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The Role of Enterprise Resource Planning (ERP) in Improving Organization's Intellectual Capital

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Abstract

The purpose of this study was to identify the influence of the management control system (MCS) on intellectual capital through the implementation of Enterprise Resource Planning (ERP) as an intervening variable. A theoretical model is developed that considers two concepts of MCS (the belief system and the boundary system) and the roles they play in enhancing intellectual capital. Data collected via survey from 57 managers of 36 companies in Indonesia that have implemented ERP system. This research used the partial least square to describe relationships between variables. Results suggest that belief system and boundary system has a positive influence towards intellectual capital through the implementation of ERP as an intervening variable on the companies that implement the ERP system in Indonesia. When the users experience that ERP is useful and easy to use, the users will use it well. Finding offer the implication for managers to start paying attention to the factors which can help to improve the users' work performance. As the users' performance improved the company's intellectual capital will also be improved.

Keywords: Communication value; economic knowledge; individual context; management belief system; management boundary system

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1. Introduction

At the dawn of globalization era, rapid technological development plus numerous and varied changes in customer demand indirectly has made companies around the world encouraged to enhance their company's ability in creating and offering more value so that it can control and maintain the market [1]; therefore, companies nowadays are constantly searching for ways to gain more profit than their competitors [2]. The right management control system could help companies become more efficient and flexible in facing the competition of the business world. The concept of management control system has begun to develop now. A management control system is defined as a system that conveys useful information for managers regarding decision-making in

the performance management process which is efficient and effective in reaching the organization's goals [3].

Minimizing cost and maximizing profit are necessary in order to improve the competitive advantage [4], therefore companies need business support factors, which are expected to help integrate the information system and capable to assist management in decision-making. One of the ways to achieve this is by using the Enterprise Resource Planning (ERP) system [5]. ERP is a business software system which provides an integrated solution for organizations regarding their needs of information processing, while efficiently and effectively manages resources, i.e. materials, human resources, finance [6]. One of the approaches that are used to look at the ease of technology is the Technology Acceptance Model (TAM). Davis [7] was the first person to introduce TAM and explain the TAM model which has adapted Theory of Reasoned Action (TRA) model. TAM is one of the most-used models to explain behavioral intention and actual usage, which is the intention and behavior towards the satisfaction of system information [7], and it could help to improve the understanding of how the influences on actual usage could help improve the implementation of ERP.

The implementation of enterprise resource planning is the main economic force in many industries, and it is believed to be capable of increasing the effectivity of the organization's operational [8]. The implementation of enterprise resource planning helps organizations in developing themselves by making changes, as Markus [9] noted that the implementation of enterprise resource planning is seen as an innovation in technological aspect which brings changes for the organization, by making it easier for the organization to integrate the organization's data and also helping in the process of decision-making.

In this research, researchers will focus on two factors of management control system, namely the belief system, and boundary system, and several TAM factors which have been developed by Davis [7], i.e. perceived ease of use, perceived usefulness, actual use, and intellectual capital which have been developed by Goganet et al. [10].

2. Literature review

2.1. Resource-based theory

According to Rengkung [11], resource-based theory is a paradigm which views the organization as having a dependency on the resources they have when they are faced with business competition. The resource-based theory approach becomes a form of

organizational strategy, which assumes that an organization is a collection of tangible and intangible assets, resources, and competencies.

Anantadjaya [12] stated that resource-based theory is a theoretical perspective that shows the company's resources will represent the company's ability. The resource-based theory could be implemented and controlled by the management for effective and efficient use in the production cycle. Resource-based theory is a theory that is widely discussed and developed by researchers [13].

2.2. Management control system (MCS)

Generally, MCS is defined as a system which conveys useful information for managers regarding efficient and effective decision making (in the performance management process) in achieving organization's goal [3]. Agyemang and Broadbent [14], argue that MCS works significantly within the organizations, yet it operates in the internal and external context of the organization and is considered important as it enables organizations to monitor their performance. MCS components are as follow [15]:

1. Belief system

   Simons [15] defines a belief system as a formal organizational system where senior managers communicate formally and systematically to the employees to strengthen the basic values, goals, and direction of the organization. Belief system aims to communicate core values such as vision and mission so as to encourage CEOs to uphold the organization's concerns [16].

2. Boundary system

   Simons [15] defines a boundary system as a formal system that is used by top managers to establish rules that must be obeyed. Boundary system is designed to communicate risks that could occur and must be avoided so that the organization can avoid any actions that could trigger the occurrences of unwanted risks [17].

2.3. Enterprise resource planning (ERP) system

According to Bansal [18], ERP is a software driven by a business management system which is integrated into all business aspects. ERP is complex software. Hwang and Min [19] and also Nofal and Yusof [20] claim that ERP could generate values through several different ways, which are by integrating various business activities into one system, facilitating control in terms of organizational standards, improving access to

online and real-time information, improving intra-organizational communications and inter-organizational communications, and improving the capability of decision- making.

