       |
| Bribery for admission (Liu & Peng, 2015)                    | X       |        |       |
| Plagiarism (Bouville, 2008)                                 |         | X      |       |
| Data fabrication in research (Nurunnabi & Hossain, 2019)    |         | X      |       |
| Contract cheating (Amigud & Lancaster, 2019)                |         | X      |       |
| Accreditation and licensing fraud (OECD, 2018)              |         |        | X     |
| Fake degrees/transcript (Grolleau, Lakhal, & Mzoughi, 2016) |         |        | X     |

### 3. Methodology

This study adopts a quantitative analysis approach for the research methodology. The collected data are based on the contexts of research and action (see Table 2). The rationale of the Web database adopted in this study is because the Web platform can be used to represent the implementation of activities of the higher education on academic integrity. To restrict the searching, a single phrase “*academic integrity*” has been used as a search keyword from all the data source in both contexts.

TABLE 2: Data Collection and Source.

| Context  | Data source     | Parameter   | Searching Tools                       |
|----------|-----------------|---|---------------------------------------|
| Research | SCOPUS          | Title, keywords, year, citation counts  | SCOPUS search                         |
|          | Google Scholars | Title, keywords, year, citation counts  | Harzing's Publish or Perish version 6 |
| Action   | Web search      | Keywords, number of search interest score   | Google Trends web service             |
|          | Web pages       | Keyword, year, number of web publication, web citation, *social media sharing, web referral | aHref content explorer                |

\*Social media sites included in aHref web analytics service are Twitter, Facebook, and Pinterest.

## 4. Results

Table 3 shows the summary of data collection from the targeted sources with the phrase “academic integrity.”

TABLE 3: Data Collection and Source.

| Indexed database       | Number of records | Year range  | Date retrieved |
|------------------------|-------------------|-------------|----------------|
| SCOPUS                 | 855               | 1983 - 2020 | 28 May 2019    |
| Google Scholars        | 980               | 1880 - 2018 | 28 May 2019    |
| Google trend           | 185               | 2004 - 2019 | 28 May 2019    |
| Ahref Content Explorer | 5000              | 1979 - 2019 | 28 May 2019    |

Since the time of publications for research and web are not in the same duration for comparison, this study normalized the year range by scoping the year range from 2009 till 2019. Table 4 summarizes the number of publications associated with “academic integrity” within those years.

To investigate the relationship between publications and citation in “academic integrity,” simple linear regression has been adopted in this study by measuring the Pearson’s correlation coefficient of the targeted parameters. The details result of the analysis is shown in Appendix 1 and summarized in Table 5.

## 5. Discussion

There are two research questions to be discussed based on the findings.

1. RQ1: What is the relationship between research publications with web citations in “academic integrity”?

Based on Appendix 1, this study summarizes: -

TABLE 4: Summary of Publication index and Citation on “Academic Integrity.”

| Year | Publication index database |        |               |       | Citation       |        |              |              |
|------|----------------------------|--------|---------------|-------|----------------|--------|--------------|--------------|
|      | Google Scholar             | SCOPUS | Google Search | aHref | Google Scholar | SCOPUS | Web Referral | Social Media |
| 2009 | 68                         | 35     | 530           | 23    | 3060           | 417    | 256          | 254          |
| 2010 | 49                         | 32     | 596           | 50    | 7133           | 347    | 630          | 14271        |
| 2011 | 70                         | 44     | 691           | 93    | 3186           | 235    | 878          | 11175        |
| 2012 | 62                         | 49     | 784           | 163   | 1506           | 422    | 1451         | 11149        |
| 2013 | 64                         | 51     | 718           | 247   | 2645           | 356    | 1904         | 26840        |
| 2014 | 53                         | 75     | 702           | 330   | 1176           | 429    | 2591         | 108317       |
| 2015 | 48                         | 48     | 688           | 377   | 927            | 148    | 2928         | 289935       |
| 2016 | 43                         | 124    | 739           | 490   | 715            | 269    | 3027         | 1331031      |
| 2017 | 25                         | 82     | 709           | 1022  | 662            | 154    | 6124         | 522500       |
| 2018 | 10                         | 95     | 751           | 1471  | 277            | 120    | 9194         | 709642       |
| 2019 | 0                          | 39     | 332           | 602   | 0              | 12     | 5649         | 155073       |

TABLE 5: Significance Matrix based on P-value (alpha = 0.05).

| Source      | Publication    |        |               |     | Citation       |        |              |              |
|-------------|----------------|--------|---------------|-----|----------------|--------|--------------|--------------|
|             | Google Scholar | SCOPUS | Google Search | Web | Google Scholar | SCOPUS | Web Referral | Social Media |
| Publication | Google Scholar | X      | /             | /   | /              | /      | /            | /            |
|             | SCOPUS         |        | /             | /   | /              | /      | /            | /            |
|             | Google Search  |        |               | X   | X              | /      | /            | /            |
|             | aHref          |        |               |     | X              | X      | /            | /            |
| Citation    | Google Scholar |        |               |     |                | /      | X            | /            |
|             | SCOPUS         |        |               |     |                |        | /            | /            |
|             | Web Referral   |        |               |     |                |        |              | /            |
|             | Social Media   |        |               |     |                |        |              |              |

Note: '/' is significant and 'X' is not significant

a. The relationship between Google Scholar indexing shows a negative, weak relationship with web referral and social media. Considering open access to Google Scholar data, this finding somehow indicates some errors in the conducted methodology. After comparing the data from the web search in Google Scholar, there are major differences between the data retrieved from the Web and the software tool Harzing’s that used in this study. The reason for the difference is the limitation of data queries in the Harzing’s software is based on 1000 data per query, as shown in Figure 1. The actual number of data retrieved from the Google Scholar web search at the moment this paper been written is 35,400 publications in total. This suggests that a revise searching strategy is required should researcher want to use Harzing’s software to retrieve data from Google



Scholar database. Perhaps performing a query based on a single year and compile the data of yearly based query may resolve this limitation.

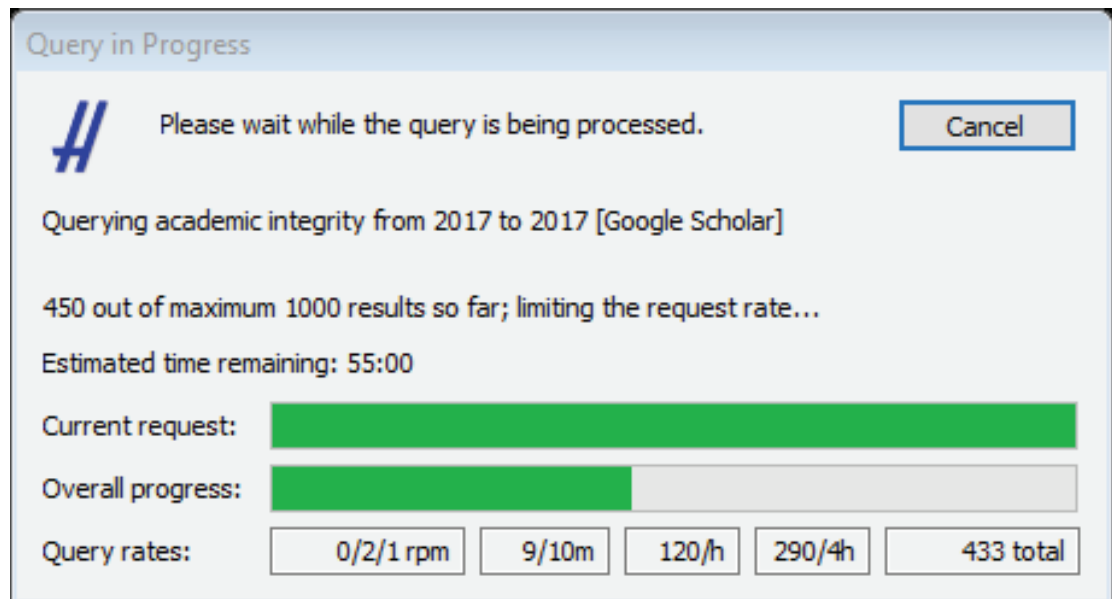


Figure 1: Limitation of Results in Harzing's Software.

b. The relationship between SCOPUS publication and Web referral has a positive correlation with Pearson's correlation coefficient value is 0.523. Since the web is the most practical platform for higher education to engage with stakeholders (O'Haire et al., 2011), this relationship might provide researchers and practitioners two possible scenarios:-

- i. Scenario 1: Research publication in "*academic integrity*" do affect web referral or citations.
- ii. Scenario 2: Research publication in "*academic integrity*" is affected by web referral or citations.
- iii. Scenario 3: Research publication in "*academic integrity*" is a two-way effect on web referral or citations.

c. The relationship between SCOPUS publication with social media is a very strong positive value where Pearson's correlation coefficient value is 0.915. Although SCOPUS database is a subscription-based and usually access limited to subscribe researchers only, this finding indicates that the topic of "*academic integrity*" in published research works and social media has strong connection to each other.

2. RQ2: What is the impact of research publication on "*academic integrity*" in higher education in the form of research citation and web citation?

a. A strong positive relationship between research publications and citation in the publications indexed in Google Scholar indicates that there is an impact of published works in “*academic integrity*” on the research citation and web citation. Table 6 summarizes the impact value of research on citation-based in Appendix 1.

TABLE 6: Research Impact of “*Academic Integrity*” on Research Citation and Web Citation.

| Research Publication | Research Citation |        | Web Citation |              |
|----------------------|-------------------|--------|--------------|--------------|
|                      | Google Scholar    | SCOPUS | Web Referral | Social Media |
| Google Scholar       | 0.52              | 0.81   | -0.88        | -0.42        |
| SCOPUS               | -0.54             | -0.15  | 0.52         | 0.92         |

## 6. Conclusion

This study has investigated the relationship of research works on “*academic integrity*” with web citation. Findings supported that research impact of “*academic integrity*” can be assessed with web citation and social media sharing. Pearson’s correlation coefficient value shows a strong relationship between research publication indexed by SCOPUS to social media sharing. This suggests that web citation can be used as a useful tool to measure the impact of research on academic integrity.

## Acknowledgement

We would like to thank Yayasan Bank Rakyat for the financial support by sponsoring this paper to be presented in the FGIC 2<sup>nd</sup> Conference on Governance and Integrity 2019.

## Appendix 1: Correlation Matrix of “academic integrity” in publication and citation from 2009-2019

| Data Source                                   |                | Publication    |        |               |       | Citation       |        |              |              |
|---|----------------|----------------|--------|---------------|-------|----------------|--------|--------------|--------------|
|   |                | Google Scholar | SCOPUS | Google Search | Web   | Google Scholar | SCOPUS | Web Referral | Social Media |
| Publication                                   | Google Scholar | 1              | -0.32  | 0.38          | -0.80 | 0.52           | 0.81   | -0.88        | -0.42        |
|   | SCOPUS         |                | 1      | 0.51          | 0.610 | -0.54          | -0.15  | 0.52         | 0.92         |
|   | Google Search  |                |        | 1             | 0.155 | -0.07          | 0.36   | 0.01         | 0.31         |
|   | Web            |                |        |               | 1     | -0.61          | -0.65  | 0.98         | 0.57         |
| Citation                                      | Google Scholar |                |        |               |       | 1              | 0.49   | -0.66        | -0.47        |
|   | SCOPUS         |                |        |               |       |                | 1      | -0.73        | -0.34        |
|   | Web Referral   |                |        |               |       |                |        | 1            | 0.50         |
|   | Social Media   |                |        |               |       |                |        |              | 1            |
| P-value from T-Test with two tails and paired |                |                |        |               |       |                |        |              |              |
| Publication                                   | Google Scholar |                | 0.230  | 0.000         | 0.018 | 0.011          | 0.000  | 0.004        | 0.045        |
|   | SCOPUS         |                |        | 0.000         | 0.015 | 0.013          | 0.001  | 0.004        | 0.045        |
|   | Google Search  |                |        |               | 0.140 | 0.066          | 0.000  | 0.014        | 0.045        |
|   | Web            |                |        |               |       | 0.061          | 0.309  | 0.003        | 0.045        |
| Citation                                      | Google Scholar |                |        |               |       |                | 0.019  | 0.381        | 0.046        |
|   | SCOPUS         |                |        |               |       |                |        | 0.008        | 0.045        |
|   | Web Referral   |                |        |               |       |                |        |              | 0.046        |
|   | Social Media   |                |        |               |       |                |        |              |              |

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## Conference Paper

# Big Data and Predictive Analytics Capabilities: A Review of Literature on Its Impact on Firm's Financial Performance

Lee Khai Loon and Lim Cean Peing

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

### Abstract

In the era of the fourth industrial revolution, big data and predictive analytics (BDPA) capabilities considered as one of the significant resources that enable a firm to gain competitiveness. Nowadays, the advancement of technology information increases the difficulty of the firm to manage vast amounts of structured and unstructured data. The excessive growth between data captured and the firm's capabilities to manage, process, analyze, and transfer the big data to actionable knowledge and value still challenges many firms in the competitive market. Besides, the lack of tangible resources, technical skills, management skills, organizational learning, and data-driven culture are some of the challenges for firms to apply analytics approach to support the data processing process. These situations led to poor decision making by the firm and result in high operation cost and lower profitability. However, the situation will be different if the firm able to manage BDPA capabilities in the right way. Based on the identified problems, this study aims to review the impact of BDPA capabilities on a firm's financial performance. This study is expected to enhance the body of knowledge on BDPA capabilities and the firm's financial performance. This study also provides information regarding the importance of BDPA capabilities on the firm's financial performance to industrial practitioners. An empirical study on this subject matter is suggested for future researchers, especially in Malaysia manufacturing industry.

**Keywords:** big data analytics, predictive analytics, big data and predictive analytics capabilities, firm's financial performance.

Corresponding Author:

Lee Khai Loon  
 leekhailoon@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Big data refers to the techniques, practices, methodologies, and applications related to the acquisition, analysis, storage, and integration of massive amount of data to support business decision making (Mikalef, Pappas, Krogstie, & Giannakos, 2017). According to Jeble et al. (2018), big data and predictive analytics (BDPA) is an emerging field where it is adopted with various computer algorithms and statistical techniques to obtain insight and patterns from big data sets. Recently, many firms recognized BDPA as one of the

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significant resources to gain competitiveness. According to Jeble et al. (2018), the raising of digitalization in every aspect of the business has made BDPA ranked as an essential item for the senior executives in the organizations, no matter for the improvement of firm's financial performance or firm's competitiveness. The advancement in new technology information such as the emerged of smartphones, cloud computing, digital devices, scanning devices, and the Internet of Things (IoT) enable the firms to discover new information and identify a new pattern that enables the firms to make improvements in their processes and lead to an improvement in productivity. The emerging of BDPA transformed the way the firms run their business (Akter, Wamba, Gunasekaran, Dubey, & Childe, 2016). Other than that, the new technology information enables the firms to generate variety and a massive amount of big data sets and also enhances the process of the firms in creating data analytics capabilities.

Within highly competitive business environments and rapidly changing in customer's demand, many firms are obliged to be more quickly and boldly to experiment to survive and to maintain competitiveness in the market. Popovič, Hackney, Tassabehji, and Castelli (2018) highlighted that organizations should focus on a keep changing or uncertainty business environment at the right time and use the appropriate method in doing business. To achieve that, firms should continuously identify and develop new advantages to ensure the ability to create new opportunities effectively and to exploit new opportunities efficiently as well as to improve the firm's financial performance. Wamba, Akter, Edwards, Chopin, and Gnanzou (2015) stated that *"collecting, storing, and big mining data for insights can provide significant value for the companies to enhancing productivity and competitiveness."* Besides, Wamba et al. (2017) further stated that BDPA is the application of big data, analytical tools, and techniques to provide a solution to the firms in obtaining insights. Also, Jeble et al. (2018) indicated predictive analytics is a useful method used to identify and collect meaningful data which can be used to determine data pattern by applying the application of various data analysis techniques which including data pattern recognition, data mining, statistics, and artificial intelligence.

Profits maximization, increases market share, and fulfill their customers' requirements considered as the primary goal of every firm. Globalization, the arrival of social media, and technology advancement lead to the competition of firms to become more critical. Thus, to achieve those goals, all firms are essential to have BDPA capabilities. Akter et al. (2016) stated: *"if a particular company that does not adopt a big data and predictive analytics (BDPA) strategy, then they are facing risk to lose their market share and momentum in competing with other companies in the market."* Therefore, the

investment in BDPA is one of the methods in ensuring the firms' sustained competitive advantage. Jeble et al. (2018) noted that firm integration and deployment of BDPA strategic resources able to gain competitive advantages from competitors. Jeble et al. (2018) further revealed that firms should focus on tangible resources, technical skills, management skills, organizational learning, and data-driven culture in studying BDPA (Jeble et al., 2018).

Recently, some academics have stressed the low financial performance of some particular firms is related to poor decision making. In the manufacturing industry, poor decision making will lead to high operational cost and lower profitability (Raguseo & Vitari, 2018). While Lee, Kweon, Kim, and Chai (2017) mentioned, the manufacturer could not enhance their financial performance, if the firms do not have better managerial decision-making. Besides, Akter et al. (2016) indicated that the firms do not adopt a BDPA strategy will losing market share and momentum due to the lack of advantages in knowing customers demand. Many manufacturing firms all over the world, including Malaysian manufacturing firms, are facing the same problems, which are weak firms' performance, especially in their financial performance. According to Lee et al. (2017), the reasons that many firms are facing these kinds of problem is because they are unable to manage vast amounts of unstructured data. For instance, the existing data analytics tools unable to effectively extract valuable and meaningful data from those unstructured data, lack of expertise in the big data management field, and lack of support of top management in BDPA project investment.

Furthermore, the excessive growth between data captured and firm's capabilities to process, manage, analyze, and transfer big data flow to actionable knowledge and value still challenges the firms to be competitive (Garmaki, Boughzala, & Wamba, 2016). Also, the lack of knowledge, supportive management, human resources skills, organizational culture to share data, and insufficient technology are some of the challenges for firms to apply analytics approach to support the data processing process (Garmaki et al., 2016). Considering the development in BDPA in several fields, there has been a trend of research in the relationship of big data and firm's financial performance in the manufacturing industry (Jeble et al., 2018). However, current literature focused on BDPA capabilities on firms' social, environmental, and economic performance. Therefore, Côte-Real, Oliveira, and Ruivo (2017) argued that there is still a lack of finding on the relationship between BDPA capabilities on firms' financial performance. Furthermore, there is still insufficient evidence showing that the actual impact of BDPA capabilities on firm financial performance (Lee et al., 2017; Mikalef et al., 2017). Besides, the assessment of the real value and effect of big data on firms' financial performance remains



vague (Garmaki et al., 2016). Hence, this research aims to review the impact of BDPA capabilities on the firm's financial performance.

## 2. Literature Review

### 2.1. An overview of big data

The concept of big data generating great attention worldwide and emerged a new field of analytic. Akter et al. (2016) defined big data as a massive amount of diverse observational data, while Jeble et al. (2018) defined big data as “*any collection of large and complex data sets that are difficult to store, process and analyses with earlier methods.*” It is focused on the uses of computer science, advanced data storage, and management techniques and statistics concepts to collect and extract the meaningful value from the big data. Akter et al. (2016) further indicated that there are five “Vs” that can represent the big data which are volume, velocity, variety, veracity, and value. In addition, Opresnik and Taisch (2015) provided a simple definition for the five big data characteristics: ‘*volume*’ refers to the data generated from the machine; ‘*velocity*’ refers to the reflect to the speed and frequency of the transactions; ‘*variety*’ refers to the increase of structured or unstructured data created by different sources; ‘*value*’ is concerning about the value extracted from the existing data. According to Lee et al. (2017), big data is a high volume, velocity, and variety of information assets. It enables the firms to enhances insight and better decision making by innovative forms of information processing in a cost-effective way.

#### 2.1.1. Big data analytics

Nowadays, large-scale data are created by many online applications, such as online banking, e-commerce, and e-transactions. The emerged of big data, and the advancement in analytic techniques created opportunities to the firms, these opportunities enabled the firms to increases their competitiveness level (Jeble et al., 2018). According to Lee et al. (2017), big data analytics (BDA) known as one of the emerging information system, where the implementing of BDA will help firms to achieve their excellent performance. Ghasemaghaei, Hassanein, and Turel (2015) defined BDA as the applications of tools or processes to extract large-scale and disperse data sets for obtaining meaningful insights that can help to improve organizational performance. While, Lamba and Dubey (2015) defined BDA as the use of various analytic methods to gain useful information

from large data sets such as provide the firms actionable descriptive, predictive, and prescriptive results. The study of Wamba et al. (2017) stated that BDA forms a clear barrier between low and high performing organizations, as it allows firms to look forward, enhances revenue, reduces cost, and increases firms competitiveness. In the era of technological advancement, many firms now are not concerned with descriptive analytic such as what happened or why it happened, but they are focusing on predictive analytics such as in present what is happening or in the future what is likely to happen (Jeble et al., 2018).

### 2.1.2. Predictive analytics

To know what would happen in the future, firms are necessary to have predictive analytics. This is because predictive analytics can get insights from the existing big data. According to Jeble et al. (2018), to predict some things that will happen in the future, predictive analytics is a useful technique that capable of answering this question. Also, Abbott (2014) defined predictive as a process that extracting meaningful data patterns through pattern recognition techniques, artificial intelligence, machine learning, statistics, and data mining. Also, Jeble, Kumari, and Patil (2016) indicated that predictive analytics also referred to the advanced analytic technique, where it is an application of analytic data techniques to help the organizations to answer certain questions or solve some of the problems. Thus, predictive analytics enable organizations to do better decision making and enhance firms performance (Jeble et al., 2016).

## 2.2. Big data and predictive analytics capabilities

Big data and predictive analytics (BDPA) capabilities are defined as a higher-order of organizational capabilities where it depends on the bundling of strategic organizational resources (Wamba et al., 2017). Akter et al. (2016) stated that BDPA capabilities affect organizational performance. Moreover, Dubey et al. (2017) indicated that the BDPA could be conceptualized as capabilities where these capabilities are essential to a firm. This is because, without BDPA capabilities, the firms are unable to gains useful information from the big data sets.

Besides, effectively development on organizational BDPA capabilities may lead to achievement in competitive advantage and the improvement of firms' performance (Dubey et al., 2017). According to Jeble et al. (2018), when firms able to assemble, integrate, and allocate their big data resources, then the firms will develop their BDPA

capabilities which opposite from their opponents. Additionally, Jeble et al. (2018) called this ability as the BDPA capabilities where these capabilities enable the firms to perform better in the process of collecting, analyzing, and processing big data.

Dubey et al. (2017) highlighted that the BDPA capabilities are referred to the combination of the firms' resources such as human resources, technical skills, and managerial skills to create an ability to increase competitiveness. However, Jeble et al. (2018) have a different view in which resources can be categories as tangible and intangible resources. Therefore, in this study, the resources that needed to developing BDPA capabilities are tangible, technical skills, management skills, and intangible resources (i.e., organizational learning and data-driven culture).

### 2.2.1. Tangible resources

According to Jeble et al. (2018), tangible resources referred to an organizations' building, information technology infrastructure, capital, networks, connectivity, and data sources. Besides, Dubey et al. (2018) reported that tangible resources in BDPA capabilities as those things that can be sold or bought from markets such as capital, building, and machinery. It is necessary to have these resources to enable the firms to develop analytic solutions. However, these resources are not capable of generating a competitive advantage to the firms if the firms are not acquired with the foundation required to build capabilities (Jeble et al., 2018).

Investment in big data and predictive analytics (BDPA) project are significant to the firms. Investment in BDPA project is substantial because it allows the firms to extract useful information effectively. Besides that, Dubey et al. (2017) stated that BDPA project is considered as a long-term investment where it requires devote some time to get back the return of investment. However, this investment will assure that the firms can have a significant improvement in their firms' performance (Dubey et al., 2017).

### 2.2.2. Technical skills

According to Dubey et al. (2017), technical skills can be defined as the knowledge that requires the application of new technology or algorithms to extract significant value from big data. Jeble et al. (2018) stated that BDPA capabilities normally required big data analyst to have specific skills and knowledge such as statistical analysis, machine learning, business acumen to provide solutions of solving business problems, problem-solving skills, and strong communication and soft skills. Jeble et al. (2018) further noted

that technical skills could develop by several methods, such as hiring a new analyst or by providing employees training.

Besides, technical skills also can be referred to the competencies in extracting data, data cleaning, and understanding programming tools (Gupta & George, 2016). On the other hand, Akter et al. (2016) mentioned that technical skills refer to knowledge related to technical elements which including operational systems, the language of programming, statistic, and database operating systems. Without doubt, technical skills in big data technology are critical to the firms. Gupta and George (2016) noted that firms with big data and predictive analytics skilled employees are likely to have a more competitive advantage as compared to the firms that do not acquire big data and predictive analytics skilled employees. The above discussion has been highlighted in the recent study by Anwar, Khan, and Shah (2018): *“when the firms acquired with the knowledge related to the big data, they will have the ability to extract information related to markets, customers, and consumers from big data, and where this information will enable the firms to gauge external trends and changes”*.

### 2.2.3. Management skills

Management skills considered as crucial elements for BDPA capabilities, where managers are playing a significant role in leading, managing, and controlling all resources included in big data and predictive analytics capabilities such as manage human resources, financial capital as well as create a data-driven culture in the organization. This is because management skills are rare, unique, and differentiated (Jebble et al., 2018).

According to Dubey et al. (2017), the success of BDPA projects is relying on managers' decision making. For example, how well a manager can create or combine his or her team members from the different functional unit with the right skills and lead his or her team members to achieve the organization's goals. On the other hands, it is considered that the intelligence gathered are pointless if managers fail to understand the significant value from the extracted insight (Gupta & George, 2016). Therefore, the managers should have the abilities to understand and able to make the right decision at the right time through the information extracted.

Indispensably, good communication skills and the ability to create relationship are crucial to managers to deal with internal and external stakeholders for analytic projects. A good relationship between big data managers with other functional managers in

working will lead to better development in human big data skills, and this also leads to the improvement in firms' performance.

#### 2.2.4. Intangible Resources

Generally, intangible resources are known as the center of a firm's performance, especially in dynamic market situations (Dubey et al., 2017). Intangible resources are dissimilar to the tangible resources where intangible resources have not clear or visible boundaries, and its value is highly depended on context (Gupta & George, 2016). According to Dubey et al. (2018), intangible resources cannot be easily sold or bought in the market like most tangible resources. This is because intangible resources are untraceable unique, rare, valuable, and irreplaceable (Gupta & George, 2016). Hence, this study follows Jeble et al. (2018) study in which the intangible resources are categorized into two aspects, which are organizational learning and data-driven culture.

#### 2.2.5. Organizational learning

Nowadays, organizational learning is an important aspect, especially to react to the uncertainty market environment (Dubey et al., 2018). The uncertainty environment that firms have to face are such as the economic, social, environmental, technological, political, or legal environment changes. According to Dubey et al. (2017), due to the emergence of new technologies, the employees' knowledge may become outdated if they do not follow the speed of technology advancement. Jeble et al. (2018) stated: "*it is crucial for a firm to ensure their employees are updated with the latest knowledge related to their field.*" This statement supported by Dubey et al. (2018): "*continuously upgrade the knowledge of employees will increase the ability of firms compete in the dynamic market place.*" Gupta and George (2016) mentioned, the intensity of a firm to learn, firms are likely to get more advantages than its rivals when competing in the same market. This is because a firm can combine its employees' knowledge and the insights extracted from big data to make better performance. Moreover, Jeble et al. (2018) also stated there are two methods to improve the firm's performance which are learned faster than their competitors and ensured the firm keep pace in the changes of the dynamic situations. Thus, it is clear that organizational learning is one of the important resources needed to create BDPA capabilities to improve the firm's performance.

### 2.2.6. Data-driven culture

Commonly known that the difficulty to change organizational culture is facing by most of the organization. According to Gupta and George (2016), it is difficult to understand and describe the concept of a data-driven culture. Over the past few years, several works of literature have shown inconsistent meaning across data-driven culture or organizational culture. According to Arunachalam, Kumar, and Kawalek (2018), data-driven culture is an intangible thing where it is related to the organization employees' belief, attitudes, and opinion towards data-driven decision making. Dubey et al. (2018) argued that data-driven culture might be an essential key for a firm to gain improvement in their firm's performance. Some scholars have argued that organization culture or data-driven culture can enhance or restrain organization's ability to gain benefit from the big data (Arunachalam et al., 2018; Dubey et al., 2018; Gupta & George, 2016). Also, Gupta and George (2016) reported that data-driven culture is a crucial element that allows firms to enhance success in BDPA initiatives. Firms' BDPA projects often ineffective are highly related to an organizational culture that refused to change (Gupta & George, 2016). Thus, it is important that all top management and employees at all levels and the different functional department understand and believe in the potential of BDPA capabilities. Otherwise, the effort taken by the firm to extract valuables information from big data will be going meaningless.

### 2.3. Firm's financial performance

Firm performance can refer to a firm's ability to gain new customers and retain existing customers, increase sales, enhance profitability, and improve return on investment (Wamba et al., 2017). With technology advancement, BDPA is one of the emerging information systems where it enables the firms to enhance their performance efficiently and effectively. According to Lazăr (2016), firm resources such as firm's assets, capabilities, information, knowledge, and organizational processes are the important resources where those resources allow the firm to execute and implement organizational strategies that help the firm to enhance efficiency and effectiveness. In enhancing efficiency, Hassna and Lowry (2016) noted that a firm should reduce the cost when adaptation into a new market such as reducing the costs of producing a product or service. In the other hand, the firm can enhance effectiveness through enabling a firm to snatch new opportunity, like improving a product or service (Raguseo & Vitari, 2018).

Generally, financial performance is referred to as the improvement in economic goals. Financial performance measures by profitability, customer retention, overall financial performance (Raguseo & Vitari, 2018; Wamba et al., 2017), sales growth, and return-on-investment (Yu, Chavez, Jacobs, & Feng, 2018). With the growth of big data technologies, firms are expected to enhance competitive advantages over their rivals from big data analytic solutions (Raguseo & Vitari, 2018). Therefore, firms must have BDPA capabilities, especially in the dynamics markets. It is because the managers have to deal with many factors and issues increasing in the markets. Jeble et al. (2018) stated that the firm's manager spends much time in solving issues such as to get advantage from cost and quality. Cost and quality are one of the critical aspects to measure financial performance. Therefore, firms are sourcing their materials globally. One of the methods to get cost and quality advantage is firm's choice to import large quantities of raw materials to get cost-saving. However, there are some uncertainty conditions related to firm's operational which firm's managers have to deal with such as the number of suppliers, delivery lead time, and different geographic locations (Jeble et al., 2016).

Hence, to deal with such uncertainty conditions, firms are requiring to have BDPA capabilities. BDPA capabilities will enable the firms to enhanced insight, decision making (Raguseo & Vitari, 2018), delivery status, and real-time demand (Jeble et al., 2018). Thus, with BDPA capabilities, it is possible that firms can achieve their economic goals where they have a clear path on how to increase their profitability, sales growth, return on investment, and customer retention.

## 2.4. The impact of BDPA capabilities on financial performance

Raguso and Vitari (2018) defined financial performance as the capabilities of the firm to use its resources to enhance and achieve its goals which are to improve a firm's revenue, profitability, sales, return-on-investment, and operational cost. BDPA capabilities are known as a base for a firm to gain a competitive advantage. However, it depends on how the firms extract meaningful and valuable information at the right moment (Raguseo & Vitari, 2018). According to Anwar et al. (2018), BDPA capabilities are an important key that will lead to firm efficiency and better decision making, where it processes valuable information to a firm. According to Mikalef et al. (2017), with valuable information, a firm's managers can manage their operational process efficiently. The managers can use the valuable information provided by BDPA to make better decisions such as how many quantities of products should be produced when to deliver the products, which supplier has a better price of materials, and in future what would happen in customers' demand.

Furthermore, Yu et al. (2018) reported that BDPA capabilities enable firms to achieve significant improvements in their firm's financial performance such as specific product development based on customer data, forecasting demand, and lean operations and production. Without a doubt, all of these are highly related to decision making on how to reduce cost and increase in profit. Therefore, as stated by Selvam, Gayathri, Vasanth, Lingaraja, and Marxiaoli (2016), the right decision made by the firms will lead to the improvement in their performance especially the aspects related to the cost. A review of the literature showed that BPDA capabilities are closely related to firm's financial performance (Anwar et al., 2018; Mikalef et al., 2017; Raguseo & Vitari, 2018; Yu et al., 2018).

According to Akter et al. (2016), the firm's BDPA capabilities are believed to affect firm financial performance. BDPA capabilities would also lead to higher financial performance. To achieve higher financial performance, BDPA capabilities of the firms are playing an important role where it allows the firm's manager to have better decision-making. For instance, BDPA capabilities allow the firm's managers to make the better decision on price optimization and profit maximization (Akter et al., 2016), increase sale, getting more new customers, improve return on investment, and enhance profitability (Raguseo & Vitari, 2018; Wamba et al., 2017). Moreover, Srinivasan and Arunasalam (2013) showed that a firm could enjoy benefits by cost reduction through BDPA capabilities such as reduces the amount of waste and re-work and improved in product quality. On the other hand, lack of knowledge and skills in BDPA could result in making an incorrect analysis or decision (Ferraris, Mazzoleni, Devalle, & Couturier, 2018). Incorrect analysis of big data will provide the wrong information to the firm, and it also will cause an increase in operational cost (Anwar et al., 2018; Mikalef et al., 2017). Hence, it is important to have BDPA capabilities to enable the firm's managers to make a better decision on how to reduce their operational cost and increase the level of financial performance.

Tangible resources can be utilized effectively and efficiently to develop different capabilities in BDPA (Dubey et al., 2018). In this study, tangible resources are those that visible such as physical and financial assets of the organization. Tangible resources can be represented by basic resources, data, and technologies. According to Gupta and George (2016), basic resources such as capital and time of the firm is an important element to achieve the best financial performance. This is because when the firms are investing enough time and money into their BDPA capabilities, they can grasp the high volume and variety of data that are rapidly increased due to the technology



advancements. By control over the high volume and variety of data, the firms make important decisions on how to improve their financial performance.

On the other hand, tangible resources are necessary for a firm's analyst to develop and find analytics solutions (Jeble et al., 2018). The investment into BDPA capabilities and related technologies not only provide a competitive advantage to the firm, but it also enables the firm to develop strong IT infrastructure to gather, analyze and use the big data sets for making operational decisions and predictions for the plan. These help the firm to improve its profitability because of less error and mistake in the firm's operations.

Besides, technical skills are one of the dimensions included in the BDPA capabilities. According to Jeble et al. (2018), to ensure the efficiency and effectiveness of the firm BDPA projects, it is crucial to have technical skills because BDPA technologies normally required an employee to acquire with specific knowledge and skills related to BDPA. Without the specific knowledge and skills such as statistical analysis, machine learning, and business acumen, the employees are unable to run the BDPA projects effectively. Ferraris et al. (2018) supported the statement given by Jeble et al. (2018) and further highlighted that effective BDPA projects would supply the top management correct and accurate information. This information will help top management to make a better decision on what to do in the next step. For instance, how many products should produce, what kind of product is most preferable by consumers in the market, and what is the trend of consumer pattern. It is clear that top management should have excellent management skills. This is because the success of BDPA projects depends on the managers' managerial skills to develop a team with the right skills and aligns the team members with achieving the goals of the firm. According to Wamba et al. (2017), a good manager with the right skills can make the correct decision to improve the firms' performance through the information extracted by the team members. As stated by Gupta and George (2016), *"a firm with skilled employees in the big data field are likely to have an advantage over its competitors. However, this advantage cannot be achieved without the managers who will respond to manage such skilled employees and BDPA project"*. Therefore, technical skills and management skills positively link with the firm's financial performance.

According to Dubey et al. (2017), there is a positive relationship between intangible resources and the firms' financial performance. To achieve excellent financial performance, the firms must be able to compete for the market. Based on Jeble et al. (2018), they have mentioned: *"the only way to retain firm competitiveness is to learn faster than the other competitors."* Nowadays, there are nonstop changing in the external

environment, such as changes in the economic, social, political, and legal environment. According to Gupta and George (2016), the firms can achieve the best financial through their employee's continuous learning process, and this statement is supported by Dubey et al. (2017). They stated: "*the firms have the propensity to provide their employees to learn knowledge related to BDPA technologies may remain their competitiveness.*" Hence, when the firms have competitiveness to compete in the market, it is clear that financial performance can be enhanced. Besides, the organizational learning and data-driven culture is another one important dimension that will help to enhance the firms' financial performance. Based on Jeble et al. (2018), data-driven culture is a source of competitive advantage for a firm. This is because the data-driven culture can enable the firm to extract benefit from big data. According to Childe et al. (2018), when the management and employees of the firm at all functional level believe and able to utilize the information extracted from big data effectively, this will help to improve the firm's financial performance. Therefore, the review of the literature showed that organizational learning and data-driven culture able to improve the firm's financial performance.

### 3. Recommendations for Practitioner and Researcher

Based on the literature reviews to date, many firms are setting their goals to fulfill their customer requirements, increase sale, increase profitability, and gain competitive advantages from their competitors. However, to achieve these goals, many firms facing similar problems which are unable to identify the actual demands or the requirement from the customers. A part of the reason is due to the lack of a database for data analysis.

Undeniably, the investment in BDPA capabilities will bring benefits to all industries, especially for the manufacturing industry. Some recent studies provide suggestion to firms in which the investment on BDPA could provide a clear overview of firm's competitive landscape in the respective industries and further leading the firm to achieve competitive advantage (Akter et al., 2016; Côte-Real et al., 2017). With good BDPA capabilities, the firm can increase the accuracy of forecasting and minimizing inventory cost as well as lead to expanding the market area or market growth (Lee et al., 2017). Besides, the implementation of BDPA also increases the ability of organizations' talent to capture a vast amount of big data sets in making a robust decision (Garmaki et al., 2016). Good decision making of organizations will help in expanding the market. Hence, future research is suggested to focus on the empirical study of the relationship between

BDPA capabilities and the firm's financial performance in the Malaysia manufacturing industry.

From a practical perspective, this study aims to increase the knowledge and awareness of the practitioner on the importance of BDPA capabilities to the firm. Given the evidence of the literature review, the investment on BDPA capabilities able to bring a significant impact to the firm's financial performance. Therefore, increase the use of BDPA should start to build the awareness of relevant employee on the importance of BDPA capabilities. Besides, the firm could start to invest in BDPA capabilities, which include tangible resources, provide training to build employees' technical skills, and management skills. Also, intangible resources, organizational learning, and data-driven culture are equally important elements in BDPA capabilities. Some firms are a focus on tangible resources, while the intangible resources are critical elements to run tangible resources such as continuously sending employees for learning to ensure that they are updated with new knowledge and skills. Last but not least, the successful and effective BDPA capabilities investment must obtain the cooperation between the top management, the employee at all levels and the different functional department must work closely with the same beliefs on the potential of BDPA capabilities on firm's financial performance.

#### 4. Concluding Remarks

This study was conducted to understand the impact of BDPA capabilities on the firm's financial performance. The findings from the review of the literature revealed that BDPA capabilities which consist of tangible resources, technical skills, management skills, organizational learning, and data-driven culture play an important role in improving firm's financial performance. The power of BDPA capabilities hinges to a large extent on the ability of the industry to operate more efficiently and effectively towards the firm's financial performance and further improve competitive advantage. This study is expected to enhance the body of knowledge on BDPA capabilities and the firm's financial performance. This study also provides information regarding the importance of BDPA capabilities on the firm's financial performance to industrial practitioners. This study has reviewed and discussed the BDPA capabilities in a brief conceptual study. Therefore, further research is advised to target more comprehensively in the empirical study to test and proof the relationship between BDPA capabilities and the firm's financial performance, as shown in the conceptual framework in this study. As

mentioned earlier, Malaysia manufacturing industry is potential to be investigated on this subject matter.

## Acknowledgement

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

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## Conference Paper

# Does Audit Fees and Non-Audit Fees Matters in Audit Quality?

Yuvaraj Ganesan<sup>1</sup>, Ranjani Narayanan<sup>1</sup>, Hasnah Haron<sup>2</sup>, and Anwar Allah Pitchay<sup>3</sup>

<sup>1</sup>Graduate School of Business, Universiti Sains Malaysia, 11800 Penang, Malaysia

<sup>2</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

<sup>3</sup>School of Management, Universiti Sains Malaysia, 11800 Penang, Malaysia

## Abstract

The purpose of this paper is to examine the influence of audit fees and non-audit fees on audit quality of the Public Listed Companies in Malaysia. The research is timely as recently, and many business cases have been exploded after an unqualified audit report issued on the financial statement of the company. The quantitative research approach and secondary data utilized for this study. Further, this study employs a cross-sectional which the data collected from 201 listed company on Bursa Malaysia for the financial year ending in 2017. The results reveal that non-audit fees (NAF) and audit fees (AF) have influenced the audit quality (AQ). The finding of this study conducive to auditing literature by enhancing the knowledge of audit scholars and able to assist policy maker such as the Malaysia Institute of Accountants (MIA) in developing new strategy or policies that can enhance the AQ.

**Keywords:** audit quality, fees, audit firm, non-audit services.

Corresponding Author:

Yuvaraj Ganesan  
yuvaraj@usm.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

It is well known that financial statements of the listed company in most of the countries need to be audited by an independent auditor from the audit firm as required by the law. The audited financial statement is important for the stakeholders such as shareholders, creditors, governments, employees, and others to verify or confirm the financial health and going concern of the company. However, the issue of Audit Quality (AQ) becomes a debating nowadays as more fraud scandal of the company has exploded after issued a clean audit report. AQ is to determine the level of assurance the audit firm obtained with satisfactory data that the financial reporting truly reflecting the company's economics status (Gaynor, Kelton, Mercer, & Yohn, 2016; Yurisandi & Puspitasari, 2015). According to DeAngelo (1981), it is a responsibility of the external auditors to define the AQ by highlighting the breach in the customer's accounting system when there is a discrepancy

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or inconsistency during the audit process. Hence, continues improvement on the AQ to achieve a reliable audited financial report is being the primary concern of most of the audit firms in providing an efficient audit service as well as capable of determining if there is any financial reporting fraudulent, which is becoming a major white-collar crime (Gottschalk & Gunnesdal, 2018). For examples, retailer BHS case in the UK, where the PricewaterhouseCoopers (PwC) has been fined £6.5 million pounds by UK Financial Reporting council as the auditor failed to give consideration potential red flags or risk on the ability of the BHS continue business or going concerns as the Company collapsed days after the audit completed. Further, the audit partner has been fined with £325,000 pounds and banned from auditing services for 15 years. In this case, also FRC found that non-audit fees charged by PwC to the group of the company are eight times more than its audit fees (Jones & Ridley, 2018). Meanwhile, in a developing country, the latest case is 1 Malaysia Development Berhad (1MDB) which placed Malaysia in a stage of disgrace in the eye of business and auditing world. In the 1MDB scandal, two big four audit firm (KMPG and Deloitte) audited the financial report for the year ending March 2010 until 2014, which have issued clean auditor reports. However, currently, all the auditor reports for 1MDB is not valid as both auditors withdrew the assurance given for the audited financial statements and make a called to be public that their audit report which previously issued should not be relied upon. Further, the Malaysian Securities Commission has reprimanded and fined Deloitte firm around US\$535,000 for failure to discharge its statutory obligations and also failed to produce qualified auditor reports (Sukumaran, 2019). Besides that, the global corporate scandals or corporate failure in a few countries has raised valuable questions about the quality of auditing and the credibility of the auditor (Kaklar, Kangarlouei, & Motavassel, 2012).

Even though, auditing services are fully regulated but still have the issues raising about the audit quality. There are many factors that caused this issue. One reason may be the audit fees charges are not able to provide quality auditing as it is unable to cover the costs of proper auditing or the non-audit fee charges are only tools to eliminate the audit procedures. As highlighted in the case of BSH whereby the partner only spent two hours to review the audit work and issue an unqualified report. The audit fees and non-audit fees have been debated nearly two decades ago. There are two views of argument about providing audit and non-audit services (NAS) by the same auditor. The first view is that by providing both services to the same company, the auditor independent will be compromised. This is due to the economics relationship builds between the auditor and the management during providing NAS. The auditor can influence the company's decision in several matter as their role has changed from an independent outsider to



become an inside adviser. The auditors' judgment can also be influenced as an auditor are taking several roles through NAS for the same company. Meanwhile, the second view is more towards the positive side, the auditor who provided both services to the same company will have knowledge spillover where the auditor can conduct the audit more effectively and efficiently (Abdul Wahab, Gist, & Nik Abdul Majid, 2014).

Although there are previous studies on AQ conducted in many countries with different factors influencing the AQ, but most of the study fails to investigate the impact of audit fees and non-audit fees on AQ in one study. Hence, this research is conducted to examine the impact of fees paid to the audit firm in term of audit and non-audit services on AQ. This study will enhance scholar knowledge and fill up the research gap. Audited financial statements are crucial; it gives vital information for financial report users. These users may include potential and current investors, stake takers, and those who need trustworthy financial information before making any critical decisions. This study also will assist the governing bodies such as the Malaysian Institute of Accountants (MIA) and relevant policymakers.

In the upcoming sections, the literature review and hypothesis of the study will be discussed. Next, the research methodology and measurement will be addressed. Finally, the findings of the study will be discussed and conclude with the implications of this study.

## 2. Literature Review and Hypothesis Development

### 2.1. Audit Quality

Experts usually define AQ as the auditor's capability to meet the legal and professional desires. In other words, AQ is also known as the audit firm experience and professionalism as well as practical knowledge of understanding their client's business operations (Corbella, Florio, Gotti, & Mastrolia, 2015). In light of this explanation, AQ also can be said as unpredictable. The quality of the audit can be considered poor if an auditor has failed to fulfill the professional and legal requests. If the AQ is high, it conveys audit reporting are filled with useful information, but if the AQ is low, then the modification of the audit report would have very minimal or no informational value to the users such as management, or shareholders and investors (Francis, 2011). Many studies based on the AQ have an essential assumption that most audit firms able to meet the minimum legal professional requirements and able to identify the financial reporting fraud or misstatement (Francis, 2004). Therefore, it is anticipated that high AQ

can be a tool to prevent the financial crisis and fraudulent (Kaawaase, Assad, Kitindi, & Nkundabanyanga, 2016).

## 2.2. Audit Fee and Audit quality

The earliest study conducted by Palmrose (1986) shows that the audit firm is charging higher fees for a better AQ. Meanwhile, another research has an extended view of the Palmrose (1986) study. It stated that in order not to lose their profitable client, auditor tries not to be harsh towards their client (Hoitash, Markelevich, & Barragato, 2007). As per the research by Huang, Chang, and Chiou (2015) demonstrates that greater audit fees in market concentration will be improved indirectly the AQ. In Malaysia very few credible research that gives the evidence on the role of audit fees in relation to AQ compared to research done by the overseas counterparts. In addition, Yatim, Kent, and Clarkson (2006) stress that the higher the audit quality required by the institutional investor, the higher the audit fee. With the rise of the agency problem, management needs for a higher quality audit to solve the discrepancy. Hence, it is hypothesized that:

H1: There is a positive relationship between audit fee and audit quality

## 2.3. Non-Audit fee and Audit Quality

Past literature reveals that the influence of non-audit fee on AQ is unclear. The provision of the non-audit services (NAS) such as advisory on tax services, tax planning, the recommendation of designing and implementing the financial IT structure and other mandatory financial services by the external auditors (Bell, Causholli, & Knechel, 2015; Tepalagul & Lin, 2015). Past studies highlighted that the auditor was gained by providing the NAS as they are able to further understand of the auditee business and enhance the auditor's knowledge which will lead to increase the AQ (Lennox, 1999). Additionally, a study in Sweden by Svanström (2013) found that NAS has a positive influence on AQ. Further, the author clarified that the combined provide audit and NAS to the same customer able occurrence of the knowledge spillover among the services rather than impaired independence of the auditor. In contrast, Kinney & Libby (2002) mentioned, "more deceptive effects on the economic pledge may result from unexpected non-audit service fees which able to encourage for attempted bribes." Based on the argument regards the auditors and non-audit fees, it is believed that auditor will need to think a way of securing the business with the client for future prospect. Therefore, the auditor will find a way of conducting an audit on the surface, and services will have the influence

of prejudice. The auditor is bound to conduct an audit in a simple manner so that the results will favor the customer. This statement is supported by Bamahros, Wan-Hussin, and Abdullah (2015) revealing that if the auditor does not conform to the expectation of the client and client who found a discrepancy with agency problems will have the tendency of reduction of NAS obtained from the auditor. Thus, we test the following hypothesis:

H2: There is a positive relationship between non-audit fee and audit quality

### 3. Methodology

In this study, a quantitative method utilized and the unit of analysis are an organizational level. The Public listed companies were selected as the subject of the study as they tend to have more accurate and comprehensive annual reports besides the information can be used as the secondary data. All the required information can be easily obtained from the annual reports of Public Listed companies' which able to download from the Bursa Malaysia website as it is publicly available comparing to non-listed companies. The population of the study was chosen based on non-financial firms as per Bursa Malaysia report is in a total of 674 companies (Bursa, 2019). However, the sample size consists of 201 companies from eleven sectors of non-financial sectors were chosen by used stratified random sampling. The data of the selected companies were obtained from their 2017 audited annual reports, and this data is used to access the variable for audit fees, non-audit fees, and AQ. Smart PLS-SEM is used in this study to test the relationship between the variables.

The AQ is measured through the abnormal working capital accruals (AWCA) as calculated in DeFond and Zhang (2014); Fredriksson, Kiran, and Niemi (2018). The proxy for AQ estimates that AWCA as the variance between actual WC for the current year and the level of WC which is predicted for previous year's WC to the sales ratio for each company year. AWCA is calculated as follows:

$$AWCA_{i,t} = WC_{i,t} - \left[ \left( \frac{WC_{i,t-1}}{S_{i,t-1}} \right) \times S_{i,t} \right]$$

Where; AWCA = Abnormal working capital accruals for the company I in time t

WC = Noncash working capital accrual computed as (current assets - cash and short term investment) – (current liabilities – short term loans) for the company i in time t

S = Total number of sales to customer form company i at time t or (t – i)

This measure is used to find the absolute value of AWCA as a proxy for AQ. Meanwhile, the independent variables which are non-audit fees measured via the natural

log of non-audit fees and AF are measured by the natural log of audit fees paid by the company to their auditor (Christ, Masli, Sharp, & Wood, 2015). Additionally, two control variables included in this study are profitability, which measured through return on assets (Dahmash, 2015) and firm size measured by the natural log of revenue (Dang, Li, & Yang, 2018).

### 4. Results

In this study, the multicollinearity is not a problem as the values of VIF are less than 5 as recommended (Hair Jr, Hult, Ringle, & Sarstedt, 2016). The study model can explain 13.6 percent of the variance in independent variables on audit quality. Also, the model has predictive relevance as the value of Q<sup>2</sup> above zero, as shown in table 1.

Bootstrapping function whereby the threshold used is based on the one-tailed test for a direct approach. Based on the result, H1 indicates the audit fee is positively significant at p < 0.01 towards AQ (standard beta = 0.328, t-value = 3.580). Hence, H1 is supported. Meanwhile, H2 is to examine the non-audit fee influence on AQ. The result showed that unable to reject H2 as the non-audit fees have been positively significant with AQ at p < 0.01 (standard beta = 0.075, t-value = 2.910). As expected, both of hypothesizes are supported. These results are illustrated in Table 1 and Figure 1 and 2.

TABLE 1: Hypothesis Testing.

| Hypotheses | Relationship | Std. Beta (β) | Std. Error | t-value | P-value | Decision  | R <sup>2</sup> | Q <sup>2</sup> |
|------------|--------------|---------------|------------|---------|---------|-----------|----------------|----------------|
| H1         | AF -> AQ     | 0.328         | 0.092      | 3.580*  | 0.000   | Supported | 0.136          | 0.113          |
| H2         | NAF -> AQ    | 0.075         | 0.026      | 2.910*  | 0.002   | Supported |                |                |

Notes: significant level at 1-tailed \*p<0.01,

### 5. Discussion and Conclusion

The finding of the study proved that the audit fee has a positive relationship with AQ. This is consistent with the argument by Hoitash et al. (2007) which reveals that audit firm charges higher audit fees will perform auditing with good quality as they scared of losing a profitable customer if provide lower audit quality. In other words, the finding can be interpreted that higher audit fee paid will receive a higher AQ; otherwise, the companies will give more financial pressure and problem to the audit firm to perform better AQ as the audit fees are highly paid (Ghafran & O’Sullivan, 2017). On other hands, as predicted, the results depict that non-audit fee able to influence the audit quality

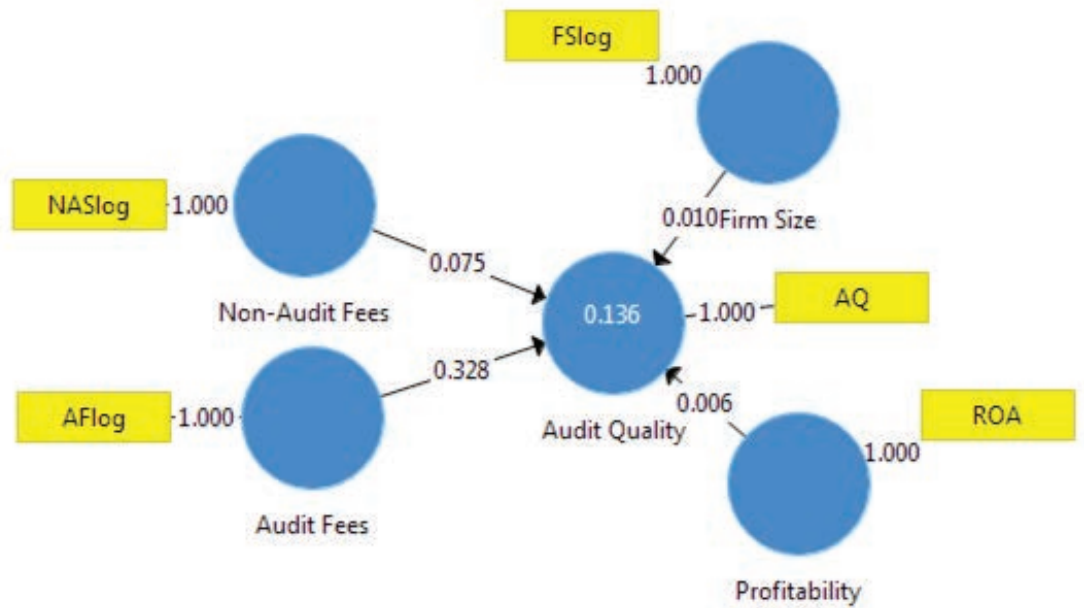


Figure 1: PLS Structured Model for Path Coefficients.

