The Effect of Education Level, Business Age and Accounting Knowledge on The Implementation of SME Accounting Information Systems in Industrial Era 4.0 (Empirical Study of MSME in South Tangerang)

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Abstract
This study aims to determine the effect of education level, business age, and accounting knowledge on the application of MSME accounting information systems in South Tangerang both partially and jointly. The variable used in this study is the application of accounting information systems as the dependent variable while the level of education, business age, and accounting knowledge as independent variables.

The data used in this study are primary data, namely by field studies by distributing questionnaires. The method used in this study is multiple linear regression analysis with probability sampling in the form of random sampling with a sample of one hundred respondents.

The results showed that partially the education level had a significant positive effect, business age had a significant positive effect, and accounting knowledge had a significant positive effect on the application of the MSME accounting information system. While the results of the study simultaneously indicate that the level of education, business age, and accounting knowledge, together have a significant positive effect on the application of the MSME accounting information system.

Keywords: education level, business age, accounting knowledge, application of accounting information systems, and MSMEs.

1. Introduction

Micro, Small and Medium Enterprises (MSMEs) in Indonesia have started to emerge as global competitiveness is getting tighter. Small and Medium Enterprises are an economic driver in various countries, including in Indonesia, with the large number of businesses in the country, reflecting that the country’s economy is getting better [1]. In addition, MSMEs can also contribute positively both macro and micro, by absorbing the workforce,
increasing demand, increasing public purchasing power and investment growth [2]. Based on data from the Ministry of Cooperatives and SMEs, until 2012, SMEs have been able to absorb the labor force 107 657 509 or 97.16% of the workforce engaged in SMEs. The number of units of SMEs in Indonesia is 56,534,592 as many business units or 99.99% dominated by micro-enterprises with a percentage of 98.79% (Ministry of Cooperatives and SMEs). Besides the contribution of SME sector to gross domestic product (GDP) to date reaching 60.34 percent (Ministry of Industry, 2018).

The data collected from the Ministry of Cooperatives and SMEs about the growth of the MSME units, it can be seen from Table 1 MSME units where each year has increased.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of units</th>
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<tbody>
<tr>
<td>2009</td>
<td>52.76475 million units</td>
</tr>
<tr>
<td>2010</td>
<td>54,114,821 units</td>
</tr>
<tr>
<td>2011</td>
<td>55,206,444 units</td>
</tr>
<tr>
<td>2012</td>
<td>56,534,592 units</td>
</tr>
<tr>
<td>2013</td>
<td>57,895,721 units</td>
</tr>
</tbody>
</table>

Source: processed

In 2014 - 2016 the number of SMEs more than 57.9 million units and in 2017 the number of SMEs is expected to grow until more than 59 million units. One area that the growth of SMEs her is experiencing good growth is South Tangerang City this can be evidenced by the recapitulation census SMEs conducted by the Department of Cooperatives and SME South Tangerang City showed that in 2015 the population of SMEs in South Tangerang municipality amounted to 20 671 units SMEs, and the last census conducted in 2017 increased to by 23 085. One reason is because the Government of South Tangerang middle Tangsel program launched as a cooperative city, where one co-operative from 1,000 SMEs in 2021. It is expected to become a cooperative healthy and quality.

One of the problems that arise in the case of SMEs, because the company does not have the information, both from within and from outside the business venture. One of information systems provide information needed is an accounting information system [3]. An organization, entity, or the company would have to have a good accounting information system in order to avoid various measures irregularities or errors [4]. Knowledge is an experience and insight into something that can be used as a consideration when evaluating new information or evaluating relevant conditions (William 2003) in[5]. Low
accounting knowledge will cause the business to run a management failure, making it very difficult for business people to determine what policies will be taken [2].

Many entrepreneurs must close their business simply because there is no accounting knowledge in making an accounting decision. Many are ignorant of the separation between personal money and money that has entered into a business transaction, causing no clear profit or profit and business capital used in the beginning [6]. In other words, accounting practices in a company reflect the level of accounting owner's knowledge[7]. In addition, many studies have been carried out regarding the factors that influence the application of accounting information systems, but the results of the research are still not consistent or experience Gap Research. The following is a table about Gap Research.

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EducationLevel</td>
<td>Influential</td>
<td>No Influential</td>
<td>Influential</td>
<td>-</td>
<td>influence</td>
</tr>
<tr>
<td>2</td>
<td>Business Age</td>
<td>No effect</td>
<td>-</td>
<td>-</td>
<td>influential</td>
<td>No effect</td>
</tr>
<tr>
<td>3</td>
<td>Accounting Knowledge</td>
<td>-</td>
<td>Influential</td>
<td>Influence</td>
<td>Influential</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Processed, 2019

Based on the different inconsistencies of the previous researchers in table 2 the research gap, the authors are interested in conducting this research.