2.4. Technology acceptance model (TAM)

According to Davis [7], TAM is an information system theory designed to explain how individuals are able to use and understand information technology. TAM is an information system used in organizational arrangement to improve workers' efficiency [21]. TAM is an important theoretical contribution to the understanding of ERP [7]. According to Venkatesh and Davis [22] who developed a study conducted by Davis [7] about the ERP's dimension in technology acceptance model are as follows:

1. Perceived usefulness (PU)

   Davis [7] defines PU as a level of someone's trust towards information system that can improve the performance in an organization, where some organizations believe that it brings positive impacts. PU helps design an organizational intervention which can improve an organization's performance [22]. PU is viewed by Pantano and Di Pietro [23] and also Teo [24] as a subjective prospect, that the specific application system would improve work performances within a certain organization. PU is defined as a person's subjective perception of the ability to operate a computer in order to improve work performance when completing a task.

2. Perceived ease of use (PEU)

   Davis [7] defines PEU as a belief in decision- making process to use an information system in order to make it easier and more effortless. PEU can improve individual performances since the system can provide convenience for its users [22]. Wen and Kwon [25] observed that PEU has that confidence in providing ease and is uncomplicated to improve user's skill. Zhu et al. [26] add that PEU signifies the degree to which individuals accept that by using a particular technology it would make things become easier and hassle-free. The system's characteristics could help users in terms of providing ease of technology usage and system usage. In their research, Venkatesh and Davis [22] claim that PEU is ``the individual's perception of how easy the innovation is to learn and to use'' which means PEU is someone's view of their willingness to apply innovations or systems when it is easy for them to understand and use.

3. Actual system usage ERP

Davis [7] argues that the actual system usage is user's satisfaction towards the system for providing the ease in the application of new technologies which reflected as in the actual condition. The individual usage degree of technology can be predicted from their attitude and behavior towards the technology, such as the existence of innovation to add supporting features, the motivation to keep using that technology and to motivate other users [7]. Actual system usage is the real condition of system usage, conceptualized in the form of measurement of frequency and duration of technology usage time [7].

2.5. Intellectual capital

Intellectual capital is an intangible asset, but it can help organizations to reach their goals [27]. This is supported by the statement from Sällebrant et al. [28], that intellectual capital can create the value of organizational factors that are not visible on the balance sheet, but it has important values for the long-term company's profitability. According to Lerro et al. [29], intellectual capital can increase the company's profitability. In this case, intellectual capital is recognized as a valuable intangible asset and utilized to influence creativity, innovation, competitive superiority, to create values, and to improve company performance [30]. Gogan et al. [10] developed Intellectual Capital based on Bontis et al. as follows:

1. Human capital

   Human capital is a concept which claims that the resources and the asset of an organization are their people. Human capital includes knowledge, experiences, and special skills of individuals working to create the economic value of the company [31]. According to Moon and Kim [32], human capital is the most important part of the intellectual capital. Human capital can be in the form of knowledge, skills, relationships, individual attitude and behaviour [33]. Human capital refers to the company's individual intellectual characteristics and qualities that affect market changes and customer needs [10].

2. Relational capital

   Relational capital refers to the competency in developing relations with any stakeholders in the market and is a skill to establish interpersonal relations and to develop the relation based on trust [10]. Relational capital is a value that is obtained through relations between organizations and the parties involved, e.g. relation with

suppliers, shareholders, and anyone related to the organization; usually comprised of relation between organizations and customers [34].

3. Structural capital

   Structural capital is a component of an organization which can be described as the infrastructure and the organizational process that is used to acquire products and services [10]. Structural capital is a common system and also serves as the procedure of problem-solving and innovation [35]. Structural capital includes all non-human knowledge within the organization. This is related to the infrastructure owned by the organization and supports human capital [36]. According to Ordonez de Pablo [37], structural capital consists of skills and competencies of the individuals who work within an organizational structure.

3. Research method

3.1. Research model

The research model is graphically displayed in Figure 1, summarizes the hypotheses purposed in this research.

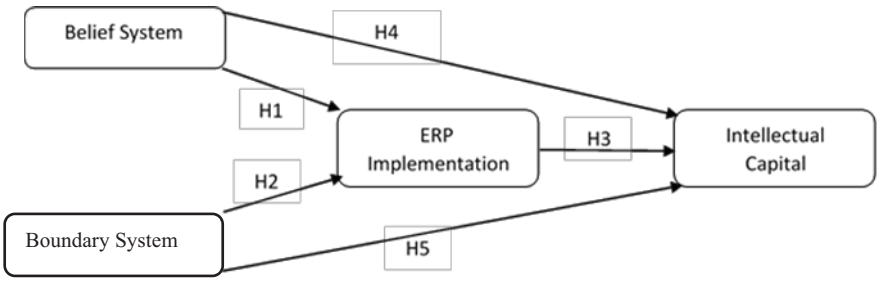

Figure 1: Research model.