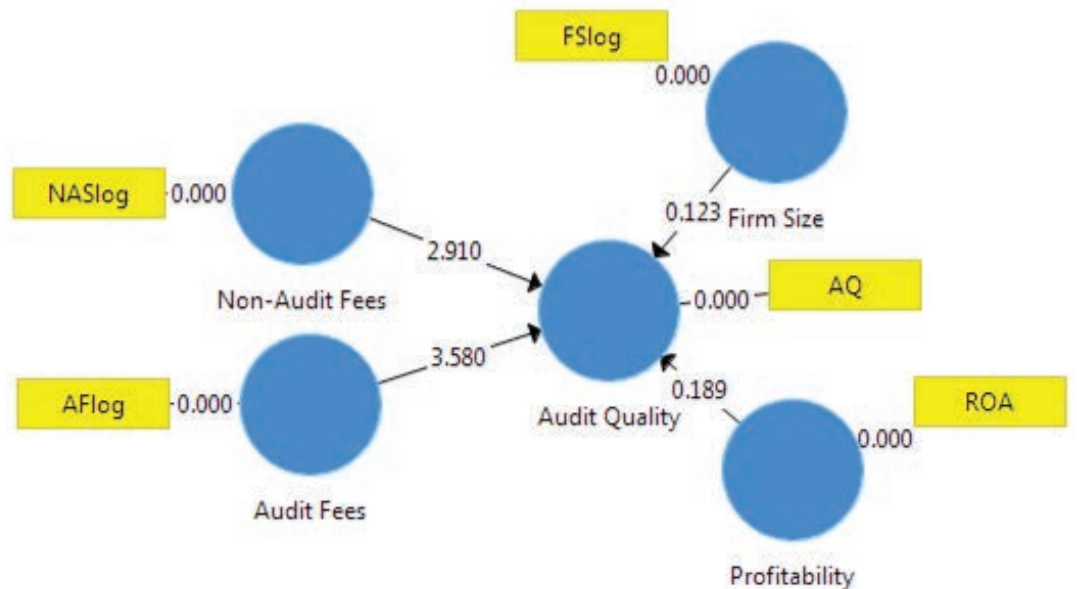


Figure 2: PLS Structured Model for T values.

as the auditor obtained the knowledge spillover when providing NAS and utilized the knowledge when rendering auditing service. This finding in line with Svanström (2013).

The theoretical implications from this study fill up the gaps in the literature and enable to enhance the knowledge of the scholar on the relationship between fees paid to the auditor in terms of audit and NAS fees and audit quality. Besides, the practical contribution is the findings provide significant implications for the audit firms to strategy's plans for improving the audit quality of their firm through the audit fees and non-audit

services they provide to the client. On the other hand, this study can help Malaysian Institute of Accountant (MIA) to improve their policies and regulations by developing technical competence, fee's regulations and work performance, which helps audit firm to improve their audit quality. The results should caution to generalize in other years as this study conducted as a cross-sectional design in which the data was obtained from annual report 2017. Therefore, future research needs to adopt longitude study or panel data analysis.

Globally, it has become prevalent for the audit firms and company's management as well as a stakeholder to debate on the audit quality due to the increasing number of a financial scandal, which is a significant threat to the existence and efficiency of capital markets and reputation of the audit profession. The objective of this study was to examine the influence of audit and NAS fees on AQ for the non-financial Public Listed companies in Malaysia. As a conclusion, the results confirm that the audit fees and non-audit fees are found to have a significant relationship with audit quality. Furthermore, the provision of NAS able to enhance the spillover knowledge to the auditor, as a result, showed that non-audit fee has a positive effect on audit quality.

## Funding

We would like to thank Universiti Sains Malaysia for the financial assistance through research grants with 304.PPAMC.6316433

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## Conference Paper

# Contractor's Technology Acceptance for Firm Sustainability Performance

J.A. Bamgbade<sup>1</sup>, Maruf Gbadebo Salimon<sup>2</sup>, A.Q. Adeleke<sup>3</sup>, and Y. Nasidi<sup>4</sup>

<sup>1</sup>Faculty of Engineering, Computing and Science, Swinburne University of Technology, Sarawak, Malaysia

<sup>2</sup>Department of Marketing, School of Business Management, Universiti Utara Malaysia, Kedah, Malaysia

<sup>3</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

<sup>4</sup>School Technology Management and Logistics, Universiti Utara Malaysia, Malaysia

## Abstract

The construction industry's contributions to Greenhouse gas emissions have generated several discussions among the construction stakeholders in recent times. Granted that the construction industry has been contributing significantly to the economy as well as employment in most countries for decades, the industry's resource consumption is, at the same time, damaging to a sustained human environment. This paper empirically explored the organizational technology orientation and perceived organizational usefulness that could improve construction Malaysian construction firm's sustainability performance. Close-ended structured copies of questionnaire survey were employed to collect data from large Malaysian construction firms, and Partial Least Squares-Structural Equation Modeling technique was used to analyze the 172 responses. The results indicated that both technology orientation and perceived organizational usefulness are capable of influencing the construction firms' sustainability performance. The implication is that this study's model can predict the sustainability performance of the sampled construction firms. Some implications for research and practice, as well as future recommendations, were highlighted.

**Keywords:** sustainable construction, technology acceptance, perceived organizational usefulness, construction firms

Corresponding Author:

J.A. Bamgbade

jbamgbade@swinburne.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

The insensitivity of the construction industry to environmental degradation, the societal needs, as well as its wasteful consumption of the finite resources, necessitated the continuous discussion about sustainable construction – a concept that addresses the environmental, social, and economic concerns of buildings within the context of its community (Kibert, 2016). In its original form, and as popularized by McDonough and Braungart (2010), sustainable construction encompasses the concept of cradle-to-cradle design, which describes those novel construction approaches that employ an

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all-inclusive mentality or approach (see Figure 1). However, the full integration of sustainability in project delivery is yet to achieve satisfactory results. Aside from infusing IT solutions that can readily augment sustainability to realize mutually beneficial outcomes for all stakeholders, the perceived benefits (or perceived organizational usefulness) that the construction firms derive from implementing sustainability principles to enhance their performance within the industry is one of the lofty ways to go.

Attaining a superior performance in the present competitive business environment is becoming more challenging. Companies need to constantly utilize new technology to develop better products in order to create more value for consumers, attain high productivity, and remain competitive. These directions are important for 21st-century companies because the external environment where they operate is laden with choosy consumers who are getting more concerned with the added value they can derive from products (Reid & Brady, 2012). In spite of ample evidence demonstrating how technology adoption in many industries has improved their sustainability performance, firms within the construction sector have always been laggard adopters of technological innovation. This explains why sustainability adoption is always a recurring issue in the industry, and attaining competitiveness has been attributed to the adoption of technologies like renewable energy, waste minimization, water efficiency and so forth (Zuo & Zhao, 2014).

From the extant studies, Davis (1989) pioneered one of the widely adopted technology acceptance models, where he suggested several variables of technology acceptance. Ever since then, a series of studies have been carried out with the aim of extending and improving the model (Lee, Yu & Jeong, 2013). In recent times, however, only a few studies on technology acceptance models within the construction sector were carried out. Chung et al., (2008) tested a technology acceptance model for the Enterprise Resource Planning (ERP) in construction, while the usability analysis of a Project Management Information System (PMIS) was observed by Nam et al., (2008). In spite of these efforts, studies on technology acceptance for sustainability reflecting the different views of contractors are scarce especially within the Malaysian construction industry context; therefore, the mechanisms for technology acceptance towards sustainability performance and achievements have not been properly defined.

Constructs adopted in this study are based on those discussed in technology adoption theories, and they were selected considering their relevance to sustainability as evidenced in the previous empirical and case studies on firm-level sustainability adoption (Bamgbade et al., 2017; Yusof et al., 2016). One of key elements of sustainability in building construction is to reduce resource consumption and improve the utilization

efficiency of resources, where a common approach is to achieve an appropriate level of reduction, recycling and reuse (Yeheyis et al., 2013). These approaches are aimed at encouraging technology adoption in order to minimize construction and demolition impacts. In this paper, we sought to test the ability of technology orientation and perceived organizational usefulness in explaining the sustainability performance of construction firms in Malaysia.

Perceived organizational usefulness, which explains the degree to which an employee believes that using a system/technology would enhance his job or organizational performance, is an important construct in any technology acceptance model (Davis, 1989). This follows from how the concept of usefulness is defined in terms of the capability to utilize advantageously. The adoption of sustainable construction is possible when an individual is willing to integrate sustainability into a construction project delivery and when one's affiliated firm is willing to establish a cooperation system that integrates the dimensions of sustainable construction. Thus, the measurement items for perceived usefulness can be situated largely within organizational recognition that construction sustainability adoption improves firm performance and productivity.

This study's main purpose, however, is to develop, as well as validate the construction sustainability performance model based on the popular technology acceptance theories. This article is structured thus: First, the sustainability performance of construction firms is defined from the viewpoint of the technology acceptance model developed in previous studies. Second, based on a comprehensive literature review, a set of hypotheses on sustainability performance, technology orientation and perceived organizational usefulness are developed. Third, the methods and results of the survey conducted are presented. Lastly, theoretical and practical implications and directions for future studies are discussed. To generalize this study's findings, opinions of experienced construction experts (contractors, architects, project managers, engineers, quantity surveyors, contract managers, and sales managers) in the Malaysian construction industry were sampled. These respondents were spread across the construction firms in the eleven states in Peninsula Malaysia. Structural Equation Modeling was employed, where a 2-phased method was implemented. First, the estimation of the measurement model was done so as to assess the psychometric properties of the adapted scales. Second, the structural model was utilized to determine the path coefficients and the variance explained by the predictor variables.

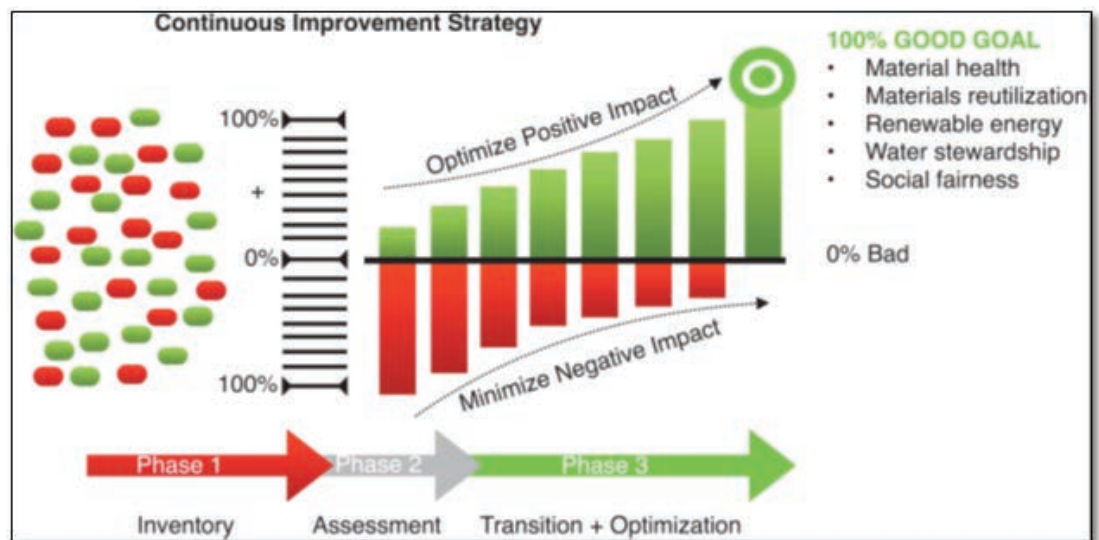


Figure 1: Cradle-to-cradle improvement process to attain sustainability (Source: Kibert, 2016).

## 2. Literature Review

### 2.1. Technology orientation for sustainability performance

Concerns about the effects of greenhouse gasses, climate change and environmental awareness have spurred interest in firms' sustainability performance within the construction industry (Bamgbade et al., 2019; Wong & Zhou, 2015). It has been argued that firms' technology orientation holds a greater promise of being instrumental in dousing the negative environmental effects of the world's rapidly developing nations (Erek et al., 2009). A technology-oriented firm is rooted in the philosophy of "technological push" that favours the continuous application of new technologies, and this is vital in our conceptualization of firms' sustainability performance capability (Gatignon & Xuereb, 1997).

Prior studies (e.g., Salimon et al., 2017; Wong & Zhou, 2015) has outlined that over the past few decades, technologies such as Building Information Technology (BIM) and the Computer Aided Design (CAD) technology have metamorphosed the traditional mode of project delivery in both the emerging and the developed nations. While recent studies have dichotomized technology-push and customer-pull areas of research, the main argument in this section is that firms that are guided by technology orientation accumulate a vast amount of technical knowledge that they may use to their sustainability advantage (Salojärvi et al., 2015). Sustainability performance requires the firms to possess the distinctive capability to utilize new technologies for practices like pollution prevention and other environmental improvements in project delivery (Bhupendra &

Sangle, 2015). In this way, it is argued that technology orientation in firms will improve end-products performance by being competitive. Thus, we hypothesized that:

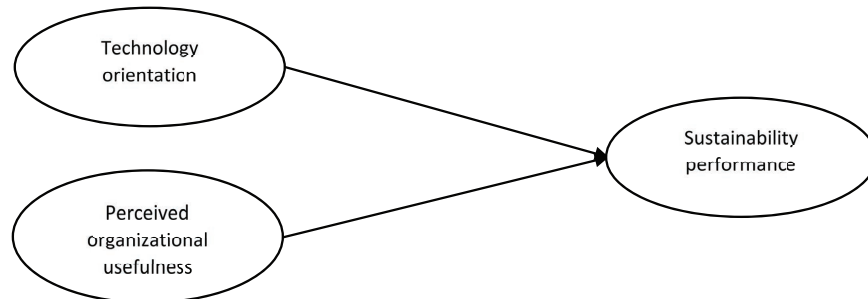
*H1: The greater the technology orientation of construction firms, the higher will be their sustainability performance in project delivery.*

## 2.2. Perceived organizational usefulness for sustainability performance

To completely adopt sustainability and improve construction project delivery based on the triple bottom line, both the employees (individuals) and the construction firm (group) must be willing to initiate sustainable construction approaches in their tasks within project realization. Granted that perceived usefulness has been used widely at both organizational and individual levels, a system is perceived useful when organizational users believe that the system has certain benefits that could improve their tasks and assist in achieving their given targets (e.g. Salimon et al., 2017). In the same way, when the project proponents believe that sustainable construction will enhance their productivity, they are more likely to explore its various characteristics (Rangarajan et al., 2005). Since organizational and individual incentives inspire users to perceive an application to be relevant, hence, perceived usefulness of the system could result in its actual usage and this may eventually lead to a wider application by all the members of the organization (Ackerman & Halverson, 1998). Thus, perceived organizational usefulness is contingent on the perceived benefit, which translates perceived usefulness of sustainable construction into a cognitive process of what it can offer, and what organizational users need in order to perform their tasks effectively (Venkatesh & Bala, 2008).

The items for individual intention to adopt sustainable construction include the willingness to utilize sustainable construction technology and information to fulfil tasks, willingness to spend the time to utilize sustainable construction technology, and the willingness to recommend sustainable construction technology to co-workers or other professionals in a cordial relationship. The indicators used in measuring organizational intention to adopt sustainable construction are the willingness to encourage the use of sustainable construction among group constituents, willingness to recommend the use of sustainable construction technology to other organizations in a cordial relationship, and the willingness to develop sustainable construction application technologies.

*H2: The greater the perceived organizational usefulness of construction firms, the higher will be their sustainability performance in project delivery*



**Figure 2:** Research framework.

### 3. Methodology

We adopted a survey method in this study because it has been able to provide a sound basis for the establishment of study generalization, reliability, and statistical power (Dooley, 2001). The population of interest for this study includes CIDB (Construction Industry Development Board) registered and active large construction companies (within building construction and civil engineering categories), in West Malaysia. This population was obtained from the CIDB website.

#### 3.1. Construct operationalization

As indicated in Table 1, we adopted a survey instrument from the previous studies, where all the individual items were assessed with the aid of a 5-point Likert scale ranging from 1, not at all, to 5, completely true. The measures for TO were adopted from Gatignon & Xuereb, (1997), and operationalized as a reflective construct. However, a few modifications were made to the original scales to make them relevant to the context of sustainability performance.

As for the measures of perceived organizational usefulness, the items for both individual and organizational usefulness (adapted from Davis, 1989) were combined for use in this context considering that sustainability performance (SP) of the construction firms is best achieved through a combination of both individual employee's commitment and firm willingness to improve its performance. Drawing on Abidin (2005), we operationalized SP as a reflective construct formed by three sub-constructs: EnSP, EcSP and SSP. EnSP was measured reflectively composing of eight indicators, EcSP was also

measured reflectively with five indicators, while SSP was measured with another five items.

To ensure the content validity of the survey instrument, 4 construction practitioners were invited to participate in developing the final draft of the survey instrument. Another 4 faculty members were invited to review the instrument for additional feedback for improvement. The recommendations from both the industry experts and the faculty members were utilized to improve both face and content validities of the survey instrument in terms of the length of the instrument, the scales format, including the content and ambiguity of the items. Accordingly, a few changes were made in the wording of the items. A pilot study was also conducted involving forty-five construction practitioners. Their feedback was obtained in order to determine the internal consistency for each of this study’s constructs.

TABLE 1: Variables and measurements.

| Variable name                            | Variable type | Item description (1-5 Likert scale, 1 = not at all, 5 = completely true)  | Reference                              |
|--|---------------|---|--|
| Technology orientation (TO)              | Reflective    | TO1. Our new products are always in the state of the art of technology.   | Adapted from Gatignon & Xuereb, (1997) |
|  |               | TO2. Our organization is very proactive in the development of new technologies.   |  |
|  |               | TO3. Our organization has the will and the capacity to build and to market a technological breakthrough.  |  |
|  |               | TO4. Our organization has built a network of relationships with suppliers of technological equipment.   |  |
|  |               | TO5. We have better technological knowledge than our competitors.   |  |
|  |               | TO6. Relative to our competitors, our R&D programs are more ambitious to create knowledge among employees and improving organizations’ performance. |  |
|  |               | TO7. Our organization is very proactive in the construction of innovative technical solutions to respond to users’ needs.                           |  |
| Perceived organizational usefulness (PU) | Reflective    | PU1: Willingness to utilize sustainable construction technology and information to fulfil tasks,  | Davis (1989)                           |
|  |               | PU2: Willingness to spend time to utilize sustainable construction technology, and  |  |
|  |               | PU3: Willingness to recommend sustainable construction technology to co-workers or other professionals in a cordial relationship                    |  |
|  |               | PU4: My organization encourages members of the organization to use sustainable construction technology  |  |

| Variable name                                   | Variable type | Item description (1-5 Likert scale, 1 = not at all, 5 = completely true)  | Reference     |
|---|---------------|---|---------------|
|   |               | PU5: My organization is active in working on projects using sustainable construction technology   |               |
|   |               | PU6: My organization has an intention to recommend sustainable construction technology to other organizations that we have a cooperative relationship with. |               |
|   |               | PU7: My organization has an intention to participate in adopting and developing sustainable construction technology   |               |
| Environmental sustainability performance (EnSP) | Reflective    | EnSP1: Location selection is an important sustainable construction consideration in our projects  | Abidin (2005) |
|   |               | EnSP2: Material selection is an important sustainable construction consideration in our projects  |               |
|   |               | EnSP3: Waste minimization is an important sustainable construction consideration in our projects  |               |
|   |               | EnSP4: Energy conservation is an important sustainable construction consideration in our projects   |               |
|   |               | EnSP5: Water efficiency is an important sustainable construction consideration in our projects  |               |
|   |               | EnSP6: Pollution control is an important sustainable construction consideration in our projects   |               |
|   |               | EnSP7: Biodiversity protection is an important sustainable construction consideration in our projects   |               |
|   |               | EnSP8: Heritage and amenity protection is an important sustainable construction consideration in our projects   |               |
| Economic sustainability performance (EcSP)      | Reflective    | EcSP1: Life cycle costing is an important sustainable construction consideration in our company.  | Abidin (2005) |
|   |               | EcSP2: Profitability is an important sustainable construction consideration in our projects.  |               |
|   |               | EcSP3: Business image enhancement is an important sustainable construction consideration in our projects.   |               |
|   |               | EcSP4: Cost management strategy is an important sustainable construction consideration in our projects.   |               |
|   |               | EcSP5: Risk reduction is an important sustainable construction consideration in our projects.   |               |
| Social sustainability performance (SSP)         | Reflective    | SSP1: Health and safety is an important sustainable construction consideration in our projects.   | Abidin (2005) |
|   |               | SSP2: User comfort and satisfaction is an important sustainable construction consideration in our projects.   |               |
|   |               | SSP3: Community welfare is an important sustainable construction consideration in our projects.   |               |
|   |               | SSP4: Accessibility is an important sustainable construction consideration in our projects.   |               |



| Variable name | Variable type | Item description (1-5 Likert scale, 1 = not at all, 5 = completely true)                         | Reference |
|---------------|---------------|--|-----------|
|               |               | SSP5: Social involvement is an important sustainable construction consideration in our projects. |           |

### 3.2. Sample and data collection

The survey items and scales that are used as measuring instruments in this study were initially adopted and subsequently adapted from a broad review of the sustainable construction, technology orientation and perceived usefulness studies (see Table 1). The survey was carried out in 2015 and 2016. The sampling frame included the largest construction firms (the G7 construction firms) operating in West Malaysia, and listed on the Malaysian Construction Industry Development Board (CIDB) website. The copies of the survey instruments were administered by hand while others were sent by post to the construction firms, where one representative (an executive director, a project manager, a marketing manager, an engineer, a quantity surveyor, a contract manager, a sales manager, or an account manager) of the company could respond to the survey. These experts were selected with the understanding that they have knowledge of the sustainability performance in their company’s project delivery so that an informed opinion could be provided. Altogether, 172 questionnaires were complete and eligible for data analysis out of the 189 total responses collected. Missing values, normality test, outlier’s assessment, and multicollinearity test were performed to screen the data prior to data analysis. Moreover, the test of non-response bias was also performed using independent sample *t*-test to determine whether the early respondents provided significantly different values on the measures compared to those that responded after multiple reminder messages. There are no significant differences between the 2 groups. Thus, this study’s sample is not affected by non-response bias.

The demographic profiles of the sampled construction firms are indicated in Table 2. The distribution of the firm size reflects a typical representation of construction organizations where employee recruitment is mostly project-based. Accordingly, 69.7% of the sampled construction firms had employees under 100, while only 16.1% had more than 500 workers. Also, the respondents were distributed uniformly with respect to their roles in their respected organizations.

TABLE 2: Sample demographics (N = 172).

|  | Frequency | Percent |
|--|-----------|---------|
| <b>Firm size (number of employees)</b> |           |         |
| >500                                   | 29        | 16.1    |
| 251-500                                | 10        | 5.6     |
| 101-250                                | 13        | 7.6     |
| <100                                   | 120       | 69.7    |
| Total                                  | 172       | 100     |
| <b>Respondent's level</b>              |           |         |
| Executive Director                     | 20        | 11.6    |
| Project manager                        | 30        | 17.4    |
| Marketing Manager                      | 5         | 2.8     |
| Engineer                               | 30        | 16.7    |
| Quantity Surveyor                      | 25        | 13.9    |
| Contract Manager                       | 16        | 8.9     |
| Construction Manager                   | 13        | 7.2     |
| Others                                 | 33        | 18.3    |
| Total                                  | 172       | 100     |

## 4. Data Analyses and Results

Structural equation modeling (SEM) was used for data analyses. And, following Ringle et al., (2005), SmartPLS was chosen mainly due to its ability to model the latent constructs both formatively and reflectively (Bamgbade et al., 2019; Petter et al, 2007). The measurement model was first examined, and this was followed by the structural model examination.

### 4.1. Measurement model

To validate the instruments used in this study (for the reflective constructs), the internal consistency, convergent and discriminant validities were examined (Gefen & Straub, 2005). As SP was operationalized as a second-level construct formed from first-order reflective sub-constructs (i.e., EvSP, EnSP and SSP), the trio of EvSP, EnSP and SSP were included in our measurement model rather than the SP (Teo et al, 2003). Thereafter, the construct's internal consistency was determined using composite reliability (CR). Importantly, PLS-SEM relies on CR measures where the actual loadings are used to calculate the factor scores, and it has been established to be a better measure of internal consistency than the Cronbach's  $\alpha$  coefficient (Gotz, Liehr-Gobbers & Krafft, 2010; Ranganathan et al, 2004). As indicated in Table 3, the CR for all this study's

constructs in the model were above the recommended threshold of 0.7 (Chin, 1998). The second coefficient (convergent validity) was determined to establish the extent to which the indicators assigned to a scale theoretically are also related to the scale in reality. The information provided in Table 3 indicated the loadings of all the measures in this study's model. All items for measuring the constructs recorded significant path loadings at 0.01 level. As indicated in Table three, the AVE values for all the latent constructs were higher than the recommended 0.50 threshold as advocated by Fornell & Larcker (1981). These are indications that the convergent validity has been determined in this study.

Discriminant validity is determined to check whether the indicators, in actual fact, measure the latent constructs in the model. According to Fornell and Larcker (1981), the discriminant validity is verified by ascertaining that the square root of the AVE for each construct was higher than the correlations between it and those of other constructs. The results in Table 4 shows the discriminant validity testing in accordance with this method. Similarly, Table 4 also demonstrates that each of the constructs shares greater variance with their own measures than with the other constructs that represent different blocks of measures in the model. Furthermore, the cross-loading technique was observed to assess the discriminant validity of the measuring scales in testing the research model, and the results indicated that all the individual indicator loadings in their corresponding columns are higher than the loadings of the indicators for measuring the other constructs (Chin, 1998). A cursory look across the rows shows that the loading of the items is higher on their corresponding latent constructs than for other constructs in the model. So, the measurements of the reflective constructs in this study have satisfied the two criteria for discriminant validity based on the recommendations of Chin (1998).

## 4.2. Structural model

The estimation of the path coefficient in the outer model (structural model assessment) was done using the PLS-SEM technique. As indicated in Figure 2, the results of the analysis show the predictive power of the model and the estimated path coefficients. The tests of the significance of the hypothesized paths were performed using the bootstrap resampling procedure. Figure 3 shows that all the hypothesized paths in the research model were statistically significant. As predicted earlier, H1 was supported (H1: weight = 0.5376,  $P < 0.001$ ), indicating strong support for TO in affecting the SP irrespective of the staff strength and the company age. Thus, H1 is significant. In

TABLE 3: Psychometric of measurements.

| <i>Constructs</i>                                 | <i>Item</i> | <i>Loading</i> | <i>t-value</i> |
|---|-------------|----------------|----------------|
| Technology Orientation TO (reflective)            | TO1         | 0.7322***      | 14.8141        |
| CR = 0.9406                                       | TO2         | 0.7937***      | 16.0764        |
| AVE = 0.6381                                      | TO3         | 0.8059***      | 18.4459        |
|   | TO4         | 0.7940***      | 14.1906        |
|   | TO5         | 0.8178***      | 21.3914        |
|   | TO6         | 0.7940***      | 20.6989        |
|   | TO7         | 0.7686***      | 17.2348        |
|   | TO8         | 0.8185***      | 18.1742        |
|   | TO9         | 0.8584***      | 27.1534        |
| Perceived Usefulness PU (reflective)              | PU1         | 0.7218***      | 13.7628        |
| CR = 0.9377                                       | PU2         | 0.7000***      | 8.6777         |
| AVE = 0.6019                                      | PU3         | 0.7582***      | 9.4218         |
|   | PU4         | 0.6995***      | 12.5366        |
|   | PU5         | 0.8125***      | 18.0952        |
|   | PU6         | 0.8202***      | 15.9159        |
|   | PU7         | 0.8226***      | 16.9867        |
| <b>Sustainability Performance SP (reflective)</b> |             |                |                |
| Environmental Sustainability Performance (EnSP)   | EnSP1       | 0.7895***      | 31.0611        |
| CR = 0.9412                                       | EnSP2       | 0.8688***      | 37.6634        |
| AVE = 0.6672                                      | EnSP3       | 0.7805***      | 22.8701        |
|   | EnSP4       | 0.8280***      | 36.3197        |
|   | EnSP5       | 0.8083***      | 35.7093        |
|   | EnSP6       | 0.8389***      | 28.6206        |
|   | EnSP7       | 0.8635***      | 28.5063        |
|   | EnSP8       | 0.7497***      | 24.0861        |
| Economic Sustainability Performance (EcSP)        | EcSP1       | 0.8224***      | 29.6182        |
| CR = 0.9402                                       | EcSP2       | 0.8733***      | 33.3179        |
| AVE = 0.759                                       | EcSP3       | 0.8605***      | 31.2627        |
|   | EcSP4       | 0.8986***      | 36.4519        |
|   | EcSP5       | 0.8988***      | 34.9205        |
| Social Sustainability Performance (SSP)           | SSP1        | 0.7316***      | 22.9944        |
| CR = 0.9412                                       | SSP2        | 0.8363***      | 35.5242        |
| AVE = 0.6964                                      | SSP3        | 0.8612***      | 42.5669        |
|   | SSP4        | 0.8539***      | 41.252         |
|   | SSP5        | 0.8267***      | 41.423         |
|   | SSP6        | 0.8585***      | 42.158         |
|   | SSP7        | 0.8654***      | 41.2912        |
| ***P<0.001  |             |                |                |

examining the direct effects of perceived usefulness on SP of the sampled construction

TABLE 4: Variable correlation matrix and AVE.

|      | EcSP         | EnSP         | PU           | SP           | SSP          | TO           |
|------|--------------|--------------|--------------|--------------|--------------|--------------|
| EcSP | <b>0.871</b> |              |              |              |              |              |
| EnSP | 0.620        | <b>0.817</b> |              |              |              |              |
| PU   | 0.530        | 0.544        | <b>0.776</b> |              |              |              |
| SP   | 0.852        | 0.896        | 0.606        | <b>0.749</b> |              |              |
| SSP  | 0.738        | 0.731        | 0.550        | 0.926        | <b>0.835</b> |              |
| TO   | 0.625        | 0.626        | 0.654        | 0.704        | 0.638        | <b>0.799</b> |

Note: Values in diagonal cells are the squared AVEs.

firms, the result indicated that perceived usefulness is strongly related to SP of the construction firms irrespective of company age and staff strength (path coefficient = 0.2539,  $P < 0.001$ ). Therefore, H2 is also supported.

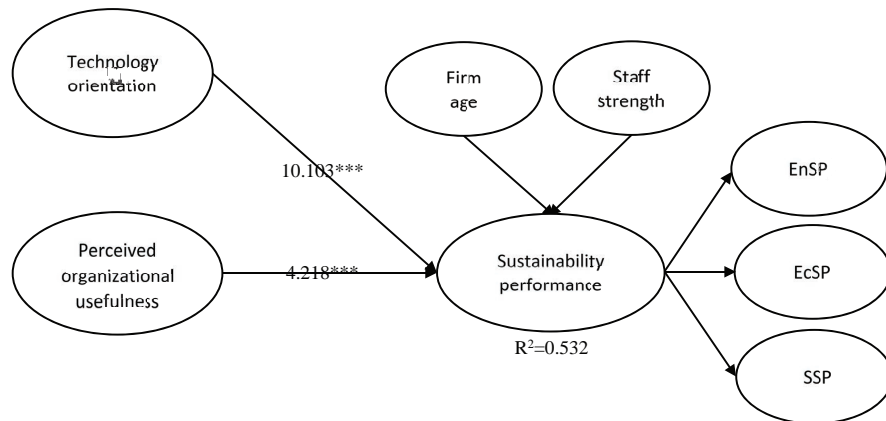


Figure 3: PLS analysis of results (\*\*\*) significant at 0.01 (1 tailed)).

| Relationships                       | Beta value | SD     | SE     | t-value | p-value | Decision  |
|-------------------------------------|------------|--------|--------|---------|---------|-----------|
| Firm age                            | 0.0029     | 0.0215 | 0.0215 | 0.1343  | 0.45    |           |
| Staff strength                      | 0.0021     | 0.0186 | 0.0186 | 0.1106  | 0.46    |           |
| Perceived organizational usefulness | 0.2539     | 0.0602 | 0.0602 | 4.2185  | 0.00    | Supported |
| Technology orientation              | 0.5376     | 0.0532 | 0.0532 | 10.1036 | 0.00    | Supported |

Note: Dependent variable: sustainability performance

#### 4.2.1. Model’s predictive relevance ( $Q^2$ ) and effect size ( $f^2$ )

In evaluating this study’s model, variance explained ( $R^2$ ) values in the endogenous latent constructs, the predictive relevance of the research model ( $Q^2$ ), and the effect size ( $f^2$ ) were evaluated. The variance explained ( $R^2$ ) by the two exogenous latent constructs was 0.532, after controlling for the demographic variables (in terms of company age

and staff strength). This suggests that the two predictors (i.e., perceived organizational usefulness and technology orientation) collectively explained 53.2% of the variance in SP, after controlling for firm age and staff strength. By implication, the criterion variable (SP) has an acceptable  $R^2$  value since 0.10 was suggested as the minimum  $R^2$  value (see Hair et al., 2016). The estimation of the effect size ( $f^2$ ) was achieved by observing the changes that occur in the  $R^2$  values when one of the predictors is removed from the model. This is done to evaluate the practical effect of the removed predictor on the endogenous construct (Chin, 1998). This was calculated using:

$$\text{Effect size } (f^2) = \frac{R^2_{\text{included}} - R^2_{\text{excluded}}}{1 - R^2_{\text{included}}}$$

Cohen (1988) suggested the guideline for the assessment of the effect size, which was given as 0.02, 0.15 and 0.35 representing small, medium and large effect sizes respectively. From this model's result, the effect size for technology orientation was 0.35, and that of perceived organizational usefulness is 0.08. Therefore, the effect sizes for the two exogenous constructs could be considered as large and small, respectively.

As for the evaluation of the relative predictive relevance of the endogenous latent construct in the structural model, Stone–Geisser criterion ( $Q^2$ ) was utilized. This  $Q^2$  criterion was derived through the blindfolding process in SmartPLS with an omission distance of eight (Hair et al., 2016). The  $Q^2$  value of 0.297 is greater than zero, suggesting an adequate predictive relevance of the reflective endogenous latent variable (Chin, 1998).

## 5. Discussions and Conclusions

Employing sustainable construction practices has been contributing to contractors' performance. However, very few studies have examined the contributions of technology oriented-firms and perceived usefulness of these firms to sustainability performance. Based on the hypothesized paths in this study, the results suggest that technology orientation and organizational perceived usefulness of the sampled firms can have a direct influence on their sustainability performance (in terms of EcSP, EnSP and SSP of the construction firms). First, we assumed that technology orientation would significantly influence the sustainability performance of the sampled contractors (H1). Unsurprisingly, the findings show that there is a significant and positive relationship between the predictor and the criterion variable. This implies that the more technology-oriented a construction firm is, the better they are in sustainability performance. Second, as regards Hypothesis 2, PU also showed a significant positive relationship with sustainability

performance. This finding indicates that firms (as well as individuals within the firm) with strong belief and capability to utilize sustainable construction system/technology advantageously would enhance their sustainability performance by delivering eco-friendly products, social wellbeing to all stakeholders and achieve economic prosperity.

There are a few practical and theoretical implications of this study. The application of this study's framework can improve contractors' sustainability performance. The framework is a valuable guideline for the Malaysian contractors in developing sustainability policy, strategy and practice towards meeting the requirements for sustainability within the construction industry.

This study is without a few limitations. First, this study is a cross-sectional research design where the data was collected in one-shot, single-point-in-time. This data collection technique precludes causal inferences to be made from the study's population. A different research direction (such as longitudinal research design), is recommended for future studies as this will allow the measurement of the latent constructs at different points in time to confirm this study's findings. Second, the generalization of this study's result is another limitation since only the large firms operating in the Malaysian construction industry were sampled. It was understood that sustainability compliance is an important condition for all firms, however, studies have shown that large firms comply with sustainability policy due to unavoidable government regulations (Bamgbade et al., 2016). Therefore, future research direction should be focused on the inclusion of small and medium construction firms.

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## Conference Paper

# RGEC, Sustainability Reporting, and Financial Performance: A Study in Listed Banks in IDX 2013-2017

Tri Gunarsih<sup>1</sup>, Setiyono<sup>1</sup>, Fran Sayekti<sup>1</sup>, and Tamas Novak<sup>2</sup><sup>1</sup>Universitas Teknologi Yogyakarta, Siliwangi Street, North Ring Road, Sleman, D.I.Y., Indonesia<sup>2</sup>Budapest Business School, H-1051 Budapest, Marko Street 29-31, Hungary

## Abstract

This study aims to analyze Risk Profile, Good Corporate Governance, Earning, and Capital (RGEC), Sustainability Reporting (SR) and financial performance (ROE and TQ) of the listed banks in the IDX. This research implements correlation and regression analysis. Base on data samples of 12 banks in 2013-2017, the results of this study show that GCG and RGEC positively correlated to performance (ROE and TQ), but there is no correlation between SR and performance. The regression analysis shows that risk profile (LDR), GCG, and Earning / rentability (ROA) are statistically significant influence ROE but only NPL and GCG that influence TQ while SR is not significant, both to ROE and TQ. These findings support the arguments that the better the RGEC, the higher the financial performance. Subject to data limitation of SR, this study could not give empirical evidence that the better the SR, the higher the firm performance.

**Keywords:** RGEC, sustainability reporting, performance, bank.

Corresponding Author:

Tri Gunarsih  
trigunarsih@uty.ac.id

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

The RGEC are four indicators in the healthy of commercial bank base on risk approach as in Bank Indonesia Regulation (PBI) Number 13/1/PBI/2011 issued by Bank Indonesia (the Central Bank of Republic Indonesia). Bank health must be maintained and improved so that public trust in the Bank can be maintained. Also, the Bank's Soundness used as a means of evaluating the conditions and problems faced by the Bank and determining follow-up to overcome the Bank's weaknesses or challenges, either in the form of Bank corrective action or supervisory action by Bank Indonesia. Then, maintaining the RGEC will keep public trust and improve performance. Base on the PBI, Banks are needed to conduct assessments by themselves (self-assessment) base on the Bank Soundness Levels. The self-assessment of the Bank's Health Level is carried out at least every semester for the positions at the end of June and December. The average of RGEC in 2013-2017 for 12 bank samples is as Figure 1. The score was modified, from 1 for the

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highest number to 5 for the highest number. The average RGEC fluctuate from 3.8 to 4.8. This data will attract questions whether the more elevated the RGEC, the higher the performance.

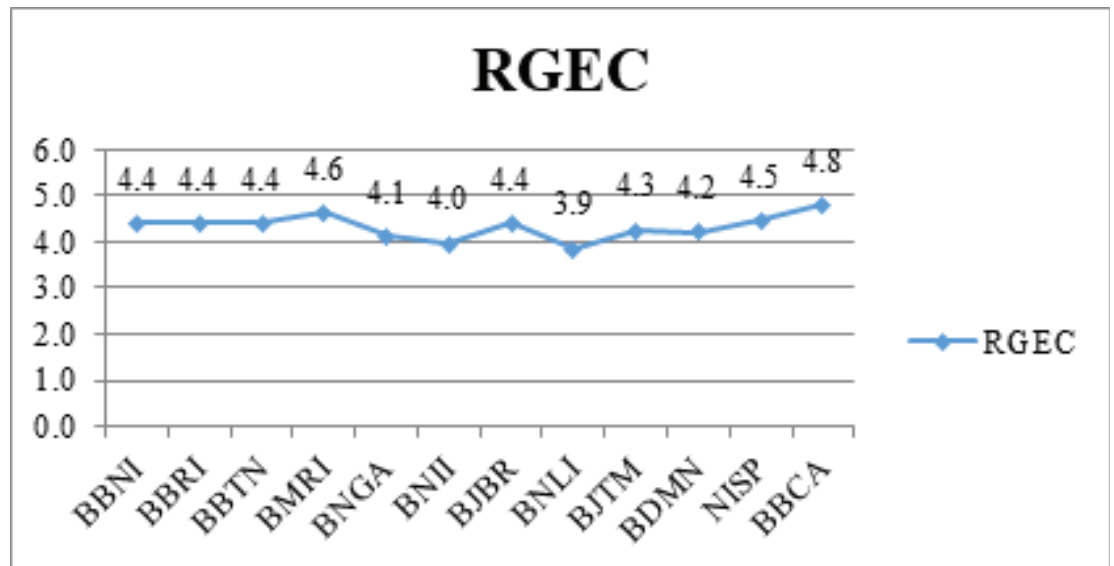


Figure 1: RGEC Average Sample Firms.

According to GRI (Global Reporting Initiative, 2016), “An SR is a report published by a company or organization about the economic, environmental and social impacts caused by its everyday activities. An SR also presents the organization’s values and governance model and demonstrates the link between its strategy and its commitment to a sustainable global economy”. In Indonesia, SR has a voluntary character. However, SR will be mandatory in the future, as the Financial Service Authority (FSA) regulation number 51/POJK.03/2017 Date July 18<sup>th</sup>, 2018.

SR is currently not binding yet, so not all of the banks issued SR in Indonesia. Figure 2 shows the average of SR and the average of SR indicators (economic, environmental, and social) of sample firms. The score range is between 1 to 5, 1 for Not Applied, 2 for Bit Applied, 3 for Partially Applied, 4 for Almost Applied, and 5 for Fully Applied. The economic and social trend is positive while the environment and SR average fluctuate. This number also raises the question of whether the higher the SR, the higher the performance.

Some studies in banking industry and financial institutions support the argument that the more efficient risk management system, the higher the performance (Wanjohi, 2017; Marozva, 2015; Singh, 2015; Maudos and Guevara, 2004; Tabari et al., 2013; Hene and Amoh, 2016; Tarraf and Majeske, 2008) and the higher score of SR the better the performance (McIntyre, 2016; Uwuigbe, 2018; Nwobu, 2015; Buallay, 2018). Studies in bank risk management and performance are varied, both in proxies and analysis results

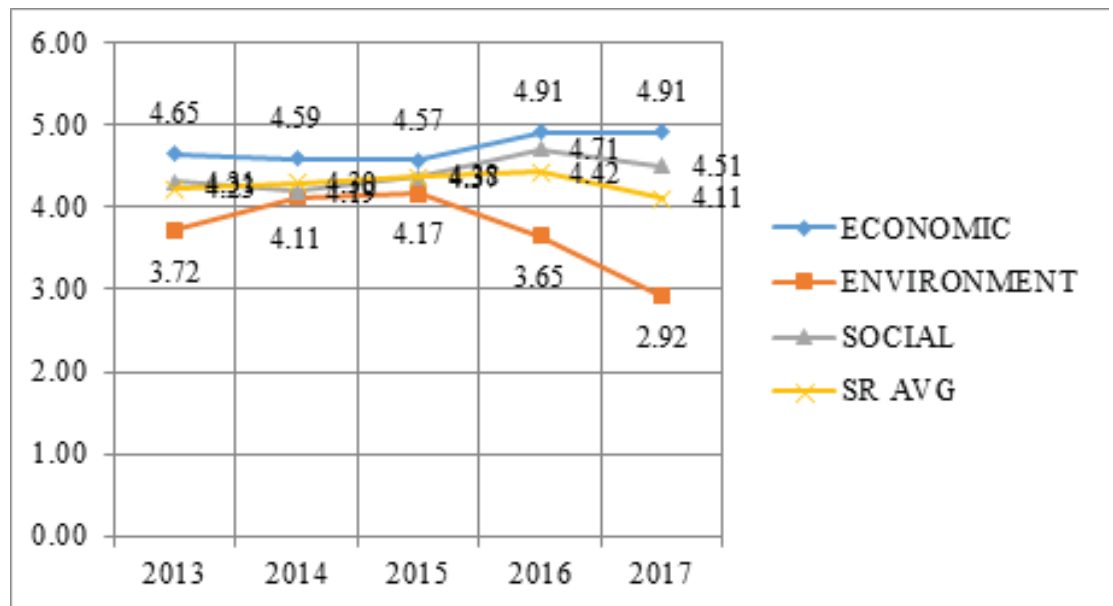


Figure 2: SR Score Average of Sample Firms.

as well. Marozva (2015) analyzed the net interest margin and funding liquidity risk and found a significant negative relationship between both variables. Other studies measure different proxy as a risk indicator, for example, credit risk (Singh, 2015) and overall risk index (Hene and Amoh, 2016) in their study in the Ghana Stock Exchange (GSE).

Some studies in SR and performance construct SR index base on the content analysis in sustainability reports (Uwuigbe, 2018 and Nwobu, 2015), but McIntyre (2016) build SR base on primary data, comprised of 64 multiple-choice questions and several open-ended questions targeted at those who have experience with SR. The proposition of the legitimacy theory confirmed by Uwuigbe (2018). The study found that there was a significant negative influence between the market price per share on SR. Also, the study found there was a significant favorable impact of SR on the revenue generation. Nwobu (2015) found that there is a small positive correlation between SR index to profit after tax (PAT) as performance measurement, saw a slight positive correlation SR index and PAT and also found a low positive relationship between SR index and shareholders fund.

Some studies in risk, SR, and performance show the mixed construct and results, then there is still an area to reexamine those three variables. This research aims to analyze the RGEC, SR, and banks' financial performance in the IDX. This study implements the correlation to investigate the relationship between those three variables and regression to analyze a causality between RGEC and financial performance and SR with business performance.

## 2. Literature Review

### 2.1. Global Reporting Initiative (GRI)

The GRI Standards are designed to enhance the worldwide comparability and quality of information on these impacts, thereby enabling greater transparency and accountability of organizations. These Standards are intended to be used by organizations to report about their effects on the economy, the environment, and society.

The GRI Standards consists of two main parts; they are universal standards and topic-specific standards. The global standards include GRI 101 (Foundation), GRI 102 (General Disclosure) and GRI 103 (Management Approach). The topic-specific rules consist of GRI 200 (Economic topics), GRI 300 (Environmental issues) and GRI 400 (Social issues).

### 2.2. RGEC

The definition of risk is anything that can create hindrances in the way of achievement of specific objectives. The risk base on a particular situation could be either internal factors or external factors. One of the tools of credit risk management is risk rating model (Kanchu and Kumar, 2013).

In Indonesia, in the framework of banks' risk management and performance, Bank Indonesia (The Central Bank of Republic Indonesia) issued Bank Indonesia Regulation (PBI) Number 13/1/PBI/2011, concerning The Healthy of Commercial Banks base on risk approach (risk-based bank rating). The method consists of 4 indicators, RGEC. The Bank's Soundness Rating using a Risk-based Bank Rating based on a comprehensive analysis of performance, risk profile, problems encountered, and prospects for the Bank's development, as follows: (a) The risk profile; (b) Good Corporate Governance (GCG); (c) Profitability; and (d) Capital. Before the issuance of RGEC, Commercial Banks in Indonesia should implement Regulation Number 6/10/PBI/2004 as Bank Soundness Indicators.

### 2.3. Risk and Financial Performance studies in Banking

Studies in risk and financial performance varied in term of proxies and results (Singh, 2015; Hene and Amoh, 2016; Marozva, 2015 and Tabari et al., 2013). Marozva (2015) and Tabari et al. (2013) analyze risk in a context of liquidity and found different results

in their study. Marozva (2015) found that the relationship between net interest margin and funding liquidity risk is negative.

Tabari et al. (2013) found that the improvement of the performance of banks was caused by the bank's variables of micro and macro, while the weakening of the performance of the banks created by credit risk and liquidity risk. Base on the literature reviews, the first hypothesis of this study is the lower the bank's risk, the higher the financial performance.

## 2.4. SR and Financial Performance Studies in Bankings

Most studies in SR adopt SR base on GRI guidelines and use of content analysis and coded to obtain the sustainability disclosure index (Uwuigbe, 2018; Kishore and Prakash, 2019; Nwobu, 2015; Buallay, 2018; Kumar and Prakash, 2019). However, other studies, McIntyre (2016) developed SR index base on 64 multiple-choice questions and several open-ended questions targeted at those who have experience with SR. Kumar and Prakash (2019) analyze the banks operating in India, in the extent of SR. They developed a sustainability indicator based on the content analysis technique derived from the literature review, GRI G4 guidelines, and the National Voluntary Guidelines responsible business conduct. The sustainability indicator implemented in analyzing the SR, corporate social responsibility report, business responsibility report, an annual report of the banks. The study concluded that the banks in India are much slower in adopting SR practices. Wanjohi et al. (2017) analyzed the commercial banks in Kenya and found that there was a positive correlation between financial risk management practices to financial performance. Nwobu (2015) found that SR index and PAT are positively correlated. Based on the literature review, the second hypothesis of this research is, the better the SR index, the higher the financial performance.

## 3. Research Method

### 3.1. Sample

Samples in this research are banks, listed in the IDX in 2013-2017, selected using purposive sampling, based on the criteria as follows.

- i. *Listed in the IDX in 2013-2017.*
- ii. *The SR, RGEC, and financial data are available during 2013- 2017.*

### 3.2. Measurement of Variables

#### 3.2.1. Dependent Variable

Tobin's Q and ROE are the dependent variables in this study.

#### 3.2.2. Independent variables

The independent variables consist of RGEC and SR as follows.

##### RGEC

The RGEC in this study comprises of 4 indicators, Risk Profile, Good Corporate Governance, Earning, and Capital. The four indicators based on the bank's self-assessment in the annual report. The signs then rank from the very healthy, healthy, quite healthy, less healthy, and unhealthy. In this research, the health level is modified as 5,4,3,2,1 from the best to the worst. Earning/rentability proxied by Return on Asset (ROA) and Capital proxied by Capital Adequacy Ratio (CAR).

##### SR Index

SR is the average of the three dimensions of SR index, comprised of economic, environmental, and social. The index developed base on GRI guidelines and the use of content analysis and coded to obtain the sustainability disclosure index. SR each aspect computed using the following formula:

i. *Economic dimension*

$$SRDI_{ec} = \frac{n}{k} \tag{1}$$

Where:

$SRDI_{ec}$  = SR Disclosure Index economic dimension

n = total number of levels disclosure in economic dimension disclosed by the company

k = total item of economic dimension published by the company

ii. *Environment dimension*

$$SRDI_{env} = \frac{n}{k} \tag{2}$$



Where:

$SRDI_{env}$  = *SR Disclosure Index environment dimension*

n = total number of level disclosure in environment dimension disclosed by the company

k = total item of environment dimension disclosed by the company

iii. *Social dimension*

$$SRDI_{soc} = \frac{n}{k} \tag{3}$$

Where:

$SRDI_{soc}$  = *SR Disclosure Index social dimension*

N = total number of level disclosure in social dimension disclosed by the company

k = total item of social dimension published by the company

iv. *SR average*

$$SR = \frac{SRDI_{ec} + SRDI_{enc} + SRDI_{soc}}{3} \tag{4}$$

Where:

SR = *SR average*

### 3.3. Regression Model

Two regression models, model (5) and (6) are implemented to test the two hypotheses. The first hypothesis, the lower the bank's risk, the higher the financial performance will be supported if the regression coefficient of  $X_2$ ,  $X_3$ ,  $X_4$ ,  $X_5$ , and  $X_6$  are statistically significant. The second hypothesis of this study, the better the SR index, the higher the financial performance will be supported if the regression coefficient of  $X_1$  is statistically significant. The two models are as follows.

$$ROE = \lambda_0 + \lambda_1 A_1 + \lambda_2 A_2 + \lambda_3 A_3 + \lambda_4 A_4 + \lambda_5 A_5 + \lambda_6 A_6 + \eta \tag{5}$$

$$TQ = \lambda_0 + \lambda_1 A_1 + \lambda_2 A_2 + \lambda_3 A_3 + \lambda_4 A_4 + \lambda_5 A_5 + \lambda_6 A_6 + \eta \tag{6}$$

Where:

ROE = *Return on Equity*

TQ = *Tobin's Q*

$A_1$  = *SR average (SR)*

$A_2$  = *Non-Performing Loan (NPL)*

A<sub>3</sub> = Loan to Deposit Ratio (LDR)

A<sub>4</sub> = Good Corporate Governance (GCG)

A<sub>5</sub> = Return on Assets (ROA)

A<sub>6</sub> = Capital Adequacy Ratio (CAR)

## 4. Results and Discussion

### 4.1. Data Descriptives

Table 1 shows the average number of SR, RGEC (the average number of RGEC indicators), Tobin's Q (TQ), and Return on Equity (ROE). The highest average SR index in 2013-2017 is BNII (4.66). The highest average RGEC is BBKA (4.8). The highest number of TQ is BBRI (2.17), and the highest number of ROE is BBRI (0.20).