The difference between this research and previous research is the sample and place of research. The sample of this study was the UMKM actors in the South Tangerang area. Where in previous studies no one has taken samples in the South Tangerang region.

To explain the basic use of this research is motivation theory which states that accounting information in a company will always be influenced by the motivation of business people in carrying out their business activities. Motivation generally arises when the actor knows his needs and disadvantages, then looks for ways to satisfy those needs. The behavior of the activity is directed at the expected goals. This will affect the performance. Then business people will reassess their needs after seeing the results or impacts obtained from the performance performed [8].
2. Literature Review

2.1. Motivation theory

The supply and use of accounting information in a company will always be influenced by the motivation of businesses to conduct their business activities. Motivation is generally arise when the perpetrator knows the needs and shortcomings of activities, then look for ways to satisfy his needs. The behavior of these activities are directed at the expected goals. This will affect the performance. Then businesses will reassess its needs after seeing the results or impact obtained from the performance made [8]. The use of accounting information will increase because business owners know the needs that information in making business decisions [9].

2.2. Application of Accounting Information Systems (AIS)

2.2.1. Definition of Accounting Information Systems (AIS)

Romney and Steinbart (2015, p. 11) describes the accounting is the process of identification, collection, and storage of data, as well as the development process, measurement, and communication of information. Based on these definitions, accounting is an information system for AIS collect, record, store, and process accounting and other data for the region contribute to information for decision-makers. Alternatively, financial and accounting information have a very close relationship. Financial information or commonly known as accounting information is provided by the accounting information prepared by accountants. This information is usually represented in the form of financial statements, such as income statement and balance sheet. This information also includes all financial ratios resulting from the financial statements [10].

Accounting Information System can be manually pencil and paper system, a complex system that uses the latest TI, or something in between. Regardless of the approach taken, the process is the same. SIA should collect, enter, process, store, and report on data and information. Paper and pencil or hardware and computer software is a tool used on the production of information. [11].

According Sawers (2007) in [8]accounting information is quantitative information about the economic entity that is useful for economic decision making in determining the choices between alternatives of action.

According [11] (p. 132) describes an alternative accounting system no longer justified in terms of its ability to demonstrate “actual earnings” as well as accuracy in presenting
history. During the different users to benefit from the information, the usability of the system can be determined.

2.2.2. Classification of Accounting Information

Holmes and Nicholls (1989) in [2] classifies the accounting information into three types based on its benefits for the users, namely:

1. **Statutory Accounting Information**
   
   The information must be prepared in accordance with existing regulations. [12] stated that the Indonesian Institute of Accountants (IAI) has issued guidelines for the preparation of financial statements when presented to outsiders.

2. **Budgetary Information**

   This accounting information helps management to ensure the company’s operations are run in accordance with the plan set. This information is presented in the form of a budget.

3. **Additional Accounting Information**

   Other accounting information prepared by the company to improve the effectiveness of decision making managers. Additional information includes inventory reports, report employee salaries, reports the number of production and production costs report.

2.3. Level of Education Owners

Basically, humans need education in life, whether formal, informal and non-formal education, because education can develop his or her potential through learning or other means that is known and done by the community. The influence of entrepreneurship education during this time as one of the important factors to grow and develop a passion, spirit and entrepreneurial behavior among the younger generation. Pursued higher education, both formal and non-formal education for the field work, the higher the owned intellectual experience.

   Intellectual experience will be able to facilitate the implementation of the work performed so when linked with the role of the owner of the business owner in the use of accounting information in business, then the business owners who have a formal education will adequately create the capacity and expertise to better use accounting
information as compared with owners businesses that have formal educational background lower. The education level of the owner can be said as the rate of change of the owner to develop the potentials that exist in companies that are run by education have been taken. Education is important for business owners because they are the decision makers in corporate activities [13]. Education in the Big Indonesian Dictionary (2016) is the process of changing attitudes and code of conduct of someone or a group of people in a mature business man through teaching and training efforts. According to the Law of the Republic of Indonesia Number 20 Year 2003 Article 14 of the National Education System states that formal education consists of elementary education, secondary education, and higher education.