3.1.1. H1: Belief System is positively related to ERP Implementation

Davis [7] states that perceived usefulness is a degree of someone's trust towards information system that can improve the performance of an organization. Perceived usefulness is influenced by external variables. External variables could be in the form of belief, attitude, and intention to use [38]. In the other hand, perceived ease of use is a belief in the decision-making process to utilize an information system [7]. In their research, Chomcalao and Naenna [39] modified and developed the Technology Acceptance Model (TAM) and found the addition of external variables. These external variables

are grouped into two types of contexts, the system context, and the individual context. The system context includes system quality, information quality, and service quality. Meanwhile, the individual context is a social influence, facilitating condition, self-efficacy and personal innovativeness in IT. Johnston and Warkentin [40] claims that individual characteristics will positively affect the use of technology and establish trust towards new technology by combining information from several channels or mass media and interpersonal relationship. Individuals with good characteristics are expected to develop more positive trusts regarding the technologies. PEU and PU are the constructions of trust which indirectly affected by external variables when it comes to strengthening the trust. Users who use a particular system can improve their performances and through their belief that using a particular system (i.e. ERP) would enable them to be effortless [41].

3.1.2. H2: Boundary System is positively related to ERP Implementation

Maas et al. [42] stated in their research that the main goal of ERP system's knowledge development is to make the system more understandable by end-users and managers within an organization, with the implementation of ERP can reliably improve the organization's performance. By doing so, ERP can reduce the occurrences of risks and improves the organization's performance. The implementation of ERP is expected to open opportunities for changes within the organization's culture and general vision between the company and the customers [43]. PEU is defined as how far a person believes that by using a particular system they could be free from any efforts and risks while PU is defined as how far a person believes that by using a particular system it would improve their work performances [7].

Chou et al. assert the importance of knowledge- sharing to facilitate the use of ERP system. The intended knowledge are the users' psychological and sociological characteristics, related to motivation, code of ethics, and social modal [44]. The company's boundaries appear in a tangible form, as reflected in the organization chart and in the scope of government and authorities. But, behind the tangible boundaries there are more profound boundaries that fall under the cognitive ones. In this sense, the organizational boundaries have been considered to be a composite object. According to Kallunki et al. [45], the integration of control management can be pursued through an ERP system, and this system has become one of the most significant implications from the perspective of control management. The ERP system can be viewed as a platform for management since it has standardized the operation and by doing so enables them

to be centralized towards management. This also explains the meaning of ERP system to management controls, such as its ability to deliver relevantly and in real time which is important in critical decision making [45].

3.1.3. H3: ERP Implementation is positively related with Intellectual Capital.

Sharabati et al. [46] defines intellectual capital as anything that creates value from human intelligence and thought. Astuti and Sabeni [47] defines intellectual capital as knowledge, information, intellectual properties, and experiences which can be utilized to create organizational welfare. The implementation of ERP can affect social capital. This implementation is linked to the relations that are created by the coordination and collaboration among individuals in the organization [48]. This is supported by research which was conducted by Lengnick-Hall et al. [8], that the implementation of an ERP system could improve communication and form a more integrated organization. The system will support individuals to collaborate, to conduct information exchanges, and to create work relationships. The implementation of ERP provides a platform to improve social capital and intellectual capital that supports the organization to have advantages in the competition between companies in the field of economic knowledge [8].

3.1.4. H4: Belief System is positively related to Intellectual Capital.

Simons [15] identifies the beliefs and limits of the system that can be used to articulate and advertised the organization's goal. According to Simons [15], beliefs and system boundaries have been articulated as a way to utilize formal control to clarify and communicate values. Like many other organizations, belief system is used to communicate core values to the potential employees during recruitment, and to strengthen these values to the existing employees and the others outside the organization. In their research, Chenhall, Hall and Smith [49] found two relations between belief system variables and intellectual capital, namely: (i) it could improve the bond and strengthen values by explaining the core values to new employees and existing employees, (ii) it could bridge other parties within the network to understand the core values and the corporate goals. Mundy [50] argues that the belief system can add the highest values when it is used actively and for influencing employees in certain situations. Chenhall, Hall and Smith [50] state that the definition of a belief system is an organization that utilizes senior managers to communicate and strengthen the organizational values, goals, and

direction. Belief system plays an important role in communicating and strengthening social justice values [49].

3.1.5. H5: Boundary system is positively related with Intellectual Capital.

Simons [15] defines a boundary system as a formal system which is used by top managers to establish rules that must be obeyed. Boundary system was designed to keep companies away from any threats that can degrade the companies' values by communicating the possible risks that should be avoided, in order to enable the company to avoid actions that can trigger unwanted risks [17]. According to Simons [15], managers seek to control strategic positions by using the system so that the organization can avoid the identifiable risks.