TABLE 1: Average number each sample in 2013-2017.

| SAMPLE CODE | SR   | RGEC | TQ   | ROE   |
|-------------|------|------|------|-------|
| BBNI        | 4.61 | 4.40 | 1.04 | 0.13  |
| BBRI        | 4.55 | 4.40 | 2.17 | 0.20  |
| BBTN        | 3.58 | 4.40 | 0.98 | 0.10  |
| BMRI        | 4.32 | 4.64 | 1.08 | 0.12  |
| BNGA        | 3.94 | 4.12 | 0.96 | 0.07  |
| BNII        | 4.66 | 3.96 | 1.00 | 0.07  |
| BJBR        | 3.77 | 4.40 | 1.03 | 0.12  |
| BNLI        | 4.51 | 3.85 | 0.97 | -0.02 |
| BJTM        | 4.29 | 4.25 | 1.01 | 0.13  |
| BDMN        | 4.62 | 4.20 | 1.04 | 0.08  |
| NISP        | 4.31 | 4.47 | 0.99 | 0.08  |
| BBKA        | 4.78 | 4.80 | 1.42 | 0.18  |

Table 2 shows the descriptive statistic. The total number of observation is 51. Subject to data limitation, in the regression models, the SR is not divided into three dimensions, but only the SR average. The mean number of ROE is 0.1051. This number suggests that the average net income divided by equity is 10.51%. The mean number of TQ is 1.1405. This number indicates that the market value of the samples is higher than the book value. The NPL, LDR, GCG, ROA, CAR, RGEC, and SR variables are ordinal data, and the highest (best) number is 5. The closer the mean of those variables to 5, the better the variables.

TABLE 2: Descriptive Statistics.

|                    | N  | Min.  | Max. | Mean   | Std. Devi. |
|--------------------|----|-------|------|--------|------------|
| ROE                | 51 | -0.34 | 0.27 | 0.1051 | 0.08452    |
| TQ                 | 51 | 0.92  | 2.65 | 1.1405 | 0.37000    |
| NPL                | 51 | 4     | 5    | 4.76   | 0.428      |
| LDR                | 51 | 3     | 4    | 3.14   | 0.348      |
| GCG                | 51 | 3     | 5    | 4.20   | 0.491      |
| ROA                | 51 | 1     | 5    | 4.53   | 0.966      |
| CAR                | 51 | 3     | 5    | 4.90   | 0.413      |
| RGEC               | 51 | 3.40  | 4.80 | 4.31   | 0.321      |
| SR                 | 51 | 2.08  | 5.00 | 4.29   | 0.745      |
| Valid N (listwise) | 51 |       |      |        |            |

Table 3 describes the correlation between RGEC, SR, TQ, and ROE. The GCG and RGEC are positively significance to both financial performance, ROE, and TQ. This number suggests that the better the GCG and RGEC, the higher the business performance. SR variable not correlated with business performance. The possible explanations are the data limitation and the voluntary of SR.

TABLE 3: Correlation.

|      | ROE      | TQ       | NPL      | GCG      | ROA      | CAR      |
|------|----------|----------|----------|----------|----------|----------|
| TQ   | 0.496*** | –        | –        | –        | –        | –        |
| LDR  | –        | –        | –        | –        | –        | –        |
| GCG  | 0.519*** | 0.448*** | 0.319**  | –        | –        | –        |
| ROA  | 0.683*** | –        | –        | 0.367*** | –        | –        |
| CAR  | –        | –        | –        | –        | 0.333**  | –        |
| RGEC | 0.615*** | 0.26*    | 0.418*** | 0.678*** | 0.822*** | 0.533*** |
| SR   | –        | –        | –        | –        | –        | –        |

Note: –: there is no correlation. \*\*\* sig. at  $\alpha$ 1%, \*\* sig. at  $\alpha$ 5% \* sig. at  $\alpha$ 10%

## 4.2. Regression Analysis

The regression results are as in table 4. The F value of both models (model 5 and 6) are statistically significant at  $\alpha$ 1%. The R square and Adjust. R<sup>2</sup> of model 5 is higher than model 6. This result suggests that the model with the dependent variable book value is better than market value.

Three independent variables of RGEC are significant in model 5, but unfortunately SR variable is not statistically significant. The LDR variable is statistically significant at  $\alpha$ 10% with the t value -1.882. The negative sign of the coefficient (-0.049) suggests that the lower the LDR, the higher the ROE. The decreasing number of LDR will increase ROE.

The GCG variable is statistically significant at  $\alpha 1\%$  with the t value 3.115. The positive sign of the coefficient (0.065) suggests that the better the GCG mechanism implementation, the higher the ROE. The ROA variable is statistically significant at  $\alpha 1\%$  with the t value 5.136. The positive sign of the coefficient (0.052) suggests that the higher the ROA as the one indicators of RGEC, the higher the ROE.

TABLE 4: Regression Analysis.

|                   | ROE (Model 5) |           |       | TQ (Model 6) |          |       |
|-------------------|---------------|-----------|-------|--------------|----------|-------|
|                   | Coef.         | t         | sig   | Coef         | t        | sig   |
| (Constant)        | -0.162        | -0.996    | 0.325 | 0.703        | 0.741    | 0.463 |
| SR                | 0.009         | 0.752     | 0.456 | 0.046        | 0.669    | 0.507 |
| NPL               | -0.016        | -0.744    | 0.461 | -0.328       | -2.608** | 0.012 |
| LDR               | -0.049        | -1.882*   | 0.067 | -0.180       | -1.190   | 0.240 |
| GCG               | 0.065         | 3.115***  | 0.003 | 0.449        | 3.720*** | 0.001 |
| ROA               | 0.052         | 5.136***  | 0.000 | 0.012        | 0.195    | 0.846 |
| CAR               | -0.011        | -0.489    | 0.627 | 0.088        | 0.692    | 0.493 |
| F                 |               | 10.758*** | 0.000 |              | 3.472*** | 0.007 |
| R Square          |               | 0.595     |       |              | 0.321    |       |
| Adjusted R Square |               | 0.539     |       |              | 0.229    |       |

Note: \*\*\* significant at  $\alpha 1\%$ , \*\* significant at  $\alpha 5\%$  \* significant at  $\alpha 10\%$

Two independent variables are significant in model 6, but as in model 5, SR is not statistically significant. The NPL variable is statistically significant at  $\alpha 5\%$  with the t value -2.608. The negative sign of the coefficient (-2.608) suggests that the lower the LDR, the higher the TQ, then to increase the TQ, the banks should decrease the NPL. The GCG variable is statistically significant at  $\alpha 1\%$  with the t value 3.720. The positive sign of the coefficient (0.449) suggests that the better the GCG mechanism implementation, the higher the TQ. This model suggests that the TQ will increase in the NPL is decrease, and the GCG is increasing.

The GCG variable is consistently statistically significant at  $\alpha 1\%$  in both models, ROE as a proxy of book value and TQ as a proxy of market value. The positive sign of the coefficients suggests that the financial performance in term of book value and market value will increase if the GCG implementation increase.

Some variables of RGEC as indicators of risk base rating are statistically significant in both models (model 7 and 8). These suggest that RGEC influence financial performance. The result of this study support the argument that the more efficient of risk management system, the higher the performance as in Wanjohi (2017), Marozva (2015), Singh (2015), Maudos and Guevara (2004), Tabari et al. (2013), Hene and Amoh (2016), and Tarraf and Majeske (2008).

The SR variable is not statistically significant in both models (model 7 and 8). This study could not give empirical evidence to support the argument that the higher the score of SR the higher the performance as in McIntyre (2016), Uwuigbe (2018), Nwobu (2015), Buallay (2018).

## 5. Conclusion and Implications

The objective of this research is to analyze the RGEC (risk bank rating), SR, and financial performance in banking industry listed in the IDX. This study implements the correlation to investigate the relationship between those three variables and regression to analyze the causality between RGEC and the financial performance and SR with the financial performance, base on data samples of 12 banks in 2013-2017.

The correlation results show that GCG and RGEC positively correlated with performance (ROE and TQ). This correlation suggests that the better the GCG implementation and the higher the RGEC score will improve the financial performance. This study also shows that there is no correlation between SR and performance.

The regression analysis shows that risk profile (LDR), GCG, and Earning / rentability (ROA) are statistically significant influence ROE but only risk profile (NPL) and GCG that influence TQ while SR is not significant, both to ROE and TQ. These suggest that the better the RGEC will increase the financial performance, and to increase the business performance, the banks should improve the rank of RGEC. Subject to data limitation of SR, this study could not give empirical evidence that the better the SR, the higher the firm performance.

Further study may employ more data sample. In the future, when SR is mandatory, there will be more data to be analyzed, so that the indicator of SR may employ the three dimension of SR disclosure index (the economic aspect, the environment dimension, and the social dimension. Subject to data limitation, this study only implements SR as the average of those three variables.

## Funding

This article is a part of the research outcome that is funded by the Min. of Res., Tech. and the Higher Ed. Republic Indonesia as contract no 111/SP2H/LT/DRPM/2019.

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## Conference Paper

# Factors Influencing Financial Planning Retirement amongst Employees in The Private Sector in East Coast Malaysia: Literature Review and Research Agenda

**Hasnah Haron, Nur Nadiah Salihah Mat Razali, and Fazeeda Mohamad**

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

### Abstract

Gerontology is the main concern about the social, psychology, social, cognitive and biological aspects of aging. This paper focuses on the aging population in Malaysia as there is an increase in the number of 60 years old in the country. Malaysia will be labeled “old status country” in the year 2035 according to the Department of Statistics Report (2016). There is a lack of awareness to save for old age amongst Malaysians. Malaysians tend to procrastinate in this issue thinking that their retirement is still a long way off. This paper will identify the Malaysians behavior in making forecasting planning for their retirement. It comprises the predictors of retirement plans based on the attitude for savings, level of consumption, investing wisely, and financing consumption during the pre-retirement period. This study will conduct using the quantitative approach focusing on the employees in the private sector with at least ten years left of service before achieving the retirement age. The study will use regression analysis to analyses the data. It is hoped that this finding will confirm the relevance of planning constructs and enhance retirement savings behavior, following establishes a need to improve levels of financial knowledge in society.

**Keywords:** saving, retirement, financial planning, financial literacy.

Corresponding Author:

Nur Nadiah Salihah Mat Razali  
 nadiah6493@gmail.com

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

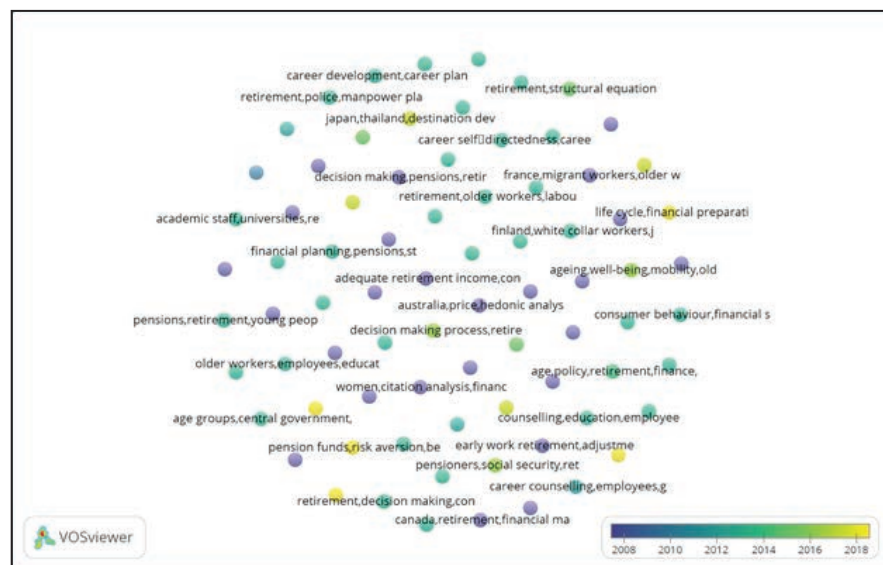
The issues of Financial Retirement Planning continue to be a concern everywhere. In the United States, Australia, United Kingdom and all developed countries, this issue has gained prominence since 2001. Malaysia is just beginning to realize that saving for retirement is an important issue. Malaysians are mainly dependent on the Employee Provident Fund (EPF) which is deducted from their monthly salaries or wages. Some employees are not actively contributing to the EPF scheme. The majority spent their money without having the intention to save. The impulsive spending behavior leads them to spend more on unnecessary things. The average savings to have moderate

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lifestyle during retirement is 15 percent from the salary according to research was conducted by (KC Lau, Personal Money Magazine October 2013). The paper will determine the several factors cultivate on the financial plan for future retirement.

Previous studies have examined the retirement planning issues as shown in Figure 1. It is extracted from the Emerald website. VOS viewer used to trigger the frequency of studies was conduct on those particular issues. It is one tool or software that construct and visualize the bibliometric network such as publication and journal. The bibliometric network will construct based on the bibliography, citation, and authorship. This tools also can extract the bibliographic database files like Web of Science, Science Direct and Emeralds. Following the procedure, the findings show in the emerald website, there are 78 clusters have been conducted these issues.



**Figure 1:** Frequencies of Previous Studies Done on Retirement Planning.

This paper investigates some of the factors that influence an individual ‘s intention to plan his/her retirement by planning to save for his/her retirement. It then concludes with the proposed conceptual diagram for this study. The awareness and the effort by citizens of Malaysia to save will lift the burden off the government on the “golden age” group and can focus on other issues that the country faces.

Almost 90 percent of the working-age population did not prepare the formal retirement schemes for their future, from the research made. (Berita Harian, 2017). The issue has become more severe due to the average savings for the members of the Employee Provident Fund (EPF) of 54-year-old is less than RM 50 000 as shown in Table 1. Based on the basic average calculation, the pre-retirees at age 54-year-old, should be at least RM228 000. This is equivalent to the government sector’s pension which is based on RM950 monthly income and life expectancy of 75 years old. According to Nornisah

Binti Mohd Yusof., Officer of Retirement Advice Service (RAS), the retirees at age 55 years can withdraw their EPF account 1 and spend all the money within 30 days. (Berita Harian, Oktober, 2016)

TABLE 1: Average Savings of EPF Members.

| Years | Non-Active members (Self-employed and non-established private companies) |                      | Active members (GLC and others established private companies) |                      |
|-------|--|----------------------|---|----------------------|
|       | Numbers of members   | Average savings (RM) | Numbers of members  | Average savings (RM) |
| 2008  | 130 653  | 21 894               | 53 022  | 132 540              |
| 2009  | 134 556  | 22 708               | 54 939  | 139 816              |
| 2010  | 148 844  | 23 705               | 62 028  | 142 968              |
| 2011  | 146 172  | 23 389               | 62 358  | 149 217              |
| 2012  | 157 425  | 24 156               | 68 151  | 158 302              |
| 2013  | 160 131  | 26 250               | 73 168  | 166 650              |
| 2014  | 166 131  | 27 557               | 76 424  | 180 153              |
| 2015  | 169 425  | 31 540               | 81 646  | 194 438              |
| 2016  | 170 844  | 34 023               | 82 332  | 204 288              |
| 2017  | 147 160  | 43 872               | 84 777  | 213 852              |

In addition, retirees will face the pre-retirement phase, happy phase, unhappy phase, re-orientation phase, stable phase, and stoppage phase as shown in Figure 2. So, the retirees who face insufficient money after retirement will voluntarily find other jobs until the stoppage phase. A well-planned retirement can assist the pre-retirement phase that is to choose to continue to work so that it can result in sufficient finance after retirement.

## 2. Literature Review

### 2.1. An overview of Malaysian people life expectancy

The sophisticated technology and medical advancements lead the Malaysian people living longer after retire. According to the Department of Statistics Malaysia (2018), the mean life expectancy increasing. The average life expectancy for men from 74.1 years old in 2016 to 72.7 years old in 2018. Meanwhile, the average life expectancy for women showing progressive from 76.4 years old in 2016 to 77.6 years old in 2018. Malaysia's population older 60 years old issues while the total number of older than 60 years old increase rigorously from 1.5 million in 2000 to 2.10 million in 2018. The issues happen due to the decline of fertility and longer life expectancy. (Department of Statistics, 2018). Following the (10<sup>th</sup> Malaysia Plan, 2011-2015), the number of older persons will be estimated 3.4 million and will be forecast on 2035, Malaysia will include in the aging nations category as if United Nations which older people constitute more

than 15 percent of the total population. The factors lead the changes are the betterment of healthcare, the availability of medical sophistication technology, the improvement of the standard of living to protect themselves, and the increasing level of literacy.

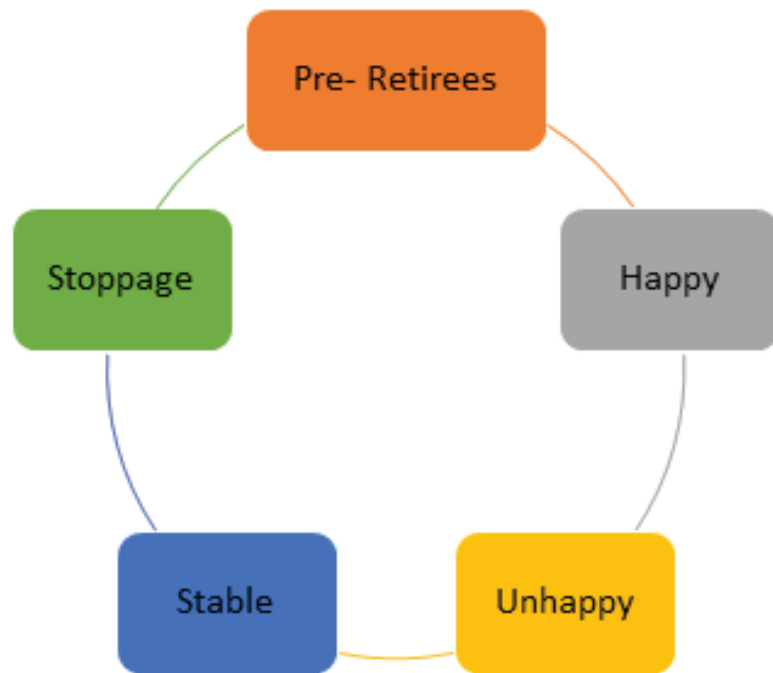
## 2.2. Retirement

An individual leaves their routine paid job and active working life to enter another phase of life was called retirement. According to Wang and Shi (2015), the action of leaving the min employer where the individual worked with a stipulated amount of time is the best definition of retirement. Retirees are who are retired from their daily work. Mostly the retirees have their plans after retirement whether continue work on a part-time basis or contract basis, or enjoy the free time with a stay in the home, go travel with friends and build up more quality time with family. Retirees will be feeling freer and relax after retirement since the attention to the demands of his or her paid job will be gone. Retirees usually will live in moderate ways after retirement. The focus point towards the health and necessity things. The current minimum retirement age for Malaysians is at the age of 60.

Besides, retirees will face the pre-retirement phase, happy phase, unhappy phase, re-orientation phase, stable phase, and stoppage phase as shown in Figure 2. So, the retirees who face insufficient money after retirement will voluntarily find other jobs until the stoppage phase. A well-planned retirement can assist the pre-retirement phase that is to choose to continue to work so that it can result in insufficient finance after retirement

## 2.3. Financial planning

The lack of financial planning will be the primary outcome of a typical scenario nowadays when elderly lack of budget upon retirement or inadequate of savings for older age. Plan the financial properly is the important things to everyone especially to pre-retirees will achieve their retirement life nearest time. According to (Selvadurai, 2018), financial planning can be defined as allocate some money from salary and ensure the allocation put in good use way that reflects desires and values. The financial planning must be made in smoothen way should reflect towards the decisions made regarding the financial matters. Any plan should have a plan, it same goes to financial planning which involves the setting of goals. It is not a difficult task but must consistent.



**Figure 2:** Retirement Phase.

Everyone has their ways to plan their finance. However, financial knowledge should be supported to learn proper ways to use the money. Nowadays, the middle-income people seek for professional's help in order to develop a financial plan after retirement. The facts are the knowledge can find everywhere based on the willingness. The individual can plan on their own. For instance, the listing of spending whether use credit card or cash should be updating every day, weekly, monthly and annually. So, the individual can keep track of their actual spending monthly.

## 2.4. Financial Literacy

Retirement planning should carefully plan with financial literacy education. By having financial literacy, the individual can manage their financial resources effectively using adequate knowledge and skills especially in making the sturdy financial and economic decisions. Financial literacy also comprises the forming of financial knowledge, abilities, and methods that affluent by transfer of attitudes, motivation, practical skills and values. The acquirer of financial knowledge and ability are the two main components in financial literacy. These two components can build up using the individual's education or experience on concepts and products finances. So, it can be concluded that the more increase the financial education, will reflect the increase of financial literacy. Retirement planning should follow by sufficient financial knowledge (Selvadurai, 2018).

The knowledge for retirement planning relates to the cognitive acumen to cope with escalating living costs, make investment decisions and manage income. In order to develop the knowledge about retirement planning, the understanding of investment risk, inflation risk, and longevity risk are very important. In reality, household spending may decrease throughout retirement. However, healthcare cost needs more years for retirement. Usually, the portfolio investments made for retirement need to generate income to support the lifestyle and inflation risk (Nga & Yeoh, 2018).

## 2.5. Financial Hardship

Under Section 409A, Financial Hardship means the urgency of demands of money for unpredictable events. For instance, the medical expenses from illness, natural disasters, or other unforeseeable occurred that not covered by insurance. Financial Hardship can interchangeable to Economic Hardship. It is relevant to the lack of money to support basic needs (Kennedy, 2013). Some studies show the economic hardship may decline due to the maturity in control life. The reality happens is the elderly have less opportunity to recover if fall in economic hardship, meanwhile will need support from the government. Therefore, the individual should find the best way to solve the economic situations in their family carefully in order to avoid experiencing economic hardship. Regarding the previous studies, social (ethnicity, living arrangement and education level) (Anderson & Becker, 1999; Srivastava & Mohanty, 2012; Maes, 2013) and economic factors (sources of income and household income) of the elderly are few of the factors contribute toward experiencing economic hardship among elderly as reported by Mohd (2014).

According to the WHO study, Malaysian elderly living in rural areas experience greater financial hardship than elderly living in the urban area (Shahar, Earland & Abd Rahman, 2001 as cited in Mohd, 2014). Hence, possibilities for Malay elderly experiencing economic hardship compared to other ethnicities are higher. In term of living arrangement, the elderly in Malaysia are commonly co-residing with their children and living in an extended family. The elderly that lives alone or with his/her spouse are prone to have a higher cost of living and have the potential of living in poverty (Sherlock, 2000) as cited in Mohd (2014). Education also influences the economic hardship experienced by the elderly. Prior study reveals that, elderly with lower education level have higher chances of living in poverty (Mohd, 2014). Economic factors such as sources and amount of household income also played an important role in affecting the economic hardship of the elderly. Prior study reveals that most of elderly

received income from social income (e.g. children and relatives) followed by working income (Mortimer, Zhang, Hussemann, & Wu, 2014).

## 2.6. Future Orientation

The concept of future orientation is related to the choice that is made now that will affect the future or known as a concern for future consequences (CFC). The choice is the implications of the asset holdings to the household. While the time-lapse near to individual retirement, the saving and investing made become their priority to face the daily life upon retire. So in the economic decision making, time horizon and future orientation should be calculative and concern. (Webley & Nyhus, 2006). There are few studies examine the perceptual orientation towards time (Bearden, Money, & Nevins 2006; Joireman, Strathman, & Balliet 2006; Lasaneand Jones 2000 as cited in Webley & Nyhus, 2006). According to Strathman et al. (1994), how extends the individuals able to consider the future outcomes and potential influences of their current behavior is the measurement of CFC scale. The various personal beneficial behaviors will engage by the high score CFC. Meanwhile, the people had low score CFC will tend to avoid engaging in environmentally friendly behavior, have low academic achievement and avoid original food. Usually they will be argued so many different aspects of daily life and ignore the decision process (Strathman & Balliet, 2006).

This variable is a behavior which looks at the long term and short-term outcomes and is expected to influence the financial planning behavior of an individual. It will guide the formation of attitude and behavior relevant to retirement planning decisions. Following the Concern for future consequences (CFC) concept of the current behavior will influence the outcomes, people have more awareness on the future consequences of future orientation will maximize their future well-being (Xiao, 2008).

## 2.7. Subjective Norms

Subjective norms also called as the individual beliefs towards the important person in their life. Sometimes, it will perceive social pressure when the person tries to convince the individual to perform that behavior. It concerns the important person try to convince the individual to make the decisions and the individual that easily influences will be thinking more about the perception of the other than the results. So, it is so important to find the colleagues, friends and peers that have good intention for us. According to (Strömbäck, Lind, Skagerlund, Västfjäll, & Tinghög, 2017), this variable used to be the

influences of social whether the target behavior achieves or not. The people will have an individual perception of other people's views. The perception can bring pervasive influence role and put some stress on an individual to perform that behavior such as save the money. On the other hand, an individual who has been pressurized by the people of the surrounding who can keep early retirement with a sturdy life (Yean, Johari, & Sukery, 2015).

## 2.8. Financial Controllability Consumption

Financial controllability consumption can be defined as self-regulation on spending desires. Following the FPAM managers advice, the saving for retirement should be 15 to 20 percent from the salary. But most Malaysians enjoying spending the salary rigorously and the balance will save for retirement and future. (Berita Harian, 2015). In the pre-retiree's phase, the individual should have their plan for retirement and upon retirement, the consumption may higher due to having long free time to own self. During retirement, the individual can fulfill their dreams like spent time with family, go travel and plan many exciting activities. The better financial plan leads to financial freedom. It is different from an individual not having a plan for retirement, they tend to anxious and some of them prefer to continue work as part-time to add up their revenue. The level of consumption towards shopping, having new apparent, new phone and others may reduce. The big portion expenses during retirement will cover the medical costs. So, in order to determine a sound financial retirement plan and economic wellbeing, the pre-retirees should understand well the changes in consumption after retirement. Medical costs and the need for long term care are likely to increase during retirement. There are several studies have shown that the baby-boomers generation in the US is not saving enough to maintain current levels of consumption into their retirement years (Bernheim, 1996; Moore & Mitchell, 1997; Yuh, Montalto, & Hanna, 1998 as cited in (Hatcher, Banerjee, & Moorman, 2000). In the same paper as reported by Nieswiadomy & Rubin (1995), the propensity for retirees to purchase leisure increased based on life expectancy and better health.

## 2.9. Financial Planning for Retirement

The economists, accountants, and financial advisors integrate the Financial Planning for Retirement as an exclusive matter. In psychological concepts, "a set of coherent explanatory constructs" is useful to understand economic behavior. Following this, the

importance of finances in retirement also admitted. There are three reasons promising in this financial planning for retirement model. It is broad because it includes three dimensions with different types of variables. Moreover, it is procedural because it incorporates a temporal dimension, analyzing age and stage, and their interaction with the other facets of the model. As previous research suggested, different patterns of change should be considered when examining retirement outcomes (Wang & Shi, 2015). There are three dimensions capacity, willingness and opportunity to plan for retirement were proposed by Hershey and his colleagues in their model. Capacity refers to the cognitive factors and skills required to plan and save for retirement, distinguishing one person from the next (Kumar, Tomar, & Verma, 2019).

## 2.10. Theories Used

The theories used in this study are Intentional Change Theory and Regulatory Focus Theory.

### 2.10.1. Intentional Change Theory

An essential process, sustainable change in one behavior, thoughts, feelings and perceptions are discovered as Intentional change theory (ICT). The transition of a person's actions, habits and competencies show the changes. This theory can be connected with retirement planning since the elderly need to have their dreams of how their life after retiring. The transition will happen on how they look at events in life. It will happen based on people desires. Also, it will be maintained or sustain in a long time. Previously, this theory also called self-directed learning. The desired sustainable will changes in an individual's behavior, thoughts, feelings, or perception. The experience can consider as discovery. While the self-awareness is inversely proportionate the degree of discovery. When one is highly self-aware, he/she will experience the change process as more of a set of smooth transitions (Halton, 2017).

### 2.10.2. Regulatory Focus Theory

This theory comprises two motivational states which are promotion and prevention-based. The advancement, growth, potential gains and accomplishment consider as promotion-focused. The safety, potential losses, impediments to goal achievements



and responsibility can consider as prevention-focused. The Regulatory focus theory incorporated the loss and gains in a finance context.

This theory was the child of self-discrepancy theory and the parent of regulatory fit theory. As the child of self-discrepancy theory, it differentiates between self-regulation in relation to hopes and aspirations (promotion ideals) versus self-regulation in relation to duties and obligations (prevention ought). But in regulatory focus theory, promotion and prevention orientations are states that vary not only predict positional across individuals but also can be situationally induced (Zabri, Ahmad, Loy, & Lian, 2016).

The important strategic differences between promotion and prevention measure in how desired states are attained, with promotion preferring eager means of advancement and prevention preferring vigilant means of maintenance. This emphasis on strategic differences also distinguishes regulatory focus theory from control system theories' concern with approach and avoidance at the system level rather than the strategic level. The asymmetry between promotion and prevention in strategic preferences and in the motivational effects of success and failure, with success strengthening motivation in promotion but failure strengthening motivation in prevention, gave birth to the regulatory fit idea that the manner of goal pursuit can sustain or disrupt a self-regulatory orientation (Brockner & Higgins, 2001).

### 3. Conceptual Framework and Hypotheses Development

Figure 3 shows the conceptual framework suggested for this study.

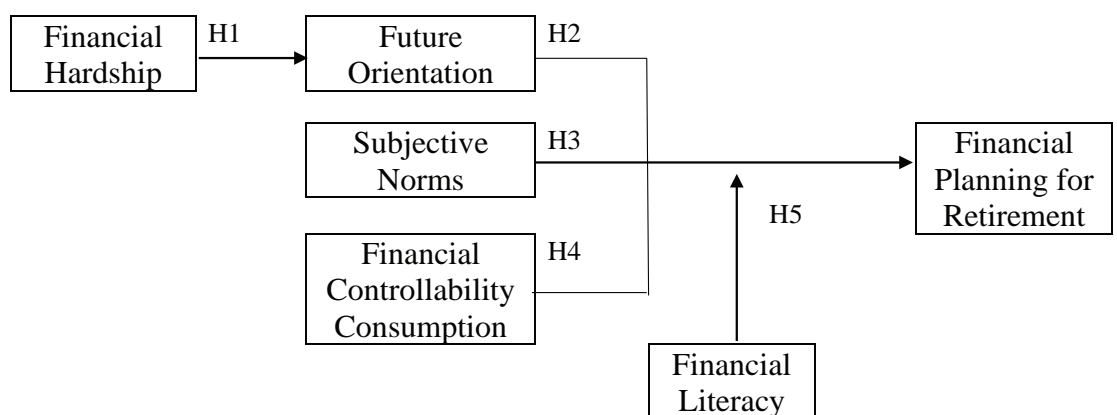


Figure 3: Conceptual Framework.

### 3.1. Financial Hardship vs. Future Orientation

According to Shobe and Page-adams (1991) most people facing financial hardship will spend their whole life to meet their basic needs. The high and middle level can afford to plan their future and make the plan becomes reality. While Mortimer, Zhang, Hussemann, and Wu (2014) states the parents facing financial problems absolutely unable to achieve parental educational aspirations to kids. Following the Theory of Intentional Change, Financial Hardship will influence the intention to have Future Orientation plan in making the stable financial. Therefore, finance portfolio hardship influence which in this study is used to measure the financial hardship It will have a positive relationship to the intention of future orientation. Thus, this study hypothesis that,

H1: There is a relationship between financial hardship and Future orientation in plan the future.

### 3.2. Future orientation vs. Financial Planning for Retirement

According to Dow and Jin (2013), sufficient funds after retirement will affluent by high future-oriented. Hence, Theory of Intentional Change shows Future Orientation will influence intentionally on Financial Planning for Retirement. Therefore, the attitudes of future orientation which in this study is used to measure the future orientations will have a positive relationship with financial planning for retirement. Thus, this study hypothesis that,

H2: There is a positive relationship between future orientation and financial plan for retirement.

### 3.3. Subjective norms vs. Financial Planning for Retirement

The previous study shows the peers will influence the financial decisions through deception in a social group (Gerrans, Moulang, Feng, & Strydom, 2018). The other studies show the individual able to affects their peers in saving decisions, buy assets, buy the insurance and make charity donate (Lieber & Skimmyhorn, 2018). According to the Theory of Intentional Change, Subjective Norms will influence the Financial Planning for Retirement. Therefore, the parental influence and peers which in this study is used to measure the subjective norms will have a positive relationship to the intention of financial planning for retirement. Thus, this study hypothesis that,

H3: There is a relationship between peers and parents in subjective norms and financial planning for retirement.

### **3.4. Financial controllability Consumption vs. Financial Planning for Retirement**

Previous literature shows the self-control bring significant to economic well-being. This led the avoid any debt (Kock, 2015). Based on the Theory of Intentional Change, Financial controllability influence the intentionally towards Financial Planning for retirement. Therefore, self- efficiency consumption influence which in this study is used to measure financial controllability consumption. This behavior will have a positive relationship with the intention of financial planning for retirement. Thus, this study hypothesis that,

H4: There is a positive relationship between financial control and plan for retirement.

### **3.5. Financial literacy vs. financial planning for retirement**

Some authors highlighted the education and finance knowledge will assist in predicting the total need save for retirement and achieve retirement goal clarity (Hershey, Jacobs-Lawson, McArdle, & Hamagami, 2007). It also led clear plan activities on financial needs. Financial literacy leads the good planning and accumulates wealth (Shanmugam & Abidin, 2013). According to Regulatory Focus Theory, Financial Literacy will influence the Financial Planning for retirement. Therefore, the level of education or financial knowledge influence which in this study is used to measure financial literacy. Financial literacy will have a positive relationship with the intention to make a plan in the financial planning for retirement. Thus, this study hypothesis that

H5: There is a positive relationship between financial literacy and financial planning for retirement.

## **4. Expected Outcome**

The study was conducted to the rehabilitation of the issue of the elderly was getting worse. Some retirees assume retirement as a threat. Supposedly the retiree should think about the enjoyment of retirement such as can travel, avoid stress, build new hobbies and strengthen the family relationship. The elderly needs to have the financial security to feel enjoy. The formal retirement planning also can help people anticipate their readiness for retirement. The major expected outcome from this study encourages

the Malaysian Private sector employees in East Coast aware of the savings for retirement benefits for them and savings to start from 30 years to reshape their retire life more meaningful. Despite the high savings, the elderly should know which advisor beneficial to appoint or get advice to monitor their money after retiring. From the previous study shows more than half the elderly in Malaysia loneliness stay without family, while 15 percent stayed with their children or other people. It shows how crucial the elderly need equip themselves with financial knowledge to take care of themselves in the future. The pre-retirees need to prepare, plan and accumulate resources.

## 5. Conclusion

There are many types of financial retirement planning in Malaysia like Amanah Saham Berhad, Pensioners, Invest in Unit Trust, Employee Provident Fund and etc. There are several factors that bring impacts on the financial retirement planning are the Future orientations, Social Norms, Financial Controllability Consumption and Financial Literacy. The Intentional Change of Theory and Regulatory Focus Theory will support the study. The problem of financial retirement planning will exercise early retirement practices. The expected outcome from this paper is to enhance the awareness of retirement savings and help the society to cultivate themselves with compulsive spending behavior. The spending habits and fail in the financial plan is the significant problems in our Malaysians East Coast people

## Acknowledgement

We would like to thank Faculty of Industrial Management and FIM's Governance and Integrity Centre, Universiti Malaysia Pahang for the financial support by sponsoring this paper to be presented in the FGIC 2nd Conference on Governance and Integrity 2019.

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## Conference Paper

# The Implications of Transformational Leadership Styles, Organizational Commitments and Teamwork Performance Among Law Enforcement in Malaysia

Azmi Hj Mohd<sup>1</sup> and Khairun Nisa Mohd Arshad<sup>2</sup><sup>1</sup>Fellow School of Management, Asia e University, Wisma Subang Jaya, 47500 Subang Jaya, Selangor, Malaysia<sup>2</sup>Assistant Manager, Yayasan Pahang, Kompleks Yayasan Pahang, 26060, Kuantan, Pahang, Malaysia

## Abstract

The purpose of this study is to examine and evaluate the implications of organizational commitment factors as a mediator of the relationship between transformational leadership styles and teamwork performance among law enforcement in Malaysia. Quantitative research design has been used which comprise a number of 254 support group of law enforcement officers in the Federal Territory of Putrajaya. Multiple regression analysis is used to evaluate the direct and indirect relationships of variables and study models. The two factors characteristic of the transformational leadership style are used as an independent variable in looking at the effectiveness of teamwork performance among law enforcement. The inspirational motivation and individual considerations have positive and significant relationships with teamwork performance. Organizational commitment is found to have a partial mediator that influenced the relationship between inspirational motivation and individual consideration in teamwork performance. The inspirational, motivational features and individualized considerations in the style of transformational leadership are necessary and emphasized in producing more productive and effective teamwork commitments and performance. This study presents the details of the implications of transformational leadership style characteristics on organizational commitment and teamwork performance in the context of law enforcement in Malaysia.

**Keywords:** law enforcement, transformational leadership, organizational commitment, teamwork performance

Corresponding Author:  
Khairun Nisa Mohd Arshad  
anis29@yahoo.com

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

The criminal law enforcement and prevention efforts by law enforcement are a challenging and extremely challenging task. This task requires a strong working team and a high commitment to dealing with criminals (Beshears, 2015). Teamwork with high performance and commitment can help the organization achieve the goals and missions



that have been formed or framed (Manzoor, Hafizullah, Hussain & Ahmad, 2011). In another context, law enforcement requires leaders to improve their commitment and motivate them (Indrayanto, Burgess, Dayaram & Noermijati, 2013). The achievement of quality and service provided to the community by law enforcement is the result of how they see the services that have been given to them by leaders and organizations (Mohd, 2017; Murphy & Drodge, 2004). Discussions on leadership, especially in criminal justice agencies, have become a necessity because leadership qualities directly affect the quality of employees' achievements (Patiar & Wang, 2016; Haberfeld, 2006).

The importance of transformational leadership styles in law enforcement organizations is crucial. Dozens of years ago saw the interest of researchers to review the role of law enforcement. Among them, Silvestri (2007) study which found that leadership styles in the police have a significant role through the tendency, and critical thinking in bringing about changes to the organization. Law enforcement leaders also have a significant influence on their communities and organizations (Miller, Watkins, & Webb, 2009). Therefore, evaluating the leadership style in the law enforcement organization is desirable.

Leadership styles can affect the behavior of employees, job satisfaction, and work performance, which may also affect the level of organizational commitment (Patiar & Wang, 2016; Bass, 1985). Yiing, Zaman, and Ahmad (2009) have suggested leadership styles influencing organizational commitment and the outcome of such influence, and it affects the performance of workers. In this study also found that organizational commitment is a mediating factor between leadership style and worker performance. This study was supported by Patiar and Wang (2016) and Thamrin (2012), who found that transformational leadership styles have positively and significantly related to the work performance of workers and organizational commitment.

Law enforcement leaders can transform by encouraging subordinates to adapt to emotional orientation by establishing relationships within communities and organizations (Mohd, 2017). Drodge and Murphy (2002) found that "leaders in the police force have the potential to inspire and encourage a police officer to work towards goals that value society beyond the narrow constraints commonly found in the police."

The findings of previous studies showed a significant relationship between leadership style and organizational performance and teamwork in law enforcement abroad (Yang, Yen & Chiang, 2012; Murphy & Drudge, 2004; Dobby, Anscombe & Tuffin, 2004; Engel, 2003; Bass, Avolio, Jung & Berson, 2003; Bono & Judge, 2003; Engel, 2001), but it is difficult to find such studies in Malaysia, especially those involving various law enforcement agencies. Also, Densten (2003) found in his study that there



was a difference in leadership style with different implications in these law enforcement organizations.

Transformational leadership has also been shown to have a positive relationship with organizational commitment in organizing an organizational culture (Mohd Arshad, 2016; Khasawneh, Omari & Abu-Tineh, 2012) and job satisfaction (Walumbwa, Wang, Lawler & Shi, 2004). Additionally, the impact of transformational leadership on organizational commitment has been widely studied and has resulted in positive findings (Mohd Arshad, 2016; Yang et al., 2012; Ismail, Mohamad, Sulaiman & Yusuf, 2011; Dhawan & Mulla, 2011). These previous studies have supported the importance of transformational leadership in delivering excellent results on work performance not only in the organizations but also among law enforcement agencies in achieving a mission of criminal justice. Leaders who emphasize the transformational leadership style can create high-level work commitments among law enforcers in achieving effective job-prestige (Mohd, 2017).

There are previous studies suggesting that organizational commitment does not necessarily have a significant relationship with performance (Lok & Crawford, 1999; Angle & Lawson, 1994; Randall, 1990; Mathieu & Zajac, 1990). Tolentino (2013) found that the relationship between organizational commitment and work performance was different according to the categories of posts in the organization. Besides, previous studies have shown that organizational commitment and performance of employees are influenced by transformational leadership style characteristics (Patiar & Wang, 2016; Marnis Atmojo, 2012; Dumdum, Lowe & Avolio, 2002; Bass, 1998; Bass, 1996). However, the question arises whether the findings in the previous studies will produce the same insights or otherwise if applied or adapted to law enforcement organizations in Malaysia.

At this juncture, the lack of research was carried out to determine the relationship of transformational leadership style characteristics with organizational commitment and teamwork performance among law enforcement in the country. Law enforcement officers need management and organizational support to improve and enhance their commitment (Mohd, 2017; Vito, Suresh & Richards, 2011; Young & Dulewicz, 2009; Dick & Metcalfe, 2007) which in turn implies the performance of work. High work performance will contribute to the achievement of goals, mission, and vision of the organization and thus the level of public trust towards law enforcement and the integrity organizations will increase (Mohd, 2017).

This study is to look at and assess the level of a teamwork performance based on transformational leadership style characteristics of key law enforcement agencies in

Malaysia with organizational commitment factors as a mediating factor. The findings of this study:

1. May contribute to the theory of transformational leadership characteristics and organizational commitment theory as well as to deepen understanding of factors that can enhance the performance of teamwork among law enforcement.
2. Can be used as a comparison with previous studies that are not from the same industry or sector although involving the same variables.
3. Can also be used as a reference and guidance to formulate new approaches or strategies of other law enforcement organizations in achieving or predetermined their vision and mission.

## 2. Literature Review

### 2.1. Transformational Leadership And Team Work Performance

Leaders are required to determine and influence the commitment of workers (Che Omar, Mohd Arshad, Halipah, Yusuff, Abdullah & Mohd Rasli, 2017; Almutairi, 2016). Workers who experience satisfaction work with their leaders will cause them to remain engaged in organizational activities (Mohd Arshad, 2016; Stup, 2005). Ramachandran and Krishnan (2009) found that leadership styles were among the significant determinants of workers' commitment. When the goals of individuals in the team are aligned with the goals of the organization, then commitment to the organization will exist and thus create motivation and continue to stay with the organization. Furthermore, it has a positive impact on the performance of workers (Che Omar et al., 2017; Almutairi, 2016).

Leadership styles can affect the behavior of workers, job satisfaction, and work performance, which may also affect the level of organizational commitment (Che Omar et al., 2017; Bass, 1985). Yiing et al. (2009) have suggested that leadership styles influence the organizational commitment and the outcome of such influence; it affects the performance of workers. In this study also found that organizational commitment is the mediating factor between leadership style and worker performance. This study was supported by Rao and Kareem (2015) and Thamrin (2012) who found that transformational leadership styles positively and significantly related to the work performance of workers and organizational commitment.

Among recent research studies that analyze the influence of transformational leadership styles on organizational commitment, transformational leadership styles on employees' achievements and organizational commitment to the success of workers have been conducted by Che Omar et al. (2017) and Marnis Atmojo (2012). The findings show that there is significant influence between the transformational leadership style and organizational commitment of the workers. Through this study, it is recommended that transformational leadership styles encourage the trust of workers. The elements of trust are dependent on the expertise of leaders and the consistency of leaders. As a result, it seeks to improve the organizational commitment of workers. This research study found that there was a significant relationship between organizational commitment and the performance of workers. Another study by Tabassi, Roufechaei, Bakar, and Yusuf (2017) revealed that leadership plays a vital role in teamwork and productivity performance. Some studies also supported the finding where the transformational leader is important to promote team effectiveness (Chi & Huang, 2014; Wang, Oh, Courtright, & Colbert, 2011).

There is also some previous empirical literature that supports the findings of transformational leadership, organizational commitment, and work performance of workers. In experimental studies, there was evidence that there was a significant impact on the followers' commitment in the organization and the performance of the results of the transformational leadership style (Barling, Weber & Kelloway, 1996). Transformational leadership style relationships with individual personal performance, such as job satisfaction, work performance, and commitment were also described in some previous studies (Indrayanto et al., 2014; Yiing et al, 2009; Chen, 2004; Dumdum et al., 2002; Fuller, Patterson, Hester & Stringer, 1996; Bycio, Hackett & Allen, 1995).

All of these studies have confirmed positive relationships between transformational leadership style components and individual personal performance for job satisfaction, individual and teamwork performance, and the commitment of employees and teams (Mohd, 2017). Transformational leadership style components can produce high levels of trust and loyalty if leaders respect and have confidence in their followers. High trust and loyalty will show the willingness of his followers to work more firmly in the event of an organization facing problems or difficulties (Mohd, 2017).

However, the relationship of organizational commitment as a mediator of transformational leadership style and teamwork performance, especially among key law enforcement in Malaysia is difficult to determine. This is because it is difficult to find a study focusing on key law enforcement in viewing and evaluating the extent of

the influence of organizational commitment and teamwork performance based on the dimensions of transformational leadership style.

Based on the literature highlighted, the following hypotheses are suggested: H1. Transformational leadership has a significant influence on teamwork performance. In the context of the transformational leadership style, it refers to two dimensions of inspirational motivation and individual consideration. Therefore, those dimensions will be used in regression tests; the hypotheses for the dimensions are as follows:

H1a: Inspirational motivation has a significant relationship with teamwork performance.

H1b: Individualized consideration has a significant relationship with teamwork performance.

## 2.2. Transformational Leadership and Organizational Commitment

The transformational leadership style can bring a change of attitude and build and give a personal impact on the commitment of the workers (Herold, Fedor, Caldwell & Liu, 2008). This leadership-style concept strives to create a high level of personal commitment not only leaders but also to their followers towards achieving a shared vision, extraordinary mission, and organizational goals and thus affecting the commitment of its followers (Chiun Lo, Ramayah & Min, 2009). Past studies have proven that transformational leadership produces positive relationships with organizational commitment in various forms of organization and culture (Che Omar et al., 2017; Mohd, 2017; Mohd Arshad, 2016; Khasawneh et al., 2012). A study by Kim (2014) in Korea which involved in public sectors and also in a large conglomerate (Joo, Yoon & Jeung, 2012) also showed a positive relationship between these two variables.

Transformational leadership affects the commitment of the followers of his organization by applying intellectual simulations, encouraging his followers to think critically through the use of new approaches, involving his followers in the decision-making process (Avolio, Zhu, Koh & Bhatia, 2004), inspiring loyalty as well as recognizing and appreciating the needs which vary each of his followers to build their personal potential (Walumbwa & Lawler, 2003). They (leaders) encourage their followers to take on the challenge and take greater responsibility and reward them with additional efforts that lead to a high commitment to the organization (Wayne, Liden, & Sparrowe, 2000). Two meta-analyses have been reiterated that transformational leadership is positively associated with work success, such as satisfaction, commitment, and work performance (Dumdum et al., 2002). In another study conducted in Singapore on

professionals, it was found that transformational leadership was significantly correlated with the commitment of workers based on the sample taken (Lee, 2008). However, some previous studies have failed to establish the relationship between leadership style and organizational commitment (Savery, 1991; Hampton, Dubinsky & Skinner, 1986; O'Reilly & Roberts, 1978). In summary, not all dimensions of transformational leadership style have implications for organizational commitment.

### 2.3. Organizational Commitment and Teamwork Performance

Commitment to the team can be translated through the willingness of members in assisting other members of the team and further improving the performance of teams and organizations in achieving the goals set forth (Chukwudi, 2014; Ooko, 2013). The commitment of individuals in the team can change as there are new learning opportunities and skills amongst other individuals in the team and thus have a positive impact on the self-productivity and teamwork (Jiang, 2010). In another study, Irefin and Ali Mechanic (2014) found that organizational commitment by workers was highly correlated with organizational performance. Riketta (2002) emphasized that the performance of work success was the result of the commitment of the workers.

According to Ntayi, Rooks, Eyaa, and Qian (2010), the overall performance of a project is the result of the commitment function of each individual involved in the project. However, there are also past studies that have different findings between organizational commitment and performance. The findings in a study by Tolentino (2013) show that organizational commitment has a minimal relationship with work performance. Tolentino (2013) also found that the relationship between organizational commitment and work performance varies by category of organization. While, a study by Von Bonsdorff, Janhonen, Zhou & Vanhala (2014) in a small-sized company in the Finnish retail trade revealed that the organizational commitment partially mediated the relationship between team and company performance.

Hence, the second hypothesis for this study is:

H2: Organizational commitment has a significant relationship with teamwork performance.

## 2.4. Transformational Leadership, Organizational Commitment and Teamwork Performance

Leadership style can affect the behavior of employees, job satisfaction, and work performance, which can also affect the level of organizational commitment (Che Omar et al., 2017; Bass, 1985). Yiing et al. (2009) have suggested that leadership styles influence the organizational commitment and the outcome of such influence and affect the performance of workers. In this study also found that organizational commitment is the mediating factor between leadership style and worker performance. This study was supported by Thamrin (2012), who found transformational leadership styles have a positive and significant relationship with the work performance of workers and organizational commitment.

The latest research study, which analyzes the influence of transformational leadership style on organizational commitment, transformational leadership style towards the achievement of workers and organizational commitment to the success of workers have been conducted by Che Omar et al. (2017) and Marnis Atmojo (2012). The findings showed that there is significant influence between the transformational leadership style and organizational commitment of the workers. Through this study, it is recommended that transformational leadership styles encourage the trust of workers. The elements of trust are dependent on the expertise of leaders and the consistency of leaders. As a result, it seeks to improve the organizational commitment of workers. This research study found that there was a significant relationship between organizational commitment and the performance of workers (Che Omar et al., 2017; Marnis Atmojo, 2012).

In an experimental study, there is evidence that there is a significant impact on the commitment of followers in the organization and the performance of the results of the transformational leadership style (Barling et al., 1996). Transformational leadership style relationships with individual personal performance, such as job satisfaction, work performance, and commitment are also described in some previous studies (Indrayanto et al., 2014; Yiing et al., 2009; Chen, 2004; Dumdum et al., 2002; Fuller et al., 1996; Bycio et al., 1995). All of these studies have confirmed positive relationships between transformational leadership style components and individual personal performance for job satisfaction, individual and teamwork performance, and the commitment of employees and teams.

However, the relationship of organizational commitment as a mediating factor between transformational leadership style and teamwork performance, especially

among key law enforcement in Malaysia is difficult to determine. This is because it is difficult to find a study focusing on key law enforcement in viewing and evaluating the extent of the influence of organizational commitment and teamwork performance based on the dimensions of transformational leadership style.

Hence, the third hypothesis for this study is:

H3: Organizational commitment mediates the relationship between transformational leadership and teamwork performance.

Specifically, when the transformational leadership style is seen in two dimensions, that is the inspirational motivation and individualized considerations, then the hypotheses used are as follows:

H3a: Organizational commitment mediates the relationship between inspirational motivation and teamwork performance.

H3b: Organizational commitment mediates the relationship between individualized consideration and teamwork performance.

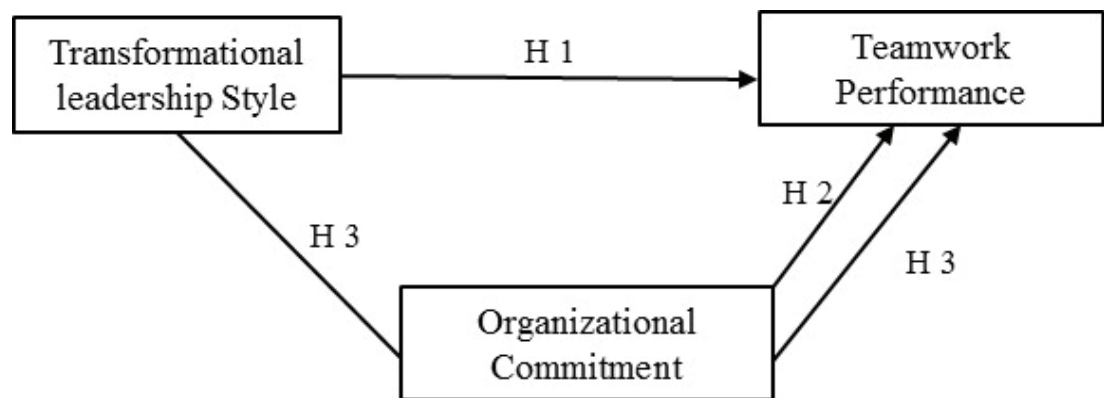


Figure 1: Research Framework.

The research framework underpinned by theories adapted from Yukl's leadership model theory, Rusbult exchange theory, and Belbin's role-theory.

### 3. Methodology

For this study, the form of quantitative research is used. Anderson, Sweeney, and Williams (2004) suggest that quantitative methods can determine an idea or concept better than any other alternative. This method also enables researchers to measure and control variables. According to William (2007), quantitative methods can be used to answer questions about the relationship between measurable variables and aim to explain or predict these relationships.

The questions are divided into four sections, each one will be answered by the respondent. The first part measures the style of transformational leadership that contains matters relating to the two-dimensional adaptation, that is; inspirational motivations and individualized considerations all of which contains six questions developed by Bass and Avolio (2000). The second part measures the organizational commitment variable and contains six questions developed by Meyer and Allen (1997). The third part measures the performance of teamwork, which consists of 9 questions. Teamwork performance was measured on a subjective basis by looking at individual assessments in the team for the success of leadership styles based on Multiple Leadership Questionnaire (MLQ) developed by Bass and Avolio (2000, 2004). The fourth part contains questions about the individual demographic information and where the respondents are on duty.