2.4. Age of Business

According to [14] age attempt to explain how long the SMEs operate and exist to run a business in economic conditions change, the age is calculated from how long since the business was founded until now to run a business. Age indicator is the length of the distinguished company operates over 1-4 years, 5-9 years, 10-14 years and above 15 years. Age attempt to determine how to think, act, and behave in an attempt to carry out operations and resulted in a change of mindset and level of maturity sebua effort in taking a stand on any action or decision [15]. According [14] the longer pursue the field of business, it will increase knowledge about the taste or consumer behavior.

2.5. Accounting Knowledge

According [17] knowledge is an experience and insight of a thing that can be used as consideration when assessing new information or evaluate the relevant circumstances. Owner accounting knowledge can be reflected through the treatment of business owners or managers in managing the finances of the company.

In other words, in a company’s accounting practices reflect the level of accounting knowledge of the owner. Accounting knowledge also had a big hand in the progress of the business is managed. Accounting knowledge possessed by owners of small and medium enterprises will be many many benefits in the use of accounting information. Lower accounting knowledge will lead to a business carried on a failure of management making it very difficult for businesses to determine what policies will be taken [2].

[17] describes the accounting knowledge will greatly affect the use of accounting information which in practice will provide data related to how businesses are run as a
whole, for example by using accounting information will be obvious how the statutory information, budget information, and additional information. One of the benefits that can be such as how to determine the ratio of business finance can be seen from the reports so owners will know how the financial health on the business carried on. According [19] have accounting knowledge indicator / can be measured by:

1. Declarative knowledge
   Declarative knowledge is knowledge of the facts and based on the concept.

2. Procedural knowledge
   Procedural knowledge is knowledge that is consistent with the rules or the applicable accounting standards, usually depending on experience.

2.6. Micro Small Medium Enterprises (MSMEs)

In the law no. 20 of 2008 micro-enterprises are productive businesses owned by individuals and / or entities that meet the criteria of individual businesses microenterprise as stipulated in this law. Meanwhile, small businesses are productive economic activities that stand alone, carried out by an individual or business entity that is not a subsidiary or not branches of companies owned, controlled, or be a part either directly or indirectly from medium or large businesses that meet small businesses are the criteria referred to in this law.

Medium-sized businesses are productive economic activities that stand alone, carried out by individuals or entities that are not subsidiaries or branches of companies owned, controlled, or be a part either directly or indirectly with a small business or large enterprise with total net assets or the annual sales revenue as stipulated in this law.

To distinguish the types of SMEs here are some definitions and criteria used by several government organizations in Indonesia

2.7. Theoretical Framework

According [20] (p. 60) frame to load and theoretically explain the linkage between variables to be studied. So theoretically necessary to explain the relationship between independent variables and the dependent. The independent variable or variables are variables that affect or is the cause of the change or the emergence of the dependent variable (the dependent variable). While the dependent variable or dependent variable is the variable that is affected or become due for their independent variables [20](p.39).
Table 3: Criteria for SMEs.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Type of business</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Central Statistics Agency (BPS)</td>
<td>Micro business</td>
<td>Workers 1-4 people</td>
</tr>
<tr>
<td></td>
<td>Small business</td>
<td>Workers 5-19</td>
</tr>
<tr>
<td></td>
<td>Medium Enterprises</td>
<td>Worker 20-99 people</td>
</tr>
<tr>
<td>Bank Indonesia (BI)</td>
<td>Micro business</td>
<td>- Business carried on by the poor or near poor</td>
</tr>
<tr>
<td></td>
<td>(SK Dir BI No. 31/21 / KEP / DIR, May 5, 1998)</td>
<td>- Owned by a family of local resources and simple technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Easy business field for entry and exit</td>
</tr>
<tr>
<td></td>
<td>Medium Enterprises (SK Dir BI No. 3045 / KEP / DIR / UK, January 5th, 1997)</td>
<td>- Assets &lt; Rp 5 billion to the industry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Assets &lt; USD 600 million excluding land and buildings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Annual turnover &lt; USD 3 billion</td>
</tr>
<tr>
<td>Ministry of Cooperatives and SMEs (Act No. 20 of 2008)</td>
<td>Micro business</td>
<td>- Maximum net assets to $ 50 million</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Maximum annual sales revenue to $ 300 million</td>
</tr>
<tr>
<td></td>
<td>Small business</td>
<td>- Net assets of more than Rp 50 million to Rp 500 million</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- The results of the annual sales of more than Rp 300 million to Rp 2.5 billion</td>
</tr>
<tr>
<td></td>
<td>Medium Enterprises</td>
<td>- Net assets of more than Rp 500 million to Rp 10 billion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Results of annual sales of more than USD 2.5 billion to USD 50 billion</td>
</tr>
</tbody>
</table>