3.2. Instrumentation

This research uses quantitative data types. The sources of the data used here are primary data obtained through the distribution of questionnaires to companies in Indonesia which implement the ERP system.

The population of this research are companies in Indonesia that implement ERP system in their company. Meanwhile, the sample of this research is 36 companies in Indonesia that implement the ERP system. The sampling technique used in this research was convenience sampling. The questionnaire was divided into three parts:

i. Management Control System, statements adopted from Su, Baird, and Schoch [51].

ii. The Implementation of ERP statements adopted from Davis [7].

iii. Intellectual Capital, statements adopted from Bontis [52].

This research uses Partial Least Square (PLS) as its data analysis technique, with the calculation process assisted by WarpPLS 5.0 software. There are two models of PLS analysis, namely inner model and outer model. The outer model is the specification of relations between variables and its indicators, while inner model is the specification of relations about hidden or latent variables, which is between exogenous variables and endogenous variables.

Table 1 shows that this study was conducted on the majority of non-manufacture companies (65 %). Based on Table 2, it was known that the outer loading values for each indicator in every variable all have a value of > 0.5, so those indicators have already fulfilled the convergent validity.

Table 1: Respondent's profile descriptive based on the company's type of industry

Types of Company	Frequency	Percentage
Manufacture	20	35 %
Non Manufacture	37	65 %
Total	57	100 %

Table 2: Outer and cross loading value

	BS	BOS	ERP	IC
BS 1	(0.897)			-0.042
BS 2	(0.917)			-0.053
BS 3	(0.895)			0.076
BS 4	(0.891)			0.020
BOS 1	-0.122	(0.885)	-0.165	0.353
BOS 2	-0.019	(0.927)	-0.040	0.020
BOS 3	-0.089	(0.850)	-0.036	-0.296
BOS 4	0.254	(0.795)	0.267	-0.101
PU	0.104	-0.061	(0.895)	-0.100
PEU	0.656	-0.414	(0.794)	-0.187
USG	-0.790	0.493	(0.776)	0.306
HC	-0.441	0.180	-0.120	(0.841)
SC	-0.110	0.189	0.081	(0.883)
RC	0.531	-0.361	0.034	(0.882)

Based on the cross loading table in Table 2 above it can be concluded that each indicator that exists in latent variables has a difference with the indicators in other variables which were signified by higher loading score in its own construct. Thus, the model has already possessed a good discriminant validity.

Table 3: Average variance extracted table

	AVE	AVE's square root
BS	0.810	0.900
BOS	0.749	0.865
ERP Implementation	0.678	0.823
IC	0.755	0.869

Based on Table 3, it shows that the AVE value of belief system variable was 0.810, boundary system was 0.749, ERP implementation was 0.678, and intellectual capital

was 0.755. The results of these constructs show that the AVE values of all constructs were > 0.5. Based on AVE's criteria, the results met the discriminant validity.

Table 4: Composite reliability value

	Composite Reliability
BS	0.945
BOS	0.923
ERP implementation	0.863
IC	0.902

Table 4 shows that the composite reliability from each variable i.e. belief system was 0.945, boundary system was 0.923, ERP implementation was 0.863, and intellectual capital was 0.902, which were used in this research had already fulfilled the rule of thumb. It can be concluded that each variable has high reliability where it can be seen from the whole composite reliability value which was greater than > 0.7. This result shows that the model in this research was already reliable.

Table 5: R square value

	R Square
BS	-
BOS	-
ERP implementation	0.219
IC	0.715

Table 5 shows that the R-square value for ERP implementation variable was 0.219 which means that the percentage of the influence of belief system and boundary system on ERP implementation is 21.9 % while the rest of it (78 %) were explained by other variables. The value of R-square for intellectual capital was 0.715 which means that the percentage of the influence of belief system, boundary system, and ERP implementation on intellectual capital was 71.5 % while the rest of it (28.5 %) were explained by other variables.

$$Q^2 = 1 - ((1 - 0.219) \times (1 - 0.715)) = 0.777\,415 = 77.74\% \quad (1)$$

Therefore the model used in this research could explain the information contained in the data of 77.74 % (Equation 1) and the rest could be explained by other variables outside the model.