TABLE 1: Research Measurement.

| Variables                   | No. of items | Likert Scale | Source                      |
|-----------------------------|--------------|--------------|-----------------------------|
| Transformational Leadership | 6            | 5            | Bass and Avolio (2000,2004) |
| Organizational Commitment   | 6            | 5            | Meyer & Allen (1997)        |
| Teamwork Performance        | 9            | 5            | Bass and Avolio (2000,2004) |

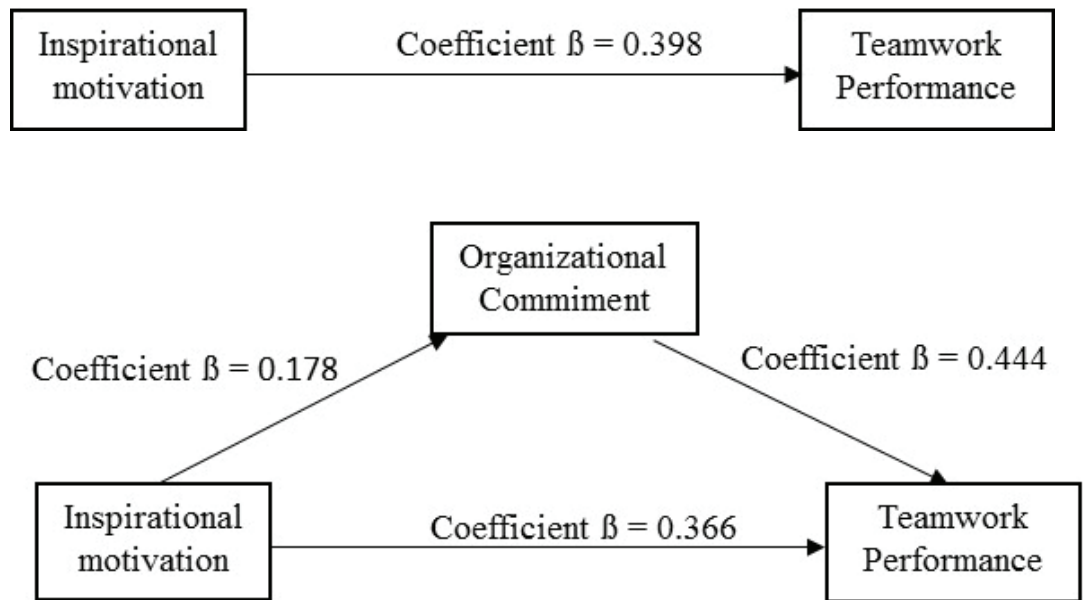
Multiple regression analysis was performed to determine the effects of inspirational motivation, individualized consideration, and organizational commitment to teamwork performance among law enforcement. The simple regression analysis for this study was done to determine the effect of organizational commitment variables on teamwork performance among law enforcement. Moreover, ultimately, mediating regression tests were conducted for hypothesis testing H3a and H3b aimed at testing the effect of mediation presence, organizational commitment to the relationship between the dependent variable of teamwork performance among law enforcement and independent variables of transformational leadership (inspirational motivations and individualized considerations).

## 4. Results

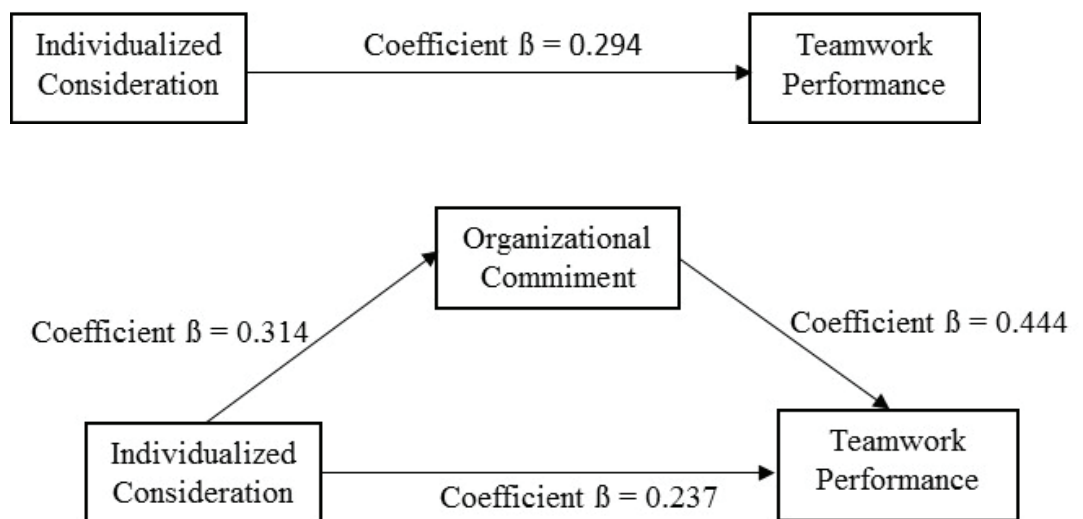
Factor analysis is performed on all items that measure the dependent variables (teamwork performance), independent variables (transformational leadership), and mediating variables (organizational commitment). The findings from the factor analysis show that the two constructs of teamwork performance and organizational commitment did not change. This means that the original dimension in each construct is maintained before



and after factor analysis is done. The regression analysis summary of inspirational motivation, individualized consideration, and teamwork, performance with organizational commitment is as follows:



**Figure 2:** Summary of Regression Analysis of Mediating Effect for Inspirational Motivation, Organizational Commitment, and Teamwork Performance .



**Figure 3:** Summary of Regression Analysis of Mediating Effect for Individualized Consideration, Organizational Commitment, and Teamwork Performance.

From the regression analysis used by Baron and Kenny (1986), and also adapted from Rucker, Preacher, Tormala & Petty (2011), multiple regression analysis can easily answer the objective of the study and to test the hypothesis of the study.

TABLE 2: Summary of Hypothesis Result.

| Hypothesis | Statements   | Result   |
|------------|--|----------|
| H1a        | Inspirational motivation has a significant relationship with teamwork performance.   | Accepted |
| H1b        | Individualized considerations have a significant relationship with teamwork performance.   | Accepted |
| H2         | Organizational commitment has a significant relationship with teamwork performance.  | Accepted |
| H3a        | Organizational commitment mediates the relationship between inspirational motivation and teamwork performance                    | Accepted |
| H3b        | Organizational commitment mediates the relationship between individualized consideration relationships and teamwork performance. | Accepted |

## 5. Discussion

The findings of this study are consistent with Che Omar et al. (2017) and Marnis Atmojo (2012) who look at the expertise of leaders and consistency of leaders and their impact on improving the organizational commitment of workers. The study also found that there was a significant relationship between organizational commitment and the performance of workers. There are several other studies that have produced similar findings with this study, including Yiing et al. (2009); Chen (2004); Dumdum et al. (2002) and Barling et al. (1996).

From the findings of the statistical analysis of this study, it is clear that the increased of organizational commitment can improve the performance of workers (Che Omar et al., 2017; Che Omar, 2016, Jaramillo, Mulki & Marshall, 2005), but the key factor in organizational success is attributed to leadership style factors. Leadership capabilities and abilities are an important factor in achieving employee satisfaction and commitment in improving work success (Mohd, 2017; Mohd Arshad, 2016; Mosadeghard, 2003).

The finding of this study is also seen in parallel with the view of Densten (2003), that there is a difference in leadership style with different implications in law enforcement organizations. The Densten (2003) study also supported the views of some of the earlier studies that failed to demonstrate the relationship between leadership style and organizational commitment (Savery, 1991; Hampton et al., 1986; O'Reilly & Roberts, 1978).

However, the result of this study shows that it is different from the result of the study, which has been suggested by Indrayanto et al. (2014) on law enforcement in Indonesia. Through this study, transformational leadership does not show direct influence on the work performance of law enforcement. Nevertheless, it is noted that commitment is a mediating factor for transformational leadership and work performance among law enforcement.

## 6. Conclusion and Implications

Organizational commitment and teamwork performance in this study are influenced by inspirational motivation and individualized considerations in transformational leadership. Both of these factors are seen to play an essential role in transforming the behavior of subordinate staff. When the behavior of workers is transformed, it can directly affect the organization's performance (Hoxha, 2015). This is in line with Trmal, Bustamam, and Mohamed (2015) views that transformational leadership is an effective leadership style as it can lead to changes in individual behavior towards achieving organizational goals. This combination of dimensions in transformational leadership can motivate subordinate staff at a deep level and high levels of inspiration (Tharnpas & Boon-itt, 2015; Verissimo & Lacerda, 2015). This high level of motivation and inspiration can create the maximum success of teamwork and teamwork performance of subordinates.

## Acknowledgement

The authors would like to acknowledge the encouragement, support, and inspiration received from our organizations; Asia e University and Yayasan Pahang. Special thanks also go to our supervisor, Professor Dr. Rosli Mahmood and the organizers of the FGIC 2<sup>nd</sup> Conference on Governance & Integrity 2019.

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## Conference Paper

# Consumer Behavior on the Policy of Banning the Use of Plastic Bag in Kuantan

Mazita Mokhtar, Airin AbdulGhani, Sarbani Daud, and Ida Rizyani Tahir

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

By and by, natural issues sway our everyday lives. It is important to battle the difficulties that come as unnatural weather change issues. Among marker components of an Earth-wide temperature, boost is waste created from plastic sacks. Plastic sacks have turned into a significant device for controlling nature, and its impact is tremendous. With expanded ecological issues brought about by plastic sacks throughout the most recent decade, biodegradable plastic packs (BPBs) seem like an ideal arrangement as they are intended to disintegrate totally, without leaving a reasonable impression. Consequently, the fundamental target of this venture is to expand mindfulness among buyers to supplant plastic sacks to BPBs. This is an examination that incorporates a quantitative research way to deal with distinguish key vital elements that impact the utilization of BPB among purchasers. The hypothesis of arranged conduct, by (Ajzen and Maden, 1986) will be utilized in this investigation. As a huge yield, this investigation centers around the standards of green living practices to locate the option of assets that can help accomplish better regular habitat objectives.

**Keywords:** consumer, theory of planned behaviors, environmental issues.

Corresponding Author:

Mazita Mokhtar  
mazita@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Ecological issues are extremely delicate issues in society. Other than the issues additionally can give a negative effect to our day by day life and in this manner, there is a need to battle the difficulties with regards to spare our lives. Plastic sacks and material dependent on it, has been a significant instrument for controlling the earth, and its effect is extremely horrendous.

Polyethylene packs murder ecological lives gradually and agonizingly. Internationally, there is the utilization of an expected 1 trillion plastic packs each year, which is likeness dumping right around 120 million barrel of oil into nature. The reusing of plastic sacks is still exceptionally low and not yet a reasonable alternative in Malaysia. Albeit plastic packs are an undisputed cutting edge comfort, the ringing summons to do with plastic

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sacks have reverberated the world over for ecological reasons. Surprisingly more dreadful, there is no market for reused plastic sacks and as a result of issues encompassing tidiness, arranging and mind-boggling expenses, numerous packs sent to plastic sack reusing offices still end up in landfills. Just 3% of plastic packs delivered each year are reused.

## 2. Literature Review

As of late, individuals were stunned by the contamination of the Kim stream in Johor. This is a genuine case of contamination as a result of synthetic substance. 12 March 2019 Sultan of Johor, Sultan Ibrahim Iskandar in his most recent passage on his authority Facebook page, he said the experts would lead a careful examination of the episode and in the meantime communicated his gratefulness for the restorative group who endeavored to give treatment to exploited people who were admitted to Hospital Sultan Ismail (BH on the web, 2019). Because of unreliable acts, several individuals, including understudies and understudies, were compelled to go to the emergency clinic for follow-up treatment.

In the same way as another twenty-first-century global ecological issues, plastic contamination is by all accounts an "unthinkable" issue since it cannot be comprehended through techniques we have relied upon previously. With the extension in environmental issue achieved by plastic packs (compound substance) from past decades, biodegradable plastic sacks (BPB) sounds like the perfect course of action as they are expected to rot absolutely, leaving no discernible pursue. Along these lines, the standard objective of the endeavor is to grow care among buyers the huge of using BPB to override plastics sack. This examination fuses emotional and quantitative research approach to managing develop a structure and to perceive key essential factors affecting the use of BPB among buyers. This examination is a care fight for the customers understanding the biological issues raised by the utilization of plastic sacks. Through this examination, it is typical that the utilization of plastic packs will be replaced with the use of BPB. This examination can decrease the colossal impact on the condition. As a basic yield, this examination bases on the rule of green living practices to find a plenitude of advantages that can help to Literature Review.

The hypothesis of arranged conduct is an entirely appropriate model for contemplating practices. Ajzen (1991), expressed that the aim is an inspiration to urge an individual to make a move. Through the expectations, one will attempt to plan something for accomplishing the longing. With regards to BDB material supplanting the plastic

sack of concoction substance, purchaser choice is subject to the goal. Ajzen (2005) hypothesis of arranged conduct is prominent among scientists as a result of the frames of mind, abstract standards, social control practices, and the expectation of offering clarification to get conduct. Among the investigations identified with conduct, issues are the examination of Hasan and Mohd Shahnaz (2005) on the installment of Business Zakat. In 2006 Elliot and Armitage, this hypothesis has been utilized in the examination to agree to street speed limits. Bobek and Hatfield (2003) additionally utilized this hypothesis in the examination of duty consistence conduct. While Taylor and Todd (1995) had utilized the hypothesis of arranged conduct from the perspective of innovation. Hyman (1997), musings, and convictions are something that can be scholarly. Exploitative conduct can be kept away from, and in this manner, produce inspirational frames of mind (Alberto&Troutman 1990, Bandura 1977, Skinner 1982, 1968, Axelrod 1983). They are learning experiences fortifying standards and punishments. Through research, happens through combination and fines. Conduct, musings, and emotions can be estimated, anticipated, and controlled.

### 3. Methodology

This exploration will be center around the diagram of the Malaysian condition, partners, and experienced. It will be utilized the arbitrary testing procedure for both subjective and quantitative strategy. In subjective, intentional support through a sign of future cooperation. Somewhere in the range of 400 review structure or surveys will be dispersed to potential respondents in Malaysia. Information accumulation will start in the long stretch of August until November 2020. The overview population speaks to the example components of the plastic sack clients in Malaysia. The units of examination in this exploration are the clients of plastic packs. The particular respondents were singular clients that are locked in utilizing plastic packs. The separate respondents to the survey were required to address the inquiries explicitly dependent on the frame of mind towards conduct, emotional standard, saw social control. The three determinants of this expectation are a remarkable conviction work.

In this exploration, the primary technique is the quantitative methodology used to quantify the conceivable relationship among factors in the Theory of Planned Behavior (Ajzen, 1991) model. The exact quality of connections in the hypothesis is estimated. An organized poll will be utilized since it enables this examination to investigate the examples and patterns which toward the end the outcome ready to portray what is going on in the L and T setting and give a proportion of respondents' conclusions, dispositions,

emotions, and discernments about issues of specific worry to the evaluator. They likewise help to recognize examples and pattern that further legitimacy investigation utilizing subjective techniques (Cohen et al., 2003). Later advance utilizes a corroborative factor investigation strategy to discover the unwavering quality and legitimacy of a survey. Corroborative factor examination test and assess for basic develop in show factors, regardless of whether to speak to the inactive variable accurately and whether the model of information estimation fits observationally (Byrne, 2001; and Meyers et al., 2006).

This exploration will be led by utilizing the predefined model, which depends on the reasonable structure. The free factors are a system to confront the difficulties of business visionaries, and the reliant variable is normal for the condition. In this way, the structure demonstrates the connection between these two unique factors, which is discoveries will show whether these two distinct factors are critical or not. In this manner, the connection between the difficulties of business visionaries to utilized BPB are profoundly identified with attributes of the condition in Malaysia.

This investigation gives experimental research to show and break down the connections between two BPB builds (i.e., exceptional learning background, and premium) and the Theory of Planned Behavior (TPB) develops (i.e., the frame of mind, abstract standard, saw conduct control, and social goals). The reason for the investigation was to pick up a superior comprehension of the practices and aims of business visionaries who have either recently utilized or plans to utilized BDB.

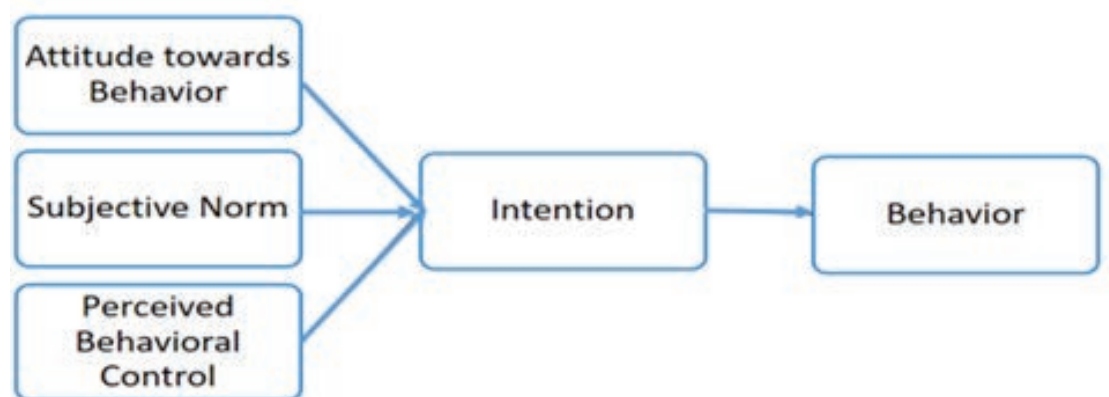


Figure 1: Theory of Planned Behavior (1986).

## 4. Conclusion

This examination intends to comprehend the client's consistency conduct in utilizing BDB with the elements in the hypothesis of conduct arranged. The consequences of

the investigation are relied upon to help the administration in actualizing clients without plastic packs. This examination additionally gives clients data on sparing the earth. The aftereffects of this exploration can help and spare the earth.

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## Conference Paper

# Planning and Scheduling AC Product Distribution in PT. XYZ to Fulfill Service Level

Yuli Eni<sup>1</sup>, Idris Gautama So<sup>2</sup>, and Rudi<sup>1</sup><sup>1</sup>Management Department, Binus Business School Undergraduate Program, Bina Nusantara University<sup>2</sup>Binus Business School, Management Study Program, Bina Nusantara University, Indonesia

## Abstract

PT. XYZ has some problems in scheduling ABC product distribution, which the company has excessive stock in the main warehouse, but stockout happened in regional warehouses. Another problem is that the company has established a 90% service level for safety stock, but it is not applied in the regional warehouse. The objectives in this research are to find out the appropriate safety stock quantity so 90% service level that company established can be achieved, to know company distribution schedule, and to count the most efficient expense that company will pay. To aim these research objectives, it started by using the Bayes method to know demand forecasting, then established safety stock quantity to fulfill 90% service level, and using DRP to scheduling company distribution activity. The results from this research are knowing safety stock quantity in the warehouse so it can fulfill 90% service level, knowing distribution schedule, and the most efficient expense that the company has to pay. According to the results, the DRP method can be used to overcome company problems and fulfill their expectation that the company has established, and estimate distribution budget.

**Keywords:** distribution requirement planning, safety stock, service level.

Corresponding Author:

Yuli Eni  
yeni@binus.edu

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

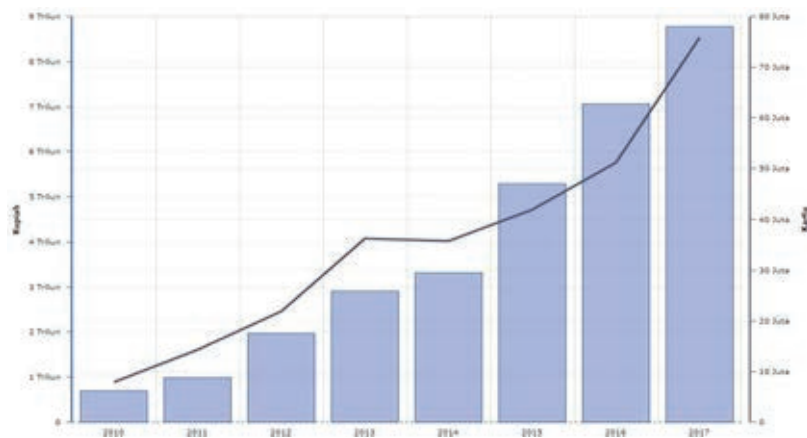
## 1. Introduction

In nowadays competition, the company always have to give their best services to the customer if they want to win in the industry. To give the best service to the customer, one thing that the company should do is to make sure the product that customer wants available in the market when a customer needs it. Therefore, the company should have a good distribution system and channel to apply to the company.

According to Kotler and Keller (2011), the distribution channel is organizations that depend on the process to create products or services become available to be used or consumed. Distribution has a definition, a part that responsible for planning and controlling material flow from the supplier to the consumer with an advantage.

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Nowadays, the payment system in the economic transaction has an exponential increase in line with technological development. Technology development in the payment system has changed currency role, which known as non-cash payment that more efficient and effective. This is supported by more companies and shopping center in Indonesia that received more payment transaction used non-cash payment system. Quick, safe, comfortable, easy, and efficient in the transaction are people main reasons to non-cash payment system, and non-cash payment system has developed by the bank as payment system party in Indonesia.



**Figure 1:** E-Money Transaction Graphic 2010 – Oktober 2017 (Source: www.Katadata.co.id (2017)).

According to the graphic in picture 1.1, we can see that e-money transaction 2010-October 2017 period increase 60% become Rp. 8,77 trillion from the same period in the last year. From an interview with staff in Supply Chain Division, Ms. Sisca, we know that good distribution is really important to make sure that the product distributed at the right place in the right time, but ms. Sisca explained in practice, appears some problems in distribution, as excessive stock in the main warehouse in the other hand, stock out in regional warehouses, and fluctuating demand that resists the right quantity to be distributed on time. Besides that, PT.XYZ has established service level 90% so ABC product can fulfill customer demand, but in fact, service level percentage has not achieved it, and even regional warehouse is not applied safety stock as it established by the company. Below is the information of ABC product availability in Java Region, data involve the comparison between the quantity of product available in region warehouse and demand fluctuative in Java from November 2017 – October 2018.

As we can see in table 1 that ABC product stock in Central Java region warehouse can not fulfill market demand in November 2017 – October 2018 period, its cause Central Java regional warehouse stock out and there is no safety stock to fulfil the gap, besides that we can see from data that the demand is fluctuating.

TABLE 1: ABC Product Availability Information in Central Java Region.

| JATENG | Stock | Demand | Gap (Minus) |
|--------|-------|--------|-------------|
| Nov-17 | 1700  | 2800   | 1100        |
| Dec-17 | 3000  | 4500   | 1500        |
| Jan-18 | 500   | 600    | 100         |
| Feb-18 | 4500  | 10000  | 5500        |
| Mar-18 | 5000  | 6000   | 1000        |
| Apr-18 | 300   | 300    | 0           |
| May-18 | 4900  | 9000   | 4100        |
| Jun-18 | 3400  | 4000   | 600         |
| Jul-18 | 5050  | 7000   | 1950        |
| Aug-18 | 6800  | 10300  | 3500        |
| Sep-18 | 15000 | 20000  | 5000        |
| Oct-18 | 3200  | 5600   | 2400        |

Source: PT. XYZ (2018)

TABLE 2: ABC Product Availability Information in West Java Region.

| JABAR  | Stock | Demand | Gap (Minus) |
|--------|-------|--------|-------------|
| Nov-17 | 500   | 1500   | 1000        |
| Dec-17 | 2500  | 5200   | 2700        |
| Jan-18 | 3800  | 4900   | 1100        |
| Feb-18 | 2200  | 4000   | 1800        |
| Mar-18 | 6800  | 12900  | 6100        |
| Apr-18 | 19800 | 35800  | 16000       |
| May-18 | 4400  | 9500   | 5100        |
| Jun-18 | 5100  | 9200   | 4100        |
| Jul-18 | 7800  | 15000  | 7200        |
| Aug-18 | 12300 | 17100  | 4800        |
| Sep-18 | 2000  | 2200   | 200         |
| Oct-18 | 8600  | 13400  | 4800        |

Source: PT. XYZ (2018)

As we can see in table 1 that ABC product stock in the West Java region warehouse can not fulfill market demand in November 2017 – October 2018 period, its cause West Java regional warehouse stock out and there is no safety stock to fulfil the gap, besides that we can see from data that the demand is fluctuating.

As we can see in table 1 that ABC product stock in East Java region warehouse can not fulfill market demand in November 2017 – October 2018 period, its cause East Java regional warehouse stock out and there is no safety stock to fulfil the gap, besides that we can see from data that the demand is fluctuating.

TABLE 3: ABC Product Availability Information in East Java Region.

| JATIM  | Stock | Demand | Gap (Minus) |
|--------|-------|--------|-------------|
| Nov-17 | 1000  | 2000   | 1000        |
| Dec-17 | 2100  | 2900   | 800         |
| Jan-18 | 3300  | 4750   | 1450        |
| Feb-18 | 10500 | 28500  | 18000       |
| Mar-18 | 11300 | 11400  | 100         |
| Apr-18 | 800   | 1000   | 200         |
| May-18 | 12200 | 21700  | 9500        |
| Jun-18 | 4000  | 6500   | 2500        |
| Jul-18 | 15600 | 27800  | 12200       |
| Aug-18 | 11000 | 25500  | 14500       |
| Sep-18 | 8900  | 11000  | 2100        |
| Oct-18 | 7600  | 13000  | 5400        |

Source: PT. XYZ (2018)

PT. XYZ established service level 90% which means company want opportunity to fulfill market demand 90%, but as we can see in table 1.4, regional warehouse tent to re-order when the stock has been thinning out and due to no safety stock applied so that when the lead time 3 days the rest of the stock can not fulfill the needs of demand.

TABLE 4: The Rest Stock Data in Java Regional.

|          | JATENG       | JABAR        | JATIM        |
|----------|--------------|--------------|--------------|
| Nov-17   | 143 (51%)    | 110 (73, 3%) | 132 (66%)    |
| Des-17   | 164 (36, 4%) | 190 (36, 5%) | 191 (65, 9%) |
| Jan-18   | 190 (316%)   | 193 (39, 4%) | 188 (39, 6%) |
| Feb-18   | 153 (15, 3%) | 122 (30, 5%) | 109 (3, 8%)  |
| Mar-18   | 108 (18%)    | 185 (14, 3%) | 164 (14, 4%) |
| Apr-18   | 101 (336%)   | 169 (4, 7%)  | 122 (122%)   |
| Mei-18   | 128 (14, 2%) | 135 (14, 2%) | 154 (7, 1%)  |
| Jun-18   | 154 (38, 5%) | 142 (15, 4%) | 100 (15, 4%) |
| Jul-18   | 140 (20%)    | 100 (6, 7%)  | 185 (6, 7%)  |
| Agust-18 | 142 (13, 8%) | 157 (9, 2%)  | 117 (4, 6%)  |
| Sept-18  | 150 (7, 5%)  | 110 (50%)    | 137 (12, 5%) |
| Okt-18   | 176 (31, 4%) | 168 (12, 5%) | 163 (13, 3%) |

Source: PT. XYZ (2018)

The problems in this supply chain if not be handled well will put disadvantages effect for the company in cost and profit field. Therefore, the company needs to take the right action so that this risk condition can be minimized and overcome. According to the case above, the research focus on the distribution problem that faces PT XYZ, which

the company has a problem to fulfill demand due to distribution planning, which not good.

According to Regina Steven Surya (2013), explained that DRP could become distribution minimum product solution that tends to resist, so it causes loss profit to the company. DRP can also be used to control and schedule product distribution. Chandra Sekhar J V D and Balasubramanian (2012), explained that the DRP method could be used in supply chain distribution than can result in the minimal stock to fulfill demand.

## 2. Research Method

Research that will use in this thesis is quantitative and descriptive. Sugiyono (2012:7), a quantitative method named traditional method because this method frequently used in research. Descriptive method inline with its name aims to describe a certain situation. According to Morris (2017), unit analysis is all things we observe to get a conclusion about all unit and to explain the difference among unit analysis. In this research unit analysis is an organization. An analysis method that used is observation and interview. Data retrieval is cross-sectional.

The variable in this research involves demand forecasting, stock control, planning, and scheduling distribution, and calculate safety stock use data source that originates from secondary company data. Data collecting technique by an interview with supply chain staff and direct observation of operational activities in PT. XYZ and work process that PT. XYZ employee does. The data analysis method used in this research is Bayes Theorem to forecasting, Calculate safety stock used service level, and scheduling ABC product distribution use DRP.

## 3. Result and Analysis

### 3.1. Safety stock 2017/2018 Calculation

Company safety stock 2017/2018 calculation uses service level method, which means the company wants only 10% probability stock unavailable in the market. From that data, we know that the service factor is 1, 28. According to data, then the calculation of safety stock for each region are:

Central Java:

Demand Mean = 13005 Pcs

Demand Standard Deviation = 10335, 78

Lead time standard deviation =  $\sqrt{3/30 \times 10335,78} = 3258,461$

Safety Stock =  $1,28 \times 3258,461 = 4188,702 = 4189$

East Java

Demand Mean = 6675

Demand Standard Deviation = 5337,028

Lead time standard deviation =  $\sqrt{3/30 \times 5337,028} = 1687,716$

Safety Stock =  $1,28 \times 1687,716 = 2162,895 = 2163$

West Java

Demand Mean = 10891,67

Demand Standard Deviation = 9392,982

Lead time standard deviation =  $\sqrt{3/30 \times 9392,982} = 2970,322$

Safety Stock =  $3806,62 = 3$

TABLE 5: DRP Period November 2017 - October 2018 in Central Java by applying SS.

| DRP Produk ABC Regional Jawa Tengah |        |          |                              |       |       |        |       |       |       |       |       |        |        |       |       |
|-------------------------------------|--------|----------|------------------------------|-------|-------|--------|-------|-------|-------|-------|-------|--------|--------|-------|-------|
| POH                                 | 100    | Past Due | November 2017 - Oktober 2018 |       |       |        |       |       |       |       |       |        |        |       |       |
| Safety Stock                        | 2163   | Due      | 1                            | 2     | 3     | 4      | 5     | 6     | 7     | 8     | 9     | 10     | 11     | 12    | Total |
| Lot Size                            |        |          | 1                            | 2     | 3     | 4      | 5     | 6     | 7     | 8     | 9     | 10     | 11     | 12    | Total |
| Lead Time                           | 3 days |          |                              |       |       |        |       |       |       |       |       |        |        |       |       |
| Gross Requirement                   |        |          | 2,800                        | 4,500 | 600   | 10,000 | 6,000 | 300   | 9,000 | 4,000 | 7,000 | 10,300 | 20,000 | 5,600 |       |
| Scheduled Receipts                  |        |          |                              |       |       |        |       |       |       |       |       |        |        |       |       |
| Projected on Hand                   |        | 100      | 2,163                        | 2,163 | 2,163 | 2,163  | 2,163 | 2,163 | 2,163 | 2,163 | 2,163 | 2,163  | 2,163  | 2,163 |       |
| Net Requirements                    |        |          | 2,700                        | 4,500 | 600   | 10,000 | 6,000 | 300   | 9,000 | 4,000 | 7,000 | 10,300 | 20,000 | 5,600 |       |
| Planned Order Receipts              |        |          | 4,863                        | 4,500 | 600   | 10,000 | 6,000 | 300   | 9,000 | 4,000 | 7,000 | 10,300 | 20,000 | 5,600 |       |
| Planned Order Released              |        |          | 4,863                        | 4,500 | 600   | 10,000 | 6,000 | 300   | 9,000 | 4,000 | 7,000 | 10,300 | 20,000 | 5,600 |       |
| Ukuran Slot                         |        |          |                              |       |       |        |       |       |       |       |       |        |        |       |       |
| 1 KG (Rp. 20000)                    |        |          | 59                           | 54    | 8     | 120    | 72    | 4     | 108   | 48    | 84    | 124    | 240    | 68    | 989   |

Biaya Transportasi = Rp. 20.000 x 989 = Rp. 19.780.000

Biaya Pemesanan = 12 x Rp. 5.000 = Rp. 60.000

Biaya Gudang = Rp. 0

Total Biaya Pengadaan = Rp. 19.780.000 + Rp. 60.000 = Rp. 19.840.000

Setelah dilakukan perhitungan DRP dengan menerapkan SS dengan SL 90% untuk menghindari stock out pada produk ABC dari PT XYZ ke gudang regional JATENG diketahui bahwa perusahaan hanya memerlukan biaya pengadaan sebesar Rp. 19.840.000 yang berarti lebih tinggi Rp. 390.000

TABLE 6: DRP Period November 2017 - October 2018 in East Java by applying SS.

| DRP Produk ABC Regional Jawa Timur |        |          |       |       |        |        |        |        |        |        |        |        |        |        |       |
|------------------------------------|--------|----------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| November 2017 - Oktober 2018       |        |          |       |       |        |        |        |        |        |        |        |        |        |        |       |
| POH                                | 100    | Past Due | 1     | 2     | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | Total |
| Safety Stock                       | 4189   |          |       |       |        |        |        |        |        |        |        |        |        |        |       |
| Lot Size                           |        |          |       |       |        |        |        |        |        |        |        |        |        |        |       |
| Lead Time                          | 3 days |          |       |       |        |        |        |        |        |        |        |        |        |        |       |
| Gross Requirement                  |        |          | 2,000 | 2,900 | 4,750  | 28,500 | 11,400 | 1,000  | 21,700 | 6,500  | 27,800 | 25,500 | 11,000 | 13,000 |       |
| Scheduled Receipts                 |        |          |       |       |        |        |        |        |        |        |        |        |        |        |       |
| Projected on Hand                  | 100    |          | 2,163 | 2,163 | 2,163  | 2,163  | 2,163  | 2,163  | 2,163  | 2,163  | 2,163  | 2,163  | 2,163  | 2,163  |       |
| Net Requirements                   |        |          | 1,900 | 2,900 | 4,750  | 28,500 | 11,400 | 1,000  | 21,700 | 6,500  | 27,800 | 25,500 | 11,000 | 13,000 |       |
| Planned Order Receipts             |        |          | 6,089 | 2,900 | 4,750  | 28,500 | 11,400 | 1,000  | 21,700 | 6,500  | 27,800 | 25,500 | 11,000 | 13,000 |       |
| Planned Order Released             |        | 6,089    | 2,900 | 4,750 | 28,500 | 11,400 | 1,000  | 21,700 | 6,500  | 27,800 | 25,500 | 11,000 | 13,000 |        |       |
| Ukuran Slot                        |        |          |       |       |        |        |        |        |        |        |        |        |        |        |       |
| 1 KG (Rp. 12000)                   |        |          | 74    | 35    | 57     | 342    | 137    | 12     | 261    | 78     | 334    | 306    | 132    | 156    | 1924  |

Biaya Transportasi : Rp. 12.000 x 1924 = Rp. 23.088.000  
 Biaya Pemesanan : 12 x Rp. 5.000 = Rp. 60.000  
 Biaya Gudang : Rp. 0  
 Total Biaya Pengadaan : Rp. 23.088.000 + Rp. 60.000 = Rp. 23.148.000

Setelah dilakukan perhitungan DRP dengan menerapkan SS dengan SL 90% untuk menghindari stock out pada produk ABC dari PT XYZ ke gudang regional JATIM diketahui bahwa perusahaan hanya memerlukan biaya pengadaan sebesar Rp. 23.148.000 yang berarti lebih tinggi Rp. 480.000.

TABLE 7: DRP Period November 2017 - October 2018 in West Java by applying SS.

| DRP Produk ABC Regional Jawa Barat |        |          |       |       |       |        |        |        |       |        |        |        |        |        |       |
|------------------------------------|--------|----------|-------|-------|-------|--------|--------|--------|-------|--------|--------|--------|--------|--------|-------|
| November 2017 - Oktober 2018       |        |          |       |       |       |        |        |        |       |        |        |        |        |        |       |
| POH                                | 100    | Past Due | 1     | 2     | 3     | 4      | 5      | 6      | 7     | 8      | 9      | 10     | 11     | 12     | Total |
| Safety Stock                       | 3807   |          |       |       |       |        |        |        |       |        |        |        |        |        |       |
| Lot Size                           |        |          |       |       |       |        |        |        |       |        |        |        |        |        |       |
| Lead Time                          | 3 days |          |       |       |       |        |        |        |       |        |        |        |        |        |       |
| Gross Requirement                  |        |          | 1,500 | 5,200 | 4,900 | 4,000  | 12,900 | 35,800 | 9,500 | 9,200  | 15,000 | 17,100 | 2,200  | 13,400 |       |
| Scheduled Receipts                 |        |          |       |       |       |        |        |        |       |        |        |        |        |        |       |
| Projected on Hand                  | 100    |          | 3,807 | 3,807 | 3,807 | 3,807  | 3,807  | 3,807  | 3,807 | 3,807  | 3,807  | 3,807  | 3,807  | 3,807  |       |
| Net Requirements                   |        |          | 1,400 | 5,200 | 4,900 | 4,000  | 12,900 | 35,800 | 9,500 | 9,200  | 15,000 | 17,100 | 2,200  | 13,400 |       |
| Planned Order Receipts             |        |          | 5,207 | 5,200 | 4,900 | 4,000  | 12,900 | 35,800 | 9,500 | 9,200  | 15,000 | 17,100 | 2,200  | 13,400 |       |
| Planned Order Released             |        | 5,207    | 5,200 | 4,900 | 4,000 | 12,900 | 35,800 | 9,500  | 9,200 | 15,000 | 17,100 | 2,200  | 13,400 |        |       |
| Weight                             |        |          |       |       |       |        |        |        |       |        |        |        |        |        |       |
| 1 KG (Rp. 15000)                   |        |          | 63    | 63    | 59    | 48     | 153    | 430    | 114   | 111    | 180    | 206    | 27     | 161    | 1615  |

Biaya Transportasi : Rp. 15.000 x 1615 = Rp. 24.225.000  
 Biaya Pemesanan : 12 x Rp. 5.000 = Rp. 60.000  
 Biaya Gudang = Rp. 0  
 Total Biaya Pengadaan : Rp. 24.225.000 + Rp. 60.000 = Rp. 24.285.000

Setelah dilakukan perhitungan DRP dengan menerapkan SS dengan SL 90% untuk menghindari stock out pada produk ABC dari PT XYZ ke gudang regional JABAR diketahui bahwa perusahaan hanya memerlukan biaya pengadaan sebesar Rp. 24.285.000 yang berarti lebih tinggi Rp. 450.000.

### 3.2. Forecasting

Data Peramalan Permintaan Periode 2018/2019

| JATENG 2018/2019 |       | JATIM 2018/2019 |        | JABAR 2018/2019 |        |
|------------------|-------|-----------------|--------|-----------------|--------|
| Bulan            | Pcs   | Bulan           | Pcs    | Bulan           | Pcs    |
| Nov-18           | 2753  | Nov-18          | 1967   | Nov-18          | 1475   |
| Dec-18           | 5143  | Dec-18          | 3028   | Dec-18          | 5429   |
| Jan-19           | 656   | Jan-19          | 5189   | Jan-19          | 5353   |
| Feb-19           | 10694 | Feb-19          | 30478  | Feb-19          | 4278   |
| Mar-19           | 6352  | Mar-19          | 12068  | Mar-19          | 13656  |
| Apr-19           | 328   | Apr-19          | 1091   | Apr-19          | 39036  |
| May-19           | 9777  | May-19          | 23571  | May-19          | 10319  |
| Jun-19           | 4119  | Jun-19          | 6693   | Jun-19          | 9472   |
| Jul-19           | 7598  | Jul-19          | 30174  | Jul-19          | 16281  |
| Aug-19           | 10790 | Aug-19          | 26714  | Aug-19          | 17914  |
| Sep-19           | 21444 | Sep-19          | 11794  | Sep-19          | 2359   |
| Oct-19           | 6048  | Oct-19          | 14038  | Oct-19          | 14470  |
| TOTAL            | 85702 | TOTAL           | 166805 | TOTAL           | 140042 |

Sumber: Pengolahan Data (2018)

### 3.3. Safety Stock 2018/2019 Calculation

Data Safety Stock Periode 2018/2019

| JATENG 2018/2019 |          | JATIM 2018/2019 |          | JABAR 2018/2019 |          |
|------------------|----------|-----------------|----------|-----------------|----------|
| Bulan            |          | Bulan           |          | Bulan           |          |
| Nov-18           | 42.59111 | Nov-18          | 29.9044  | Nov-18          | 22.65485 |
| Dec-18           | 582.6826 | Dec-18          | 115.9928 | Dec-18          | 207.5184 |
| Jan-19           | 50.74685 | Jan-19          | 397.8191 | Jan-19          | 410.5058 |
| Feb-19           | 628.8985 | Feb-19          | 1792.451 | Feb-19          | 251.9219 |
| Mar-19           | 318.9802 | Mar-19          | 605.3375 | Mar-19          | 685.0825 |
| Apr-19           | 25.37343 | Apr-19          | 82.46364 | Apr-19          | 2932.443 |
| May-19           | 704.1126 | May-19          | 1695.489 | May-19          | 742.1727 |
| Jun-19           | 107.8371 | Jun-19          | 174.8954 | Jun-19          | 246.4847 |
| Jul-19           | 541.9039 | Jul-19          | 2151.304 | Jul-19          | 1160.834 |
| Aug-19           | 444.035  | Aug-19          | 1100.119 | Aug-19          | 737.6418 |
| Sep-19           | 1308.544 | Sep-19          | 719.5179 | Sep-19          | 144.0848 |
| Oct-19           | 405.9748 | Oct-19          | 940.6292 | Oct-19          | 969.6274 |

Sumber: Pengolahan Data (2018)



TABLE 8: DRP Period November 2018 - October 2019 in Central Java by Applying Safety Stock.

| DRP Produk ABC Regional Jawa Timur |        |          |                              |       |        |        |        |        |        |        |        |        |        |        |       |
|------------------------------------|--------|----------|------------------------------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| POH                                | 100    | Past Due | November 2018 - Oktober 2019 |       |        |        |        |        |        |        |        |        |        |        | Total |
| Safety Stock                       | SL     |          | 1                            | 2     | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     |       |
| Lot Size                           |        |          |                              |       |        |        |        |        |        |        |        |        |        |        |       |
| Lead Time                          | 3 days |          |                              |       |        |        |        |        |        |        |        |        |        |        |       |
| Gross Requirement                  |        |          | 1,967                        | 3,028 | 5,189  | 30,478 | 12,068 | 1,091  | 23,571 | 6,693  | 30,174 | 26,714 | 11,794 | 14,038 |       |
| Scheduled Receipts                 |        |          |                              |       |        |        |        |        |        |        |        |        |        |        |       |
| Projected on Hand                  | 100    |          | 30                           | 116   | 398    | 1,793  | 606    | 83     | 1,696  | 175    | 2,152  | 1,101  | 720    | 941    |       |
| Net Requirements                   |        |          | 1,867                        | 2,998 | 5,073  | 30,080 | 10,275 | 485    | 23,488 | 4,997  | 29,999 | 24,562 | 10,693 | 13,318 |       |
| Planned Order Receipts             |        |          | 1,897                        | 3,114 | 5,471  | 31,873 | 10,881 | 568    | 25,184 | 5,172  | 32,151 | 25,663 | 11,413 | 14,259 |       |
| Planned Order Released             |        | 1,897    | 3,114                        | 5,471 | 31,873 | 10,881 | 568    | 25,184 | 5,172  | 32,151 | 25,663 | 11,413 | 14,259 |        |       |
|                                    |        |          | Weight                       |       |        |        |        |        |        |        |        |        |        |        |       |
| 1 KG (Rp. 12000)                   |        |          | 23                           | 38    | 66     | 383    | 131    | 7      | 303    | 63     | 386    | 308    | 137    | 172    | 2017  |

$ROP = (D/n) \times L = (166.805/300) \times 3 \text{ hari} = 1668 \text{ pcs}$   
 Biaya Transportasi : Rp. 12.000 x 2017 = Rp. 24.204.000  
 Biaya Pemesanan = 12 x Rp. 5.000 = Rp. 60.000  
 Biaya Gudang = Rp. 0  
 Total Biaya Pengadaan = Rp. 24.264.000

Setelah dilakukan perhitungan DRP dengan menerapkan safety stock untuk produk ABC dari PT XYZ ke gudang regional JATIM diketahui bahwa hasil ROP 1668 pcs dengan biaya transportasi yang dikeluarkan perusahaan Rp. 24.204.000, biaya pemesanan Rp.60.000 dan total biaya pengadaan ialah Rp. 24.264.000

TABLE 9: DRP Period November 2018 - October 2019 in East Java by implementing safety stock.

| DRP Produk ABC Regional Jawa Tengah |        |          |                              |       |        |        |       |        |        |       |        |        |        |       |       |
|-------------------------------------|--------|----------|------------------------------|-------|--------|--------|-------|--------|--------|-------|--------|--------|--------|-------|-------|
| POH                                 | 100    | Past Due | November 2018 - Oktober 2019 |       |        |        |       |        |        |       |        |        |        |       | Total |
| Safety Stock                        | SL     |          | 1                            | 2     | 3      | 4      | 5     | 6      | 7      | 8     | 9      | 10     | 11     | 12    |       |
| Lot Size                            |        |          |                              |       |        |        |       |        |        |       |        |        |        |       |       |
| Lead Time                           | 3 days |          |                              |       |        |        |       |        |        |       |        |        |        |       |       |
| Gross Requirement                   |        |          | 2,753                        | 5,143 | 656    | 10,694 | 6,352 | 328    | 9,777  | 4,119 | 7,598  | 10,790 | 21,444 | 6,048 |       |
| Scheduled Receipts                  |        |          |                              |       |        |        |       |        |        |       |        |        |        |       |       |
| Projected on Hand                   | 100    |          | 43                           | 583   | 51     | 629    | 319   | 26     | 705    | 108   | 542    | 445    | 1,309  | 406   |       |
| Net Requirement                     |        |          | 2,653                        | 5,100 | 73     | 10,643 | 5,723 | 9      | 9,751  | 3,414 | 7,490  | 10,248 | 20,999 | 4,739 |       |
| Planned Order Receipts              |        |          | 2,696                        | 5,683 | 124    | 11,272 | 6,042 | 35     | 10,456 | 3,522 | 8,032  | 10,693 | 22,308 | 5,145 |       |
| Planned Order Released              |        | 2,696    | 5,683                        | 124   | 11,272 | 6,042  | 35    | 10,456 | 3,522  | 8,032 | 10,693 | 22,308 | 5,145  |       |       |
|                                     |        |          | Weight                       |       |        |        |       |        |        |       |        |        |        |       |       |
| 1 KG (Rp. 20000)                    |        |          | 33                           | 69    | 2      | 136    | 73    | 1      | 126    | 43    | 97     | 129    | 268    | 62    | 1039  |

$ROP = (D/n) \times L = (85.702/300) \times 3 = 857 \text{ pcs}$   
 Biaya Transportasi : Rp. 20.000 x 1039 = Rp. 20.780.000  
 Biaya Pemesanan : 12 x Rp.5.000 = Rp.60.000  
 Biaya Gudang : Rp. 0  
 Total Biaya Pengadaan : Rp. 20.840.000

Setelah dilakukan perhitungan DRP dengan menerapkan safety stock untuk produk ABC dari PT XYZ ke gudang regional JATENG diketahui bahwa hasil ROP 857 pcs dengan biaya transportasi yang dikeluarkan perusahaan Rp. 20.780.000, biaya pemesanan 60.000, dan total biaya pengadaan ialah Rp. 20.840.000

### 4. Conclusion

According to this research, some points of conclusion are:

1. Safety stock to 2017/2018 period for Central Java Regional 2163 pcs, East Java 4189 pcs and West Java 3807 pcs.

2. ABC product scheduling plan for 2017/2018 using DRP table can be shown in table 4.13 for Central Java, table 4.14 for East Java, and 4.14 for West Java with distribution cost:

- Central Java: Rp. 19.840.000
- East Java: Rp. 23.148.000
- West Java: Rp. 24.285.000

For advisable forecasting use Bayes Theorem

3. *Safety stock* for 2018/2019 with service level 90% as below:

4. ABC product scheduling plan for 2017/2018 using DRP table can be shown in table 4.19 for Cental Java, 4.20 for East Java, and 4.21 for East Java with distribution cost as below:

- For Central Java, cost Rp. 20.840.000, Which ROP when 857 pcs
- For East Java, cost Rp. 24.264.000, which ROP when 1668 pcs
- For West Java, cost Rp. 25.515.000, which ROP when 1400 pcs

## 5. Recommendation

There is some recommendation that can be company's consideration and hopefully can help the company as below:

1. PT. XYZ apply demand forecasting to calculate demand trend to ABC product. The advisable method is Bayes Theorem.
2. PT. XYZ rearrange their ABC product production and distribution system in central level to the regional level, and hopefully, the DRP method can be compony consideration to be applied.
3. The company gives more attention to safety stock, especially at the regional level, because it harms the company of stock out happened in regional while in the main warehouse there are excessive products.
4. The company applied ROP when they want to re-order the product.

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## Conference Paper

# Ethical Practice Disclosure of Malaysian Public Listed Companies

Ahmad Firdhauz Zainul Abidin<sup>1</sup>, Hafiza Aishah Hashim<sup>1</sup>, Zalailah Salleh<sup>1</sup>, and Susela Devi<sup>2</sup>

<sup>1</sup>School of Maritime Business and Management, Universiti Malaysia Terengganu, 21030, Kuala Terengganu, Terengganu, Malaysia

<sup>2</sup>Sunway University, No. 5, Jalan Universiti, Bandar Sunway, 47500 Selangor Darul Ehsan, Malaysia

## Abstract

The Malaysian corporate environment has been shocked by corporate scandals and poor performance among government-related companies, such as 1Malaysia Development Berhad (1MDB), Lembaga Tabung Haji (LTH), Felda Global Ventures (FGV) and Khazanah Nasional Berhad (KHAZANAH). Despite having strong corporate governance and being strengthened through Malaysia Code of Corporate Governance (MCCG), unethical practices and a lack of transparency remain a problem among Malaysian companies. The purpose of this paper is to examine the level of disclosure of ethical practices among Malaysian public listed companies. Ethical practice disclosure is measured using the modified Ethical Commitment Index (ECI) with six themes derived from the literature; notably, corporate ethical values, action to promote ethics, whistle-blowing policy, code of ethics, sustainability practices, and ethics committee. Through content analysis of the annual reports of 1,115 companies and five years' observation (2012-2016), this study found there is a need to improve several aspects of ethical practice disclosure. The findings implied that companies supported the MCCG, with most of the companies complying with the recommendations of MCCG 2012 to uphold a high standard of ethical practice. However, supplementary practices, such as disciplinary action, programmes to support a code of ethics, whistle-blowers' protection, and establishing an ethics committee, are still weak. The findings indicate that the level of ethical practice disclosure among Malaysian public listed companies remains low and raises concern that requires action by regulators. This paper contributes by providing insights into the disclosure of ethical practice among Malaysian public companies.

**Keywords:** ethics, MCCG 2012, disclosure, whistle-blowing, commitment, sustainability.

## 1. Introduction

A decade after the global financial crisis in 2008, and despite significant regulations to strengthen corporate governance, issues related to unethical practices remain unresolved. Over two decades, corporations around the world have witnessed major events, such as the 1997 Asian financial crisis; corporate failures, such as Enron and WorldCom in 2000; the global financial crisis in 2008; and numerous accounts of corporate financial

Corresponding Author:  
Hafiza Aishah Hashim  
hafizaashah@umt.edu.my

Received: 5 August 2019  
Accepted: 14 August 2019  
Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

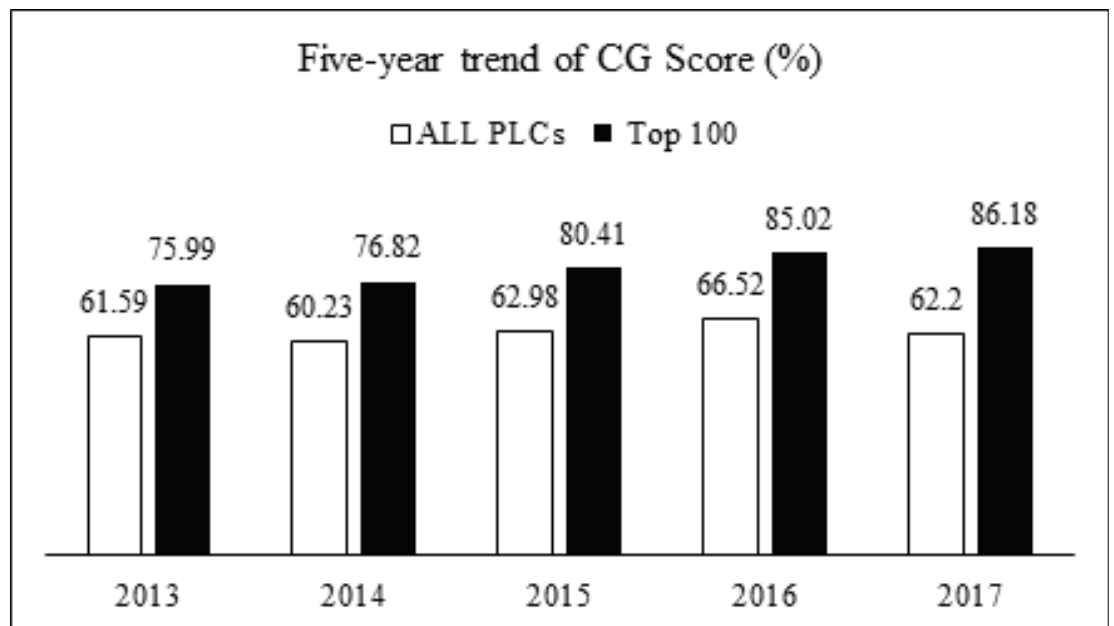


scandals. In Malaysia, recent corporate scandals involving the Malaysian government-owned companies, for example, 1Malaysia Development Berhad (1MDB) and Lembaga Tabung Haji, and the recent financial losses reported by Khazanah Nasional Berhad, provide evidence that despite sound corporate governance initiatives by the regulators, the unethical conduct or mismanagement by managers is yet to be resolved. In the case involving Khazanah Nasional Berhad, Malaysia's sovereign wealth fund, in 2018, it announced a loss before tax of RM 6.27 billion. The cause of such a loss was due to investment in companies with poor performance, including Malaysia Airlines and Telekom Malaysia Berhad (Leong, 2019). In the case of Lembaga Tabung Haji, in 2016, the institution for pilgrimage funds stands accused of mismanaging funds amounting to RM4 billion for political purposes (The Straits Times, 2018).