Source: Adapted, 2019

The independent variable in this study is the level of education, age of business and accounting knowledge, while the dependent variable is the application of accounting information systems. Here is the exposure of the relationship between variables to be studied:

![Figure 1: Framework of thinking.](image)

2.8. Hypothesis

The hypothesis of this study are as follows:

H1: Education levels affect the application of accounting information system of SMEs
H2: Business Age affect the application of accounting information system of SMEs
H3: Knowledge influential Accounting Accounting Information System Application Against SMEs
H4: Education Level, Age of Business and Accounting Sciences jointly affect the application of accounting information system of SMEs

3. Methods

This type of research is associative research with the aim to determine the effect of independent variables on the dependent variable. Data retrieval using direct surveys and instruments used are questionnaires (Questionnaire). Before the data were analyzed first performed classical assumption and then the data were analyzed using multiple linear regression. Hypothesis testing using the t test and F test study was conducted in February s / d in July 2019.

Population is the subject of the measurements taken by research. The population in this study are all SMEs in South Tangerang as many as 23,085 MSMEs. The research sample consists of 100 respondents, the results obtained by using the formula slovin.

4. Results

4.1. Data Collection

Respondents in this study were the perpetrators of SMEs residing and operating in the territory of South Tangerang. Questionnaires distributed by the researchers to the SMEs start date of June 1, 2019 until June 17, 2019, and as many as 100 questionnaires collected in accordance with the number of predetermined samples.

4.2. Data Analysis Results

4.2.1. Data Quality Test Results

Validity Test

Test the validity indicates the extent to which a measuring instrument is really suitable or appropriate as a measuring tool as desired. The results of the study valid if there are similarities between the data collected by the data actually happened on the object
under study. Validity test is done to test whether the revelation in the questionnaire can be used as a measure that indicates the level of validity of an instrument.

Test Reliability

Reliable instrument is an instrument which, when used and keeping time to measure the same object and will generate the same data. Reliability is measured by statistical tests Cronbach Alpha ($\alpha$). A construct or a variable is said to be reliable if the value of Cronbach Alpha $> 0.70$ [19].

<table>
<thead>
<tr>
<th>Reliability Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach's Alpha</td>
</tr>
<tr>
<td>0.838</td>
</tr>
</tbody>
</table>

Based on table 3 above can be seen that the value of Cronbach Alpha is worth 0.838. This shows that the value of Cronbach Alpha $> 0.70$. This value is evident that all the statements of the variables X1, X2, X3, and Y is a good or reliable.

<table>
<thead>
<tr>
<th>Coefficients*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>(Constant)</td>
</tr>
<tr>
<td>Education Level</td>
</tr>
<tr>
<td>Age of Business</td>
</tr>
<tr>
<td>Accounting knowledge</td>
</tr>
</tbody>
</table>

5. Discussion

The discussion in this study using a dependent variable is the application of Accounting Information Systems MSMEs and independent variables namely Education Level, Age of Business and Accounting knowledge.
5.1. Effect of Education on the Application of SMEs Accounting Information Systems

Based on the results of testing the influence of education level on the application of AIS SMEs can be seen in Table 4 which shows the significance value less than 0.05 (0.002 < 0.05) the H1 accepted. This means that Ho is rejected and Ha accepted. We also see the influence of education level of t count equal to 3.118 which means that the higher level of education pursued by the owners of SMEs it will be the higher the application of the accounting information system. Conversely, if the owners of MSMEs low education level, the System Application The information will be low.

It can be concluded that the level of education a significant effect on SMEs Application of Accounting Information Systems. This study is in line with research [1] with the result that shows that education level significantly influence the application of Accounting Information Systems. These results differ from the results [2] which states that education level does not affect the application of accounting information system.

This shows that if the owners of MSMEs higher education level, then he will realize the importance of Application of Accounting Information Systems in the efforts. Implementation of AIS will be useful in decision-making, and encourages owners to think about the sustainability of its business.

This is consistent with a theory of motivation that argues the supply and use of accounting information in a company will always be influenced by the motivation of businesses to conduct their business activities. Motivation is generally arise when the perpetrator knows the needs and shortcomings of activities, then look for ways to satisfy his needs. The behavior of these activities are directed at the expected goals. This will affect the performance.