Table 6 presented the direct relation between belief system with ERP implementation. That relation resulted in the 0.272 P-values which mean hypothesis (H-1) has negative

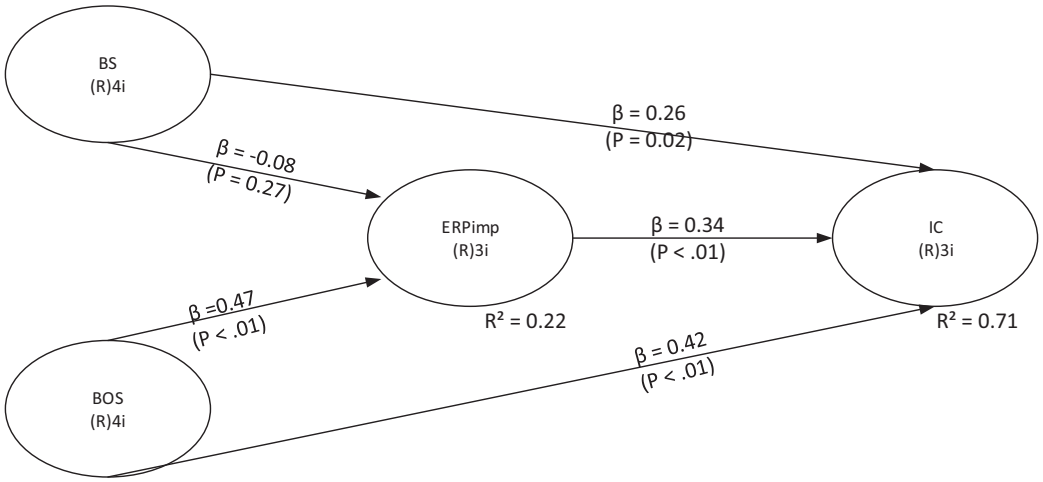

Figure 2: Result model.

TABLE 6: Hypothesis testing

Hypothesis	Influence	Path Coefficient	P values	Remarks
H1	Belief System --> ERP Implementation	-0.078	0.272	Rejected
H2	Boundary System --> ERP Implementation	0.475	< 0.001	Accepted
H3	ERP Implementation --> Intellectual Capital	0.341	0.003	Accepted
H4	Belief System --> Intellectual Capital	0.261	0.017	Accepted
H5	Boundary System --> Intellectual Capital	0.419	< 0.001	Accepted

influence inter-variable since the resulting P-values were > 0.05. The -0.078 path coefficients (Figure 2) indicate that belief system negatively affects the ERP implementation. Thus, the belief system variable does not affect the ERP implementation variable, so it can be concluded that hypothesis (H1) is rejected.

In the direct relation between the boundary system to the ERP implementation, there are a < 0.001 P-values, so it can be assumed that the relation between boundary system variable towards the ERP implementation is significant. Beside that, this relation has a 0.475 path coefficient (Figure 2) which means there is a positive relationship between the boundary system and the ERP implementation. This is supported by an explanation in the previous chapter which explains about the positive relationship between the boundary system towards the ERP implementation. So it can be concluded that hypothesis (H2) is accepted.

Direct relation between ERP implementation with intellectual capital has 0.003 P-values and 0.341 path coefficients (Figure 2) which means the ERP implementation has a significant and positive relationship towards intellectual capital. Thus it can be concluded that hypothesis (H3) is accepted.

Direct relation between a belief system and intellectual capital has 0.017 P-values so it can be said that it has a significant relationship. Besides, the 0.261 path coefficient value (Figure 2) indicates that there's a positive relationship between belief system and intellectual capital. Therefore the improvement in belief system would also improve the intellectual capital. So it can be concluded that hypothesis (H4) is accepted.

The direct relation between boundary system and intellectual capital results in a < 0.001 P-values which indicate its significance. In the other hand, the path coefficient has a 0.419 value, so it can be assumed that the boundary system positively affects the intellectual capital. So it can be concluded that hypothesis (H5) is accepted.

4. Discussion and managerial implication

In this research, by researching the variables of belief system, boundary system, ERP implementation, and intellectual capital, researchers obtained goodness of fit (GOF) of 77.74 %, which means the total competency of all variables to explain the dependent variables (intellectual capital) has competency level of 77.74 %. In other words, there's still a chance of 22.26 % for other variables outside this research model which can explain the intellectual capital further than this research. So it is expected for academics, that this research can enrich references or it can be utilized as the comparison for the next researches.

Suggestions for company management who implement ERP system in Indonesia is to start paying attention to the factors which can help to improve the users' work performance, both for down managers and top managers. As exemplified in this study, the boundary system variable can improve users' work performance on ERP implementation which leads to the improvement of intellectual capital within the company which helps the company to improve its value. With the implementation of the rules, code of ethics, and communication about the risks that should be avoided and the risks in company's decision-making, it can encourage users within the company to improve their performances and implement ERP in their work. When the users felt ERP is useful and easy to use, the users will use it well. Indirectly, when users' performance improved, the company's intellectual capital will also be improved.

5. Conclusion

The aim of this research is to identify whether or not there is any influence between transformational leadership and ERP system self-efficacy towards ERP system usage.

The company sample that was used came from 36 companies in Indonesia which have been implemented the ERP system.