From such recent examples, even large companies related to the government cannot escape issues such as mismanagement and unethical conduct. Such issues can arise from weak corporate governance at the institutional level and can expose companies to the risk of losing their reputation, business relations, and financial losses. The recent survey by PricewaterhouseCoopers (PwC), in the Global Economic Crime Survey Malaysian Report 2018, revealed that fraud cases increased to 41 percent in 2018 compared to a similar survey conducted in 2016 when the figure was 18 percent. Besides, regarding bribery and corruption, the report showed an increase from 30 percent in 2016 to 35 percent in 2018 (PricewaterhouseCoopers, 2018).

The new Malaysian government, after the 14<sup>th</sup> General Election, has taken initiatives to combat such misconduct, corruption, and bribery by introducing the National Anti-Corruption Plan 2019-2023 or NACP. NACP was launched as a commitment by the Malaysian government to create a nation free of corruption, that is highly transparent, and of high integrity. The issues highlighted in the NACP report include institutions that lack independence that result in corporate scandals, a lack of punishment of offenders, and a lack of monitoring due to constraints of resources. The NACP also highlighted that 80 percent of the complaints received by the Malaysian Anti-Corruption Council (MACC) are related to manipulating procedures, conflicts of interest, and a lack of internal control and transparency (Prime Minister's Department, 2019). The areas identified that pose a risk involving corruption include political governance, the public sector, legal and judicial, law enforcement, and corporate governance. In relation to corporate governance, the worst-case scenario anticipated is that of unethical behaviour and corruption becoming the norm in corporations; thus, influencing the corporate culture from top to bottom, and, ultimately, affecting the economy of the whole country.

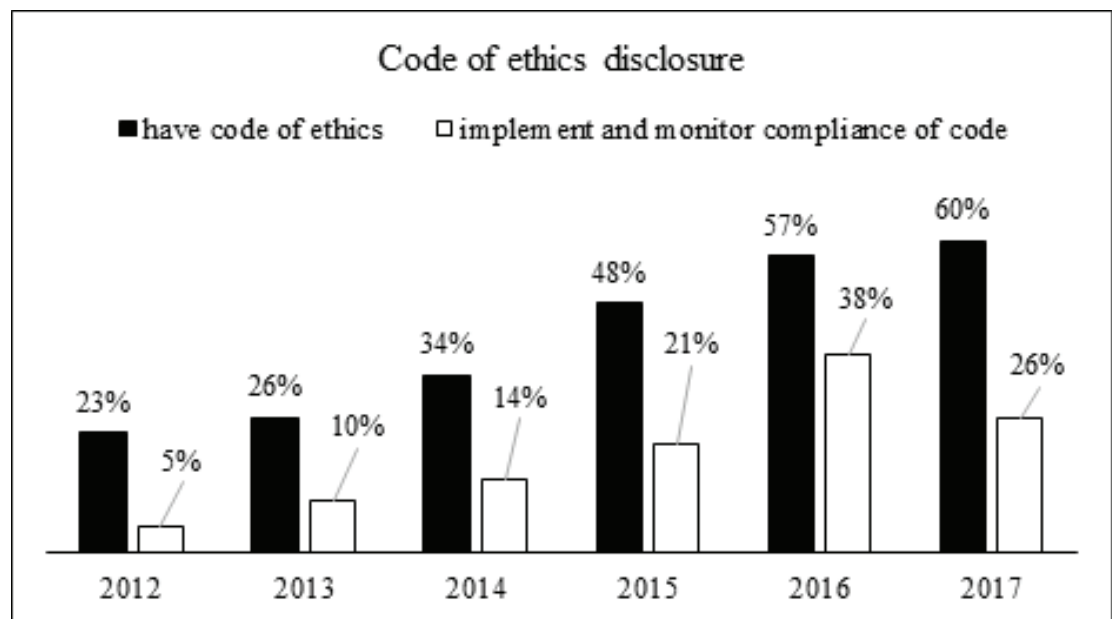
The 2014 ASEAN Corporate Governance Scorecard (ACGS) reported a lack of transparency regarding the MCCG compliance statement and ethical practice (Asian Development Bank, 2014), while the 2016 Malaysian-ASEAN Corporate Governance Scorecard reported that 80 percent of Malaysian companies had improved their transparency in terms of corporate governance (CG). However, transparency related to the code of ethics and whistle-blowing policies is still below 50 percent compared to CG and corporate social responsibility (CSR) disclosure (MSWG, 2017). Also, the more recent 2017 report of the Malaysia-ASEAN Corporate Governance Scorecard provides evidence that there was an increase in the corporate governance practices in the five years from 2013 to 2017 (MSWG, 2018). However, in 2017, the score fell slightly from 66.52 in 2016 to 62.20 percent for all public listed companies; as presented in Figure 1.



**Figure 1:** Five-year Trend of Corporate Governance (CG) Score (Source: Malaysia-ASEAN Corporate Governance Report from 2012 to 2018).

In addition, the 2017 report presents that only 11 percent of a total of 880 companies have anti-corruption policies compared to the 2016 report, where 28 percent of companies had such a policy. Although in 2017 the number of companies with a code of ethics was 528 or 60 percent, as compared to the 2016 report, where 57 percent out of 868 companies had a code of ethics, implementation of the code of ethics in companies dropped from 38 percent in 2016 to 26 percent in 2017; as presented in Figure 2.

While the overall CG score increased, compared to other listed companies, it was only the top companies that had better disclosure, which implies that awareness in disclosing ethical practices is still low among the companies (Salin & Ismail, 2015). The lack of disclosure related to corporate ethical conduct signals that unethical practices are



**Figure 2:** Disclosure of the Code of Ethics From 2012 to 2017 (Source: Malaysia-ASEAN Corporate Governance Report from 2012 to 2018).

still a problem for the Malaysian corporate sector, which is consistent with the concerns of the NACP about the lack of control and transparency in corporate governance.

Therefore, this paper is motivated to examine the level of ethical practice disclosure based on its reporting in the annual reports. This paper reviews past literature related to ethical commitment to building the ethical indicators for measuring the disclosure level of ethics in Malaysia. By examining 1,115 companies over five years (2012 to 2016), the study provides evidence that ethical practices need to be reviewed and improved by the business players and regulators. This paper contributes by providing insights into the trend of ethics practiced by Malaysian public listed companies. The following section discusses the literature review related to ethical commitment, while the next section discusses the methodology of the research. Descriptive and trend analysis are discussed in the findings section, and the final section presents the overall conclusion of this paper.

## 2. Literature Review

### 2.1. Ethical Commitment

Commitment can be defined as a sense of loyalty to a social system (Kanter, 1968). It can also be described as the belief of any individual to achieve mutual benefit through loyalty to society (Wiener, 1982). Meanwhile, ethics is defined as the ability



to distinguish between right and wrong in the decision-making process (Ferrell et al., 2011, pp.7). Combining these two words, the concept of ethical commitment is derived as a willingness to do something based on moral judgment and action towards goodness in maintaining the relationship with the stakeholders. Ethical commitment in organizations should be embedded in individuals invoking a sense of awareness of ethical behaviour while showing commitment to the organization (Ebrahim & Ahmadi, 2012), thus creating a safer corporate environment and increasing the productivity in operations.

The concept of ethics can be intertwined with corporate governance (Othman, Rahman & Shamsudin, 2012). For instance, ethics-related concepts, such as corporate integrity, anti-corruption, compliance, and transparency, have regularly been emphasized in codes of corporate governance. By integrating ethical practices, for example, code of ethics, ethics training, and whistle-blowing policy into the company's governance, it provides effective tools for monitoring control (Merchant & White, 2017). Therefore, a company's ethical commitment can provide sound corporate governance practices and promote ethical practices that can prevent unethical behaviour.

Companies that exhibit ethical conduct in operations also receive financial benefits (Abidin, Hashim & Ariff, 2017; Karim, Suh & Tang, 2016; Berrone, Surocca & Tribo, 2007; Donker Poff, & Zahir, 2008). This is because ethical practices will attract more shareholders, thus enhancing the company's value (Graves & Waddock, 1994). With more ethics-related information provided by companies, the investor can assess that information as to their investment portfolio (Donker et al., 2008). Karim et al., (2016) provide evidence that companies' ethics-related news created values toward shareholders as they received a positive market reaction. Abidin et al. (2017) illustrated that Malaysian companies with high ethical commitment received higher profits. An empirical study by Pae & Choi (2011) in South Korea shared a similar view as they found companies with ethical commitment able to reduce the cost of capital. From literature related to ethical commitment, it is proven that companies with a high level of ethics able to attract both stakeholders and shareholders.

The area of ethical commitment has been reviewed by prior studies with a variety of measurements and perspectives. Several components of ethics programmes have become instruments to measure ethical commitment. The earlier study by Brenner (1992) categorizes ethics programmes into two dimensions – formal and informal. The formal dimension includes a code of ethics, employees' training, and seminars, while the informal dimension includes corporate culture, leadership, and management behaviour. Weaver, Trevino, and Cochran (1999) provide six components of ethics programmes:

code of ethics, disciplinary action against unethical behaviour, ethics training, ethics committees, ethics communications programmes, and ethics officers.

Meanwhile, Remišová (2015), cited in Remišová, Lašáková and Kirchmayer (2018), finalizes the ethics components gathered from the literature, which are ethics documentation, reporting mechanisms, ethics education, ethics authorities/committees or officers, and monitoring/control mechanisms. Other researchers, such as Whyatt, Wood, and Callaghan (2012), and Callaghan, Wood & Svensson (2008), review the supporting measures of code of ethics including communication of the codes, ethics training, whistle-blowing procedures, ethics committee, and employee appraisal programmes as a commitment to ethical practices.

### 2.1.1. Corporate ethics values

Corporate ethics values or core values are the foundation of the ethics culture in companies. Ethical values can be channeled through the company's vision, and mission statements (Melé, Debeljuh & Arruda, 2006), and the statements can be considered to be the company's ethical orientation and strategy. The corporate mission statement is recognized as the "heart" of any organisation, as it upholds the organisation's core values (Craft, 2018). Ethical values include integrity, courage, compassion, loyalty, honesty, forgiveness, trust, optimism, and resilience (Laouisset, 2009), which are promoted in companies to create a healthy business environment. Moreover, disseminating or promoting a company's ethical values to the company's stakeholders can be seen as a strategy to gain a competitive advantage. Disclosing information about ethics as a company strategy can create values for shareholders (Ho & Taylor, 2013). Malaysian companies are aware of the importance of disclosures related to corporate strategies (Zaini, Sharma, Samkin & Davey, 2019). Therefore, it is crucial for management to be highly committed and support ethics values as it can form ethical culture within organisations (Driskill, Chatham-Carpenter & McIntyre, 2019) and create value for companies.

### 2.1.2. Action to promote ethics

In order to create an ethical culture, the implementation of ethics programmes is significant for organizations (Schwartz, 2013). An ethical culture can be implemented effectively when companies provide their core values through suitable programmes and leadership commitment towards ethics (Schwartz, 2013). For example, when companies provide certain ethical policies, implementation through a formal programme – ethics

training, appraisal (Svensson, Wood & Callaghan, 2010), or disciplinary action (Weaver et al., 1999; Trevino & Nelson, 2013, pp. 256) – it will ensure that ethical values are being practised; thus, showing the company's commitment to support an ethical culture (Whyatt et al., 2012). Therefore, ethics programmes should be part of the mechanism to promote an ethical culture in companies. Managers are responsible for ensuring that ethical behaviour is being practiced in the company, and that unethical behaviour is strictly prohibited.

### 2.1.3. Whistle-blowing policy

Corporate disclosure and transparency become more significant for a company to operate ethically in the marketplace. The whistle-blowing policy provides a platform for any person, either inside or outside the organization, to report any misconduct they witness during business dealings (Near and Miceli, 1985). However, the implementation of a whistle-blowing policy presents several challenges especially in the Malaysian environment (Nawawi & Salin, 2019; Rachagan & Kuppusamy, 2013). The challenges include a sense of loyalty among employees at different levels of power between top management and employees, fear of retaliation, and an attitude of not interfering with others' personal affairs (Nawawi & Salin, 2019; Rachagan & Kuppusamy, 2013). Such challenges become reasons for the ineffectiveness of whistle-blowing policy practised in Malaysian companies. Therefore, to ensure that a whistle-blowing policy can be implemented effectively, several programmes should be considered.

Companies can provide a safer platform for employees to express their concerns about ethical conduct through an open communication channel or ethics hotline (Rachagan & Kuppusamy, 2015). Moreover, having a whistle-blowers' protection programme, will help employees gain confidence in reporting misconduct without any fear (Lee & Fragher, 2012; Singh, 2011). As part of supporting the recommendations of MCCG, companies should adequately implement the whistle-blowing policy as it will result in a good and healthy corporate culture and reduce the risk of misconduct. Moreover, employees will find it more convenient to report any misconduct if the company publishes such a policy on the corporate website. By disclosing information, such as procedures, requirements, channels, and protection on the website, it signals to the stakeholders that the company is committed to combating misconduct (Dhamija, 2014).

#### 2.1.4. Code of ethics

Ethical commitment can also be shown by management through formalizing and promoting a code of ethics. To ensure compliance with such a code, it should be understandable by the management and employees and create awareness of the importance to comply with the code (Donker, Poff & Zahir, 2008). A formal code of ethics in companies can affect the morale of employees (Whyatt et al., 2012), create a strong ethical culture, and prevent unethical behaviour (Merchant & White 2017; Garegnani, Merlotti & Russo, 2015) in business operations. Awareness of the code of ethics among employees can be achieved when companies continuously communicate the code of ethics (Donker et al., 2008). It is important for companies to constantly communicate their code of ethics to provide understanding among employees (Merchant and White, 2017; Whyatt et al., 2012). Therefore, it is important for companies to continually implement and observe the quality of code of ethics as it is one of the measures for ensuring the creation of ethical culture among the employees (Callaghan et al., 2008).

#### 2.1.5. Sustainability practices

Sustainability practices can be seen as tools to reduce conflicts of interest (Suttipun, 2018). Balancing the interests of the stakeholders and shareholders through sustainability practices creates value for companies (Bezares, Przychodzen, & Przychodzen, 2016; Lo & Sheu, 2007). Promoting sustainability practices was emphasized in MCCG 2017, as it is part of good corporate governance practices and a commitment to ethical behaviour. Promoting sustainability practices through reporting is not only in keeping with the mandatory regulations, but also promotes the attention of stakeholders and value (Platonova et al., 2018; Kasbun, Teh & Ong, 2016). Sustainability practices can be recognized as a commitment towards stakeholders (Rivera, Muñoz & Moneva, 2017). Contributions towards society and the environment can enhance the corporate image and reputation (Eger, Miller, & Scarles, 2019). It is important for companies to disclose their sustainability practices, as companies will gain a competitive advantage in the marketplace (Ching, Gerab & Toste 2014).

#### 2.1.6. Ethics committee

The ethics committee has a function to ensure that the ethics programme in the company is implemented effectively. The functions include to provide a platform for employees

or stakeholders to raise concerns regarding ethics, to develop an ethic's related policy, and to support, monitor, and evaluate ethics programmes (Arık, Kaptein & Karssing, 2018). Companies with an ethics committee will experience full awareness of, and compliance by the employees with the ethics programme and rules implemented by the company (Svensson et al., 2010). Establishment of an ethics committee reflects a company's commitment to supporting its employees regarding ethics training. It is also suggested that companies have ethics officers who are independent and have the function of managing and resolving ethical concerns among the employees (Singh, Wood, Callaghan, Svensson, & Andersson, 2018; Mpinganjira, Roberts-Lombard, Wood, & Svensson, 2016).

### 3. Methodology

#### 3.1. Sample selection

This study examines the ethical practice disclosure of 223 companies (Table 1) listed on the main board of Bursa Malaysia for five years, making a total of 1,115 company years for the period of observation (2012-2016). This study applies a systematic random sampling approach to select companies from a total population of 791 companies listed in 2016. The systematic sampling method is simple ways to select samples from large populations as the availability of sample target lists (Sekaran & Bougie, 2016). Only non-financial companies are included in the sample. While 52 companies from financial sector industries are excluded as they are imposed with other regulation and different accounting practice (Nuryanah & Islam, 2011; Ibrahim, Ahmad & Khan 2016). After excluding financial sectors, total companies listed was 739 companies. From Krejcie & Morgan sample size determination table, the sample size required was 253 companies (Krejcie & Morgan 1970). These 253 companies are randomly generated from Microsoft Excel by intervals of 3 from the lists. Each company are numbered accordingly and sorted randomly.

#### 3.2. Measuring ethical practice disclosure

To measure companies' ethical practice disclosure, content analysis was applied. Various statements regarding ethical practices in the annual reports were analysed in examining the companies' disclosure of their ethical practices. The ethical practice disclosure was measured using the Ethical Commitment Index (ECI) previously developed

TABLE 1: Final Sample Size Used in this Study.

|         | <b>Descriptions</b>              | <b>Number of companies</b> | <b>Total (2012-2016)</b> |
|---------|----------------------------------|----------------------------|--------------------------|
|         | Total population in 2016         | 791                        |                          |
| (minus) | <i>Financial Sector Industry</i> | 52                         |                          |
|         | <b>Population</b>                | <b>739</b>                 | <b>3785</b>              |
|         | <b>Sample size</b>               | <b>253</b>                 | <b>1265</b>              |
| (minus) | <i>Missing annual reports</i>    | 30                         |                          |
|         | <b>Final Sample</b>              | <b>223</b>                 | <b>1115</b>              |

by Choi and Jung (2008). Previous researchers had different approaches to measuring companies' ethical commitment. Verschoor (1998, 1999) attempt to measure companies' ethical commitment disclosure based on companies' code of ethics and transparency. Others review companies' code of ethics, whistle-blowing policy, ethics education, ethics committee, and employee appraisals (Whyatt et al., 2012; Callaghan et al., 2008; Remišová, 2015) as cited in Remišová, et al., (2018).

There are also studies that develop the instrument to measure companies' ethical commitment. ECI previously developed by Choi and Jung (2008) in South Korea as survey instruments with 11 items include code of ethics, ethics training, disciplinary action, and ethics committee. Later ECI adapted by Pae and Choi (2011) in similar settings to measure companies' ethical commitment disclosures. Abidin et al. (2017) adapted and extended ECI into 14 items by including MCCG requirements to measure ethical commitment disclosures among Malaysia public listed companies. Salin and Ismail (2015) also developed 8 items instrument to measure companies' ethical commitment disclosures based on MCCG 2012 requirements. While Salin et al., (2019) developed 64 items to measure ethical commitment practices based on MCCG 2012 and international guidelines, Vig and Dumičić (2016) developed 9 questionnaire items to measure the commitment to business ethics among companies in Costa Rica.

The index had been modified and adapted for the Malaysian corporate environment. The new modified ECI consists of six themes recognized from past literature, which includes 1) Corporate ethics values (CEV), 2) Action to promote ethics (ACT), 3) Whistle-blowing policy (WBP), 4) Code of ethics (CODE), 5) Sustainability practices (SUST), and 6) Ethics committee (ETH). Binary scoring method is used to score each item from companies' annual reports, where a score of 1 (one) is given if the item is disclosed, and zero (0) otherwise (Wan Abdullah et al., 2013; Zahid & Ghazali, 2015).

TABLE 2: Modified ECI.

| Theme | item  | Description  | Source   |
|-------|-------|--|--|
| CEV   | CEV1  | Top managers of this company regularly emphasize the importance of business ethics*                      | Choi & Jung, (2008); Pae & Choi, (2011);   |
|       | CEV2  | This company has an ethical philosophy and ethical values*   | Choi & Jung, (2008); Pae & Choi, (2011); Laouisset, (2009)   |
|       | CEV3  | This company is committed towards the highest standard of business practice                              | MCCG 2012  |
| ACT   | ACT1  | This company has a disciplinary system through which unethical behaviour is strictly punished*           | Merchant & White, (2017); Trevino & Nelson, (2013); Pae & Choi, (2011); Choi & Jung, (2008)              |
|       | ACT2  | This company provides training, workshops, and education related to ethics for the employees*            | Choi & Jung, (2008); Pae & Choi, (2011); Whyatt et al., (2012); Schwartz, (2013) Remišová et al., (2018) |
|       | ACT3  | This company has an employee appraisal programme to promote ethical conduct                              | Schwartz, (2013); Svensson et al., (2010)  |
| WBP   | WPP1  | This company has established a whistle-blowing policy  | Rachagan & Kuppusamy, (2015); Near & Miceli, (1985), MCCG 2012   |
|       | WPP2  | This company has an open communication channel for employees to get assistance regarding ethical issues* | Choi & Jung, (2008); Pae & Choi, (2011); Rachagan & Kuppusamy, (2015)                                    |
|       | WPP3  | This company has whistle-blower protection   | Nawawi & Salin, (2019); Rachagan & Kuppusamy, (2015)   |
|       | WPP4  | This company provides whistle-blowing policies on the website  | Lee & Fragher, (2012); Dhamija, (2014)   |
| CODE  | CODE1 | This company has a formal code of ethics*  | Choi & Jung, (2008); Pae & Choi, (2011)  |
|       | CODE2 | This company uses both formal and informal methods to communicate the code of ethics                     | Donker et al., (2008); Merchant & White, (2017); Whyatt et al., (2012); Remišová et al., (2018)          |
|       | CODE3 | This company has implemented a system to ensure compliance with the code of ethics                       | Jasevičienė, (2012); Donker et al., (2008);  |
|       | CODE4 | This company periodically revises its code of ethics   | MCCG (2012); Callaghan et al., (2008)  |
|       | CODE5 | The code of ethics is available on the company website   | Salin & Ismail, (2015)   |
| SUST  | SUST1 | This company is committed to sustainability practices  | Suttipun, (2018); Bezares et al., (2016); Lo & Sheu, (2007)  |
|       | SUST2 | This company regularly puts a significant portion of its profits toward philanthropy*                    | Choi & Jung, (2008); Pae & Choi, (2011); Eger et al., (2019)   |
|       | SUST3 | The sustainability practice report of this company is also available on the website                      | Ching et al., (2014); (Ali Khan, (2015)  |
| ETH   | ETH1  | This company has an ethics committee   | Remišová et al., (2018) Singh et al., (2018); Arık et al., (2018); Mpinganjira et al., (2016)            |
|       | ETH3  | This company has an independent ethics department and officers*  | Choi & Jung, (2008); Pae & Choi, (2011)  |

\* Items adapted from original ECI by Choi and Jung (2008). Original ECI developed with 11 items

## 4. Results and Discussion

This paper describes the descriptive analysis of the ethical practice disclosure proxy by ECI. Also, trend analysis, in which each of the themes and items is analyzed by each year, is also presented and discussed in the following subsections.

### 4.1. Corporate ethics values (CEV)

From Table 3, for the first item, CEV1, 148 companies (13.27%) have stated in their reports about the importance of the company conducting its business ethically. The remaining 967 (86.73%) companies did not disclose this item. For CEV2, 333 companies (29.87%) disclosed this item either in the company’s core values, vision and mission, or the company’s philosophy. The remaining 782 companies or 70.13 percent did not have core values or did not state any ethics-related views in their vision and mission statements. For CEV3, 917 companies (82.24%) disclosed this item, and 198 companies (17.76%) did not disclose this item.

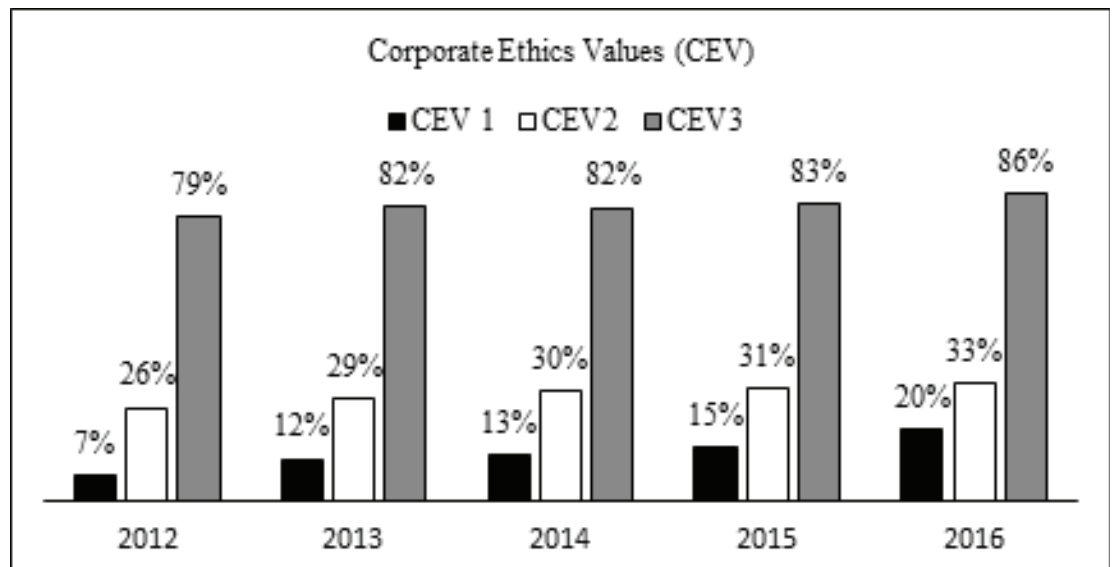
TABLE 3: Level of Disclosure for CEV (2012 - 2015).

| Items | Disclosed |       | Not Disclosed |       |
|-------|-----------|-------|---------------|-------|
|       | Freq.     | %     | Freq.         | %     |
| CEV1  | 148       | 13.27 | 967           | 86.73 |
| CEV2  | 333       | 29.87 | 782           | 70.13 |
| CEV3  | 917       | 82.24 | 198           | 17.76 |

Further analysis regarding the five-year trend (Figure 3) shows a slight increase for each item from year 2012 to 2016.

Although there is an increase in the number of companies that provide each item disclosed in their reports, regarding CEV1 and CEV2, the disclosure is still below 40 percent. The overall results regarding CEV provide evidence that disclosing the core values is not favourable among companies. However, the majority of the companies show their support for MCCG by providing a statement that they are committed towards business ethics. For instance, some companies explain the importance of best ethical practice (CEV1) to maintain their long-term business operations. Long-term business can be achieved as companies are able to build a strong relationship with their stakeholders. Meanwhile, other companies view that to comply with the regulations, ethical conduct is needed to maintain trust, and thus help the companies to gain corporate image and reputation.





**Figure 3:** Five-year Trend Analysis for CEV (n=223) (Source: Authors' own work).

*"...AMGB believes in adhering to the best practices of corporate governance to sustain business efficiency and sustainability in the long term. Evidence for this can be found in the fact that the Group has consistently upheld the integrity of business practices..."* (Chairman - Asia Media Group Berhad, 2016, pp.7)

*"...The Group ensures that our top management takes a clear position on the central importance of corporate ethics and legal compliance in corporate management. It is a principle that we uphold to ensure everyone in the Group advocates responsibility, fairness and high ethical standards, and to always act in accordance with the law to maintain trust..."* (Frontkent Corporations Berhad, 2016, pp.20)

The corporate values and philosophy (CEV2) can be found in the company's mission and vision statement or board statement. Some companies provide a statement that conducting ethical business is the fundamental element of their company's mission and vision. Shared values, such as integrity, honesty, and respect, are the basic elements to form their company's ethical norms and culture. For example, such disclosures can be found in the annual reports of both Alam Maritim Resource Berhad and Boon Koon Group Berhad:

*".. The Group's philosophy, which is anchored to its Vision, Mission Statement, Shared Values and Cultural Beliefs, provide the fundamental guidance to our business conduct. The Vision, which sits at the pinnacle of our Corporate Agenda, represents our aspiration as an organisation. The Mission*

*Statement defines the purpose of our existence and the Shared Values, together with our Cultural Beliefs, are the elements that shape and govern our collective thoughts, actions and behaviours...” (Group Chairman Alam Maritim Resources Berhad, 2016, pp. 12)*

*“..We believe that principles of honesty, ethical practices, integrity, and fairness are the cornerstones of a respectable and successful business. These principles are the heart of the Company’s philosophy and values. They are vital elements for establishing trust in our relationships with shareholders and stakeholders...” (Boon Koon Group Berhad, 2016 pp.19)*

CEV3 received the highest disclosure in ECI. This situation can be explained in that MCCG 2012 requires companies to commit to the highest standard of business practices to protect shareholders’ value and companies’ sustainability. MCCG 2012 recommends that companies include their statement of compliance with MCCG as part of their commitment to support and practice the principles in MCCG. For example:

*“..The Board of Directors (‘the Board’) of MCE recognises the importance of good corporate governance and continues to be committed to ensure that high standards and appropriate practices are in place throughout the MCE Group to protect, enhance and support the business affairs and financial performance of the Group with the ultimate objective of safeguarding shareholders’ investment and enhancing shareholders’ value...”(MCE Holdings Berhad, 2016, pp. 11)*

*“..The Board of Directors (“the Board”) of Sanichi Technology Berhad (“Group” or “Company”) is continuously committed to promoting the highest standard of corporate governance within the Group by supporting and implementing the principles and best practices as outlined in the Malaysian Code of Corporate Governance 2012...” (Sanichi Technology Berhad, 2016, pp. 15)*

## **4.2. Action to promote ethics and prevent unethical conduct (ACT)**

The second theme refers to the action to promote ethics and prevent unethical conduct. With regards to the first item, ACT1, only 50 companies or 4.48 percent stated that they take disciplinary action against misconduct; 1,065 companies (95.52%) do not have it. Meanwhile, 279 companies or 25.02 percent disclosed ACT2, and the remaining (836 companies or 74.98%) did not disclose ACT2. For item ACT3, only 58 companies (5.2%)

have appraisal programmes regarding ethics for employees, and 1,057 (94.8%) companies do not report any employee appraisal programme to promote ethical conduct (Table 4).

TABLE 4: Level of Disclosure for ACT (2012 - 2015).

| Items | Disclosed |       | Not Disclosed |       |
|-------|-----------|-------|---------------|-------|
|       | Freq.     | %     | Freq.         | %     |
| ACT1  | 50        | 4.48  | 1,065         | 95.52 |
| ACT2  | 279       | 25.02 | 836           | 74.98 |
| ACT3  | 58        | 5.2   | 1,057         | 94.8  |

The majority of companies disclosed that they have provided ethics-related training for their employees (ACT2); as evidenced in Figure 4. ACT2 shows that the highest disclosure with an increasing trend was from the year 2012 to 2016. Such evidence implies that companies are aware of the need to provide ethics training for their employees. Regarding disciplinary action and appraisal (ACT1 & ACT3), although there is an increase between the years 2012 and 2016, the percentage of increment is small. This suggests that neither item is being practiced widely in the companies.

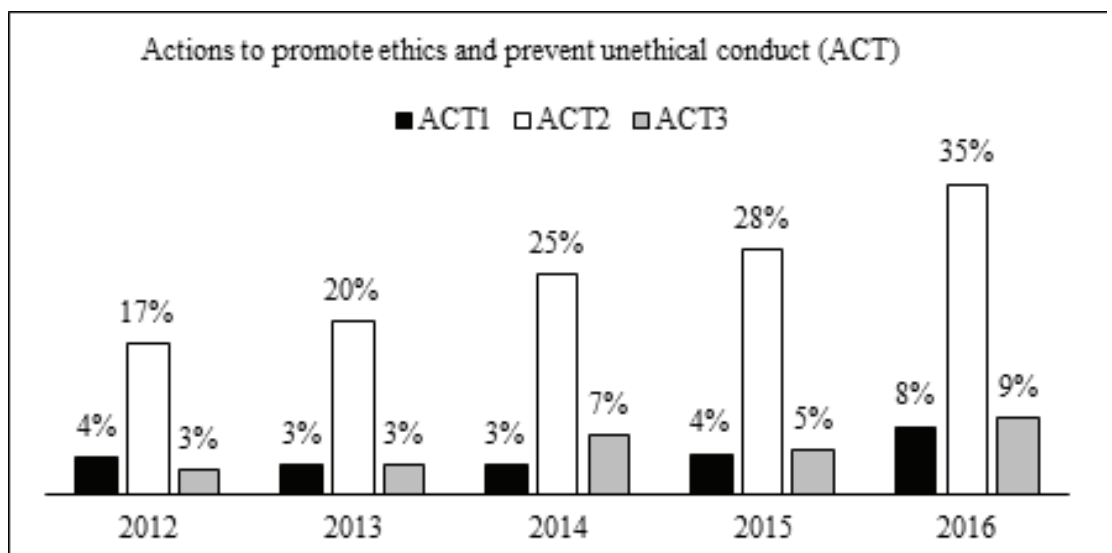


Figure 4: Five-year Trend Analysis for ACT (n=223) (Source: Authors' own work).

The criteria for ACT1 include any actions taken by companies against wrongdoing, or violation of company policies, codes, and laws. Some companies provide statements that serious action will be taken against any violation of their codes. For example, AE Multi Berhad states that the company will take appropriate action against employees that fail to follow the code of conduct:

*“...Failure to comply with the COC is tantamount to a serious breach and the appropriate actions will be taken by the Company for any non-compliance...”*  
(AE Multi Berhad, 2016, pp.11)

Meanwhile, other companies have strong consequences if their employees fail to comply with the company policies. For example, Alam Maritim Resources Berhad state that strict punishment will be imposed for violating the company's drug and alcohol policies:

*“.. Employees found to be in possession or under the influence of drugs and alcohol are subjected to disciplinary action that includes immediate termination of employment with the Company...”* (Alam Maritim Resources Berhad, 2016, pp.25)

As ethics training is more favourable among companies to promote ethical practice, ACT2 can be found in the companies' annual reports either in the sustainability section or the corporate governance statement. Ethics training for any personnel is important for companies to create an ethical culture (Whyatt et al., 2012). Providing training for employees can be by means of e-learning, workshops, or during induction programmes.

Some companies provide training for employees with the aim of enhancing their employees' skills and knowledge, and increasing their efficiency for conducting business in their daily operations. Skills, such as soft skills and leadership skills, are important so that employees have guidance for making ethical decisions and are instilled with ethical values in dealing with co-workers, management, and customers. Moreover, employees with the right attitude and behaviour in companies will be able to maintain their compliance with the company's' rules and regulations.

*“..60% of the training allocation was spent on technical training to enhance and upgrade employees' skills as well as increase their knowledge to face new challenges in their areas of work. Another 40% was spent on leadership, systems and Soft Skills Training to ensure our human capital are equipped with the right behavioural skills and perform ethically at all times...”* (Prestar-  
iang Berhad, 2016, pp.55)

*“..Training and workshops are conducted regularly to ensure that working environments are in compliance with the rules and regulations...”* (Damansara Realty Berhad, 2016, pp. 34)

Another example, Carlsberg Brewery Malaysia Berhad, provides ethics training through their e-learning platform;

*“..We also rolled out several other initiatives in accordance with our commitment to ethics and integrity: 169 employees in Malaysia and Singapore were trained on the new Code of Ethics and Conduct and completed E-Learning from November 2016 to February 2017...” (Carlsberg Brewery Malaysia Berhad, 2016, pp. 59).*

In order to promote ethics throughout the company, an appraisal programme (ACT3) can be introduced for employees to recognize their contribution to the company. Appraisal programmes can be in the form of a retirement bonus, promotion, or remuneration package for employees who maintain their performance and discipline in the company. For example:

*“..Employees on mandatory retirement may receive a retirement ex-gratia based on their last drawn basic salary. This benefit is received by employees with a minimum of ten years of continuous employment and a clean disciplinary record for the last two years of their employment...” (Cahaya Mata Sarawak Berhad, 2016, pp.39)*

*“..The performance appraisal of our employees is conducted annually based on the objective set for the review period. Based on performance and contribution, they are rewarded through increments, bonuses or promotions...” (Kumpulan Fima Berhad, 2016, pp. 50)*

### 4.3. Whistle blowing Policy (WBP)

Regarding whistle-blowing policy, WBP1, 456 companies or 40.9 percent have stated that they have a whistle-blowing policy, and 659 companies or 59.1 percent do not mention a whistle-blowing policy in their annual report (Table 5).

TABLE 5: Level of Disclosure for WBP (2012 - 2015).

| Items | Disclosed |       | Not Disclosed |       |
|-------|-----------|-------|---------------|-------|
|       | Freq.     | %     | Freq.         | %     |
| WBP1  | 456       | 40.9  | 659           | 59.1  |
| WBP2  | 78        | 7     | 1,037         | 93    |
| WBP3  | 160       | 14.35 | 955           | 85.65 |
| WBP4  | 165       | 14.8  | 950           | 85.2  |

For item WBP2, only 78 companies (7%) stated that they have an open communication channel while the remaining 1,037 companies or 93 percent do not have such a channel. Meanwhile, for item WBP3, regarding whistle-blower protection, only 160 companies

or 14.35 percent explain that they have a whistle-blower protection programme, and 955 companies or 85.65 percent do not have one. Lastly, for item WBP4, related to the availability of whistle-blowing policy on the company website, 165 companies (14.8 percent) provide a statement about the availability of a whistle-blowing policy on the company website. The other 950 companies (85.2 percent) do not state on the company website that such a policy is available.

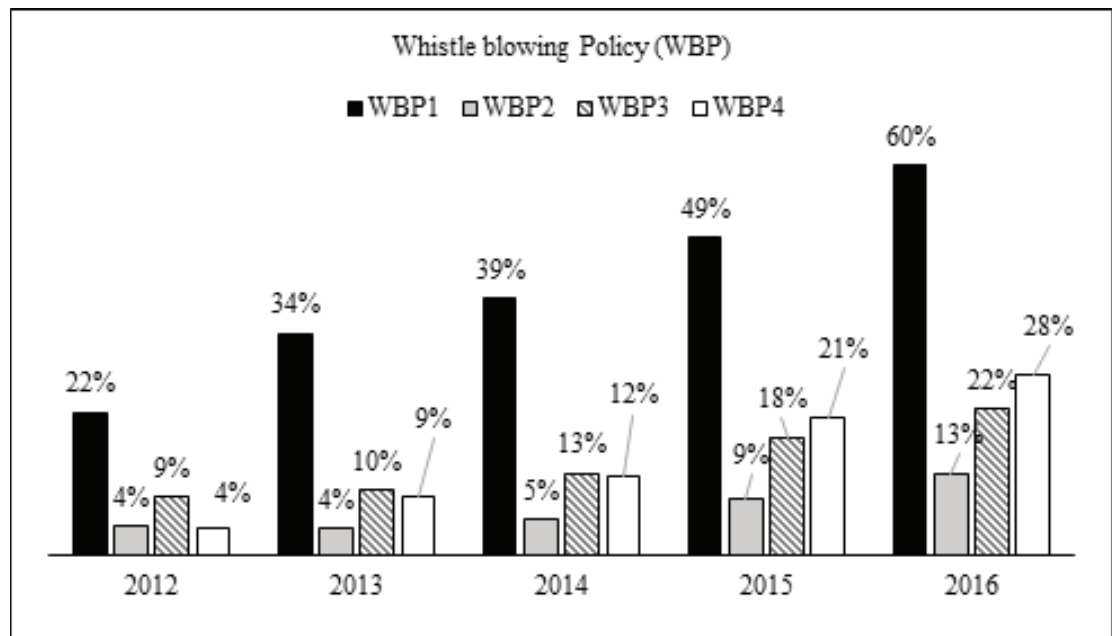


Figure 5: Five-year Trend Analysis for WBP (n=223) (Source: Authors' own work).

As shown in Table 5, the majority of companies have a whistle-blowing policy programme to support ethical conduct in the company. The five-year trend (Figure 5) shows a significant increase in the companies that have put in place a whistle-blowing policy (WBP1). The increment from 22 percent (the year 2012) to 60 percent (the year 2016) suggests that Malaysian companies support the recommendations of MCCG to have such a policy. Although there is an increase for each item related to the WBP in the five years, most of the companies are yet to disclose in detail such a policy relating to facilitating an anonymous platform for employees to communicate (WBP2), whistle-blowing protection (WBP3), or the availability on the website (WBP4). The results suggest that companies in Malaysia are not ready to fully implement a whistleblowing policy (Rachagan & Kuppusamy, 2013; Nawawi & Salin, 2019).

In examining whether or not the company has a whistle blowing policy, the disclosures for WBP1 are quite clear and direct. For example:

*“..The Whistleblowing policy is in place with the objective to provide a channel for all employees and stakeholders to report in good faith about alleged*

*unethical behaviour, actual or suspected improprieties within the business...*  
(Chin Well Holdings Berhad, 2016, pp. 15)

A whistle-blowing policy is not complete without any safe communication platform for the employees or stakeholders to raise concerns about ethical issues. An open communication channel (WBP2) can be in many forms. From the analysis of the companies' annual reports, certain companies provide a whistle-blowing hotline, email, or phone number of the personnel in-charge, as a platform for employees and stakeholders to raise their concerns regarding ethical matters.

*“..Apart from the normal reporting of concerns to the Head of the Group Integrity & Assurance Department, the reporting channel as prescribed in the Whistle-Blowing Policy, namely the Whistle-Blowing Hotline (ccmintegrity@gmail.com), is made available to the employees and external parties...”*  
(Chemical Company of Malaysia Berhad, 2016, pp. 61)

As argued by Rachagan and Kuppusamy (2013), implementation of a whistleblowing policy in the Malaysian environment is not efficient enough due to factors, such as attitudes, power differences, and fears among employees. Whistle-blower protection (WBP3) can provide a safe and comfortable platform for employees to express their issues concerning misconduct without fear. Most companies with whistle-blower protection state that there is protection from reprisals, and that unethical conduct can be reported without fear, and that the whistle-blower's identity will be kept confidential to encourage whistleblowing. For example:

*“..This policy allows the whistle-blower to raise the concerns outside the Management line and the identity will be kept confidential and protection is given against any form of reprisal or retribution...”* (Khee San Berhad, 2016, pp.18)

*“..The Company recognises that any genuine commitment of detecting and preventing actual or suspected unethical, unlawful, illegal, wrongful or other improper conduct must include a mechanism whereby employees can report their concerns freely without fear, reprisal or intimidation...”* (Talam Transform Berhad, 2016, pp.16)

The importance of companies to put such a policy on their website (WBP4), is to ensure that such a policy can be implemented effectively. The availability of such a policy can provide convenience and easy access to such information, thus encouraging stakeholders to raise concerns about misconduct within the company (Dhamija, 2014).

“..The Whistleblower Policy is available for reference on the Company’s corporate website at [www.amway.my](http://www.amway.my)...” (Amway Malaysia Holdings Berhad, 2016, pp.51)

#### 4.4. Code of ethics (CODE)

With regards to the code of ethics and their implementation (CODE), Table 6 shows that 691 companies (61.97%) have a code of ethics (CODE1), while 424 companies (38.03%) do not have a code of ethics. Regarding CODE 2, only 97 companies or 8.7 percent provide a statement on the method of communication of their code. A total of 1,018 companies (91.3%) did not state whether they have either a formal or informal method to communicate a code of ethics, thus suggesting that companies in Malaysia are still struggling to provide information about their code to the employees.

TABLE 6: Level of Disclosure for CODE (2012 - 2015).

| Items | Disclosed |       | Not Disclosed |       |
|-------|-----------|-------|---------------|-------|
|       | Freq.     | %     | Freq.         | %     |
| CODE1 | 691       | 61.97 | 424           | 38.03 |
| CODE2 | 97        | 8.7   | 1,018         | 91.3  |
| CODE3 | 107       | 9.6   | 1,008         | 90.4  |
| CODE4 | 103       | 9.24  | 1,012         | 90.76 |
| CODE5 | 325       | 29.15 | 790           | 70.85 |

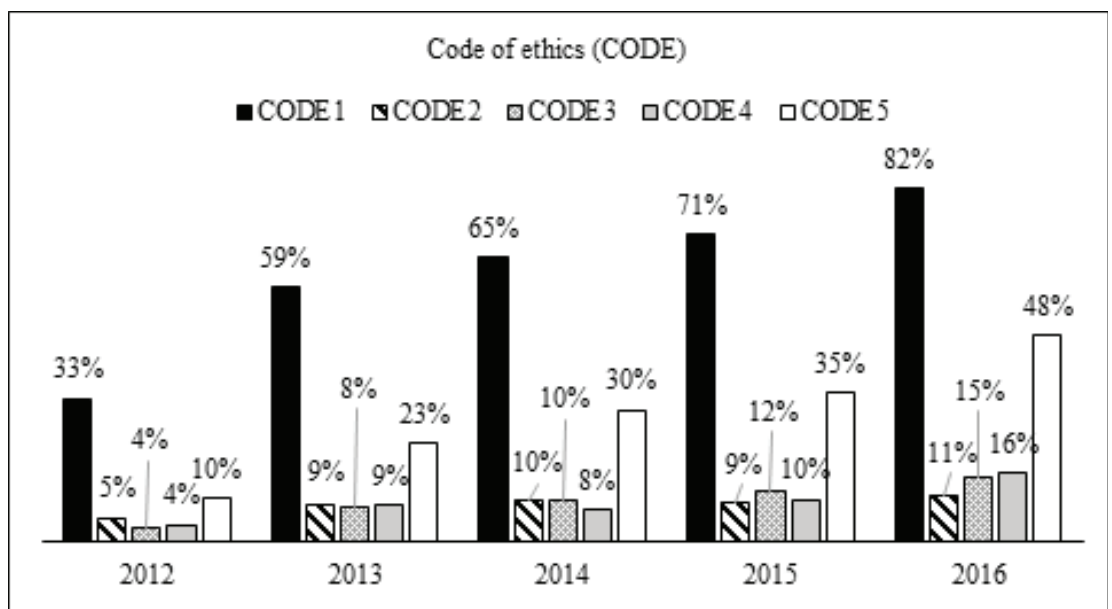


Figure 6: Five-year Trend Analysis for CODE (n=223) (Source: Authors’ own work).



Regarding CODE3, 107 companies or 9.6 percent stated that their company had implemented programmes to ensure compliance with the code of ethics, while 1,008 companies or 90.4 percent did not disclose any information concerning implementation of the system to ensure compliance with the code of ethics. There were 103 companies or 9.24 percent that provided a statement that they revised or reviewed their code of ethics periodically (CODE 4) and 325 companies or 29.15 percent did not mention about the availability of a code of ethics on the company website (CODE5).

Table 6 shows that the majority of companies have formulated their code of ethics. The five-year trend (Figure 6) shows an increasing percentage of companies that have a code of ethics (CODE1); from 33 percent in the year 2012 to 82 percent in the year 2016. The findings are in line with the MSWG report in 2018. In terms of code implementation, the trend shows a slight increase of all the items stated. However, it can be seen that for the five-year assessment, the increase in the percentage of each item is less than 20 percent for companies communicating the code (CODE2), having a compliance programme (CODE3), and reviewing the code (CODE3). Regarding CODE4, there is a significant increase in the number of companies including their code of ethics on their website. In the year 2012, only 10 percent of companies had their code on their website, whereas, by 2016, the percentage had increased to 48 percent. This shows the awareness of the companies in making their code available to the stakeholders as it can provide an advantage in improving their reputation as an ethical company. Furthermore, another explanation might be due to companies using more technology as a platform to communicate with stakeholders and shareholders.

Companies that have a code of ethics (CODE1), mainly explain that the purpose of the code is to ensure that the business operates ethically and acts as rules or guidance for employees to observe the best manners in their daily tasks. Some companies established their code of ethics, while others adopted the code from their subsidiaries. For example:

*“...the Group has established a Code of Practice to guide all its Directors and employees to ensure all its business activities operate with the highest standards of business ethics and integrity...” (Lingkaran Trans Kota Holdings Berhad, 2016, pp.24)*

*“..MHB’s CoBE follows the example set by PETRONAS. It is applicable to all employees and third parties including contractors, agents, intermediaries or joint venture partners that perform works or provide services for or on*

*behalf of the Company...*" (Malaysia Marine and Heavy Engineering Holdings Berhad, 2016, pp.64)

The establishment of a code of ethics is not adequate without supporting programmes or proper implementation (Whyatt et al., 2012). For companies that disclosed CODE1, they use a variety of methods to communicate (CODE2) their code of ethics. For example, the communication can be made through the employee's induction programme, employees' handbooks, training, or the company's Intranet.

*"..The Group communicates its code of conduct to all Directors and employees upon their appointment of employment through the Board Charter and Employees Handbook, respectively. It includes guidance on the disclosure of conflicts of interest, practices regarding gifts and entertainment, amongst others..."* (Alam Maritim Resource Berhad, 2016, 82)

*"..The Codes are effectively communicated via the Company's intranet and are also subject to regular review and updates..."* (Ni Hsin Resources Berhad, 2016, pp.19)

*"..All employees are briefed and provided with a copy of the Code of Conduct and Discipline for Employees on the commencement of their employment under the new employee induction programme..."* (Gas Malaysia Berhad, 2016, pp. 89)

The importance of communicating the code of ethics throughout the organization is to ensure that employees are constantly aware of the existence of the code (Donker et al., 2008) and to ensure compliance therewith (CODE3). Certain companies used a code of ethics declaration by employees to ensure that they comply with the code:

*"..Written declaration by all employees confirming their compliance with the Group's Code of Ethics to promote ethical conduct in the workplace..."* (Amway (Malaysia) Holdings Berhad, 2016, pp. 51)

While other companies introduced a monitoring system to ensure compliance:

*"..Employees are constantly monitored to ensure the culture is upheld in their dealings within the Group and also in their association with our customers, distributors, suppliers, governmental and regulatory authorities and other business associates..."* (Hwa Tai Industries Berhad, 2016, pp.18)

There is a need for companies to keep updating and reviewing (CODE4) their code based on the current situation. For example, for Item CODE4, which can be found in most companies' code of ethics section:

*"..The Board will review and update the Code of Conduct and Code of Ethics, where necessary, to meet the needs of the Group and to address the changing conditions of its business environment..."* (Signature International Berhad, 2016, pp. 43)

*"..The Board will periodically review and reassess the adequacy of the Code..."* (Asia Brands Berhad, 2016, pp.20)

Disseminating the code of ethics on the company website (CODE5) is important so that stakeholders and employees are able to assess such codes:

*"..A summary of the Code of Conduct is available on www.spsetia.com..."* (S P Setia Berhad, 2016, pp. 69)

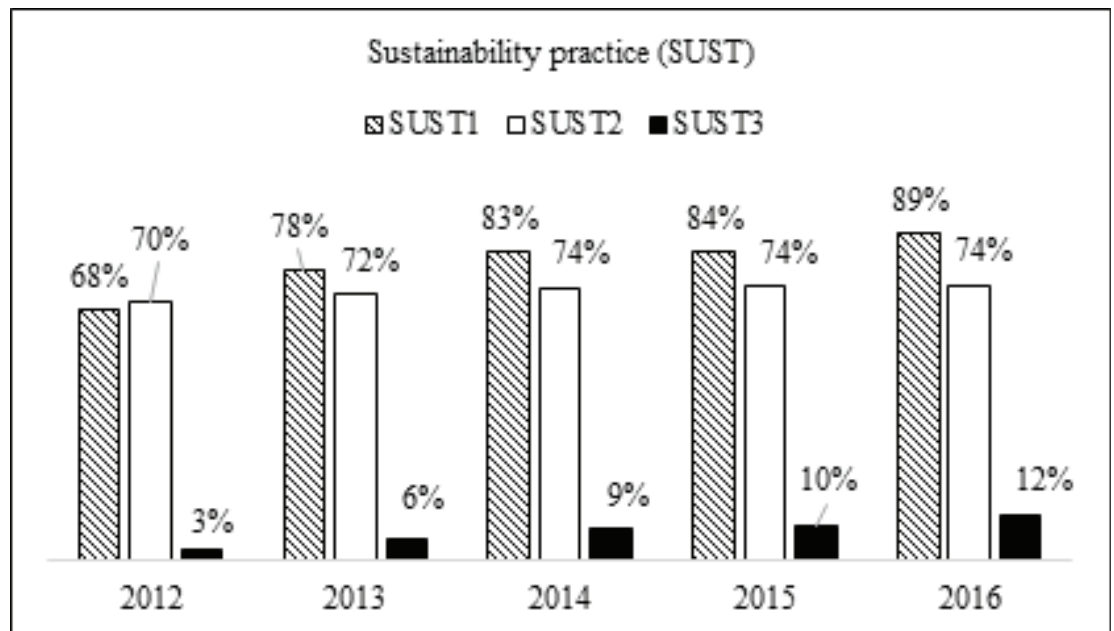
#### 4.5. Sustainability practice (SUST)

Ethical companies can also be identified from their commitment to bring balance to the interests of their stakeholders and shareholders, as well as to the company itself (Bezares et al., 2016). The first item, SUST1, examines whether or not companies have sustainability practices. It was found that 897 companies or 80.45 percent are committed towards sustainability practices, while 218 companies or 19.55 percent do not provide such statements in their report. For item SUST2, the philanthropy actions by companies can be in the form of monetary contributions, community engagements, or organizing fund-raising activities for the community. In total, 813 companies or 72.91 percent disclosed this item, while 302 companies or 27.09 percent did not.