5.2. Age influence efforts against MSMEs Accounting Information System Application

Based on the results of testing the influence of age on Implementation of AIS Enterprises SMEs can be seen in Table 5 which shows the significance value less than 0.05 0.000 (0.000 < 0.05), the H2 is accepted. This means that Ho is rejected and Ha accepted. And the results of Test Multiple Linear Regression Analysis which shows that the life business has the greatest value compared to other variable that is equal to 5,905. These results were obtained based on the number of respondents in this study is almost half over the age of 5 years. Age can be seen also influence efforts of t count equal to 11.565,
which means the longer the Age Enterprises MSME owners who run the higher the application of the accounting information system. Conversely, if the lower age MSME business owners,

It can be concluded that the Age Enterprises significant effect on SMEs Application of Accounting Information Systems. This study is in line with research [3] with results that indicate that Age Enterprises significant effect on the Application of Accounting Information Systems. These results differ from the results [22] which states that the Business Age does not affect the application of accounting information system.

Age effort resulted in a change of mindset and skill levels the owner of the company in making decisions on any actions. Owner of the company that has long operate its business has much to learn from their experience, so that the owner or manager will realize the importance of Accounting Information System Application consideration their business decisions. This is in accordance with Theory Of Reasoned Action (TRA) to explain the relationship intention or intention to conduct entirely within the control of individuals.

5.3. Effect of Accounting Knowledge of the application of Accounting Information Systems SMEs

Based on the results of testing the effect of accounting Knowledge of the application of SIA SMEs can be seen in Table 4:13 which shows the significance value less than 0.05 0.002 (0.002 < 0.05), the H3 is received. This means that Ho is rejected and Ha accepted. We also see the influence of education level of t count equal to 3.241 which means higher knowledge of Accounting owners of SMEs it will be the higher the application of the accounting information system. Conversely, if the owners of SMEs Accounting Knowledge is low, then the Application System The information will be low.

It can be concluded that the Knowledge Accounting significant effect on SMEs Application of Accounting Information Systems. This study is in line with research [2], [3], and [15], with results showing that the Knowledge Accounting significant effect on the Application of Accounting Information Systems.

The owners of SMEs have a high knowledge of accounting, the more easily produce accounting records accounting information. The statement was supported by theories of motivation, where the motivation is generally arise when the perpetrator knows the needs and shortcomings of activities, then look for ways to satisfy his needs.
5.4. Effect of Education Level, Age of Business and Accounting Knowledge on the application of MSMEs Accounting Information Systems

Based on the statistical test result \( f \) (simultaneously), there is a simultaneous influence of a variable Education Level, Age of Business and Accounting Knowledge of the application of Accounting Information Systems SMEs. This is evidenced from research significance value of 0.000 is less than 0.05 (0.000 < 0.05), the H4 is accepted. There are also the result of \( f \) calculated at 80.920 and \( F \) table of 2.70 it can be stated \( f \) count is greater than \( f \) table (80.920 > 2.70). Thus the independent variables together proved a significant effect on the dependent variable.

This study found that, in industries 4.0 is the SMEs 49% know the most, 40% know entirety and accounting information systems implemented. This can be seen with the use of SME financial applications by SMEs in South Tangerang.

6. Conclusion

This study aimed to determine the effect of education level, business age and Accounting Knowledge Against MSMEs Accounting Information System Application in South Tangerang. Analyzes were performed using SPSS 23. Based on the analysis and discussion in the previous sections above the conclusions of this study are as follows:

1. The level of education has a significant influence on the Application of MSMEs Accounting Information Systems in South Tangerang. This means that the higher the education level of MSMEs owners or conversely, the higher the level of application of accounting information system by SMEs. It turned out that the number of MSMEs as much as 52% educated S1. That is, simply have the potential and the opportunities for MSMEs to obtain training. MSMEs for high school educated as much as 40%, there is still an opportunity to provide training on simple accounting information systems.

2. Age Enterprises have a significant influence on the Application of MSMEs Accounting Information Systems in South Tangerang. This means that the longer the life of the business, or vice versa, the higher the level of adoption of Accounting Information Systems by the owners of MSMEs. Age businesses most dominant influence in comparison with other variables, which means that the longer the life of the business is run, the higher the application of accounting information systems.
3. Accounting knowledge has a significant influence on the Application of Accounting Information Systems MSMEs in South Tangerang. This means that the higher knowledge of Accounting MSMEs or vice versa, the higher the level of adoption of MSMEs Accounting Information Systems. This is due to more easily perform the accounting records.

4. Education Level, Age of Business and Accounting Sciences jointly or simultaneously significant effect on Application of MSMEs Accounting Information Systems. This means that the higher the level of education, age of business, accounting knowledge, the higher the level of application of accounting information systems.

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Conflict of Interest

The authors have no conflict of interest to declare.

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