Based on the calculation and examination of the hypothesis in the previous chapter, it can be concluded that:

1. There is a negative and not significant influence between belief system variable towards ERP implementation from the ERP system's users in companies in Indonesia. Therefore, it can be assumed that there is no connection between belief system and ERP implementation.
2. There is a positive and significant influence between boundary system towards ERP implementation. By implementing a boundary system within the company, automatically it will improve the implementation of ERP within the company.
3. There is a positive and significant influence between ERP implementation towards intellectual capital in a company. By implementing ERP within the company, automatically it will improve a company's intellectual capital.
4. There is a positive and significant influence between belief system towards intellectual capital. By implementing belief system within the company, it would improve the company's intellectual capital.
5. There is a positive and significant influence between boundary system towards intellectual capital from the ERP system's users in companies in Indonesia. By implementing a boundary system on intellectual capital within a company, it would improve intangible asset's value within the company.

References

[1] Schiuma G, Lerro A. Intellectual capital and company's performance improvement. Measuring Business Excellence 2008; 12(2): 3--9. https://www.emeraldinsight.com/doi/abs/10.1108/13683040810881153

[2] Castaneda D, Toulson P. The value of human resources measurement in intellectual capital and knowledge sharing. Electronic Journal of Knowledge Management 2013; 11(3): 226--234. https://psycnet.apa.org/record/2014-02051-004

[3] Tekavčič M, Peljhan D, Šević Z. Levers of control: analysis of management control systems in a slovenian company. The Journal of Applied Business Research--Fourth Quarter 2008; 24(4): 97--112. https://clutejournals.com/index.php/JABR/article/view/1333

[4] Yang C, Su YF. The relationship between benefits of erp systems implementation and its impacts on firm performance of SCM. Journal of Enterprise Information Management 2009; 22(6): 722--752. https://www.emeraldinsight.com/doi/abs/10.1108/17410390910999602

[5] Erasmus E, Rothmann S, van Eeden C. A structural model of technology acceptance. SA Journal of. Industrial Psychology 2015; 41(1):1--12. https://sajip.co.za/index.php/sajip/article/view/1222/1747

[6] Shih YY, Huang SS. The actual usage of ERP systems: an extended technology acceptance perspective. Journal of Research and Practice in Information Technology 2009; 41(3): 263--276. https://web.b.ebscohost.com/abstract?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=1443458X&AN=44769188&h=dPx2qheFne8%2fN3riz8EQWYI7eVWyDL7XeNjlgiOtN5hsmWUoawtvWqBU0Voeb2SfhX3VoydTqzAgl4xkivWArA%3d%3d&crl=f&resultNs=AdminWebAuth&resultLocal=ErrCrlNotAuth&crlhashurl=login.aspx%3fdirect%3dtrue%26profile%3dehost%26scope%3dsite%26authtype%3dcrawler%26jrnl%3d1443458X%26AN%3d44769188

[7] Davis FD. Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS quarterly 1989; 13(3): 319--340. https://www.jstor.org/stable/249008?seq=1#page_scan_tab_contents

[8] Lengnick-Hall CA, Lengnick-Hall ML, Abdinnour-Helm S. The role of social and intellectual capital in achieving competitive advantage through enterprise resource planning (ERP) systems. Journal of Engineering and Technology Management 2004; 21(4): 307--330. https://www.sciencedirect.com/science/article/pii/S0923474804000529

[9] Markus ML. Technochange management: using it to drive organizational change. Journal of Information Technology 2004; 19(1): 4--20. https://journals.sagepub.com/doi/abs/10.1057/palgrave.jit.2000002

[10] Gogan LM, Artene A, Sarca I, Draghic A. The impact of intellectual capital on organizational performance. Procedia-Social and Behavioral Sciences 2016; 221: 194--202. https://www.sciencedirect.com/science/article/pii/S1877042816301793

[11] Rengkung LR. Keuntungan kompetitif organisasi dalam perspektif resources based view (RBV) [Organizational competitive advantage in the perspective of resources based view]. Agri-Sosioekonomi 2015; 11(2A): 1--12. [in Bahasa Indonesia]. https://ejournal.unsrat.ac.id/index.php/jisep/article/view/9447

[12] Anantadjaya SP. Comparative literature study on the resource-based theory of the firm and knowledge-based theory of the firm. Jurnal Sistem Informasi 2008; 3(1):

39--50. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1107729

[13] Pedron CD. Using the dynamic capabilities perspective to analyze crm adoption: a multiple case in portuguese organizations. [Desertation]. Universidade De Technica De Lisboa, Instituto Superior De Economia E Gestao, Lisbon (2009); 69--70..https://www.researchgate.net/publication/277182229_Using_the_dynamic_capabilities_perspective_to_analyse_CRM_adoption_a_multiple_case_study_in_portuguese_organisations

[14] Agyemang G, Broadbent J. Management control systems and research management in universities: an empirical and conceptual exploration. Accounting, Auditing & Accountability Journal 2015; 28(7):1018--1046. https://www.emeraldinsight.com/doi/abs/10.1108/AAAJ-11-2013-1531