TABLE 7: Level of Disclosure for SUST (2012 - 2015).

| n=1115<br>Items                        | Disclosed |       | Not Disclosed |       |
|--|-----------|-------|---------------|-------|
|  | Freq.     | %     | Freq.         | %     |
| <i>Sustainability Practices (SUST)</i> |           |       |               |       |
| SUST1                                  | 897       | 80.45 | 218           | 19.55 |
| SUST2                                  | 813       | 72.91 | 302           | 27.09 |
| SUST3                                  | 89        | 7.98  | 1,026         | 92.02 |

The majority of companies have sustainability practices (SUST1) in their business operations. Through the year 2012 to 2016, there was an increase in such practices from



**Figure 7:** Five-year Trend Analysis for SUST (n=223) (Source: Authors' own work).

68 percent to 89 percent of companies. Moreover, the trend shows that the majority of companies maintained their contribution in terms of philanthropic activities (SUST2); from 70 percent to 74 percent of companies (2012 to 2016). This evidence suggests that companies not only operate their business for profits but also are socially and environmentally responsible. Although the majority of companies stated that they are committed towards sustainability practices, the percentage of companies that promote or disseminate sustainability practices on the website (SUST3) is very low (3% to 12%). This can be explained in that most companies integrate their sustainability practices in their annual reports, which are also available on their websites.

The business operations should include matters about the environment, social/community, and governance. It is important for companies to sustain their business not only for economic purposes but also for the benefit of the surrounding environment. One example of SUST1, as stated in the annual report, is as follows:

*"..The Board is committed to promote sustainability practices in the Group and to maintain a good balance in relation to the environment, social and governance aspects of the Group's business..." (AE Multi Holdings Berhad, 2016, pp.11)*

*"..The Group recognizes its corporate social responsibility to act ethically and with trust and integrity in its dealings with employees, customers, supplier, stakeholders, and the environment as a whole. The EG Group has established and continues to embrace the sustainability programmes 34..."*

Following the statement on sustainability practices, philanthropic activities (SUST2) are where companies contribute a significant amount of their profit or resources to benefit the society or environment. Some companies provide details about the amount of contribution:

*“..During the year, the Group has made donations totaling RM100,000.00 to various schools and charitable causes in sports, cultural and social welfare activities...”* (BCB Berhad, 2016, pp. 9)

*“..Our ‘Doing Good’ activities continue to champion our community-based CR efforts which have seen our employees step up to the plate time and time again to help those in need. In 2016, our employees raised a total of RM117,121.00 in funds. The funds were distributed among various locally-based charitable organisations, mosques, churches, a home for the elderly and children’s homes to assist them in their day-to-day expenses...”* (Cahaya Mata Sarawak Berhad, Sustainability Report 2016, pp. 43)

For item SUST3, regarding the availability of sustainability practices on the companies’ websites, 89 companies or 7.98 percent have put their sustainability practices on the website, while 1,026 companies or 92.02 percent have not put their sustainability practices on the website.

*“..The details of the Company’s effort to promote sustainability can be found in the Sustainability Report on the Company’s website...”* (CCM Duopharman Biotech Berhad, 2016, pp.53)

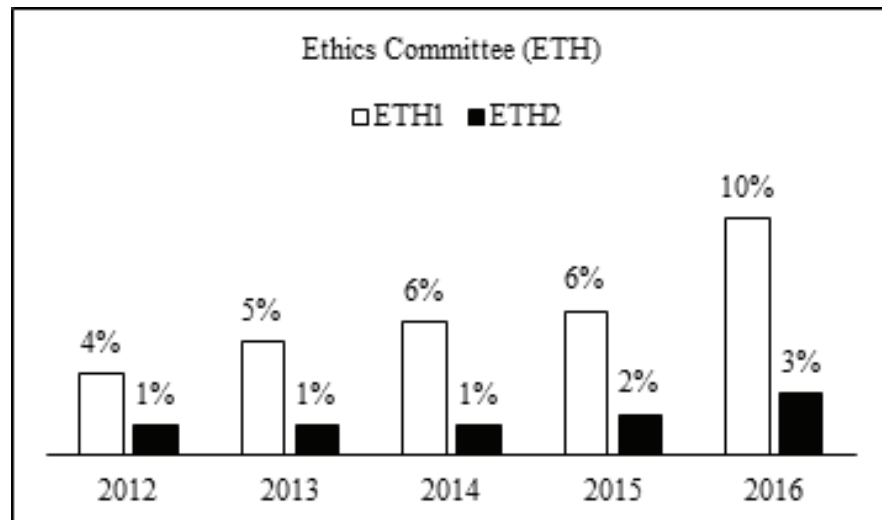
#### 4.6. Ethics Committee (ETH)

For the last theme, item ETH1, the results from Table 8 show that only 69 companies or 6.19 percent have established an ethics-related committee, while 1,046 companies or 93.81 percent had not.

TABLE 8: Level of Disclosure for ETH (2012 - 2015).

| Items | Disclosed |      | Not Disclosed |       |
|-------|-----------|------|---------------|-------|
|       | Freq.     | %    | Freq.         | %     |
| ETH1  | 69        | 6.19 | 1,046         | 93.81 |
| ETH2  | 19        | 1.7  | 1,096         | 98.3  |

Based on Figure 8, there was an increase in the number of companies that had established an ethics committee. The ethics committee can ensure that ethics programmes



**Figure 8:** Five-year Trend Analysis for ETH (n=223) (Source: Authors' own work).

run efficiently through its support, as well as monitor and review their functioning (Arık et al., 2018). However, in 2016, it can be seen that only 10 percent of the companies of the total sample had such a committee. This provides evidence that companies are not ready to establish a separate committee for reviewing ethical conduct. Moreover, there might be additional costs that need to be considered when forming a new committee. However, those functions can also be part of the audit committee's function. For example:

*"..We have also founded a Fraud Response Committee which comprises appointed representatives from various Head Office Departments. Their responsibilities include: Investigating the circumstances of the suspected fraud and producing a written report..."* (Cahya Mata Sarawak Berhad, 2016, pp.54)

While other companies include issues related to ethics as one of the functions of their audit committee:

*"..The Axiata Board of Directors wishes to provide all directors, management staff and employees of Axiata and its subsidiaries with mechanisms for employees and other interested parties to confidentially and anonymously bring to the attention of the Board Audit Committee ("BAC") any concerns related to matters covered by the Company's Code of Business Conduct and Ethics, legal issues and accounting or audit matters..."* (Axiata Group Berhad, 2016, pp. 87)

Another company established a sustainability committee with the function of managing issues related to the employees, market place, or social/community.

*“.. The Executive Committee has established the Group Sustainability Committee which reviews sustainability issues concerning the environment, social/community, employees and market place...”* (United Plantations Berhad, 2016 pp.166)

For the last item, ETH2, companies establishing a department or appointing officers to handle ethics' related issues, only 19 companies or 1.7 percent disclosed this item. And 1,096 companies or 98.3 percent did not disclose about the item (Table 8). For example:

*“..MRCB also established a new Department of Integrity and Discipline, which renewed its commitment to upholding integrity in its business...”* (Malaysian Resources Corporation Berhad, 2016, pp.64)

*“..To report any incidents please contact any of the following Company Directors who have been appointed as the Liaison Officers, via telephone, mail or email...”* (PBA Holdings Berhad, 2016, pp.10)

## 5. Conclusion

With unethical practices still happening in Malaysia's corporate environment, this paper is motivated to examine the level of ethical practices disclosure among Malaysian public listed companies. The study chose years 2012 to 2016 as the period of analysis, as MCCG 2012 recommends that companies uphold a high standard of ethical practice in running their business. This study extends the ECI, originally developed by Choi and Jung (2008), to measure ethical practice disclosure. The extended ECI comprised 20 items with six themes: 1) Corporate ethics values (CEV), 2) Action to promote ethics (ACT), 3) Whistle-blowing policy (WBP), 4) Code of ethics (CODE), 5) Sustainability practices (SUST), and 6) Ethics committee (ETH). Descriptive analysis and trend analysis are conducted to examine the level of ethical practice disclosure by the companies.

From the analysis of 1,115 annual reports for five years, this paper suggests several parts that need to be reviewed by companies regarding their ethical practices. Firstly, regarding the statement of corporate value, companies are willing to disclose their commitment to upholding the highest standard of practices in the marketplace. This situation is expected as part of the compliance with MCCG 2012 where companies should provide a statement of compliance with the Code. This is also proven by the

MSWG report, where there is an increment in the commitment of public companies to comply with MCCG 2012. However, when examining corporate ethical values based on the mission and Chairman/CEO statements, most companies do not provide the core/ethics values for companies to practise a high standard of business ethics. It is important for companies to provide their ethical values in their corporate statements as they act as pillars for the companies to operate ethically in the marketplace. Business players should consider promoting ethical practice by having core values or ethical values as their guidance to create a culture of business ethics.

When examining the level of action towards ethical practices, there is a lack of practice regarding disciplinary action and employee appraisal. Moreover, it shows that the companies only comply with MCCG 2012 recommendations. For example, regarding the whistle-blowing policy and code of ethics, the majority of the companies support the recommendation of MCCG 2012 to have a whistle-blowing policy and to formulate a code of ethics. However, based on details of their explanations concerning their whistle-blowing policy and the code of ethics, they appear inadequate. This signals that companies are not ready to have supplementary programmes to promote ethical practices. Meanwhile, the establishment of an ethics committee had the lowest disclosure, which might be related to the additional costs or because companies treat the audit committee as a committee with an ethics function. This situation could contribute to the increase in the number of unethical cases in companies, as reported by PwC in 2018.

Although the findings provided, showing that the implementation of an ethics programme among Malaysian companies is considered weak or average at best, the findings have several limitations. Firstly, regarding the sample size, this paper only considers 223 companies listed in 2016 to represent the ethical commitment of Malaysian companies. With such a small size, there might be a possibility of bias, which could affect the results of the study. It is recommended that larger sample size should be used in the future, not only to reduce bias, but also to provide greater accuracy in terms of the data. The second limitation concerns the data collection method in that this study only uses content analysis with hand-collected information from the companies' annual reports. Future studies can consider examining the ethical value communication of other companies, such as media, websites, or news. Different types of resources could provide more detailed information concerning companies' ethical conduct and commitment. The third limitation is the components of ethics examined in this study. The current index can be extended to suit the current ethics situation and also to answer



the call of NACP to form an ethical corporate environment for a more comprehensive index.

## Acknowledgement

The study is supported by the Fundamental Research Grant Scheme (FRGS) (vote no: 59468) provided by the Ministry of Education of Malaysia. The authors would like to thank the Ministry for its support.

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## Conference Paper

# A Survey on Green Supply Chain Management (GSCM) Challenges in the Malaysian Construction Industry

Nur Syamimi Zulkefli, Fatimah Mahmud, and Nurhaizan Mohd Zainudin

Faculty of Industrial Management, Universiti Malaysia Pahang, Malaysia

## Abstract

In recent years, mounting environmental and sustainability concerns are driving the construction industry players to adopt green supply chain management (GSCM) in their organizations. GSCM is a converging sustainability approach that integrates environmental thinking and initiatives into the traditional supply chain management (SCM) practices. However, despite having various benefits, this approach has not been widely implemented. Therefore, this paper aims to reveal the challenges faced by Malaysian construction companies in implementing GSCM. A total of 160 questionnaires were distributed among contractors and consultants in Malaysian Construction Companies. Only 50 questionnaires completed by the respondents resulting in a response rate of 32%. The research found that leadership and commitment from top management as the main challenges among construction players in implementing GSCM, in addition to changing mindset and culture and government support and regulation. This finding will allow practitioners to acknowledge and prioritize the challenges embedded with GSCM implementation, thus come out with strategies to overcome the challenges. This research can be further enriched by including an in-depth study on the GSCM challenges through qualitative research.

**Keywords:** green supply chain (GSCM), sustainability, challenges, construction industry.

Corresponding Author:

Fatimah Mahmud  
fatimahm@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

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## 1. Introduction

The construction sector accounts for about 39% of the world's total carbon emission, which may lead to severe environmental pollution (United Nations Environmental Program, 2017). Reasonably, the industry needs to take actions to reduce environmental impacts in their activities, especially when the customers are becoming environmental conscious and stringent environmental regulations are being imposed by the government (Mathiyazhagan, Govindan, NoorulHaq, & Geng, 2013). This situation leads to the emerging sustainable construction concept. The green supply chain was introduced to balance marketing performance with environmental issues. Several companies had



implemented green supply chain by creating networks of suppliers to purchase environmentally superior products or building conventional approaches to waste reduction and operational efficiencies to tackle various environmental challenges such as energy conservation and pollution abatement, (Kumar & Chandrakar, 2012). As a developing country, Malaysia is currently experiencing rapid economic growth through urbanization, and it is expected to rise more and more from year to year. In order to ensure sustainability in future development, many researchers had come out with the idea of green technology or system in its supply chain management. However, in the Malaysian construction industry, the concept is still relatively new where there is only a few organization's had implemented this concept, and there are reasons hindering the implementation (Wooi & Zailani, 2010). Therefore, the challenges in green supply chain management (GSCM) implementation by the Malaysian Construction Industry will be investigated in this research.

## 2. Literature Review

### 2.1. GSCM Concept and Initiative

Green supply chain management (GSCM) can be explained as an approach that integrates environmental thinking into supply chain management (SCM) (Srivastava, 2007). The main focus of GSCM includes identifying benefits, costs, and risks associated with environmental performance (Handfield, Sroufe, & Walton, 2005; Trigos, 2016). The implementation of GSCM in the construction organization depends on to what extent the initiative being used. Ghobakhloo, Tang, Zulkifli, and Ariffin, (2013) and Dheeraj and Vishal, (2012) have introduced a guideline to ensure the systematic and effective GSCM implementation. This guideline embedded the 'green' concept in several activities, which include product design, material management, manufacturing management, distribution and marketing, and reverse logistics.

The objectives of green product design are to minimize the product's environmental impact during its whole life cycle and reinforce the product expansion by providing an environmental-conscious design or called as eco-design (Ghobakhloo et al., 2013; Johansson & Glenn, 2002). Meanwhile, Nur, Handayani, and Wibowo (2018) stated that green material management (purchasing) commonly associated with managing the environmental performance of suppliers by eliminating hazardous materials or harmful activities in their operations. This initiative required the supplier to meet certain



specifications such as product content requirements, product content restrictions and product content labeling (eco-labeling) (Hamner, 2006).

According to Wibowo, Handayani, & Mustikasari, (2018), there are three main phases in green manufacturing processes: resource utilization decrement, waste decrement, and emission decrement. Cox (2008) defined green marketing as an advertisement in promoting the reputation of a company towards environmental responsibility, supporting a green lifecycle of a product or service, and addressing the relationship between a product or service and the biophysical environment. Reverse logistics focuses primarily on the return of the products or materials from the point of consumption to the forward supply chain for recycling, reuse, remanufacture, repair, refurbishment or safe disposal (Carter & Easton, 2011; ElTayeb, Zailani, & Jayaraman, 2010).

## 2.2. GSCM Challenges

The green supply chain initiatives have shown positive outcomes for many companies, but it is not without facing some challenges in its implementation. The literature has thrown light on the various challenges or barriers that would impede the industry in adopting GSCM. Some literature (Government & Perron, 2014; Khidir & Zailani, 2009; Mathiyazhagan et al., 2013) categorized the challenges in four broad categories: (1) institutional challenges, (2) organizational challenges, (3) informational challenges, and (4) economic challenges. Meanwhile, some other literature (Balasubramanian, 2012; Walker, Di Sisto, & McBain, 2008) divided the challenges into two parts: internal challenges and external challenges.

### 2.2.1. Internal challenges

Internal challenges are defined as the challenges that occur internally within the players or organizations itself. The most significant internal challenge identified in the literature was financial constraints (Ojo, Mbowa, & Akinlabi, 2014). Khidir and Zailani (2009) stated two types of cost involved in the environmental management of supply chains: direct cost and transaction cost. Precedent literature has mentioned that the implementation of the green supply chain might result in increased economic performance and profitability (Mollenkopf, Closs, Twede, Lee, & Burgess, 2005; Zhu & Sarkis, 2004). However, green supply chain management involve higher operation costs thus hinder the adoption of the approach amongst organizations (Balasubramanian, 2012; Benachio, Freitas, & Tavares, 2019; Khidir & Zailani, 2009; Mathiyazhagan et al., 2013; Min & Galle, 2001;

Varnäs, Balfors, & Faith-Ell, 2009). This is especially true for organizations that have limited availability of resources.

Apart from the financial challenges, changing the mindset and culture of an organization and the players itself proved to be a significant challenge in implementing GSCM. Changing the fundamentals and core features of organizations (organizational goals, forms of authority, core technology, and operational and marketing strategy) are one of the challenging tasks to the organizations. Leadership and commitment from the top management in aligning the organizations into a new direction are crucial. It is important for the management to support and create environmental awareness among their subordinates. Other challenges faced by the industry in implementing GSCM include lack of resources (technical expertise, technology, material and process), lack of knowledge and experience, and lack in managing standard environmental control policies within the organization (Balasubramanian, 2012; Government & Perron, 2014; Jabbour, Mauricio, & Jabbour, 2017; Khidir & Zailani, 2009; Trigos, 2016).

### 2.2.2. External Challenges

In addition to the internal factors, external factors also posed some challenges to the industry in implementing GSCM. According to the literature, the most significant external challenge faced by the construction industry is lack of support from the government (Rao and Holt, 2005; Walker et al., 2008; Khidir and Zailani, 2009; Balasubramaniam, 2012; Mathiyazhagan, 2013, Ojo, 2014). The government basically catalyzes since their support can be both drivers and challenges in the implementation of the green supply chain. Development of appropriate policies, standards, and regulations encourage the industry players to adopt green initiatives. The fact that GSCM involved much interaction with suppliers, the management of suppliers also proves to be a challenge for many organizations (Mathiyazhagan et al., 2013). For example, green purchasing requires a supplier to comply with environmental requirements; thus, it is crucial for the supplier to be responsible and to provide a strong commitment to achieving GSCM.

Trigos (2007) highlighted that the availability of green products in the market nowadays also serves as a factor that hinders the implementation of GSCM. In the construction industry, there is a limited product that meets the green requirements. Only a few products can be considered as 'green' and made for 'recycle' (Varnas et al., 2009). Two most popular green products are concrete and timber. However, the usage of a green product is still at an infant stage due to the cost preference. Other external challenges include lack of adequate environmental measures such as training and

development, sustainable auditing, and certifications like ISO 14001 (Balasubramaniam, 2012). Additionally, some organization found it is challenging to adopt the green supply initiatives mainly because of the competitive and uncertain nature of the construction industry. Generally, the construction players are highly competitive among themselves in pitching for projects and in providing reputable performance for their projects. Given the fact that construction projects involve a lot of unknowns and uncertainties, the chance of project delays, put on hold or terminated, or affected by economic situations are significantly high for construction projects.

### 3. Methodology

The quantitative research design was applied for this research. A hundred sixty self-administered survey questionnaires were distributed through the mail, facsimile, electronic mail (e-mail) and pass by hand to contractors and consultants (architect, engineer and quantity surveyor) whose practice were in the Selangor and Klang Valley area. Listing and contacting the respondents were done before the distribution of questionnaires. The questionnaires were developed to answer the research question on 'what are the challenges faced by the players in the Malaysian construction industry in adopting green supply chain practice?'. Respondents were asked to indicate their level of agreement to the statement as per indicator is shown in the questionnaire with 1.00 as strongly disagree and 5.00 as strongly agree. A total of 50 questionnaires were returned and completed by the respondents. The questionnaires were analyzed using SPSS version 20.

### 4. Results and Discussion

#### 4.1. The Respondents' Background

Table 1 presents the respondents' nature of work, years of employment, and types of project involved. Altogether, 50 of the questionnaires replied by the respondents from both fields and giving a response rate of about 32%. As mentioned by Saunders et al. (2007), an average response rate of 30% to 40% is considered reasonable for a delivered and collated method. All respondents were assumed to have a broad knowledge and sufficient experience for the firm's operational and practices, and 70% of them were used to involve with the green projects.

TABLE 1: General background of the respondents in their company.

| Nature of work    | N  | %  | Years of employment | N  | %  | Types of the project involved | N  | %  |
|-------------------|----|----|---------------------|----|----|-------------------------------|----|----|
| Architect         | 13 | 26 | < 5 years           | 14 | 28 | Residential                   | 18 | 36 |
| C&S Engineer      | 10 | 20 | 5 - 10 years        | 23 | 46 | Commercial/office             | 14 | 28 |
| Quantity Surveyor | 13 | 26 | > 10 years          | 13 | 26 | Industrial                    | 5  | 10 |
| Contractor        | 14 | 28 |                     |    |    | Institutional                 | 5  | 10 |
|                   |    |    |                     |    |    | Others                        | 8  | 16 |

From the survey conducted, there are 43% of the respondents' companies are implemented Environmental Management Systems, EMS. Figure 1 elucidates the respondents' feedback on the four main reasons why the construction companies adopt the GSCM concept and practice in their organization. They are to comply with regulation, pressure from the client, pressure from competitors, and voluntarily. It is found that more than half of the respondents (75%) adopt green supply chain management (GSCM) due to complying with the regulations. The findings are in lieu with the previous study conducted by Min & Galle, (2001), that many organizations get involved in the green supply chain management (GSCM) to avoid violations of regulatory law.

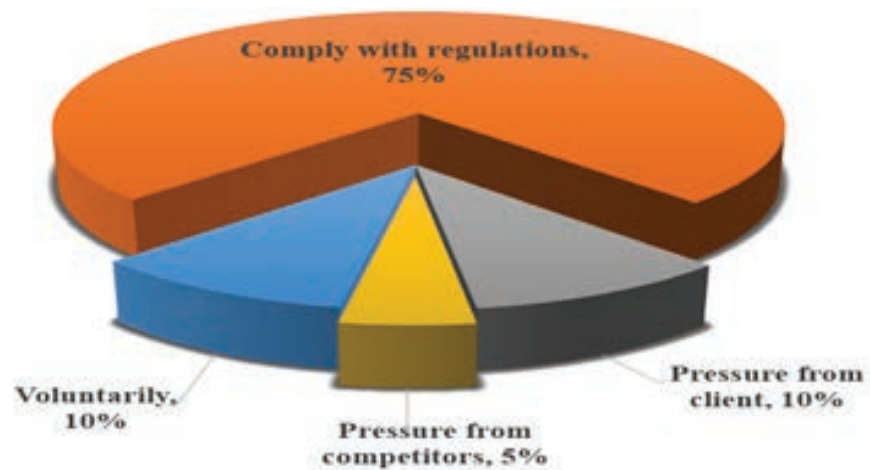


Figure 1: Reasons for the organization to implement GSCM.

#### 4.2. Identification of GSCM Challenges

Generally, challenges are any obstacle, pitfall, drawback, barrier, limitation, difficulty, or factors constraining the adoption of GSCM. The challenges were grouped into two groups; i.e. internal challenges and external challenges. The internal challenges were considered to be the pressures within a company that hindered the implementation of

GSCM. External barriers were reflected to be external forces that are obstructing the companies from implementing their GSCM. Overall, there twelve challenges (8 internal challenges and 4 external challenges) were identified and studied in this research.

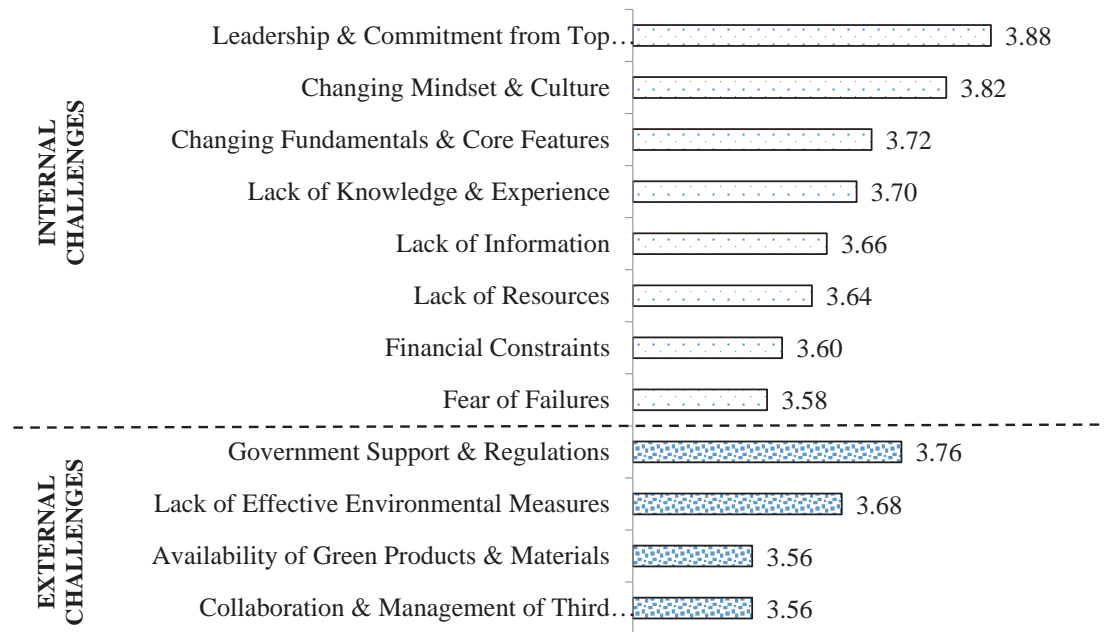
Figure 2 presents the mean score ranking for the identified twelve challenges under the challenges in the implementation of GSCM. It can be seen clearly from Figure 2, that almost all the challenges give a mean value more than 3.00. These results show that these challenges are consensually agreed by the respondents as critical in obstructing the effectiveness of GSCM implementation in the construction industry.

For internal challenges, the three most critical challenges perceived by the respondents are Leadership & Commitment from Top Management (3.88), Changing Mindset & Culture of the Organization (3.82) and Changing Fundamentals & Core Features of the Organization (3.72). The finding was in line with the literature review where, according to Balasubramaniam (2012), top management support and commitment plays a significant role in implementing successful GSCM. Mathiyazhagan (2013) also adds that some of the top management resisted in changing the existing practice, information, and habits to the new sustainable supply chain practice since it involved a lot of costs and time. While Financial Constraint and Fear of Failure become the lowest challenges ranked for internal challenges. The respondents felt that by implementing GSCM, cost-saving could be realized by reducing energy consumption and subsequently, reducing the emissions of carbon dioxide from the construction activities which have less deteriorated to the environment (Zulkefli & Ling, 2018).

Where for external challenges, the most significant challenges faced by the construction industry players was due to Lack of Government Support and Regulations. As explained by Khidir and Zailani (2009), there is limited institutional support for the ideas embodied in environmental management. Besides, there are not many efforts by the government regarding legislation and regulation with regards to environmental practice (Mathiyazhagan, 2013). It is not easy for an organization to change its organizational goals, forms of authority, core technology, and operational and marketing strategy (Khidir and Zailani, 2009). Amongst all of the variables, availability of green products and materials, and collaboration and management of the third party recorded the lowest mean score, which was 3.56.

## 5. Conclusion and Recommendations

Overall, the survey findings revealed that leadership and commitment from top management, changing mindset, and culture of the organization and lack of government support



**Figure 2:** Overall ranking of the mean score for challenges faced in implementing GSCM.

and regulations as the most critical challenges faced by the construction industry in GSCM implementation. However, other challenges identified in this research also need to be tackled systematically. The authors believe that the challenges found in the research together with their influence power will help practitioners to plan for appropriate actions to be taken and strategies to overcome those challenges and strengthen the activities involved in GSCM implementation. In doing so, Jabbour et al., (2017) suggested that all top leaders and managers be equipped with sufficient knowledge on GSCM practices and employed green concept in staff recruitment, training, performance evaluation, and rewards. This will help organizations to cultivate and institutionalize green culture and lead to the success of GSCM implementation. There is a need for coordination between all members involved in the construction chain beside industry leaders, governments, and consumers before the successful GSCM implementation. Besides that, with appropriate financial incentives like tax incentives and subsidies from the government, it will indirectly encourage and increase construction sustainability through the GSCM implementation. One of the measures for the government to ensure the implementation of GSCM as part of the construction standard is through the development of rules and regulations. This can be applied through a compulsory mandate of GSCM approach for public or government buildings. Ultimately, by reducing or eliminating the presence of these challenges will increase the level of success of GSCM implementation in the construction industry. This research can be further

enriched by including an in-depth study on the GSCM challenges through qualitative research.

## Funding

Special thanks are due to those who directly and indirectly involved with this study. Thank you for all the commitment and strong support especially for those who have spent their precious time to respond to the survey, including financial funding from UMP internal grant RDU1603135.

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## Conference Paper

# Bauxite Industries: Lesson Learn from Governance Perspective

Mohd Tamizi Mazlan, Khairil Anuar Bin Ramly @ Tamrin, and Nur Emilia Binti Abdullah Harun

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

The mining of bauxite in Malaysia, specifically in Kuantan Pahang is in-demand industry. Over the last three years, Bauxite has become a national issue where uncontrolled handling will lead to severe impacts on the environment and the local community. It started from the dumping of bauxite by miners who have illegally and uncontrollably mine the bauxite. Thus, this paper aimed to study on good governance perspective as it is an important element in ensuring the sustainability of an organization and strengthening the direction and objectives of business activity. Failure to set effective good governance will cause the organization to be in a volatile state and will lead to fraud and breach of trust. The impact of these governance failures is huge and may cause the company or organization to be adversely affected and will cause negative perceptions from the community and stakeholders. This has led the government to set a moratorium to stop the bauxite operations. Throughout the moratorium, the Water, Land, and Natural Resources Minister revisits every single process and SOP to ensure that all rules and regulations, procedures, and laws are in full application. This paper looks at a lesson that can be learned from the episode and hopes it will serve as a guide to be the best steps to be taken to ensure that governance upheld once Bauxite activity continues.

**Keywords:** bauxite operations, governance

Corresponding Author:

Mohd Tamizi Mazlan  
mdtamizi@ijm.com

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

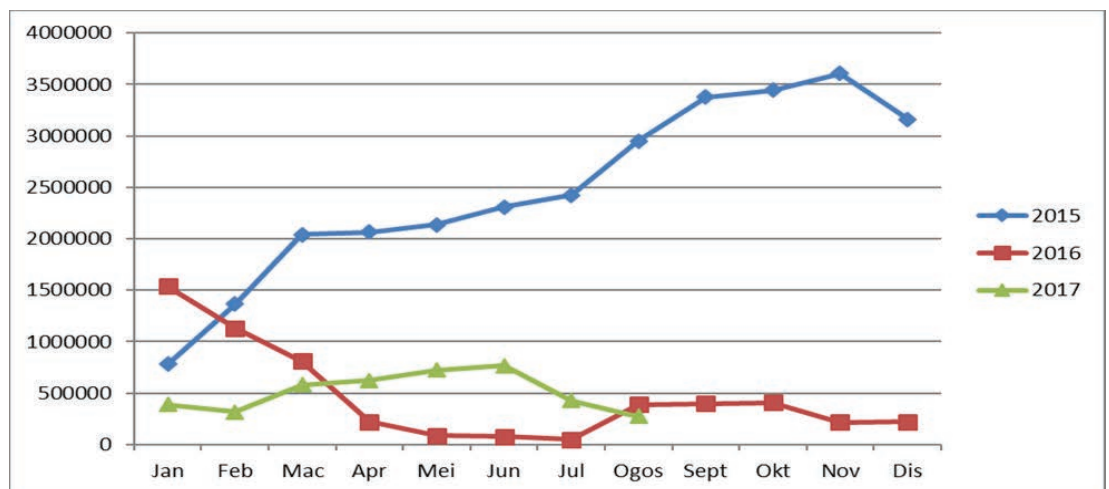
## 1. Introduction

Early 2013, started small scale bauxite mining in Balok and later expanded to Sungai Karang, Bukit Goh and Bukit Sagu. Bauxite is the raw material that is converted to the aluminum's metals. China, the country of alumina production capacity, has grown in tandem with smelter capacity in recent years. In order to meet the rapid growth of the industry, China decided to increase the import of raw material instead buy the end product of alumina from overseas countries due to the higher costs. For China, importing bauxite as raw material is more preferable since the country has its refineries and smelters to produce aluminum. Before China, import bauxite from

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Malaysia, Australia, and Indonesia was the major player exporting this mineral to China. Due to the expensive freight cost to export bauxite from Australia to China, they looking substitute for the import of bauxite where China determine Malaysia is a good position to replace Australia to be exporter for the raw material in meeting the rapid increase of this mineral in China. The demand for bauxite from Malaysia has been more increasing after the Indonesia government banned the mineral cargo ore and bauxite to China in order for the government of Indonesia to utilize the domestic of aluminum production.

Bauxite mining and export has risen dramatically since the middle of 2014. According to records in 2015, bauxite minerals have been exported by 31.0 million tones via Kuantan Port. This industry contributed to a Gross Domestic Product (GDP) growth from 0.51% in 2017. It has also contributed to the state of Pahang with a total royalty collection of RM7.7 million for 2014 and RM47.8 million for 2015.



**Figure 1:** Bauxite Exports Through Kuantan Port (Source from Kuantan Port Authority).

Following the escalation of these activities, some issues and problems have arisen from bauxite mining and exports such as environmental pollution, road safety, and health threats to residents around bauxite mining areas. This has been exacerbated by several incidents that the Government and the public are aware of such "red sea" and a life-threatening incident caused by lorries transporting bauxite. Other effects of this bauxite effect are as follows:

- Contaminated ecosystems have the potential to produce an exposure that leads to direct effects or long-term effects on the health of the locals. Various health problems have been reported since these activities have grown. Although no detailed studies have been conducted on the special effects of bauxite on human health, all well aware of the dredging and mining activities will indeed freeze dust and dust, either from the surface and in the ground during dredging activities,

or during the transportation and transfer process from the mining site to port or collection center.

- In general, such as other mining activities, bauxite also contains dust and soil dust. This landowner can be freed not only in the air but can accumulate and attach to the road surface, clothes or vehicles used by locals. Continual or continuous exposure to soil dust and dust in general at any given time may cause cough, sore throat, eyesores, or respiratory disorders.
- Not all residents will experience these symptoms. However, the risk of these symptoms depends on the individual's current health level, which will be easy for both children and those who are already suffering from lung diseases such as 'bronchial asthma' or chronic obstructive airway disease), allergic rhinitis and rigid smokers. Excessive exposure to the content in bauxite is also said to be detrimental to the health of which the effects are the painful and reddish nose, cough, pain and redness on the skin, skin peeling and scratchiness.
- Apart from health problems and water pollution, residents in Pahang are also facing problems of infrastructure damage in residential areas resulting from bauxite mining activities. Infrastructure damage is potholes and uneven roads and non-compliance with road regulations. Since Bauxite operation commencing April 2015 to January 2016, the Pahang Road Transport Department (RTD) has recorded several cases involving bauxite transport vehicles which are overloaded by 194 cases while hazardous offenses are 915 cases.
- This bauxite transport activity has also resulted in a fatal accident involving a teacher due to the collapse of the bauxite lorry tire that was removed at Jalan Pintasan, Kuantan on 22 December 2015.

It stems from the increase and uncontrolled illegal miners. The illegal miners avoided regulated law and acted in place. They influence the settler and landowner by giving them money and thus create fast millionaire settler and landowner. The settler and landowner tend to surrender their land to the illegal miners to mines the bauxite. The illegal miners can control the transportation company to ensure the logistics transportation of cargo to the port is not affected. In 2015, the transportation of the entire country mainly focused in Kuantan, Pahang to take the opportunity to receive a high pay from the illegal miners. Irresponsible action taken by illegal miners resulted in an environmental disaster.

The Cabinet of Ministers at its meeting on 27 November 2015 has decided that the YB Minister of Natural Resources and Environment (now Water, Land, and Natural

Resources Minister) and YAB Menteri Besar of Pahang issued a joint press statement on the imposition of a moratorium on bauxite mining and export activities in Kuantan, Pahang. Also, the Ministry of Natural Resources and Environment (now the Ministry of Water, Land, and Natural Resources) was asked to make a thorough overhaul on mining legislation and mining licensing procedures and the Export License (AP). Such improved legislation and procedures need to be enforced after the moratorium expires. However, the duration of the implementation of the moratorium is subject to the compliance of the entrepreneur against the implementation of the environmental mitigation measures set by the Ministry. In this regard, the moratorium is implemented at the state level by order issued by the Mineral Director to every holder of a Bauxite Mining / Mining License under Section 7 (1) of the Mineral Development Act 1994, pursuant to the Minister's instructions to the Director-General of Mineral Resources under Section 5 the same act. The imposition of a moratorium on mining activities and extraction of bauxite in Kuantan is divided into several steps:

- Cessation of bauxite mining operations
- Disposal of bauxite stockpile within Kuantan Port area and Kemaman Port
- Cleaning and upgrading of Kuantan Port facilities
- Stockpile transfer outside the port area to a central stockpile area to be determined by the Pahang State Government

Mineral activity belongs to the several government agencies where the law, act, and policies are already established. The mining industry falls under the purview of the Natural Resource & Environment Ministry (NRE). Anyhow as mining involves land, State Government has the authority on the matter of land use. Therefore, the federal agencies under the purview of the NRE such as the Department of Mineral & Geoscience (DMG) and the Department of Environment (DOE) provide the applications approval in exploration/prospecting and mining which comes under the State Authority with technical inputs. In 1988 the Federal Government established a council named National Mineral Council (NMC). Its function is to coordinate mineral-related matters, between the Federal and State Governments and to oversee the overall integrated development of the mineral industry. Transportation activity falls under Road transport ministry where the function of the agency control all the commercial transportation and private. So, what happened actually? With all the activities and policies already establish, this issue should not happen, and it can be controlled. In this paper, will discuss how the lacks of the governance and integrity both agencies government and bauxite player contribute to the failure in handling the Bauxite industry.

The objective of this paper to understand what factor contributes to the failure of the Bauxite industry from governance of view. It is not the intention of this paper to blame the agencies or player of the industry but would like to understand to enhance the process itself to ensure the sustainability of the industry. Good governance will help the agencies to be more effective and productive in enforcement, control, and monitoring of the bauxite activity.

## 2. What is Bauxite?

It is an amorphous, clayey rock containing aluminum hydroxide which is the ore for the metal that we know of as aluminum. It consists of mostly hydrated alumina with proportions of other material such as iron oxides. Bauxite does not have any specific composition. The combination of materials mainly of hydrous aluminum oxides, aluminum hydroxides, clay minerals, and insoluble materials, namely quartz, hematite, magnetite, siderite, and goethite. The high concentration of bauxite gives the red color characteristic; hence, it is commonly referred to as “red mud.” The word Bauxite originated in 1821 by a French geologist Pierre Berthier who discovered bauxite near the village of Les Baux in Provence, southern France. Bauxite is a naturally occurring, heterogeneous material comprised primarily of one or more aluminum hydroxide minerals plus various mixtures of silica, iron oxide, titania, alumina silicate and other impurities in trace amounts.

For many years, the largest producer of bauxite in Australia, followed by China. Starting in 2017, China has become the top producer of aluminum with almost half of the world’s production, followed by Russia, Canada, and India. Even though aluminum demand is rapidly increasing, known reserves of its bauxite ore are sufficient to meet the worldwide demands for aluminum for many centuries, on top of that, increased recycling activity of aluminum, which has the advantage of lowering the cost in electric power in producing aluminum, will considerably extend the world’s bauxite reserves.

Usually, bauxite is a strip-mined and founded close to the surface of the terrain, what this means that mining activity is relatively simple, which does not require good deep mining. As of 2010, approximately 70% to 80% of the world’s dry bauxite production is processed first into alumina and then into aluminum by a method called electrolysis.

The need for a light but durable metal such as Aluminum had driven to the demand increase for raw material (Bauxite) from thriving global manufacturing sector; consequently, the mining industry in Pahang is seeing a revival from its sunset days of Tin mining many years ago. However, this is not without several transformations that need to

be done for us to see shifts to create a more sustainable industry. To be a sustainable business for the next in 20 – 30 years, those involved need to take action due to driving sustainable growth. This is true because these are non-renewable resources. In combination with consumer demand, the right actions are required for us to balance the economic, social, and environmental impact.

To meet the ever-increasing demands of modern society, mineral production in Malaysia is continuously increasing along with the scale of mining operations. The wealth creation for resource-rich nations, minerals could be one of the potential resources and mining still the primary method of extraction. As for Malaysia, the mining sector has a huge potential to generate income and create more employment opportunity with the mining and quarrying sector as contributing large allocation of our Gross National Product. Due to avoid environmental degradation, adversely affecting societal well-being, the mining activity needs to be managed properly.

In 2009, the Second Mineral Policy (NMP2) introduced the discipline on environmental stewardship due to ensure the nation's mining sector is developed in a responsible, sustainable manner and environmentally sound.

Regarding sustainability, the government must ensure the environmental friendly applied in bauxite operation by utilizing the bauxite residue. According to C.Klauber 2011, utilization is taking the residue in some nonhazardous form (as a by-product) from the alumina refinery site and using it as a feedstock for another distinct application. The residue utilization may avoid mineral wastage. However, the volume, performance, cost, and risk influence inaction residue management.

### 3. Mineral Act in Malaysia and State

There is a few relevant legislation that is related to the mining of mineral in Malaysia. By jurisdiction, any activities that relate to mineral are governed by the Mineral Development Act, 1994 and the State Mineral Enactment (SME). In the Mineral Development Act 1994, provision of power has been given to the Federal Government for inspection and regulation of mineral exploration and mining and other related matters.

Bauxite in Kuantan is being mined or excavated through two permitted activities, one through a mining permit issued by the Pejabat Tanah & Galian (PTG) Pahang with inputs from Jabatan Mineral & Geosains (JMG) Pahang, and the other is through a permit for excavation of laterite soil issued by the Pejabat Daerah dan Tanah Kuantan.

In order to capitalize on the country's mineral resources, the Federal Government has formulated the National Mineral Policy 2 (NMP2) in 2009. NMP2 has provided the



foundation for the development of an effective, efficient, and competitive regulatory environment for the mineral sector. The thrust of the policy is to expand and diversify the mineral sector through optimal exploration, extraction, and utilization of resources using modern technology supported by Research and Development (R&D).

The salient features of NMP2 are the provisions for the security of tenure, high land-use priority for mining, uniform, and efficient institutional framework, and regulations and guidelines for mining. Under NMP2, the emphasis has been given to rehabilitation, environmental protection, sustainable development, and the management of social impact.

The environmental aspects of mines are regulated by the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987, which is the subsidiary legislation to the (Environmental Quality Act, 1974). Under this Order, mining of minerals in new areas where the mining lease covers a total area larger than 250 hectares is a prescribed activity and requires an approved Environmental Impact Assessment report by the Department of Environment.

### **3.1. The mineral development act 1994**

Under the Mineral Development Act 1994 Section 63 (2), provision has been made for the Minister-in-charge of mining to regulate matters related to environmental protection and safety. The Mineral Development (Operational Mining Scheme, Plans and Record Books) Regulation 2007 were enacted to deal with information or proposal of mining scheme which includes environmental protection measures, monitoring, and contingency plans and progressive rehabilitation and post mine closure. More regulations related to environmental and safety such as Mine Effluents (ME) Regulations and the Safety in Surface Mines and Exploration (SSME) Regulations have been planned in different stages to provide more comprehensive enforcement in mining industry.

### **3.2. Mining activities**

Bauxite mining activities in Kuantan started in 2013 and were not subject to Environmental Quality (Prescribed Activities) (EIA) Order 1987 since it is not categorized as a prescribed activity. Under the EIA Order 1987, only the mining of minerals in new areas where the mining lease covers a total area in excess of 250 hectares is categorized as a prescribed activity. However, all the mining leases or excavation permits issued seem to be of smaller sizes. Hence, none was subjected to an EIA. According to the Mineral

Enactment 2001 for the state of Pahang, 'to mine' is defined as intentionally to win minerals and includes any operation directly and indirectly and necessary therefor or incidental thereto, and 'mining' shall be construed accordingly. In order to administrate the state mineral resources, the State Mineral Resources Committee needs to be established. In Part II Chapter 1 of the Mineral Enactment 2001, the committee shall consist of the following members:

1. A Chairman who shall be appointed by the State Authority;
2. The State Legal Advisor or his authorized representatives;
3. The Director who shall be the Secretary;
4. The Director-General of Mineral and Geoscience or his authorized representative;  
The Director-General of Environmental Quality or his authorized representative;
5. The Director-General of Forestry Peninsular or his authorized representative;
6. The Director of the State Economic Planning Unit or his authorized representative;  
and
7. Three other members who shall be appointed by the State Authority.

However, in practice for (d) through (g), the authorized representatives, namely, the State Directors, attend the committee meetings. The functions of the committee shall include to:

- Perform any function conferred or imposed upon under the State Mineral Enactment 2001; and
- Perform any other function as the State Authority as determined from time to time.

### **3.3. Penalty for mining without a valid license**

According to Part XI 158, any person who conducts mining without a valid license or lease issued under the State Mineral Enactment whether or not any mineral is won shall be guilty of an offence and shall on conviction be liable to a fine of not exceeding five hundred thousand ringgit or to imprisonment for a term not exceeding ten years or both.

### 3.4. Penalty for failure to pay into the Mine or Common Rehabilitation Fund

Any lessee who fails to pay the amount for Mine Rehabilitation or Common Rehabilitation Fund as the case shall be liable to a fine not exceeding twice any amount outstanding or to imprisonment for a term not exceeding six months or both.

## 4. Lack of Governance

To understand where the non-compliance actually occurs, it is best to understand the chain of bauxite handling activities, which are as follows:

### 4.1. Pre-Mining

- illegal mining failed to eradicate
- there were no proper criteria on who can apply for a bauxite mining license, no requirements for those granted a license to furnish technical reports, and the absence of an open tender

### 4.2. Mining operation

- Missing or abuse of transit documents
- Minimized mineral transactions caused the occurrence of purchase/sale of ore from non-sources tenement by using Mineral Ore License (MOL)
- Irregular stockpile management effective cause of dust contamination and water in the surrounding area the absence of a Mining Scheme or non-compliance to the schemes to cause waste management including the discharge of irregular effluents on the site dredging

### 4.3. Post Mining

- Illegal and undirected transport causing spills of lorries and resulting dust pollution and dirt on the road
- Special AP Expenditure for the purpose of disposing of stockpile ineffective and open space to dumping ore obtained illegally for export

## 5. Source of Governance Failure

What can be translated through the above issues, it is clear that noncompliance and integrity are the main sources of governance failure.

### 5.1. Not updating the Standard Operating Procedure (SOP)

Standard Operating procedure (SOP) important element in ensuring the activity or work process meet the objectives set by the organization. Elements such as update act/law, procedures, or policies should implement in the SOP to ensure the sustainability of each activity does not conflict with the original goal. Through the observation of the bauxite activity, there are conflicts with the SOP of each government agency involved in managing bauxite activities start from the application for approval of the mining license until the post-mining. Not denying the act has been established, but the question is it relevant with the current bauxite operation? What about policies and procedures, is it updated according to the suitability of the activity? This factor contributes to failure in updating SOP to meet current activity. When the SOP is not fully packed, it will contribute to the failure of the employee's assessment in ensuring the validity of the bauxite activity. The multiplication of applications for bauxite mining activities adds to the pressure and failure to comply with the SOPs provided by the organization. Not surprisingly, we can see that non-compliance issues can occur that cause damage that negatively impacts the industry. Awareness and training not given by the organization to the staff contribute to the failure staff taken action and not clear their functionality.

### 5.2. Lack of enforcement and monitoring

Enforcement and weak monitoring contribute to the main factor of failure control in illegal mining activity. A weakness shows that increase of the illegal mining uncontrol. It is unclear why this is happening. Among the possibilities for this failure is that there is no clear guideline and policy for enforcement authorities to take action against illegal miners. Increased dramatic mining openings made it harder for authorities to take action more effectively. There is also a cooperation between license miners with illegal miners making it more difficult for enforcement. It added illegal miners using the power of influence with stakeholders to free themselves from the grip of enforcement.

### 5.3. Lack of communication between government agencies

Communication is an important element in ensuring process and understanding in performing the process follow the procedure and policies. Bauxite industry involved several government agencies where every agency plays its role in ensuring the activity in under control. The question is how communication between every agency to do monitoring and enforcement. The failure of this communication led to misunderstandings among agencies in enforcing more effective enforcement and observations. As an example, stockpile management involves several agencies in ensuring that miners comply with the procedure and policies. The question is how the miner's failure in complies regulation and standard given in manage the stockpile where the failure cause to the serious pollution even though it is under the control of several agencies involved. The conflict also arises in between officer from different agencies in communicating when overcoming the issue.

### 5.4. Lack of officer contribute to the integrity issue

MACC reported Nine Pahang Land and Mines Office (PTG) assistant enforcement officers were ordered to be remanded seven days to facilitate a probe into alleged graft linked to illegal bauxite mining in the state. The men, aged between 29 and 59, were suspected of having received bribes in order to shield bauxite miners who had contravened the existing moratorium on mining the lucrative mineral in the state. Among others involved is Customs officer whereas reported he was remanded to facilitate a probe into him allegedly receiving kickbacks to ignore the shipment of bauxite that was brought by miners to Kuantan Port to be exported overseas. Why has it happened? What are the factors that have contributed to the Integrity issue? The factor that has led to corruption are:

1. The Opportunity that is considered open wide when both parties work together to meet their requirements with risking corrupt practices as a way of making the best of every one of them, respectively.
2. The weakness of personality is a difficult problem dealt with, causing themselves to be involved in the practice of corruption. Individual weakness affects the value of itself. The result from the lack of appreciation of true values in carrying out their duties, the greediness and greed, the desire to live luxuriously and to boast, wanting to be fast rich and selfish is the driving force of corruption.

3. Inadequate procedures, regulations, and weaknesses in the implementation system solely, may cause a department exposed to treatment such as bribery, abuse, and abuse of power by officers and staff.
4. The problem of the rising cost of living and income or salary received is not worth it with a challenging current economic environment especially for them living in urban areas that require tremendous financial resources accommodating the cost of living. This problem caused some parties to be compelled to take the easy way by doing corrupt practices.

## 6. Recommendation

During Moratorium, Ministry of Natural Resources and Environment are required to make comprehensive improvements to mining legislation and procedures for mining license and Export License (AP). Such improved legislation and procedures need to be enforced after the moratorium expires. Ministry of Natural Resources and Environment has held a series of engagement together with various relevant ministries/departments/ agencies including a series of workshops on 4 to 6 October 2015 and 27 to 29 January 2016. The workshops are intended to review all rules, procedures, and guidelines involving mining and exporting bauxite. Besides, the ministry has drawn up the necessary improvements to make bauxite mining and export activities implemented in a sustainable and responsible manner. As a result of a series of engagement and workshops held, improvements should be made in the aspect of the bauxite operating activities chain such as follows:

- Application for Mining Rights Application
- Bauxite Mining Site Management
- Stockpile and Port Management
- Transportation and Enforcement Methods
- Bauxite Export Procedure

Transparency and accountability are an important element in ensuring the sustainability of the process and activity. The effectiveness of enhancement in engagement with all relevant agencies in updating SOP depending on how the officer implements SOP itself. In ensure there is no repeat of the corruption issue, the agencies should have adequate procedures implemented to prevent the occurrence of corrupt practices in relation to their activities. The implementation includes:

- Starting with the tone at the top of the level management that believes that integrity and ethics are important for the organization
- Practicing the highest level of integrity and ethics
- Complying fully with applicable laws and a regulatory requirement on anti-corruption
- Effectively managing the key corruption risks of the organization.

Assure internal/external stakeholders that the organization is operating in compliance with its policies and applicable regulatory requirement. The tone from the Top – Spearheading organization to improve the effectiveness of Corrupt Risks Management framework, Internal Control system, review and monitoring, and training and communication. Procedures implement such Anti-Corruption Compliance Programmed, promote a culture of Integrity, encourage the use of reporting (WB Channel), Assign a competent person in charge in AB policy, Policies for internal and external parties, result of audit, risk assessment review and control measures are reported to Top Level management.

Corruption risk assessment should form the basis of an organization's anti-corruption efforts and should conduct a corruption risk assessment periodically (3 years). To establish appropriate processes, systems, and controls approved by the top-level management to mitigate the specific corruption risks the business is exposed. Procedures the assessment may include:

- Opportunities resulting in weaknesses in organization governance framework/ internal control
- Non-compliance of external parties acting on behalf of a commercial organization
- Financial transactions that may disguise corruption payment
- Relationship with third parties in its supply chain which expose to corruption.

Undertake Control Measures- To put in place the appropriate controls and contingency measures which are reasonable and proportionate to the nature and size of the organization. Organization should establish key consideration or criteria for conducting due diligence on any relevant parties or personnel before entering into any formalized relationships. E.g., Background check, document verification process conduct an interview. The Organization's policies should be:

- Endorse by top-level Management
- Kept up-to-date

- Publicly and easily available and
- Suitable for use where and when needed

The procedure should be implemented:

- Establish an accessible and confidential trusted reporting channel
- Encourage persons to report in good faith, any suspected and attempted
- Establish a secure information management system to ensure confidentiality of WB identified
- Prohibit retaliation against those making reports in good faith

Policies and Procedures to cover the following General anti-bribery and corruption policy, Conflict of Interest, Gifts, entertainment, hospitality and travel, Donations and sponsorships, Recordkeeping for managing documentation related to adequate procedures, Managing inadequacies in monitoring framework and Financial Control.