[15] Simons R. How new top managers use control systems as levers of strategic renewal. Strategic Management Journal 1994; 15:3:169--189. https://onlinelibrary.wiley.com/doi/abs/10.1002/smj.4250150301

[16] Crombie NA, Geekie TJ. The levers of control in the boardroom. Paper presented in: 2010 6th Asia Pacific Interdisciplinary Research in Accounting Conference (APIRA 2010). July 11--13, 2010. Sydney, Australia. https://ir.canterbury.ac.nz/handle/10092/4707

[17] Ferreira A, Otley D. The design and use of performance management systems: an extended framework for analysis. Management Accounting Research 2009; 20(4): 263--282. https://www.sciencedirect.com/science/article/pii/S1044500509000432

[18] Bansal V, Agarwal A. Enterprise resource planning: identifying relationships among critical success factors. Business Process Management Journal 2015; 21(6): 1337--1352. https://www.emeraldinsight.com/doi/abs/10.1108/BPMJ-12-2014-0128?journalCode=bpmj

[19] Hwang D, Min H. Identifying the drivers of enterprise resource planning and assessing its impacts on supply chain performances. Industrial Management & Data Systems 2015; 115(3):541-569. https://www.emeraldinsight.com/doi/abs/10.1108/IMDS-10-2014-0284

[20] Nofal, MI, Yusof ZM. Integration of business intelligence and enterprise resource planning within organizations. Procedia Technology 20013; 11:658--665. https://www.sciencedirect.com/science/article/pii/S2212017313003964

[21] Rauniar R, Rawski G, Yang J, Johnson B. Technology acceptance model (TAM) and social media usage: an empirical study on facebook. Journal of Enterprise Information Management 2014; 27(1): 6--30.

[22] Venkatesh V, Davis FD. A theoretical extension of the technology acceptance model: four longitudinal field studies. Management Science 2000; 46(2): 186--204. https://pubsonline.informs.org/doi/abs/10.1287/mnsc.46.2.186.11926

[23] Pantano E, Di Pietro L. Understanding consumer's acceptance of technology based innovations in retailing. Journal of Technology Management and Innovation 2012; 7(4):1--19. https://www.jotmi.org/index.php/GT/article/view/1029

[24] Teo T. A comparison of non-nested models in explaining teachers' intention to use technology. British Journal of Educational Technology 2013; 44(3):E81--E84. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-8535.2012.01350.x

[25] Wen Y, Kwon O. An empirical study of the factors affecting social network service use. Computers in Human Behaviour 2010; 26(2): 254--263. https://www.sciencedirect.com/science/article/pii/S0747563209000673

[26] Zhu DS, Lin TCT, Hsu YC. Using the technology acceptance model to evaluate user attitude and intention of use for online games. Total Quality Management 2012; 23(8):965--980. https://www.tandfonline.com/doi/abs/10.1080/14783363.2012.704269

[27] Dost M, Badir YF, Ali Z, Tariq A. The impact of intellectual capital on innovation generation and adoption. Journal of Intellectual Capital 2016; 17(4): 675--695. https://www.emeraldinsight.com/doi/abs/10.1108/JIC-04-2016-0047?journalCode=jic

[28] Sällebrant T, Hansen J, Bontis N, Hofman-Bang P. Managing risk with intellectual capital statements. Management Decision 2007; 45(9):1470--1483. https://www.emeraldinsight.com/doi/abs/10.1108/00251740710828717

[29] Lerro A, Iacobone FA, Schiuma G. Knowledge assets assessment strategies: organizational value, processes, approaches and evaluation architectures. Journal of Knowledge Management 2012; 16(4):563--575. https://www.emerald.com/insight/content/doi/10.1108/13673271211246149/full/html

[30] Khalique M, Shaari JAN, Hassan A. Intellectual capital and its major components. International Journal of Current Research 2011; 3(6): 343--347. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1892844

[31] Cohen S, Kaimenakis N. Intellectual capital and corporate performance in knowledge-intensive SMEs. The Learning Organization 2007; 14(3):241--262. https://www.emeraldinsight.com/doi/abs/10.1108/09696470710739417

[32] Moon YJ, Kim HG. A model for the value of intellectual capital. Canadian Journal of Administrative Sciences 2006; 23(3): 253--269. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1936-4490.2006.tb00630.x

[33] Schiuma G, Lerro A, Sanitate D. The intellectual capital dimensions of Ducati's turnaround: exploring knowledge assets grounding a change management program. International Journal of Innovation Management 2008; 12(2):161--193. https://econpapers.repec.org/article/wsiijimxx/v_3a12_3ay_3a2008_3ai_3a02_3an_3as1363919608001935.htm