Systematic Review, Monitoring, and Enforcement- Regular reviews are conducted to assess the performance, efficiency and effectiveness of the anti-corruption programmed and reviews may take the form of an internal audit, or an audit carried out by an external party. Procedures should be implemented:

- Plan, establish, implement and maintain monitoring programmed
- Identify the competent person(s)/establish a compliance function for auditing and other purposes
- Conduct continual evaluations and improvement on the organization's policies and procedures related to corruption
- Consider an external audit by the independent third party once every 3 years
- Monitor performance of personnel with anti-corruption policies and procedures to ensure their understanding stand
- Conduct disciplinary proceeding against personnel found to be non-compliant to the programmed.

Training and Communication where provide employees and business associates with adequate training which covers the areas of:

- Policy
- Training
- Reporting Channel



- Consequences of non-compliance

The policy should be made publicly available and communicated to all personnel and business associates. As part of Bauxite transportation create an issue to society, the recommendation to the government should

- Have a traffic management plan, developed in consultation with key stakeholders, if the transport of bauxite on public roads or through the community cannot be avoided; and
- Ensure all transport through the community includes safety training;
- Ensure that transport personnel adheres to speed restrictions and cover all vehicles appropriately.
- Assessing the impact of the mine on existing road traffic, by vehicle type and route, including the ability of the road to withstand the weight and increased intersection impact

Technologies implementation can be adopted in ensure the process more be efficient and effectiveness. Technologies adoption will be more transparency and accountability. All the agencies easy in communication and monitoring the activity in systematic, which can help prevent illegal miners manipulate the activity.

## 7. Conclusion

The principles of sustainable bauxite mining practices are common to the mining of other minerals and are focused on reducing impacts on biodiversity, land, and water; on promoting community engagement and on integrated rehabilitation and closure activities. Developing and integrating practices across safety, environment, economy, efficiency, and the community can also improve the sustainability of mining operations. Good governance, reduced environmental legacies, fewer safety incidents, and increased community benefits result in not only better financial outcomes and increased competitiveness, but also enhance the company, country, and industry reputation and credibility. Overcoming misalignment between the overall benefits of the activity and its local impacts remains one of the major challenges for mining, especially in less developed regions. Bauxite mining companies, through structured and innovative programs, should strive to be a catalyst for local, sustainable development.

Bauxite mine operators should assess the social, environmental, and economic impacts of their activities before the commencement of mining. Such an assessment

includes identifying affected stakeholders, the potential impacts of the planned mine, and those measures which should be applied to prevent and limit negative and maximize positive outcomes. Bauxite industries have a potential business and good profitability return to the country. All action taken hereafter should be in line with the needs of the community and the legislation. It is not wrong for the industry to re-operate as long as government agencies and mining operator bauxite ensure the governance and compliance of the policies and procedures in place.

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## Conference Paper

# Independence of Internal Audit Unit Influence the Internal Audit Capability of Malaysian Public Sector Organizations

Nur Ain Zakiah Mohd Yusof<sup>1</sup>, Hasnah Haron<sup>1</sup>, Ishak Ismail<sup>1</sup>, and Ong Hock Chye<sup>2</sup>

<sup>1</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

<sup>2</sup>Office of the Auditor-General, Asian Development Manila, Philippines

## Abstract

Measuring capability level of a service provider is ambiguous, so does an internal audit unit in the public sector. Prominently, there is very scarce research conducted on this issue. In this study, the Internal Audit Capability Model (IACM) is used to measure the capability while the independence of the internal audit is studied as one of the factors influencing it. Questionnaires were sent to head of internal auditors which list obtained from National Audit Department. Total of 70 responses was received and analyzed for descriptive statistics and relationship testing using SPSS and SmartPLS. It was found that 47 organizations were only at capability level 1 Initial while remaining 13 organizations were at least scored capability Level 2 Infrastructure. This shows that the Malaysian public sector must strengthen its internal audit unit, especially in People Management, to develop higher capability level. It was also found that independence of the internal audit unit has a positive and significant influence on the overall internal audit capability level. Lack of independence results in lack of quality internal audit unit thus gives an impact on the capability level. IACM used in this study could provide the organization with a road map to enhance its capability.

**Keywords:** Internal Audit Capability Model, IACM, internal audit, Malaysia.

Corresponding Author:

Nur Ain Zakiah Mohd Yusof

nazmyzaki@gmail.com

Hasnah Haron

hasnahharon@ump.edu.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under

the responsibility of the

FGIC2019 Conference

Committee.

## 1. Introduction

“How does the public sector measure their internal audit capability?” is the main question that drives this study to be conducted. Every year without failing, Auditor’s General released a series of audit reports of Malaysian public sector organizations, entailed the financial performance and activities. These audit reports are made available to the public. More than not, these reports contain various weaknesses and inefficiencies related to mismanagement, improper handling of government assets, wastage, etc. According to Auditor General, internal audit function plays a proactive role as a monitoring mechanism and in examining ongoing projects. It may assist public

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sector entities in achieving their objectives effectively, efficiently, economically, and ethically by providing unbiased and objective assessments (Ahmad, Othman, Othman, & Jusoff, 2009). To ensure a proper mechanism exist, auditor general for the last few decades has been emphasizing on the establishment of effective internal audits, to assist controlling officers to discharge their duties effectively within each organization. This is because, the internal auditors are directly responsible to the controlling officers instead of the Treasury, whom in the first place, instates all the policy, rules, and guidelines regarding the internal audit function. These controlling officers and the central agencies are responsible for monitoring the information and achievement of plan objectives. Even though the staff is filled by civil servants and officers from the National Audit Department (NAD), NAD would only report on deficiencies in budget implementation, inadequate or poor record-keeping, weak systems, and controls, as well as improper payments and authorization (E. I. E. Ali, 2015). Therefore, it is vital for the organizations to identify their internal audit capability in order to ensure that their audit findings and report are up to the par, benchmarked with the worldwide standard. Unfortunately, the assessment for the performance of internal audit function is made available only to organizations under purview of the Ministry of Finance (MOF) and does not serve as self-assessment for all public sector organizations. This assessment consists of the following elements: (i) general; (ii) audit planning; (iii) audit execution; (iii) audit reporting; (iv) staffing and competency; (v) general administration; and (vi) audit committee (Fern, 2015). The assessment results of the performance of internal audit functions are not disclosed to the public, and those organizations not under the purview of MOF also are not able to identify their capability level. The lack of proper measurement for internal audit capability is not faced by Malaysian public sectors organizations only, but worldwide. Various studies and researches had been conducted to measure the performance of internal audit function, the effectiveness of internal audit, and so on. Nevertheless, there is none worldwide acceptable measurement had been agreed for measuring the internal audit capability in the public sector. However, in 2009, the Institute of Internal Auditors Research Foundation (IIARF) was able to introduce a measurement model so-called Internal Audit Capability Model (IACM). This model was the first of its kind to measure capability levels specifically for the public sector and was validated globally through on-site feedback from numbers of volunteers and public sector organizations (MacRae & Sloan, 2017). The very little study reported the use of IACM by academicians worldwide and even more scarce in Malaysia. Thus, this research adopted the IACM measurement to measure the internal audit function in Malaysian public sector organizations. Moreover, this study attempts to introduce the

IACM as to the endogenous variable in which independence of internal audit is served as its construct predictor. Independence of internal audit is one of the most fundamental elements needed for effective internal audit function, as per the definition of the internal auditing.

## 2. Literature Review

Internal auditing is defined by the Institute of Internal Auditors (IIA) as: “An independent, objective assurance and consulting activity designed to add value and improve an organization’s operations.” It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes” (Institute of Internal Auditors Research Foundation, 2009). This profession is practiced globally either in the public or private sector, within a mixture of environments, law and customs, and a variety of organizations’ purpose, size, and structure. It is expected that internal auditors follow the IIA’s International Standards for the Professional Practice of Internal Auditing (Standards) and adhere to its Code of Ethics. To provide assurance of effective and efficient governance processes, adequate internal controls and achieving organizational goals and objectives, the internal audit activity should collaboratively work with all level of organization’s hierarchy and the oversight body (Institute of Internal Auditors Research Foundation, 2009). Hence, the main concern arises on how capable the internal audit functions is, in performing their duty and responsibilities?

### 2.1. Study on Internal Audit Capability

Countless research had been conducted in the stream of internal auditing worldwide. However, the body of knowledge is not yet comprehensive for internal auditing studies in the public sector. More scarcely, studies conducted in evaluating the internal audit capability. Lester (2014) had discussed critically on the idea of capability for a profession had discussed critically on the idea of capability for a profession. He claimed that probably by 2012, there is yet any professional standards framework, except for several professions such as a landscaper, engineer, etc. that can be described as fully informed by a capability approach. However, Lester’s capability idea is referred to an individual profession, not an organizational level. Prior research conducted by Wu and Wu (2013), highlighted the firm-specific capabilities in terms of operations capability, technological capability, and marketing capability. While Tseng and Lee (2014) studied

several other organizational capabilities in terms of knowledge management capability, resource-based capability, and dynamic capability of organization. Several other kinds of research had also studied various other firm's capabilities. These capabilities measured are mostly based on descriptive means computed from items to be answered by respondents (level of agreement with the statement).

Instead, the more structured measurement on various firm capabilities attributes had been widely proposed based on the Capability-Maturity Model Integration (CMMI)® deployed by Software Engineering Institute, Carnegie Mellon University. This CMMI is one of its kind that provides a robust measurement of capability and maturity of product and services that consist of five distinct levels with various process areas (CMMI Product Team, 2010). As for the CMMI standard, it is currently divided into three categories including CMMI for Development (CMMI-DEV) focused on product and service development, CMMI for Acquisition (CMMI-ACQ) centered on acquisitions and supply of goods and service from others, and CMMI for Services (CMMI-SVC) directed to the processes of service organizations (Duarte & Martins, 2013) as cited in (Maneerat, Malaivongs, & Khlaisang, 2015). Some studies have also adapted the CMMI measurement to measure various others such as the People Capability Maturity Model to enhance workforce capability (Chen & Wang, 2018; Surega, 2019), Intellectual Capital Maturity Model (Vaz, Selig, & Viegas, 2019), Analytic Processes Maturity Model (APMM) for evaluating the analytic maturity of an organization (Grossman, 2018) and so on. In the auditing field, Internal Audit Capability Model (IACM) had been developed by the Institute of Internal Auditors Research Foundation (2009) utilizing the CMMI measurement. Since then, few studies have been highlighted for using IACM to evaluate the capability level of internal audit units in public sector worldwide include internal audit activities from Asia, Africa, North America, South America, and Europe. In Asia, the *Badan Pengawasan Keuangan dan Pembangunan* (BPKP) Indonesia (2010-2015) has adopted IACM to carry out an assessment survey of the strengths and weaknesses of Inspectorates General in Government of Indonesia. Then, the Office of Auditor General, Asian Development Bank, Philippines (2017) had also adopted IACM to examine the maturity level of the internal audit function in the member of states ASEAN. IACM was used to benchmark against statistics obtain from Institute of Internal Auditors 2010 Global Internal Audit Survey participated by 2284 respondents from 107 countries, including Asians. (Ayagre, 2015; Barac, Coetzee, & Van Staden, 2017; Institute of Internal Auditors Research Foundation, 2009; Janse van Rensburg & Coetzee, 2016; MacRae & Gils, 2014a; MacRae & Sloan, 2017; Mulyatini, 2018; Protiviti, 2013; Sondh, 2018). Specifically, in Malaysia, this is the second study officially conducted using IACM to evaluate the Malaysian public sector

internal audit after master's degree thesis published by Fern (2015). The current study conducted has been acknowledged in the Overview and Application Guide of Internal Audit Capability for the public sector released by Internal Audit Foundation (MacRae & Sloan, 2017). Unfortunately, there is very scarce research and studies conducted in evaluating the relationship between IACM and other factors, its antecedents and outcomes. Thus, similar studies conducted using the term of internal audit effectiveness and performance of internal audit function are referred to as the proxy for internal audit capability. This is for the purpose of introducing IACM as part of bigger theoretical framework that adds to the body of knowledge in internal auditing.

## 2.2. Factors influencing Internal Audit Effectiveness

Internal auditing is a complicated process. It is made up of many elements such as long-term planning; organizing; staff development; audit planning; the various aspects of fieldwork such as observing, verifying, confirming, and analyzing; reporting and follow-up. It also involves interpersonal relations, interviewing, and conferring. These aspects of the internal auditing process are important and should be observed and evaluated. The achievement of the internal auditing process is when internal auditing performs in such a way to accomplish the task described (Dittenhofer, 2001). Thus, many factors may influence the internal audit effectiveness. Numerous attributes were studied so far, for factors influencing internal audit effectiveness in public sector organizations including management support (Alzeban & Gwilliam, 2012; Drogalas, Karagiorgos, & Arampatzis, 2016; Mihret & Yismaw, 2007; Mupeta, 2017); audit experience and competence (Alzeban & Gwilliam, 2012; Badara & Saidin, 2014; Drogalas et al., 2016); independence of internal audit or organizational independence (Alzeban & Gwilliam, 2014; Drogalas et al., 2016; Qun, 2013; Tackie, Marfo-Yiadom, & Oduro Achina, 2016) and many others such as audit committee, relationship between external auditors, etc.

However, this current study inclined to investigate the internal audit independence as one of the most crucial factors influencing internal audit effectiveness, i.e. has an associated impact with internal audit capability. This is because independence is one of the elements mentioned besides objective assurance and consulting activity in the definition of internal auditing. Furthermore, MacRae and Gils (2014b) reported that independence is the first one of the nine key elements for an effective public sector audit activity, as published in Global Internal Audit Common Body of Knowledge (CBOK). Another researches in Malaysian public sector organizations had also addressed the lack of internal audit independence in which has consequently affecting the internal

audit effectiveness (Ahmad, Othman, & Othman, 2010; Ahmad et al., 2009, 2009) i.e. independence of internal audit has a positive influence on internal audit effectiveness (Ahmad et al., 2010). Hence, this research has also hypothesized that independence of internal audit has a positive and significant influence on internal audit capability level (proxied by internal audit effectiveness). The measurement for the independence of internal audit was measured by nine indicators adapted from Alzeban and Gwilliam (2014). Further research design and methodology is discussed in the following section.

### 3. Methodology

This research was conducted using a questionnaire given to the Head of Internal Auditors in Malaysian public sector organizations. The list of organizations with Internal Audit Units had been emailed by the National Audit Department (NAD) on 27 February 2018 upon earlier request. Data was collected conveniently by approaching organizations that have an internal audit department from April 2018 to August 2018. Supporting letter by NAD requesting the auditors to participate in this research was attached together resulted in enough response rate. Besides specific sections meant to study the internal audit capability and factors influencing it, the open-ended section was also provided in the questionnaire. Respondents were asked to write down their perception of the internal audit capability in their organization and to provide suggestions to improve the internal audit capability level according to their opinion and experience. The main concern of this study i.e. the internal audit capability level was measured by using the Internal Audit Capability Model (IACM). IACM consisted of six dimensions that are (i) Services and Role of Internal Auditing (SRIA); (ii) People Management (PM); (iii) Professional Practices (PP); (iv) Performance Management and Accountability (PMA); (v) Organizational Relationship and Culture (ORC); and (vi) Governance Structures (GS). There was five capability level measured for each dimension that is (i) Level 1 Initial; (ii) Level 2 Infrastructure; (iii) Level 3 Integrated; (iv) Level 4 Managed and (v) Level 5 Optimized. The respondents were asked to answer 72 “Yes” and “No” questions representing 41 Key Process Areas (KPAs) as shown in Appendix 1. These KPAs are descriptors meant to be achieved at different capability level. All items for each level should obtain all “Yes” in order to reach the next level. Total IACM value was obtained from the lowest level achieved from all six dimensions while KPA percentage was calculated based on the weighted value scored in each question asked. The calculation was done according to the previous studies and reports (Fern, 2015; Haron, Ismail, Ganesan, Hashim, & Fern, 2016; Institute of Internal Auditors Research Foundation,



2009; MacRae & Sloan, 2017). For example, descriptors describing level 2 was given two marks for each “Yes” answer while descriptors at level 5 were given five marks for each “Yes.” All marks were calculated and divided with the total marks in order to get the KPAs percentage. On the other hand, the exogenous variable i.e. independence of internal audit (IND) was measured by nine indicators adapted from Alzeban and Gwilliam (2014) comprised of (i) Internal audit staff are sufficiently independent to perform their professional obligations and duties; (ii) The head of internal audit reports to a level within the organization that allows internal audit to fulfill its responsibilities; (iii) The head of internal audit has direct contact to the board (to the president for government organizations); (iv) The internal audit department has direct contact with top management other than the finance director; (v) Conflict of interest is rarely present in the work of internal auditors; (vi) Internal auditors rarely face interference by management while they conduct their work; (vii) Internal audit staff have free access to all departments and employees in the organization; (viii) The board of directors (the president for government organizations) approves the appointment and replacement of the head of internal auditing; and (ix) Internal audit staff are not requested to perform non-audit functions. All respondents were asked to rate their agreement with the statement from “Scale 1 Strongly Disagree” to “Scale 5 Strongly Agree”. SPSS Statistics Version 23 was used to analyze the demographic profile while Smart PLS 3.0 was used to analyze the relationship between independence and each dimension of Internal Audit Capability. PLS-SEM was used due to its advantages in analyzing non-normal distribution data with small sample size and estimating the model relationship of even complex models with many indicators as well as single-item constructs (Hair, Hult, Ringle, & Sarstedt, 2016). In this research, the measurement of internal audit capability dimensions was treated as a single-item construct. All indicators validity and reliability, as well as the overall relationship estimation, were tested according to the requirement stipulated by PLS-SEM, as shown in Table 1.

#### 4. Results Analysis, Findings and Discussion

This section presented the data analysis results and discussion to answer the research questions highlighted in this study. From a total of 200 questionnaires distributed, 70 responses had been received back and used for further analysis, resulting in a 35 percent response rate. According to the rule of thumb, the appropriate sample size required for testing the relationship was 60 samples, i.e. six arrows pointing towards latent variables times ten. Using the G\*Power Version 3.9.1.2 post-hoc power

TABLE 1: Assessment Process of Partial Least Square Structural Equation Modeling.

| Assessment Stage |                              | Element  | Evaluation  |
|------------------|------------------------------|--|---|
| 1                | Measurement Model Assessment | Internal consistency (Composite Reliability)     | Values should be higher than 0.708 (in exploratory research, 0.60 to 0.70 is considered acceptable)   |
|                  |                              | Indicator Reliability                            | Outer loadings should be higher than 0.708. Values between 0.40 and 0.70 should be considered for removal only if the deletion leads to an increase in composite reliability and AVE above the suggested threshold value. Values less than 0.4 must be removed. |
|                  |                              | Convergent Validity (Average Variance Extracted) | Values of 0.50 or higher are accepted   |
|                  |                              | Discriminant Validity HTMT)                      | Values should be less than 0.85 or 0.90.  |
| 2                | Structural Model Assessment  | Coefficients of Determination (R <sup>2</sup> )  | Value ranges from 0 to 1, with higher levels indicating higher levels of predictive accuracy. Values of 0.75 is considered as substantial, 0.50 is moderate and 0.25 is weak.   |
|                  |                              | Significance of Path Coefficients                | For exploratory research, general significance level of 10% is considered. Critical values for one tailed test are 1.28 (significance level = 10%), 1.65 (significance level = 5%), and 2.33 (significance level = 1%).   |
|                  |                              | Effect Size (f <sup>2</sup> )                    | Values less than 0.02 indicates no effect; more than 0.02 is small, 0.15 is medium and 0.35 represents large effects.   |

Source: (Hair, Hult, Ringle, & Sarstedt, 2014; Hair et al., 2016)

analysis (Faul, Erdfelder, Lang, & Buchner, 2007), total 70 samples used in the analysis resulted in 99 percent power at 0.35 effect size<sup>2</sup> as shown in Figure 1. Hence, the sample size obtained was adequate for further analysis of the relationship between the Independence of Internal Audit and Internal Audit Capability.

#### 4.1. Demographic Profile of Respondents and Organizations

The demographic profile of 70 respondents was analyzed using SPSS and tabulated in Table 2.

TABLE 2: Demographic Profile.

|        | Demographic Profile    | Frequency | Percent |
|--------|------------------------|-----------|---------|
| Gender | Female                 | 36        | 51.4    |
|        | Male                   | 34        | 48.6    |
| Race   | Malay                  | 68        | 97.1    |
|        | Chinese                | 1         | 1.4     |
|        | Kadayan                | 1         | 1.4     |
| Age    | 56 years old and above | 9         | 12.9    |
|        | 46 to 55               | 24        | 34.3    |

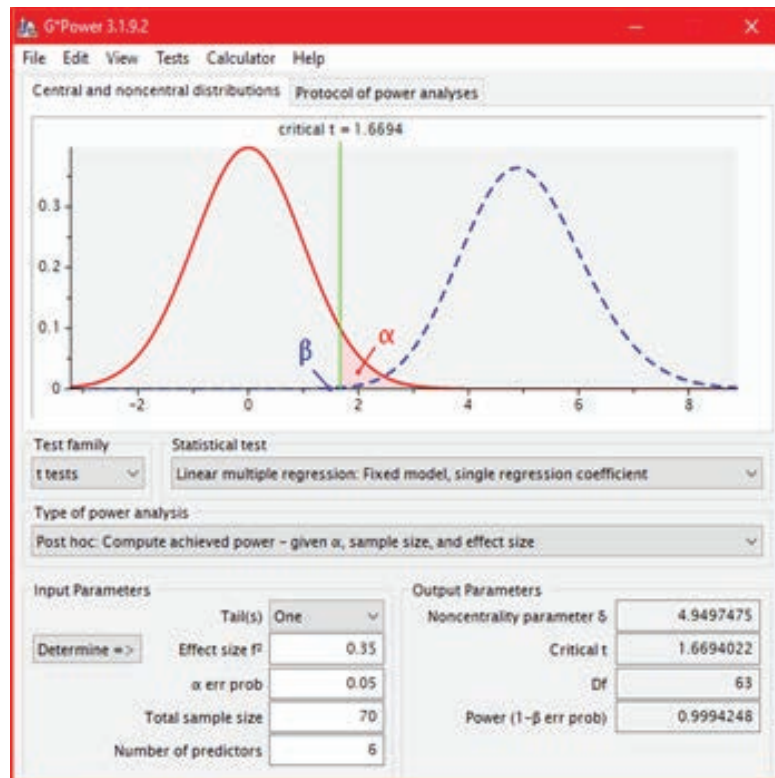


Figure 1: Post-hoc Sample Size Power Calculation.

|                                     | Demographic Profile                  | Frequency | Percent |
|-------------------------------------|--------------------------------------|-----------|---------|
|                                     | 36 to 45                             | 18        | 25.7    |
|                                     | 26 to 35                             | 18        | 25.7    |
|                                     | Below 25 years old                   | 1         | 1.4     |
| Position                            | Head of Internal Audit               | 37        | 52.9    |
|                                     | Internal Auditor                     | 18        | 25.7    |
|                                     | Deputy Head of Internal Audit        | 9         | 12.9    |
|                                     | Assistant Accountant                 | 5         | 7.1     |
|                                     | Head of Integrity and Internal Audit | 1         | 1.4     |
| High Education (Respondent)         | Master                               | 11        | 15.7    |
|                                     | Degree                               | 50        | 71.4    |
|                                     | Diploma                              | 9         | 12.9    |
| Professional Certificate or License | No                                   | 47        | 67.1    |
|                                     | Yes                                  | 23        | 32.9    |
| State                               | Putrajaya                            | 21        | 30.0    |
|                                     | Selangor                             | 11        | 15.7    |
|                                     | Perak                                | 11        | 15.7    |
|                                     | Kedah                                | 8         | 11.4    |
|                                     | Negeri Sembilan                      | 6         | 8.6     |

| Demographic Profile                                      |                        | Frequency | Percent |
|--|------------------------|-----------|---------|
|  | Melaka                 | 4         | 5.7     |
|  | Pulau Pinang           | 4         | 5.7     |
|  | Johor                  | 2         | 2.9     |
|  | Pahang                 | 2         | 2.9     |
|  | Perlis                 | 1         | 1.4     |
| Organization Type  | Local Authorities      | 29        | 41.4    |
|  | Ministry               | 15        | 21.4    |
|  | State Statutory Body   | 11        | 15.7    |
|  | Federal Statutory Body | 7         | 10.0    |
|  | State Department       | 5         | 7.1     |
|  | Federal Department     | 3         | 4.3     |
| Number of Audit Staffs                                   | Less than 5 Staffs     | 31        | 44.3    |
|  | 5 to 10 Staffs         | 21        | 30.0    |
|  | 11 to 20 Staffs        | 11        | 15.7    |
|  | 21 to 30 Staffs        | 3         | 4.3     |
|  | More than 30 Staffs    | 4         | 5.7     |
| Average Level of Education<br>(All staffs in audit unit) | Degree                 | 45        | 64.3    |
|  | Diploma                | 23        | 32.9    |
|  | Master                 | 2         | 2.9     |
| Average Years of Experience                              | Less than 3 years      | 5         | 7.1     |
|  | 3 to 6 years           | 25        | 35.7    |
|  | 6 to 9 years           | 26        | 37.1    |
|  | 9 to 12 years          | 10        | 14.3    |
|  | 12 to 15 years         | 4         | 5.7     |

Total of 68 respondents is Malay with 51 percent female. Total of 24 respondents is from 46 to 55 years old, while 50 percent are at least a degree holder. Only 53 percent of respondents are heads of internal audit. Most respondents are in Putrajaya (30 percent), Selangor and Perak (15 percent each). More than 40 percent of respondents are from local authorities. Almost 45 percent of them have only less than five internal audit staffs with an average level of education is degree holder (64 percent) and average years of experience six to nine years.

#### 4.2. Level of Internal Audit Capability in Malaysian Public Sector Organizations

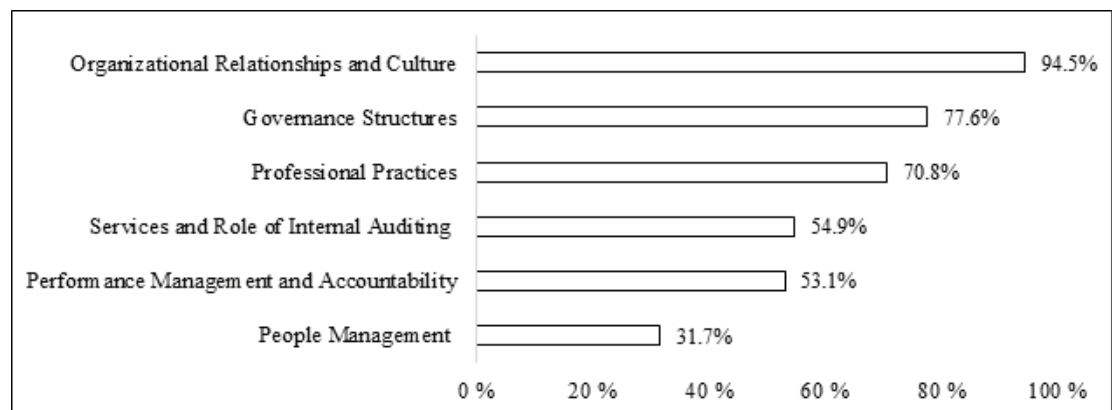
Further analysis conducted to evaluate the level of internal audit capability revealed that all organizations studied in this research had achieved overall IACM Level 1 Initial

(57 organizations) and Level 2 Infrastructure (13 organizations) as shown in Table 3. The initial level shows that internal auditing in the organizations has been dependent upon individual efforts and not having repeatable capabilities, i.e. not sustainable. There might be only a few defined processes and inconsistent practices. The infrastructure for the internal audit activity was not well established, and the funding is approved by management as needed only. Internal auditors are treated just as a part of larger organizational unit. On the other hand, achieving Level 2 Infrastructure at least showed that these 13 organizations have sustainable and repeatable internal auditing practices and procedures which partly conforms with the Standards. At this level, the internal audit activity conducts control-based or traditional compliance auditing, including financial audits, system, or process audit. Their organizations might as well had allocated specific operating budget for internal audit activities to be carried out.

This finding is consistent with the research reported by MacRae and Gils (2014) where more than 90 percent of the public sectors organizations from all regions (Africa, Asia-Pacific, Europe-Central Asia, Latin America and Caribbean, Middle East, United States, and Canada, as well as Western Europe) had scored overall capability performance level at Level 1 (34%) and Level 2 (62%). It was also reported that less than five percent of public sectors' internal audit activities, regardless of the regions, had achieved higher than Level 2 Infrastructure. Similar to previous studies conducted in Malaysia had also revealed the same results (Fern, 2015; Haron, Ismail, Ganesan, et al., 2016; Haron, Ismail, & Yusof, 2016). Moreover, in this current study, it was found that none of the internal audit units in public sector organizations had achieved overall capability Level 3 and above. One of the reasons might be due to the type of organizations where 41 percent of the organizations participated in this study were from local authorities. This reason had also been mentioned by MacRae and Gils (2014)

Evaluating the overall average scored by each dimension of IACM, it was found that People Management is the most critical dimension needed to be addressed for. The average score obtained by all 70 respondents participated in this study for this dimension is the least, which is only 31 percent. The results showed that the internal audit activities in the public sector performed the best in the dimension of Organizational Relationship and Culture (94 percent), followed by Governance Structure (77 percent) and Professional Practices (70 percent). The overall average score of KPAs percentage by Services and Role of Internal Auditing as well as Performance Measurement and Accountability are only 55 percent and 53 percent, respectively, as shown in Figure 2.

The critical result obtained for People Management dimension could be explained by several factors. People management is actually the process of creating a work



**Figure 2:** Overall Public Sector Averages Scored of KPAs for Each IACM Dimension.

environment that enables people to perform to the best of their abilities (MacRae & Sloan, 2017). It involves recruiting, training and providing professional development to ensure that the internal audit activity has the appropriate staff to achieve its role and deliver the services expected by all stakeholders (MacRae & Gils, 2014a). One of the reasons could be explained from the tabulation of respondents' demographic profile. From the demographic profile, there are 31 organizations that have less than five internal audit staffs, and almost 70% of the organizations' audit staffs have average years of experience less than nine years. Also, 47 respondents mentioned that they do not have another professional certificate or license. In order to improve from capability level 1 to 2, these organizations are advised to obtain the membership of the Institute of Internal Auditors (IIA) Malaysia. Being part of professional institution members will ensure the continuous learning platform. Internal auditors should always be updated with the latest information, knowledge, and skills. They should attend at least 40 hours of formal training per year.

Similarly, most respondents had addressed the same issues and suggestions in the open-ended section. From total open-ended comments received, almost 70 percent of them had commented on the issue of lacking competence and skills staffs as well as the need for continuous learning and training in the field. This had also been reported by the previous researchers (Ahmad et al., 2010; Shamsuddin, Manjieggar, & Kirupanangtan, 2014). There are many vacancies for internal audit positions. Some respondents had also described the issues in which the appointed internal audit staffs are lacking in experience and skills. Thus, had an impact on the quality of internal auditing as well as causing a nuisance to other staffs. Furthermore, some respondents had commented on the need of increasing budget from central government for hiring audit staffs and providing professional training. They had also addressed the need for organizations' management to acknowledge and appreciate the importance of internal

auditing. Instead, some respondents claimed that they had trouble to independently carry out their job due to management constraint and intervention. Internal audit should be positioned as an independent function in the third line of defense.

TABLE 3: Internal Audit Capability Level and Percentages of Key Process Areas Scored.

| Dimensions   | Capability Level |    |         | KPAs Percentage Scored         |      |         |
|--|------------------|----|---------|--------------------------------|------|---------|
|  | Level            | n  | Percent | Scored                         | Avg. | Percent |
| Overall Internal Audit Capability Level and Overall Average KPAs Percentage Scored | 1 Initial        | 57 | 81.4    | SRIA (84 total items weighted) | 46   | 54.9    |
|  | 2 Infrastructure | 13 | 18.6    | PM (174 total items weighted)  | 55   | 31.7    |
|  | 3 Integrated     | 0  | 0.0     | PP (45 total items weighted)   | 32   | 70.8    |
|  | 4 Managed        | 0  | 0.0     | PMA (68 total items weighted)  | 36   | 53.1    |
|  | 5 Optimizing     | 0  | 0.0     | ORC (40 total items weighted)  | 38   | 94.5    |
|  |                  |    |         | GS (61 total items weighted)   | 47   | 77.6    |
| Dimension  | Level            | n  | Percent | Scored                         | n    | Percent |
| Services and Role of Internal Auditing (SRIA)                                      | 1 Initial        | 4  | 5.7     | Very Low (0 to 20%)            | 5    | 7.1     |
|  | 2 Infrastructure | 23 | 32.9    | Low (21 to 40%)                | 14   | 20.0    |
|  | 3 Integrated     | 12 | 17.1    | Medium (41 to 60%)             | 19   | 27.1    |
|  | 4 Managed        | 1  | 1.4     | High (61 to 80%)               | 22   | 31.4    |
|  | 5 Optimizing     | 30 | 42.9    | Very High (81 to 100%)         | 10   | 14.3    |
| People Management (PM)   | 1 Initial        | 48 | 68.6    | Very Low (0 to 20%)            | 12   | 17.1    |
|  | 2 Infrastructure | 21 | 30.0    | Low (21 to 40%)                | 43   | 61.4    |
|  | 3 Integrated     | 0  | 0.0     | Medium (41 to 60%)             | 15   | 21.4    |
|  | 4 Managed        | 0  | 0.0     | High (61 to 80%)               | 0    | 0.0     |
|  | 5 Optimizing     | 1  | 1.4     | Very High (81 to 100%)         | 0    | 0.0     |
| Professional Practices (PP)  | 1 Initial        | 42 | 60.0    | Very Low (0 to 20%)            | 1    | 1.4     |
|  | 2 Infrastructure | 8  | 11.4    | Low (21 to 40%)                | 8    | 11.4    |
|  | 3 Integrated     | 0  | 0.0     | Medium (41 to 60%)             | 17   | 24.3    |
|  | 4 Managed        | 1  | 1.4     | High (61 to 80%)               | 14   | 20.0    |
|  | 5 Optimizing     | 19 | 27.1    | Very High (81 to 100%)         | 30   | 42.9    |
| Performance Management and Accountability (PMA)                                    | 1 Initial        | 19 | 27.1    | Very Low (0 to 20%)            | 7    | 10.0    |
|  | 2 Infrastructure | 17 | 24.3    | Low (21 to 40%)                | 13   | 18.6    |

| Dimensions                                     | Capability Level |    |         | KPA's Percentage Scored |      |         |
|--|------------------|----|---------|-------------------------|------|---------|
|  | Level            | n  | Percent | Scored                  | Avg. | Percent |
| Organizational Relationships and Culture (ORC) | 3 Integrated     | 4  | 5.7     | Medium (41 to 60%)      | 24   | 34.3    |
|  | 4 Managed        | 0  | 0.0     | High (61 to 80%)        | 16   | 22.9    |
|  | 5 Optimizing     | 30 | 42.9    | Very High (81 to 100%)  | 10   | 14.3    |
|  | 1 Initial        | 0  | 0.0     | Very Low (0 to 20%)     | 6    | 8.6     |
|  | 2 Infrastructure | 21 | 30.0    | Low (21 to 40%)         | 14   | 20.0    |
| Governance Structure (GS)                      | 3 Integrated     | 5  | 7.1     | Medium (41 to 60%)      | 22   | 31.4    |
|  | 4 Managed        | 0  | 0.0     | High (61 to 80%)        | 16   | 22.9    |
|  | 5 Optimizing     | 44 | 62.9    | Very High (81 to 100%)  | 12   | 17.1    |
|  | 1 Initial        | 22 | 31.4    | Very Low (0 to 20%)     | 0    | 0.0     |
|  | 2 Infrastructure | 6  | 8.6     | Low (21 to 40%)         | 0    | 0.0     |
|  | 3 Integrated     | 36 | 51.4    | Medium (41 to 60%)      | 0    | 0.0     |
|  | 4 Managed        | 0  | 0.0     | High (61 to 80%)        | 2    | 2.9     |
|  | 5 Optimizing     | 6  | 8.6     | Very High (81 to 100%)  | 68   | 97.1    |

### 4.3. The Influence of Independence Internal Auditing on the Internal Audit Capability

Before further relationship testing, the following descriptive statistics were obtained from the data analysis in SmartPLS 3.0. Most indicators scored more than 4.00 mean, i.e. they agreed most with the statement. IND1, IND6, and IND8 scored below 4.00 while IND9 scored the least mean value among them, which is only 3.286. All these indicators inter-related with the previous discussion where the internal audit staff is not sufficiently independent to perform their obligations and duties; sometimes face interference by management while the position was not adequately staffed. Moreover, the internal audit staff was requested to perform a non-audit function.

A further measurement model and structural model assessments were conducted in SmartPLS 3.0. Measurement model assessment provides the reliability and validity of the indicators used in the study while structural model assessment provides the result of relationship testing between the independence of internal auditing with the internal audit capability dimensions. Figure 3 shows the structured model run using SmartPLS.

IND1, IND3, IND8, and IND9 was removed due to minimum requirements un-met. Table 5 shows the convergent validity results obtained from PLS Algorithm upon removing these indicators. All value for loadings and AVE had met the minimum requirement,



TABLE 4: Descriptive Statistics of Internal Audit Independence.

|      | Indicator  | Min  | Max  | Mean  | Med. | Std. Dev. | Excess Kurtosis | Skewness |
|------|--|------|------|-------|------|-----------|-----------------|----------|
| IND1 | Internal audit staff are sufficiently independent to perform their professional obligations and duties.  | 1.00 | 5.00 | 3.857 | 4.00 | 1.222     | 0.688           | 1.255    |
| IND2 | The head of internal audit reports to a level within the organization that allows internal audit to fulfil its responsibilities.               | 4.00 | 5.00 | 4.571 | 5.00 | 0.495     | 1.970           | 0.295    |
| IND3 | The head of internal audit has direct contact to the board (to the president for government organizations).                                    | 2.00 | 5.00 | 4.329 | 5.00 | 0.806     | 0.307           | 1.013    |
| IND4 | The internal audit department has direct contact with top management other than the finance director.  | 2.00 | 5.00 | 4.514 | 5.00 | 0.692     | 1.572           | 1.376    |
| IND5 | Conflict of interest is rarely present in the work of internal auditors.   | 1.00 | 5.00 | 4.043 | 4.00 | 0.901     | 0.572           | 0.804    |
| IND6 | Internal auditors rarely face interference by management while they conduct their work.  | 1.00 | 5.00 | 3.971 | 4.00 | 0.910     | 0.734           | 0.873    |
| IND7 | Internal audit staff have free access to all departments and employees in the organization.  | 2.00 | 5.00 | 4.371 | 5.00 | 0.740     | 1.316           | 1.164    |
| IND8 | The board of directors (the president for government organizations) approves the appointment and replacement of the head of internal auditing. | 1.00 | 5.00 | 3.843 | 4.00 | 1.215     | 0.023           | 0.962    |
| IND9 | Internal audit staff are not requested to perform non-audit functions.   | 1.00 | 5.00 | 3.286 | 3.00 | 1.097     | 0.827           | 0.131    |

i.e. above 0.50. Loadings value higher than 0.50 indicates that the indicators used was reliable. The composite reliability values had also met the minimum 0.70 cut-off value. It shows that the theoretical model tested is reliable. Then, discriminant validity is measured through HTMT ratio. Table 6 shows that all values obtained were lower than 0.85. This indicates that each construct is distinct and not overlapping with each other. Based on all loadings, AVE, CR, and HTMT ratio values, it could be said that the theoretical framework tested in this study had good convergent and discriminant validity. Thus, enable further structural assessment model to be carried out for relationship testing.

Structural measurement analysis was further conducted using Bootstrapping procedure to test the hypotheses. Since there is only a direct relationship tested in this study, one-tail t-value of 1.645 is referred to as the cut-off value. Each direct effect path was presented with its standard beta, t-value, and p-value. Table 7 shows the path coefficient of hypothesis.

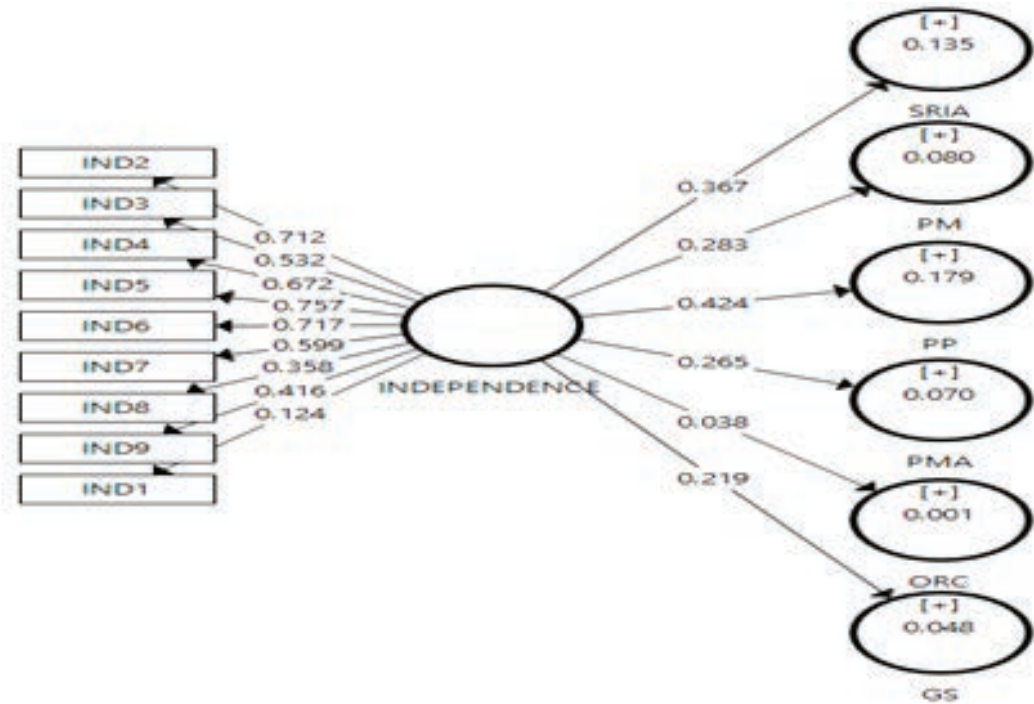


Figure 3: Structured Model with SmartPLS.

TABLE 5: Convergent Validity.

| Construct                      | Item | Loadings | CR    | AVE   | R <sup>2</sup> | f <sup>2</sup> | Q <sup>2</sup> |
|--------------------------------|------|----------|-------|-------|----------------|----------------|----------------|
| Independence of Internal Audit | IND2 | 0.749    | 0.828 | 0.500 |                |                |                |
|                                | IND4 | 0.634    |       |       |                |                |                |
|                                | IND5 | 0.740    |       |       |                |                |                |
|                                | IND6 | 0.733    |       |       |                |                |                |
|                                | IND7 | 0.642    |       |       |                |                |                |
| Internal Audit Capability      | SRIA | 1.000    | 1.000 | 1.000 | 0.147          | 0.173          | 0.122          |
|                                | PM   | 1.000    | 1.000 | 1.000 | 0.081          | 0.088          | 0.055          |
|                                | PP   | 1.000    | 1.000 | 1.000 | 0.185          | 0.227          | 0.159          |
|                                | PMA  | 1.000    | 1.000 | 1.000 | 0.078          | 0.085          | 0.035          |
|                                | ORC  | 1.000    | 1.000 | 1.000 | 0.003          | 0.003          | -0.029         |
|                                | GS   | 1.000    | 1.000 | 1.000 | 0.054          | 0.057          | 0.033          |

Notes: Items IND1, IND3, IND8 and IND9 were removed due to loadings value un-met.

TABLE 6: Discriminant Validity (Heterotroit-Monotroit Ratio).

|      | GS    | IND   | ORC   | PM    | PMA   | PP    | SRIA |
|------|-------|-------|-------|-------|-------|-------|------|
| GS   |       |       |       |       |       |       |      |
| IND  | 0.244 |       |       |       |       |       |      |
| ORC  | 0.329 | 0.112 |       |       |       |       |      |
| PM   | 0.145 | 0.318 | 0.099 |       |       |       |      |
| PMA  | 0.380 | 0.305 | 0.251 | 0.404 |       |       |      |
| PP   | 0.370 | 0.493 | 0.040 | 0.206 | 0.549 |       |      |
| SRIA | 0.261 | 0.426 | 0.324 | 0.300 | 0.406 | 0.456 |      |

H<sub>1</sub> predicts the relationship between independence of internal audit with the dimension of Services and Role of Internal Auditing. The result shows that H<sub>1</sub> was positive and significant ( $\beta$  value = 0.384; t-value = 3.684, p-value < 0.001). H<sub>2</sub> predicts the relationship between the independence of internal audit with the dimension of People Management. The result shows that H<sub>2</sub> was positive and significant ( $\beta$  value = 0.284; t-value = 2.878, p-value = 0.002). H<sub>3</sub> predicts the relationship between the independence of internal audit with the dimension of Professional Practices. The result shows that H<sub>3</sub> was positive and significant ( $\beta$  value = 0.430; t-value = 5.379, p-value < 0.001). H<sub>4</sub> predicts the relationship between the independence of internal audit with the dimension of Performance Measurement and Accountability. The result shows that H<sub>4</sub> was positive and significant ( $\beta$  value = 0.280; t-value = 2.329, p-value = 0.010). H<sub>6</sub> predicts the relationship between independence of internal audit with the dimension of Services and Role of Internal Auditing. The result shows that H<sub>6</sub> was positive and significant ( $\beta$  value = 0.231; t-value = 1.734, p-value = 0.042).

TABLE 7: Summary of Hypotheses Testing of PLS Path Model.

| Hypotheses     | Path        | Std. Beta | Std. Dev. | t value | p values | Confidence interval bias corrected |       | Decision |
|----------------|-------------|-----------|-----------|---------|----------|------------------------------------|-------|----------|
|                |             |           |           |         |          | 5.0%                               | 95.0% |          |
| H <sub>1</sub> | IND -> SRIA | 0.384     | 0.104     | 3.684   | 0.000**  | 0.159                              | 0.521 | Accepted |
| H <sub>2</sub> | IND -> PM   | 0.284     | 0.099     | 2.878   | 0.002*   | 0.129                              | 0.459 | Accepted |
| H <sub>3</sub> | IND -> PP   | 0.430     | 0.080     | 5.379   | 0.000**  | 0.292                              | 0.539 | Accepted |
| H <sub>4</sub> | IND -> PMA  | 0.280     | 0.120     | 2.329   | 0.010*   | 0.068                              | 0.464 | Accepted |
| H <sub>5</sub> | IND -> ORC  | 0.056     | 0.127     | 0.438   | 0.331    | 0.170                              | 0.234 | Rejected |
| H <sub>6</sub> | IND -> GS   | 0.231     | 0.133     | 1.734   | 0.042*   | 0.010                              | 0.423 | Accepted |

Note: \*p < 0.05; \*\*p < 0.001

Based on the results, five hypotheses were accepted except for the relationship between the independence of internal audit with the dimension of Organizational Relationship and Culture (ORC). The Q<sup>2</sup> obtained for ORC, as shown in Table 5, is negative, i.e. it has no predictive accuracy. However, referring to the value of R<sup>2</sup> in Table 5, the relationships were considered very weak and insignificant, i.e. R<sup>2</sup> value less than 0.25. On the other hand, the effect size, f<sup>2</sup> indicates that ORC dimension is not significant at all (f<sup>2</sup> = 0.003). While other constructs such as People Management (PM), Performance Measurement and Accountability (PMA) and Governance Structures (GS) had a weak effect size (f<sup>2</sup> value above 0.02). Another two constructs, i.e. Professional Practices (PP) and Services and Role of Internal Auditing (SRIA), have a moderate effect (f<sup>2</sup> value above 0.13).

## 5. Conclusion and Implications

From the results, findings and discussions, it can be concluded that there is much room to improve by the internal audit units in Malaysian public sectors, especially in People Management. The insufficient skilled and competence internal audit staffs is very crucial and should be critically attended by the Malaysian government and the National Audit Department of Malaysia. This issue had been addressed for a long time, as reported by previous research (A. M. Ali et al., 2012). Without enough and appropriate staffing, the quality and effectiveness of internal auditing may be hindered. It is also affected by the overall internal audit capability level. As such, internal audit capability model used in this study is a building block approach in which one organization must master all the Key Process Areas in the respective level in order to move to the higher level. At the very least, they must obtain level 2 infrastructure for all six dimensions. Achieving level two implies that their internal audit activities have sustainable and repeatable internal audit practices and procedures, which partly conforms to Standards. This current study recorded that 57 organizations over 70 participating had only scored overall IACM Level 1 Initial, and the remaining 13 organizations scored level 2 Infrastructure.

At Level 1, the organizations face the risk of not being able to rely on or routinely benefit from the value-added contribution of internal audit. Thus, it is not desirable to remain at this level if the internal audit is to be sustained and contribute to the improvement of an organization's performance. However, moving from level 1 Initial to level 2 Infrastructure, involves certain conditions from both environments and within the organization (MacRae & Sloan, 2017). These environmental factors, that may enhance the upward movement through the levels, include (i) government commitment to the importance of internal auditing while cultivating a culture that supports transparency, openness, and accountability for results. Moreover, the legislation or government policy assuring the organizational independence of internal audit activity, and the personal objectivity of the internal auditors should be strengthened. This is because the independence of internal audit plays a significant role in determining the internal audit capability level in public sector organizations. It has a positive and significant impact on total IACM level as well as all IACM dimensions except for Organizational Relationship and Culture (ORC).

On top of that, in order to move from Level 1 to Level 2, the following elements would need to be enhanced within the organization: (i) organizational and personal accountability for results; (ii) culture of professionalism; (iii) budget support to establish internal audit as a separate activity with appropriate human resource capabilities; and

(iv) conducive environment facilitating access to the information, assets and people needed to carry out the internal audit work. In summary, certain prerequisites are required to move to the next level such as enhancing good governance structures, robust financial management, control and accountability frameworks, supported by the government stability, amenable organizational culture and the best Chief Audit Executive. Practically, current research findings could help and guide the organizations to map out their strategies and steps in progressing to reliable and effective internal audit capabilities.

This study has also provided a theoretical contribution to the usage of Internal Audit Capability Model (IACM) to measure the internal audit capability in a public sector organization, which is very less in existence before. It has contributed to the knowledge stream of Agency Theory, nature of internal auditing in Malaysian public sector organizations, and factors affecting their capability. Even so, this research has certain methodological limitations. It is questionnaire-based, and the results were established according to the perceptions of respondents. It would be advisable to conduct in-depth study to discover the reasons behind inadequate and insufficient staffing of internal auditors as well as the gain better insight of the actual internal audit capability by conducting the cross-respond study (auditor-auditee dyads unit of analysis).

## Acknowledgement

Infinity indebtedness to the Late Professor Dato' Dr Ishak Ismail whom had supported this research since the earliest stage. Warmest gratitude to all auditors participated in this research, field experts from National Audit Department (NAD) and Institute of Internal Auditors Malaysia (IIAM), academicians and experts from Universiti Sains Malaysia, Universiti Utara Malaysia, UITM Jasin and Universiti Malaysia Pahang, colleagues from FIM Researchers Club and FGIC team members especially Muhammad Shabir Shahrudin and Nurul Farhanah Mohd Idres.

## Funding

This research is partially funded by university grant, RDU 150368 and government student's sponsorship, MyBrain15.

## Appendices 1: Internal Audit Capability Model Matrix

|                               | Services and Role of IA   | People Management  | Professional Practices  | Performance Management and Accountability                               | Organizational Relationship and Culture  | Governance Structures   |
|-------------------------------|---|--|---|---|--|---|
| <b>Level 5 Optimizing</b>     | - IA Recognized as Key Agent of Change  | - Leadership Involvement with Professional Bodies<br>- Workforce Projection                                      | - Continuous Improvement in Professional Practices<br>- Strategic IA Planning                                 | - Public Reporting of IA Effectiveness                                  | - Effective and Ongoing Relationships  | - Independence, Power and Authority of the IA Activity  |
| <b>Level 4 Managed</b>        | - Overall Assurance on Governance, risk Management and Control  | - IA Contributes to Management Development<br>- IA Activity Supports Professional Bodies<br>- Workforce Planning | - Audit Strategy Leverages Organization's Management of Risk  | - Integration of Qualitative and Quantitative Performance Measures      | - CAE Advises and Influences Top-level Management                                  | - Independent Oversight of the IA Activity<br>- CAE Reports to Top-level Authority                          |
| <b>Level 3 Integrated</b>     | - Advisory services<br>- Performance / Value-for-Money Audits   | - Team Building and Competency<br>- Professionally Qualified Staff<br>- Workforce Coordination                   | - Quality Management Framework<br>- Risk-based Audit Plans  | - Performance Measures<br>- Cost Information<br>- IA Management Reports | - Coordination with other Review Groups<br>- Integral Component of Management Team | - Management Oversight of the IA Activity<br>- Funding Mechanisms   |
| <b>Level 2 Infrastructure</b> | - Compliance Auditing   | - Individual Professional Development<br>- Skilled People Identified and Recruited                               | - Professional Practices and Processes Framework<br>- Audit Plan based on Management / Stakeholder Priorities | - IA Operating Budget<br>- IA Business Plan                             | - Managing within the IA Activity  | - Full Access to the Organization's Information, Assets and People<br>- Reporting Relationships Established |
| <b>Level 1 Initial</b>        | No specific Key Process Areas; Ad hoc or unstructured; Isolated single audits or reviews of documents and transactions for accuracy and compliance; Outputs dependent upon the skills of the specific person holding the position; No professional practices established other than those provided by professional associations; Funding approval by management, as needed; Absence of infrastructure; Auditors are likely part of a larger organizational unit; Institutional capability is not developed. |  |   |   |  |   |

Source: Institute of Internal Auditors Research Foundation (2009)

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## Conference Paper

# Re-engineered and Integrated Industrial Relations Model for Governance Integrity: Multiple Case Studies in Bangladesh

Tarnima Warda Andalib<sup>1</sup>, Mohd Ridzuan Darun<sup>2</sup>, and Hasliza Abdul Halim<sup>1</sup>

<sup>1</sup>School of Management, Universiti Sains Malaysia, Georgetown, 11800, Pulau Pinang, Malaysia

<sup>2</sup>Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

This paper re-engineers the 'industrial relationships between the leaders and the employees (RLE)' model in the Bangladeshi manufacturing companies, where labour management, supply, and demand of workflow and workers, employee's conditions and rights are significant factors. Researchers have pondered the 'industrial relationships between leaders and employees' component as part of 'human resource management' and have adept the integration by using soft systems technology, where this component's codes are associated with employees' rights protocols of 'Universal declaration of human rights (UDHR), 'International labour organisations (ILO) and 'Bangladesh labour act 2006' (BDL). Here, qualitative method's multiple case studies are applied with purposeful sampling to choose twelve cases (12) and eighty-seven (87) participants' for in-depth interviews, which are transcribed and coded methodically in NVIVO. Here, re-engineered 'industrial relationships between leaders and employees model' is the outcome. The concept of integration is novel, which is an addition to the knowledge of literature and the advancement of 'industrial relationships between leaders and employees' model.

**Keywords:** industrial relation, employee rights, administration of trust, leadership style

Corresponding Author:

Tarnima Warda Andalib  
tarnimawarda.andalib@usm.my

Received: 5 August 2019

Accepted: 14 August 2019

Published: 18 August 2019

Publishing services provided by  
Knowledge E

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Selection and Peer-review under  
the responsibility of the  
FGIC2019 Conference  
Committee.

## 1. Introduction

Researchers have specified the distinct characteristics of managers and leaders in this paper besides discussing and re-engineering the relationship model between the employees and the leaders. Because, As per Andalib (2018), all managers are in several way leaders, therefore knowing the leaders' ways to deal with employees can be the main mechanism to re-engineer the 'industrial relationship between the leaders and the employees (RLE)' model. Management is a position in an organization that comes with responsibilities (Darling & Nurmi, 2009). On the other hand, leadership is a personal skill encompassing having vision, the ability to act, to communicate, and to influence

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employees. Management depends on status in a hierarchy, and leadership on the personal recognition and acceptance of the employees, where these both complement each other thereby are two overlapping functions (Darling et al., 2007). Management is about coping with complexity and dealing with the employees in a consistent manner whereas leadership is primarily about coping with change (Alvy & Robbins, 2005). Leaders inaugurate direction by emerging a vision of the future; aligning people by communicating with this vision, inspiring them to overcome obstacles, and nurturing their development and skills to contribute to organizational achievements (Bass & Stogdill, 1990). In this process, effective leadership is embedded with values like trust, commitment, and caring by projecting different styles of leadership in the organizations (Covey, 2006). Therefore, all managers are leaders in some way.

## 1.1. Research Problem

Previous studies have exhibited that industrial relations specially between the employers and the employees have been a challenging and challenging relationship where trust, commitment have their distinct, separate parts to play again employees' rights and roles become another core part that needs to be focused as well (Andalib, 2018; Morshed, M. M., 2007; Mosadeghrad, A. M., 2014; Yukl & Lepsinger, 2005). Employers or Leaders of the companies face problems in dealing with the employees' while placing them inappropriate roles and to gain their trust and commitment for the organization. On the other hand, employees face challenges in dealing with the leaders either for the leaders' approaches or style of communications with them or while dealing with their rights in the company.

## 1.2. Research Questions

This research is an original piece of work that requires seeking the following questions:

1. When trust and commitment are developed across the company?
2. How to address or integrate employee rights' protocols with industrial relationship model?
3. What are case outcomes in Bangladesh?

Distinct previous researchers do exist in this area. However, the integration of the distinct component 'industrial model' with 'employee rights protocols' seems to be not that much emphasized or talked about in previous research works. International Labour

Organization has emphasized on this part, but the integration model seems to be not directly addressed.

### 1.3. Research Objectives

In general, the scope of this research is to scrutinize the range of industrial relationship model in the manufacturing companies of Bangladesh. The following are the specific objectives:

1. To identify the themes and codes of the industrial relationship model
2. To identify the employees' rights protocols from the universal platforms
3. To identify the condition of themes in the companies of Bangladesh
4. To integrate all the themes and protocols accordingly

## 2. Literature Review

Various scholars have observed and analyzed situations regarding the industrial relationship between the leaders, managers, and employees are distinct in companies even though there are similar significant characteristics as well as a strong relationship between each other. Researchers mentioned that relationship between the leaders and the employees depended on the attitude of the leaders and managers towards the employees and also supported the differentiation between management and leadership (Ulrich et al., 1999). Slight functional differences existed, but functions always got overlapped and therefore in any organization, all managers were leaders in the end because every manager was a supervisor of one or many employees (Collings et al., 2007; Darling & Nurmi, 2009). Leadership Style: According to Bennis (1989), people are either managers or leaders by nature, which does not indicate that one is better to the other but just different from each other. Nevertheless, leadership itself could be of two kinds, which are one: Transformational, focusing more on employees' needs and two: Transactional, focusing more on employers' needs. Transformational and Transactional leaders: Transformational leaders had positively transparent relationship with their employees and encouraged the employees with several positive components and one of those had been focus on their promotions whereas transactional leaders are more command-oriented that shows very less focus on the employees' needs and necessities (Henker et al., 2014; Kammerlander et al., 2015). Administration of Trust: Trust in an organization defined the rapport between a supervisor and a subordinate where the superior initiated the trust and not the other way round (Rosanas, 2009).

Organizational trust stayed consistent where employees assume the risk of depending on the supervisor whom they do not control (Zand, 1972; Barber, 1983; Gambetta, 1988). Mayer et al. (1995) proposed five trust-building behaviors, which were a) behavioral consistency, b) behavioral integrity, c) demonstration of concern, d) delegation, and e) communication. In 2003, Cardona and Eloha carried out the research where how trustworthiness of the trustees got invoked and influenced by the leaders (Cardona & Eloha, 2003).

**Organization Commitment:** Meyer and colleague in 1997 mentioned that different research results revealed three dimensions of organization commitments, namely affective, continuance and normative and linked with organization HRM practices (Meyer & Allen, 1997). Extensive research on organizational commitment identified its positive effects on employees' behavior in organizations (Yahaya & Ebrahim, 2016). Previous researchers suggested that promise influenced numerous work aspects, such as the intention to stay, absenteeism, job satisfaction, and trust generation (Chew & Chan, 2008). Therefore, committed employees stayed at a job with higher motivation as well as higher job performance (Chen et al., 2006). **Influence of External Forces:** Leadership might be influenced by external forces, which at some point had an unavoidable impact on the organization. The most prominent ones were a political influence, competitors' mechanisms, and government regulations. The influences of external forces were viewed in different cases as major or minor.

### 3. Methodology

The methods section describes actions to be taken to investigate a research problem and the rationale for the application of specific procedures or techniques used to identify, select, process, and analyze information applied to understand the problem, thereby, allowing the reader to critically evaluate a study's overall validity and reliability. The methodology section of a research paper answers two main questions: How was the data collected or generated? Moreover, how was it analyzed? The writing should be direct and precise and always written in the past tense.

#### 3.1. Select Cases and Participants': Purposeful Sampling

Purposeful Sampling technique has been applied to select cases and participants for the study; individuals provide a concept and contribution to the central problem of the study. Participants' understanding of the central problem also contributes to the core

idea here (Auerbach and Silverstein, 2013). Initially, Bangladesh' listed corporations were separated from Dhaka stock markets' website, which was 146 in number, and then, three criteria were applied to shortlist the group. The criteria set are if they follow the upgraded company Act 1994 or not, then these companies' employee numbers were more than 500 or not and finally it was checked if they use heavy machinery or not. Therefore, twelve (12) cases were selected for this study since the qualitative study has numerous levels of sampling and studied extensively.

Criteria of purposeful sampling

1. Has employee size more than 500, as per BD govt. it should be company A category
2. Uses heavy machinery
3. Belongs to Dhaka Stock exchange, where the company factories are nearby Dhaka district

### 3.2. Data Collection and Storage

This study develops an in-depth description and analyses the RLE model of various cases. Data has been collected from twelve cases, eighty-seven participants' through in-depth interviews as well as from literature, annual reports, company documents, etc in a thorough methodological manner. Data has been stored as transcripts, memos, reports, audiovisual materials and documents and coded into themes. In this study, data were collected and analyzed by following these steps:

1. A computerized database search was performed using Proquest, Emerald, and Elsevier.
2. The literature search was conducted by using the specified keywords
3. All articles found were stored and analyzed in NVIVO tool. Multiple Case Studies – Twelve Case studies

### 3.3. Data Coding, Analysis and Theory Building

Researchers applied the coding technique to analyze data following Auerbach and Silverstein (2013) and Stake (1995) where two main issues were the research concern and the raw text. There are certain steps of coding, which are: 1. Understanding data, 2.

Selecting data for coding and 3. Constructing a coding mechanism. As per Corbin & Strauss, 2008 and Miles & Huberman, 1994, firstly, participants' statements are related and transferred from raw text or repeating ideas to research-oriented theoretical concerns, constructs, and themes. Secondly, participants' emphasized statements are selected by identifying the repeated data (concerns, themes, theories, ideas, texts). Thirdly, inductive process of coding is applied that includes open codes (research concern and set of beliefs), categorized codes (discard orphan data, ideas too broad, ideas too narrow), themes (an implicit topic that is repeated by a group) and constructs or perspectives (an abstract concept that organizes a group of themes by fitting them into a theoretical framework) that eventually integrate and re-engineer the new industrial relationship model. Creswell in 2013 and Andalib et al. (2018) mentioned the qualitative data processes through rigorous analysis. NVIVO serves as a reliable platform to analyze this sort of qualitative data that also stored the reports or scholarly papers. During the analysis of cases, the logic of replication has been used, where the methodical step-procedures with multiple sources of data such as observations, transcripts audio records, annual reports are replicated for each case and also follow a systematic tactic to detect issues and finalize the joint themes.

Before data analysis was conducted, several selection steps were taken:

1. Categorizing articles by external and internal components.
2. Highlight and run the articles by keywords.
3. Derive components from NVIVO Tool.
4. The prioritized components are highlighted and carefully observed to draw the result subjectively.
5. Identify and finalize the themes and codes driven from participants' interviews of the cases
6. The cases, participants are connected with respective components by using Soft systems
7. Connect the Solution components by Soft Systems technique by Poulter, in 2010

### 3.4. Data Validation

As per Auerbach and Silverstein (2013), data validation of any qualitative research is indeed difficult and time-consuming. Validating interview data after the transcription



from the participants' become an obvious method for multiple case studies. Nevertheless, Creswell (2013) also mentioned about the triangulation formula, where participants', previous scholars, and existing researchers do collide in one platform to validate a single data. Therefore, As per Andalib (2018), collected data of this study has also gone through the validation test of conformability, transferability, and justifiability. The collected data has been validated into two basic phases. Firstly, after the interview and transcription, the found themes from the analysis were confirmed by the participants' themselves. Secondly, these themes were searched as keywords and matched with various scholars' works where themes have been identified and specified. Thirdly, the thorough steps of the research have been recorded to validate the process of collecting, analyzing, converging data. In this study, researchers have validated data through justifiability, transferability, conformity, etc.

1. Data regarding Themes and Codes have been confirmed by the Participants'
2. Themes have been validated by the Scholars' previous works
3. Methodological step-by-step processes are listed for the justifiability
4. Themes and codes are transferred to draw the modified R&S component of HRM

Creswell (2013) and Yin (2009) identified different forms of data and classified these as observation oriented data, and interview oriented data, document-driven data, audio-visual materials, company documents, annual reports, archival records, transcripts interviews and memos as direct besides physical artifacts', etc. extracted during interview sessions. In this research data has been collected in all of these forms obtaining both internal and external documents and audio-visual materials.

## 4. Results

In this study, Onwuegbuzie (2009) and Miles, Huberman, and Saldana's techniques of 2014 have been applied to define the pattern of each code and theme. Auerbach & Silverstein discussed that categorizing and grouping the components have been done based on soft coding that validates and justifies data with generalizability and Andalib also supported this process with evidence. The findings were extracted from published articles and summarized systematically to aid comparison. Firstly, literature data regarding the HRM component 'Relationship between the leaders and the employees for human resources' was observed as well as data regarding employees' rights protocols were identified and sorted, Secondly, data from the case participants' were

generated and coding was done by using NVIVO and Thirdly, the soft systems technique has been used to converge and re-engineer the themes of Industrial Relationship between the leaders and the employees with Employee Rights' Protocols. From the literature review, the themes regarding employee rights' are observed and decided as 'UDHR –Articles,' 'ILO-protocols' and 'BDL-codes' and various themes regarding Industrial Relationship between the leaders and the employees are. During the interview sessions, the participants were asked about various dimensions of 'Relationship between the leaders and the employees for human resources' component, which is a core component of HRM and after data analysis, the themes, naming 'trust' and 'organization commitment' were observed, generated and validated. Therefore, from this study, two themes are identified, which are recruitment methods and selection code. Results The proposition four inquired the reason for a new HRM framework for the organization, indicated that there might be certain perspectives embedded in the framework. The new HRM framework provided a beneficial platform to the leaders and the employees of the organization. In this research, evidence showed that cases were distinguished as supportive or autocratic based on a leadership perspective. Supportive cases were 1, 4, 5, 6, 10, and 12, while on the other hand, the autocratic cases were 2, 3, 7, 8, 9, and 11. In this research, cases 1, 4, 5, 6, 9, 10 and 12 were found to have transformational leadership because trust and organization commitment strongly exists (++) in these cases but cases 2, 3, 7, 8, 9 and 11 had the transactional one with weak trust and organization commitment. In this research, cases 2, 3, 7, 8, 9, and 11 were observed to have significant influences, but cases 1, 4, 5, 6, 10 and 12 had minor influences. However, cases 2, 3, 7, 8, 9, and 11 were observed to have transactional leadership. In Table 1: Cases 1,4,5,6,10 and 12 have 'transformational leadership style' and case 2,3,7,8,9 and 11 have 'transactional leadership style', where transformational is rated as ++ and transactional rated as +. Again, cases 1, 4, 5, 6, 10, and 12 have 'Minor' influence of external forces on leaders but cases 2, 3, 7, 8, 9 and 11 have 'Major' influence of external forces on leaders. Here Minor rated as '++' and Major rated as '+'.

TABLE 1: Relationship between the leaders and the Employees: Summary of Findings.

| Relationship between the Leaders and the Employees |  |  |
|--|--|--|
| Themes   | Leadership Style   | Influence of External Forces on Leaders  |
| Case 1 Supportive                                  | ++Transformational "We have good managers, and they also have professional certificates of their skills and knowledge. Our managers must be strict with the employees especially in the factories because that is more like routine jobs " | ++Minor "Dude! I think we are giving tough competitions to others, and no other company can influence us." |

| <b>Relationship between the Leaders and the Employees</b> |  |   |
|---|--|---|
| <b>Themes</b>   | <b>Leadership Style</b>  | <b>Influence of External Forces on Leaders</b>  |
| Case 2 Autocratic   | +Transactional "We act as our boss advises us; he tells us how to handle an individual task, and we follow that and this is how we have come so far. He has good vision and work style and I personally believe we should follow his style also" | +Major "Government puts many compliances and regulations, and sometimes it hinders the process of growth because our main priority should be business not filling up so many forms."  |
| Case 3 Autocratic   | +Transactional "We are not allowed to talk to the outsiders about the company; if you require any information please talk to the union leaders."   | +Major "Govt. and political turmoil hardly affects our work system because our corporate office, factory, and main distribution house are mainly at the same compound...we only suffer during Hartal if our goods need to be transferred outside the capital" |
| Case 4 Supportive   | ++Transformational "We believe in equal rights and opportunities; duties might be different but opportunities are given to all the employees to get flourished in their own area"  | ++Minor "See today is Ramadan but still, all people are working and we will all have iftar together like a family- you also please join us."  |
| Case 5 Supportive   | ++Transformational "Similarly, from case 5, HR director said, "Our employees feel like their office is their second home, we feel a strong bond towards each other and towards the company as well."   | ++Minor "We have an environment where from top to bottom everyone feels this is their own company."   |
| Case 6 Supportive   | ++Transformational "I have been working in my company for the last 15 years and have lived my life in here as if this is my second home. Whenever the company faced any crisis, I was informed, and my suggestions were required."               | ++Minor "Because of the working environment of our company, workers sometimes even work at odd times, and I think this is possible only because they feel committed to the company."  |
| Case 7 Autocratic   | +Transactional "We have targeted work process, and everyone at office stays focused at work because the end of the day we need to meet the target for company's revenue as well as for our desired salary."                                      | +Major "We have targeted work process, and everyone at office stays focused at work because the end of the day we need to meet the target for company's revenue as well as for our desired salary."   |
| Case 8 Autocratic   | +Transactional "Our supervisors are very good; so we follow what they tell us."  | +Major "We believe we are a family, but for the survival of this family, we need to generate revenue right? Influences may exist though."   |
| Case 9 Autocratic   | +Transactional "We follow the top to bottom approach and our decisions flow that way as well."   | +Major "Our product is sold mainly to Govt. & its affiliates and round the year we have this practice."   |

| Relationship between the Leaders and the Employees |   |   |
|--|---|---|
| Themes   | Leadership Style  | Influence of External Forces on Leaders   |
| Case 10 Supportive                                 | ++Transformational "My boss is very generous and kind to me and gives me lots of opportunities, responsibilities at work. I can go and discuss anything with him anytime. However, only when I ask for promotion or increment, he is quite reluctant about it ...I do not understand this." | ++Minor "No! We are not bothered about any influences, and we do our work they do theirs."  |
| Case 11 Autocratic                                 | +Transactional "This is true that we have our restrictions and even if we want to make any change often our leaders are not that much encouraging, they only want us to follow them."   | +Major "Since, we are a government-owned company ...sometimes our leaders are chosen from the political party or preferred party leaders are promoted and transferred to our organization, even though we have leaders and managers who are more capable... This is an unfortunate situation, but we have to comply with this..." |
| Case 12 Supportive                                 | ++Transformational, "Our Leaders always try to maintain a good relationship with the employees. We usually give high priority to employee needs."   | ++Minor, "Since we are a private company – no high influences actually work with us."   |

Here, Table 2 showed how Relationship between the Leaders and the Employees perspective worked in these multiple cases. Here, Cross case analysis has been done for this HRM component's Perspective named 'Relationship between the Leaders and the Employees' that can be considered as P4.

In Table 2, Management= Mgt, Government=Govt. and Relationship between the Leaders and the commitment and Influences of external forces on Leaders, Political/Competitors/ employees stands = RLE, which is either Supportive (++) or Autocratic (+). In Leadership Style, trust/organization Government are measured as High '++' or Low '+.'

## 5. Discussion

### 5.1. Connections of 'Relationship between the leaders and the employees'

'Relationship between leaders and employees' could be considered as an independent variable having two themes, which were Leadership Style and Influence of External Force having the categorized themes among which 'Administration of trust' got directly connected with UDHR Articles 6, 7 and 10 (United Nations, 1945). The categorized codes

TABLE 2: Relationship between the Leaders and the Employees.

| Relationship between the Leaders and the Employees |                  |                |   |             |       |            |
|--|------------------|----------------|---|-------------|-------|------------|
| Themes   | Leadership Style |                | Influence of External Forces on Leaders |             |       | Outcome    |
| Categories   | Trust            | Org Commitment | Political                               | Competitors | Govt. |            |
| Case 1   | ++               | ++             | +                                       | +           | +     | Supportive |
|  | Transformational |                | Minor                                   |             |       |            |
| Case 2   | +                | +              | ++                                      | ++          | +     | Autocratic |
|  | Transactional    |                | Major                                   |             |       |            |
| Case 3   | +                | +              | ++                                      | ++          | ++    | Autocratic |
|  | Transactional    |                | Major                                   |             |       |            |
| Case 4   | ++               | ++             | +                                       | +           | +     | Supportive |
|  | Transformational |                | Minor                                   |             |       |            |
| Case 5   | ++               | ++             | +                                       | +           | +     | Supportive |
|  | Transformational |                | Minor                                   |             |       |            |
| Case 6   | ++               | ++             | +                                       | +           | +     | Supportive |
|  | Transformational |                | Minor                                   |             |       |            |
| Case 7   | +                | +              | ++                                      | ++          | ++    | Autocratic |
|  | Transactional    |                | Major                                   |             |       |            |
| Case 8   | +                | +              | ++                                      | ++          | ++    | Autocratic |
|  | Transactional    |                | Major                                   |             |       |            |
| Case 9   | ++               | ++             | ++                                      | ++          | ++    | Autocratic |
|  | Transactional    |                | Major                                   |             |       |            |
| Case 10  | ++               | ++             | +                                       | +           | +     | Supportive |
|  | Transformational |                | Minor                                   |             |       |            |
| Case 11  | +                | +              | ++                                      | ++          | ++    | Autocratic |
|  | Transactional    |                | Major                                   |             |       |            |
| Case 12  | ++               | ++             | +                                       | +           | +     | Supportive |
|  | Transformational |                | Minor                                   |             |       |            |

‘organization commitment’, ‘administration of trust’ were derived from various aspects of open codes: like consecutively from affective, continuance, normative, behavioural consistency, behavioural integrity, demonstration of concern, delegation, communication and categorized codes ‘political’, ‘competitors’ and ‘government’ were derived from ‘political transfers, political promotions’, ‘HRM system of competitors, Leadership style of competitors and ‘Govt. Regulations’. All these categorized codes got integrated with Article 19 and Article 29 (United Nations, 1945); (Bangladesh Employee Federation, 2012).

Checkland and Poulter (2010) mentioned that soft systems method (SSM) is an action-oriented process of inquiry into problematic situations where actions have purposes, and perceived contents are linked to find pathways. In this research, SSM is applied for tackling problematic messy situations to draw the perspectives (open-codes, categorized codes, themes, and perspectives) and to show the connections between each other as well as the integrations among the perspectives and the International labour rights’ protocols or conventions. Mainly, in the discussion area, this has been done to project a more clear vision.

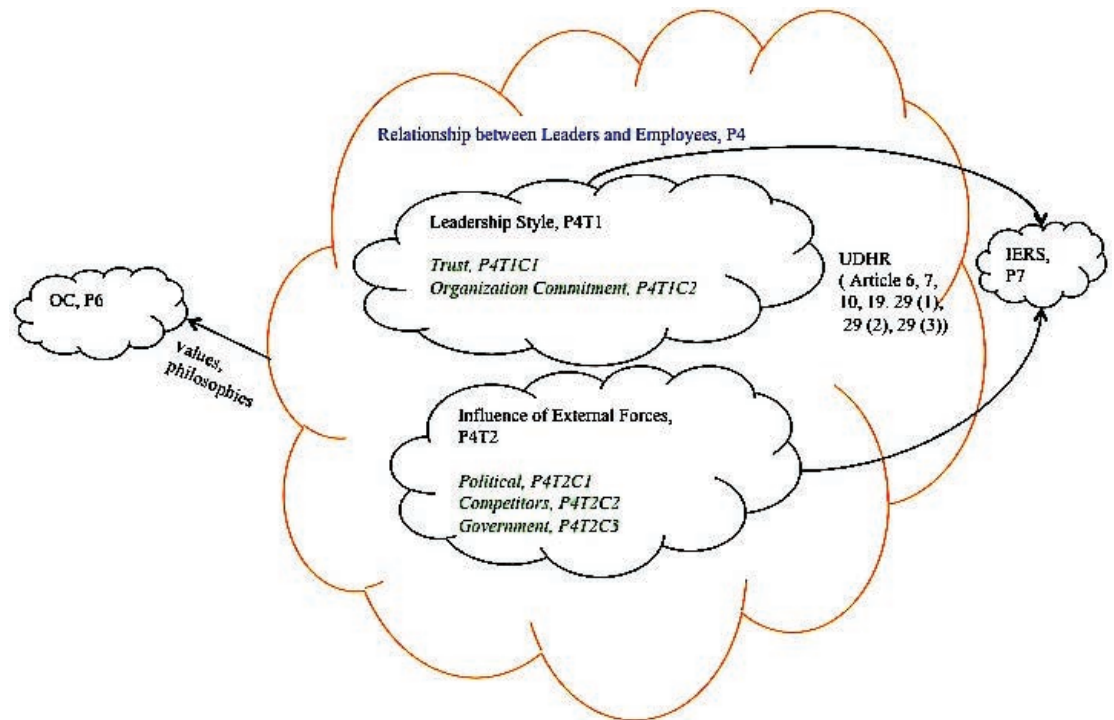


Figure 1: Relationship between the Leaders and the Employees (RLE) Connections.

## 5.2. Contributions and Recommendations for Future work

In this study industrial relationship model, which is a component of HRM framework has been re-engineered. Its integrations with employee rights protocols, and others have taken this model to another level (Andalib and Darun, 2018). Therefore, this study has significantly has contributed to the knowledge of literature as well as in the direct field of HRM by disclosing a pathway to construct the new HRM framework.

According to Raymond in 2003 and Darun in 2011 expressed that continuous modification and refinement mechanism to achieve the standardized model, which can be done by reshuffling their positions, job roles, hierarchy and relationships, and their decision making and mechanism manners (Raymond E. Miles, 2003; Darun, 2011). A number of opportunities got created after the journey of this research. Since in this framework, international employee rights standards got converged in future researches there can be more detailed HRM analysis on this area. Furthermore, continued research on HRM can examine valuable potential prospects of HRM by contributing to the body of HRM knowledge. Future researchers can do the following researches as for example, can compare RLE of HRM practices in companies and identify differences and different structures of RLE. This might add an innovative side to the characteristics of each approach.

There is an increasing number of studies making serious attempts to link two or more distinct constructs of HRM. These linkages are not all looking at quite the same thing, so they are cumulative in only a very general sense. Venkatraman (1989) attempted to identify the various possible integrations and approaches regarding distinct HRM components and attempts to develop various HRM frameworks. As per Andalib (2018) HRM component related integrations became increasingly popular research theme since the mid-1990s. Nevertheless, Guest (2001) mentioned that there are bundles of other linkages, combinations, and frameworks regarding HRM policies-practices. However, integrating Industrial relationship component with Employee rights protocols seem to be a very novel research work as per Andalib & Darun (2018).

## 6. Conclusion and Implications

As suggested by Miles et al. (2014), data was crosschecked with the key participants for validation purposes and improvement of the accuracy of the data. Thus, the validation processes, including confirmations from key participants, were used to develop conclusions. Nevertheless, it was indeed a difficult and tedious process, and huge constraints had to be dealt at this hour. Then, the researcher found that each theme and code is comprised of variations from different organizations. The data analysis and extant literature had distinguished the themes and codes of 'Relationship between the leaders and the employees for human resources' component, which classified the cases within the scale.

Researchers made efforts to interpret the findings in logical ways to understand why cases were classified or emerged in such ways, which had been quite a difficult part. Therefore, the dominating value emerging from the cases was considered adequate for grouping codes generated from the analysis. In future, the researchers can do more qualitative studies in a specific industry in Bangladesh or in any country to analyze 'Relationship between the leaders and the employees for human resources' component of HRM to re-engineer it more. Also, scholars can do a survey after the implementation of the re-engineered 'Industrial Relationship' in HRM of the company to find out if the implementation has helped the organization in anyway. This research attempts to identify the HRM approaches undertaken in the manufacturing companies of Bangladesh that affect the leaders' decision making as well as the employees' working environment (Andalib, 2018). Andalib, Darun & Azizan reported that frustration and conflict issues within organizations indicated an area of employee rights (ERS) violation somewhere inside the manufacturing company (Andalib, Darun, & Azizan, 2019)

## Appendix

United Nations, 1945

Article 6: Everyone has the right to recognition everywhere as a person before the law

Article 7: All are equal before the law and are entitled without any discrimination to equal protection of the law. All were entitled to equal protection against any discrimination in violation of this declaration and against any incitement to such discrimination

Article 10: Everyone is entitled in full equality to a fair and public hearing by an independent and impartial tribunal, in the determination of his rights and obligations and of any criminal charge against him

Article 29: (1) Everyone has duties to the community in which alone the free and full development of his personality is possible

(2) In the exercise of his rights and freedoms, everyone shall be subject only to such limitations as are determined by law solely for the purpose of securing due recognition and respect for the rights and freedoms of others and of meeting the just requirements of morality, public order and the general welfare in a democratic society and

(3) These rights and freedoms may in no case be exercised contrary to the purposes and principles of the United Nations

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**Conference Paper**

# The Chronology of Microfinance Development in Malaysia: A Review

**Ahmad Nazrie Mohd Nor and Senthil Kumar T.**

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

## Abstract

This study is to discover the development of microfinance in Malaysia through a review of relevant literature. Microfinance in Malaysia, especially the operations of Amanah Ikhtiar Malaysia, are based on Grameen Bank Program innovated by Muhammad Yunus in Bangladesh. Malaysia is endeavoring to be a developed nation, and new age microfinance seems to play a crucial role in eradicating poverty. Poverty and development do not complement each other, and hence, it is essential to focus on poverty eradication through various means. Here, an attempt has been made to the methodological and systematical review of the past literature on the development of microfinance, from various sources. It is hoped that this paper would provide a better understanding of the chronological flow and evolution of microfinance in Malaysia.

**Keywords:** microfinance, Malaysia, poverty, development.

Corresponding Author:  
 Ahmad Nazrie Mohd Nor  
 nazrie.mohdnor@yahoo.com

Received: 5 August 2019  
 Accepted: 14 August 2019  
 Published: 18 August 2019

Publishing services provided by  
**Knowledge E**

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Selection and Peer-review under the responsibility of the FGIC2019 Conference Committee.

## 1. Introduction

Development of a nation does not only depends on the physical infrastructure, technology, and modernization and emphasis must be laid on the development of every citizen in the country, especially in term of quality of life. A nation will move forward if all the people are happy and take part in the development by having access to a high standard of living and have access to all the services such as housing, food, electricity, and education. In other words, it can be defined as a Shared Prosperity. The development of a nation can not only be indicated by the high Gross Domestic Product (GDP), and it should be measured by ensuring that everyone enjoys the wealth of the nation. Microfinance plays an important role in poverty eradication.

While moving towards the goal of being a developed nation, poverty tends to be a setback as most developed nations have successfully eradicated poverty. New age microfinance provides a different approach and focuses on rural poverty, employment generation, and household income. The problem arises whether the new age microfinance in the timeline of Industrial Revolution 4.0 could provide a different dimension in


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poverty eradication. This is the major challenge facing Malaysia and other developing nations.

In Malaysia, microfinance is defined as small business loans that not exceeding RM 50,000 with loans tenure not more than seven years. (Shu-Teng, Mohd Ashhari, Suraya-Hanim, & Nassir, 2015). There are three major microfinance institutions in Malaysia viz. Amanah Ikhtiar Malaysia (AIM), National Entrepreneur Group Economic Fund (TEKUN) and Yayasan Usaha Maju Sabah (Yamamoto, Ota, Akiya, & Shintani). Starting from 2006, the Malaysian government has been collaborating with Bank Negara Malaysia (BNM), the central bank to promote more financial institution, especially banks, to extend microfinance loan service to the customers.

## 2. Literature Review

### 2.1. The Emergence of Microfinance

Microfinance has been clarified as the lending of a small amount of loans to the people who are living below the poverty line in developing nations (Robinson, 2001). It is a well-known definition that can be explained for the right meaning of microfinance. The most important agenda for microfinance is to help the poor and lift them out of poverty. According to Microfinance Barometer 2018, there are 139 million customers or borrowers at the microfinance institution globally. Furthermore, the loan portfolio for 2017 is worth \$114billion across the globe. This shows that around 7 percent of the world population is still living under poverty. The past four decades, Muhammad Yunus from Bangladesh had come out an experiment to help poor underprivileged women by giving them a small loan to expand the bamboo business, and this led to the establishment of Grameen Bank (*Village Bank*). The initiative had led millions of the poor to access financial aids resulting in the increased standard of living and reduce poverty (Ledgerwood, Earne, & Nelson, 2013). The model of Grameen Bank had been replicated by many of the developing nations and led to the establishment of microfinance institutions.

### 2.2. The Development of Microfinance in Malaysia

#### 2.2.1. The history of Microfinance in Malaysia

As the establishment of Grameen Bank in 1976, the model had inspired the Malaysian Government to found an organization to alleviate poverty. Thus in September 1987, Amanah Ikhtiar Malaysia (AIM) was established using the Grameen Bank model with

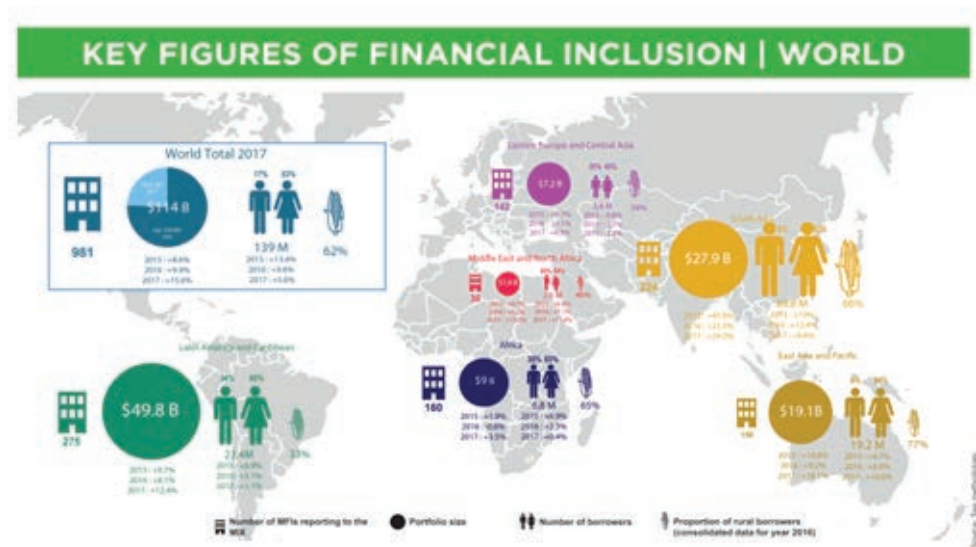


Figure 1: Shows Key Financial Inclusion (Source: Microfinance Barometer 2018).

several changes and modifications. As one of the leading microfinance institution in Asia, AIM plays a vital role in combating poverty in Malaysia (Ramli, 2001). AIM is the first microfinance institution founded in Malaysia, and the largest Grameen Bank replication outside Bangladesh (McGuire, Conroy, & Thapa, 1998) AIM was developed in 1988 under the Trustee Incorporation Act 258 (revised 1981). Initially known as the ‘*projek ikhtiar*,’ AIM shows the successfully lending group model and the program had been expanding widely throughout Malaysia. AIM had been through ups and downs and facing several constraints in its mission to assist the poor. For example, in 1992-1999 AIM had a mission breakdown when its initial objective to help the poor was distorted by political motives (Kasim, 2000). Nevertheless, AIM still being the leader of microfinance Institution in Malaysia that promotes the loan to assist the poor in combating poverty. Besides AIM the second model of Grameen bank replication in Yayasan Usaha Maju Sabah YUM which is located in Sabah. YUM began in 1988 under ‘Projek Usaha Maju’ and being institutionalized in 1995 by the State Government of Sabah. YUM is registered as a foundation under the Trustee (Incorporation) ordinance 1951 chapter 148 of Sabah (YUM, 2009). Thus, in a timeline, YUM is the second microfinance institution entity that had been established in Malaysia. The lending system of YUM is similar to AIM since the original objective is to assist the poor and poverty-based institutions. The only difference between YUM and AIM is using group lending program while YUM uses an individual lending system due to the geographical factor. The third microfinance institution is The Economic Funds for National Entrepreneurs TEKUN and was established on 9 November 1998 (TEKUN, 2009). TEKUN main objective is to provide express and easy

loan service to *Bumiputra* and Indian entrepreneurs. For the past ten years, TEKUN has expanded its services to provide business chances and training skills to its participants.

### 2.2.2. The Incidence of Poverty in Malaysia

Malaysia is a country that is dynamic with ethnic diversity and community. The incidence of poverty in Malaysia has declined in the last four decades ago by the success of effective government policies. New Economic Policy MNEP 1970-1990, New Development Policy NDP 1991-2000 and the New Economic Model NEM 2010 are the policies that aim to increase people’s income and productivity by ensuring the continuity of economic growth in order to achieve developed country status by the year 2020.

TABLE 1: The Incidence of Poverty (% of the population) from 1970-2012 ((Henderson, Hulme, Phillips, & Nur, 2002) (1970-2002); Department of Statistic Malaysia, 2013 (2004-2012)).

| Year                   | 1970 | 1980 | 1990 | 1995 | 2004 | 2009 | 2012 |
|------------------------|------|------|------|------|------|------|------|
| Incidence of Poverty % | 49.3 | 29.2 | 17.1 | 8.9  | 5.7  | 3.8  | 1.7  |

Table 1 shows the incidence of poverty in terms of percentage of the Malaysian population. The stable economic growth by the last four decades has contributed to a continuous decline trend in the incidence of poverty from 49.3% in 1970 to 1.7% in 2012. Microfinance is one instrument to eliminate poverty. Many studies were done either within or outside Malaysia, which gives clear evidence that microfinance is one way to eliminate poverty. Hussain, Mahmood, and Scott (2019) found in the study in Pakistan that microfinance has a positive impact in reducing poverty amongst women and help in promoting the financial inclusion among the borrowers. Meanwhile, Al-Mamun and Mazumder (2015) conducted a study in Malaysia to assess the impact of microfinance on the poverty of the borrowers, and the authors found a positive impact of microfinance on poverty reductions. Hence, this paper is trying to shed light on the poverty alleviation by microfinance approach.

### 2.2.3. Microfinance and its Operations

In the global perspective, the microfinance market had served more than 33 million borrowers and 48 million savers (Lensink, Mersland, Vu, & Zamore, 2018). For years, microfinance had upheld this primary goal, and the traditional MFIs consisted only of non-governmental organizations NGO, specialized microfinance banks and public sector banks. Lately, the marketplace of microfinance has been evolving, and some of the non-profit MFIs are changing into profit-seeking institutions to attain greater strength,

sustainability, and market reach. The delivery of subsidized credit to financial institutions is an important and commonly used policy tool of governments and central banks. There are several forms of lending mechanism in microfinance, which are single-based lending and group-based lending. The usual mechanism that is practice in Microfinance operation is group-based lending. In Malaysia, the group based lending mechanism is the main approach practiced by Amanah Ikhtiar Malaysia (Al-Mamun, Mazumder, & Malarvizhi, 2014). Besides, AIM had been recognised as one of the successful Grameen Bank replication models. Based on the study of Ramli (2001), the author had described that AIM is the oldest model of Grameen Bank and had a victory in alleviating poverty in Malaysia since the establishment in 1987. Meanwhile, Yayasan Usaha Maju Sabah YUM is an entity that practice the individual based lending method. This is because of the logistic factor of the state of Sabah and difficulty in gathering the participants to make a collective group lending based (Mokhtar, Nartea, & Gan, 2012). Regardless of the lending mechanism, the microfinance system should be objectively focusing on the poverty eradication, and the main agenda is to help the lower-income community to raise their income and lifting them out of poverty.

#### **2.2.4. Microfinance and Rural Area of Malaysia**

The vast majority of the world poor live in rural areas of developing countries. Enduring long periods between inputs into and outputs from agricultural production, uncertainty on the harvest outcomes and dependency on the weather are the constraints facing by the poor (Ksoll, Lilleør, Lønborg, & Rasmussen, 2016). Based on Malaysia Statistic Department, rural area is an area with less than 10,000 population. Therefore microfinance plays a vital role in developing the household income of the rural population, enhancing the quality life and social wellbeing of the rural community, assisting in generating the employment generations of the rural community and improving the microenterprise and business performance of the microfinance participants in the rural area. Due to the logistical and geographical factor, the rural is left behind in term of development and as well as access to the financial services. According to the previous study of Lopez and Winkler (2018) challenging of stronger sustainably appears in the rural market compared to urban. The study tests the data covering 772 microfinance institution from 2008 to 2013. Thus it was found that sustainability challenge is higher in rural rather than in urban area. Based on the study, it is shown that the challenging phase appears in rural in terms of microfinance. As microfinance is acknowledged to be a tool to combat poverty especially in rural areas, past studies had been done by



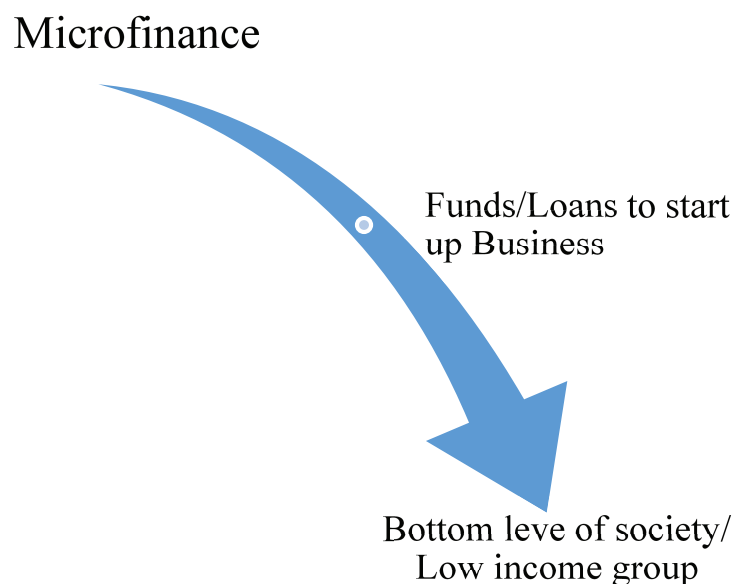
previous scholars (Hussain et al., 2019) and (Lønborg & Rasmussen, 2014) and these found that microfinance participant's poverty level can be reduced by the microfinance program. Therefore, this paper would shed light on the importance of microfinance in providing financial services to rural society.

### **2.2.5. A methodological review of Microfinance on Social Wellbeing, Employment generations, household income, and microenterprise performance**

Microfinance is reflected to be a tool to improve the social and economic status of the society by empowering women, improving financial literacy, and encouraging savings. There are researches conducted to examine the impact of microfinance on social wellbeing (Hussain et al., 2019), but the research is limit to South Asia. There still need depth research that studies on the impact of microfinance on social wellbeing. Sayed Samer Ali Al-Shami, Majid, Rashid, and Hamid (2014a) that conduct a cross-sectional study between Malaysia and Yamen microfinance system and (S. S. A. Al-Shami, Majid, Mohamad, & Rashid, 2017) found that microcredit program microcredit has significant positive effects on borrowers' household income and personal asset acquisition which could be assumed as the social status in a society. For employment generations, a fine-functioning financial system that delivers sufficient access to financial resources promotes economic growth and employment generation, mainly in developing countries where access to credit is limited. According to Atiase, Wang, and Mahmood (2019) microfinance institutions regulated by FNGOs with a social logic in delivering the microcredit to the financially excluded in Ghana. This study aims to investigate the impact of microcredit on employment growth among MSEs in Ghana. It is found that through a multiple regressions analysis, the microcredit shows a positive impact on employment generations among MSEs in Ghana. There still needs further research on microfinance and how it regulates the employment generation in Malaysia. There is a lack of literature that studies the impact of microfinance on employment generation in Malaysia, and future research is required to analyze the issue. In the household income, microfinance had played a significant role in enhancing the household income of the borrowers. Studies had found that microfinance is an efficient instrument to generate household income, especially in the low-income family (Alia, Ashta, & Ratsimalahelo, 2017; Ksoll et al., 2016). The authors had found that Household Economic Portfolio HEP model limitation and wrap up the gap through a qualitative experiment using diaries to evaluate the impact of microfinance and household income. However, the study is using a case study, and the scope of the study is not broad to critically review the

HEP limitation. Next literature was reviewing the impact of Village Saving and Loan Association VLSA in Northern Malawi and had found that positive interaction between microfinance and household expenditure. For the Malaysian context, Al-Shami et al. (2017) found that the household welfare of the low-income participants of AIM had shown a positive impact. The authors employed a cross-sectional survey and distributed a questionnaire to the 495 borrowers. The positive impact of microcredit on household income and personal asset acquisitions discovered. Microenterprise is an important tool for the development of low-income rural societies in many countries, including Ethiopia, Nigeria, and Malaysia (Banerjee, Karlan, & Zinman, 2015). Microfinance is normally offered to the neediest to start up a microenterprise or to expand the existing business (Atmadja Adwin, 2016). According to Beck, Lu, and Yang (2015), the authors examine the access to financial services could become a positive impact on the decision to the entrepreneur and initial investment of microenterprise. The study conducted in China and with the survey, it is found that the use of informal finance family is positively associated with sales growth of microenterprise.

See Below:



**Figure 2:** The Loan Targeted in Microfinance Concept (**Source:** Author).

As for Malaysia, microenterprise had been a catalyst in the economy. However, the financial gap between Small and Medium Enterprise and microenterprise an important issue, the author reviewed the past literature and come out with the findings of appearance in the financial gap in various situations with various form of agencies offer a different mode of financing. The study revealed microenterprise is risky borrowers and financial institution are not willing to provide the loans. Therefore, microfinance

institution should act as a financial service provider to the microenterprise. It is important to make a depth review on the impact of microfinance on microenterprise performance in Malaysia.

### **2.2.6. A systematic review of Microfinance on Social Wellbeing, Employment generations, household income, and microenterprise performance**

According to Sayed Samer Ali Al-Shami, Majid, Rashid, and Hamid (2014b), the wellbeing of the microfinance participants refers to the participant's household, micro and small enterprises performance and empowerment. In term of social wellbeing, in the aspect of social well-being, the borrower micro consists of a cluster of low income can enjoy the financial services provided by micro-financing institutions. Logically, microfinance services received by the borrower can help the borrower out from poverty. Participation in the economic market can also help in the generation of household income, gender balance, and also improve the quality of life better. This can improve social well-being among borrowers. When low-income earners are caught in poverty, they are quite difficult to contribute to society, and it is closely related to the psychological impact that could stunt the growth of sustainable social well-being. Therefore it is needed a further understanding of how microfinance would help in providing better social wellbeing among the borrowers. To what extent does the microfinance contribute to social wellbeing is the main critical point that should be highlighted.

Employment generation is important in order to help the poor to escape from financial exclusion. Through microcredit, the financially excluded can involve in self-employment and generation of both skilled and unskilled employment for others (Sappleton & Lourenço, 2016). The generation of employment and new job opportunities are very important in being able to provide facilities to the financially excluded to a consistent income and more pleasant live plus positive impact to the overall content households. Erhardt (2017) found new evidence that micro-financing and the generation of new job opportunities have to do a very positive relation besides creating job opportunities. New job opportunities generated by the microfinance system is an important aspect in helping low-income community escape from poverty as well as to assist the community in contributing to the economy. In the Malaysian context, a more in-depth study should continue to review the positive impact of the production of microfinance opportunities. In a study conducted by several researchers Al Mamun, Abdul Wahab, and Malarvizhi (2011) found positive impact microfinance over the production of new job opportunities,

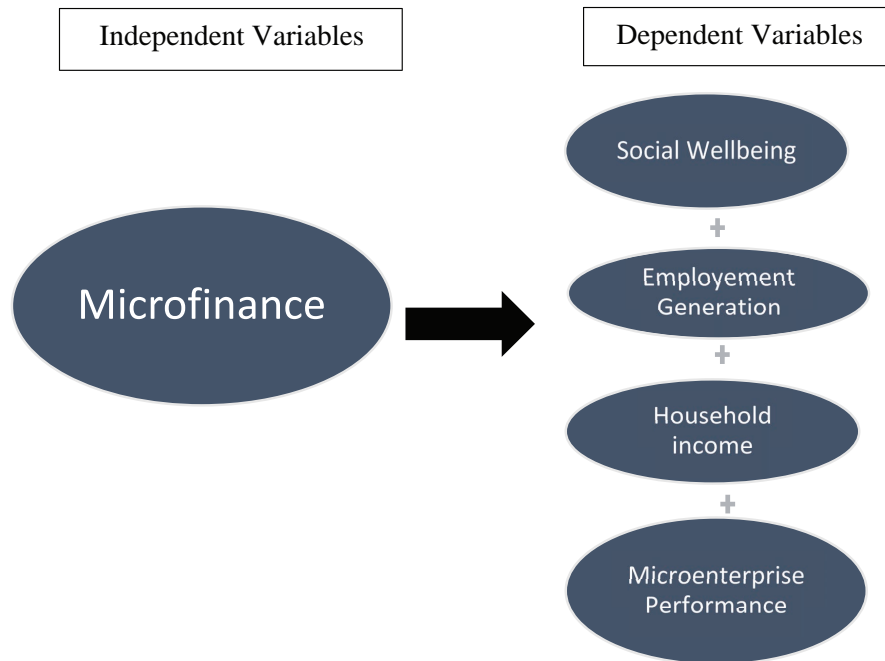
but the study focused in Peninsular Malaysia and have also been outdated. In answering the argument of microfinance contributions to the employment generations, this review is critically synthesis the point of view of describing the relationship and connection between that particular matters.

One of the main objectives of microfinance is helping to increase household income. This goal is in line with the primary objective, which eliminates poverty microfinance. Household income was an important factor that determines the demand for credit. Those in the bottom income class has minimal savings and less demand for credit as compared with those in high income. Based on the study of K. C. Chen and Chivakul (2008) a household with high income was more often require high credit demand. Therefore, the household income should be generated to the lower income group to reduce poverty as well as increase the credit demand. There are vast studies had been conducted to review the impact of microfinance and household income in Malaysia, and the result found the positive impact of microfinance program and household income like (Al-Mamun & Mazumder, 2015; Al-Mamun et al., 2014). The finding points out the concrete evidence of the contribution of microfinance towards household income. In the context of microfinance and microenterprise, financial resources for capital is much needed to expand or start a business. It is important to review the impact of microfinance on the successful performance of microenterprise. There are past studies that question the effectiveness of microenterprise in eliminating poverty and improve welfare (Cull, Demirgüç-Kunt, & Morduch, 2009). Microfinance also criticized for trusted could endanger the borrower if the money received is not well managed. Hence, the issue of managing the capital arise in order to ensure the sustainability and good performance of microenterprise and the business. Wan Nurulasiah Binti Wan, Abdullah Al, Nur Izzati Binti Mohamad, and Naeem (2019) extend that training program is required to give the skill of how to manage the funds in order to ensure the good business performance of the microfinance participants.

### 3. A Proposed Theoretical Framework

The theoretical framework developed based on the depth review of the literature on the perspective of Microfinance and the impact to the four pillars, which are social wellbeing, employment generations, household income, and microenterprise performance. The household economic portfolio HEP is the theory suggested to underpin this framework. This theory was pioneered by (M. A. Chen & Dunn, 1996) based on the analysis of Sebstad's et al. framework. The household portfolio model is based on the fact than

individuals of the household has one or more identity, especially in gender, marital status, and parental status. This model allows systematic study on the social implication within the household (Chen & Dunn, 1996). It was expected that this framework could be utilized for the policymakers and stakeholders in the Microfinance program, especially in Malaysia.



**Figure 3:** The Theoretical Framework of Microfinance and The Factors That Impacted By (Source: Authors).

#### 4. Discussion

In discussions on microfinance and its effects into four factors stated, microfinance provides a positive impact on the elements mentioned, namely social wellbeing, employment, household income generations, and microenterprise their performance. The specified element is the leading indicator in measuring the effectiveness of the system of microfinance in the context of Malaysia and outside Malaysia. In line with the four factors set out, poverty is the main goal to be detailed. Poverty is the primary goal of why this microfinance system implemented. Based on past research, microfinance is a very effective way to remove the low-income group out of poverty. Therefore, this paper is expected to provide a clear picture to the upcoming study on the importance of microfinance in the fight against poverty and also the effectiveness of microfinance in regards of the four elements that had been mentioned. The four pillars in the theoretical framework that had been developed are the objective that arises in the questions, and the impact of microfinance is observed. Based on the review literature:

1. Microfinance has a positive impact on the social wellbeing of the borrowers in Malaysia
2. Microfinance has a positive impact on employment generations and job creations. Based on the previous studies Erhardt (2017); (Sappleton & Lourenço, 2016) microfinance plays a vital role in promoting job creation and employment generation. A further study needs to be done in Malaysia as a lack of literature that examines the impact of microfinance on employment generations.
3. Microfinance has a positive impact on household income. A considerable volume of literature is found out the evidence of microfinance impact on the household income.
4. Microfinance has a positive impact on microenterprise performance. However, literature also stated that the training skill and consultation are also important to ensure sound business performance.
5. Align with all the above matters, and poverty is the main agenda that should be highlighted as the main objective of microfinance is to combat poverty. Microfinance is believed to be an instrument to lift the low-income group out of poverty and at the same time increase their social wellbeing, generate employment and job creations, improve the household income and lastly rise the microenterprise performance and business.

## 5. Conclusion and Implications

The current literature review discusses the impact of microfinance on social wellbeing, employment generations, household income, and microenterprise performance as developed in a proposed theoretical framework. All of these elements are significant with the primary purpose of microfinance, which is poverty eradication. The main objective of this paper is to give a clear explanation of the development of microfinance in Malaysia and its operations. The key finding of this paper is that there is a positive interaction between microfinance and the four-element that had been mentioned earlier. However, there is still a gap that arises in this paper as there is required the further depth study of the microfinance in Malaysia, especially to the employment generation. It is due to the lack of study in that particular matter. Lastly, this paper is hoping to give a better explanation and help future research to conduct the study in the field of microfinance in Malaysia and also at the global level.

## Acknowledgement

The Authors gladly appreciate to the Department of Research and Innovation P& I, University Malaysia Pahang for funding this study with Fundamental Research Grant Scheme FRGS (RDU Grant No: 190168).

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