[34] Grasenick K, Low J. Shaken, not stirred: defining and connecting indicators for the measurement and valuation of intangibles. Journal of Intellectual Capital 2004; 5(2):268--281. https://www.emeraldinsight.com/doi/abs/10.1108/14691930410533696

[35] Chu PY, Lin YL, Hsiung HH, Liu TY. Intellectual capital: an empirical study of ITRI. Technological Forecasting and Social Change 2006; 73(7):886--902. https://www.sciencedirect.com/science/article/pii/S0040162505001630

[36] Watson A, Stanworth J. Franchising and intellectual capital: a franchisee's perspective. International Entrepreneurship and Management Journal 2006; 2(3):337--349. https://link.springer.com/article/10.1007/s11365-006-0005-0

[37] de Pablo PO. Intellectual capital statements: what pioneering firms from asia and europe are doing now. International. Journal of Knowledge and Learning 2005; 1(3):249--268. https://www.inderscienceonline.com/doi/abs/10.1504/IJKL.2005.007759

[38] Park SY. An analysis of the technology acceptance model in understanding university students' behavioral intention to use e-learning. Journal of Educational Technology & Society 2009; 12(3): 150--162. https://www.jstor.org/stable/jeductechsoci.12.3.150

[39] Chomchalao S, Naenna T. Influence of system traits and personal traits on the acceptance of e-government service. Information. Technology. Journal 2013; 12(5): 880--893. https://scialert.net/fulltextmobile/?doi=itj.2013.880.893

[40] Johnston AC, Warkentin M. Fear appeals and information security behaviors: an empirical study. MIS Quarterly 2010; 34 (3): 549--566. https://www.jstor.org/stable/25750691?seq=1#page_scan_tab_contents.

[41] Surendran P. Technology acceptance model: a survey of literature. International Journal of Business and Social Research 2012; 2(4): 175--178. https://thejournalofbusiness.org/index.php/site/article/view/161

[42] Maas JB, van Fenema PC, Soeters J. ERP as an organizational innovation: key users and crossboundary knowledge management. Journal of Knowledge Management 2016; 20(3): 557--577. https://www.emeraldinsight.com/doi/abs/10.1108/JKM-05-2015-0195

[43] Seddon PB, Calvert C, Yang S. A multi-project model of key factors affecting organizational benefits from enterprise systems. MIS Quarterly. 2010;34(2):305--328. https://www.jstor.org/stable/20721429?seq=1#page_scan_tab_contents

[44] Chou HW, Lin YH, Lua HS, Chang HH, Chou SB. Knowledge sharing and ERP system usage in post-implementation stage. Computers in Human Behavior 2014; 33:16--22. https://www.sciencedirect.com/science/article/pii/S0747563213004767

[45] Kallunki JP, Laitinen EK, Silvola H. Impact of enterprise resource planning systems on management control systems and firm performance. International Journal of Accounting Information Systems 2011; 12(1):20--39. https://www.sciencedirect.com/science/article/pii/S146708951000014X

[46] Sharabati AAA, Jawad SN, Bontis N. Intellectual capital and business performance in the pharmaceutical sector of Jordan. Management Decision 2010; 48(1):105--131. https://www.emeraldinsight.com/doi/abs/10.1108/00251741011014481

[47] Astuti PD, Sabeni A. Hubungan intellectual capital dan business performance dengan diamond specification: sebuah perspektif akuntansi [The relationship of intellectual capital and business performance with a diamond specification: an accounting perspective]. Paper presented in: Simposium Nasional Akuntansi VIII (SNA 8). September 15--16, 2005. Solo, Indonesia. pp. 694--707. [in Bahasa Indonesia]. http://eprints.undip.ac.id/15224/

[48] Ifinedo P, Nahar N. Do top-and mid-level managers view enterprise resource planning (ERP) systems success measures differently?. International Journal Management and Enterprise Development 2006; 3(6): 618--635. https://econpapers.repec.org/article/idsijmede/v_3a3_3ay_3a2006_3ai_3a6_3ap_3a618-635.htm

[49] Chenhall RH, Hall M, Smith D. Social capital and management control systems: a study of a non-government organization. Accounting, Organizations and Society 2010; 35(8): 737--756. https://www.sciencedirect.com/science/article/pii/S0361368210000802

[50] Mundy J. Creating dynamic tensions through a balanced use of management control systems. Accounting Organizations and Society 2010; 35(5): 499--523. https://www.sciencedirect.com/science/article/pii/S0361368209001020

[51] Su S, Baird K, Schoch H. Management control system effectiveness: the association between types of controls with employee organizational commitment across organisational life cycle stages. Pacific Accounting Review 2015; 27(1): 28--50. https://www.emeraldinsight.com/doi/abs/10.1108/PAR-06-2012-0022

[52] Nick Bontis. National intellectual capital index. Journal of Intellectual Capital 2004; 5 (1): 13-39. https://www.emerald.com/insight/content/doi/10.1108/14691930410512905/full/html