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IT IMPLEMENTATION ON INDONESIAN SMEs: CHALLENGE OR BARRIERS?

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ABSTRACT

The purpose of this research is to test the effect of both internal (owners knowledge) and external (infrastructure) factors on the success of IT implementation and SMEs performance. Data is collected from 110 SMEs owners with a mail questionnaire. A regression model is used to test the hypothesis and to examine the effect of each variable. The result of this research shows that both internal and external factors have a significant impact on IT implementation. The IT implementation has significant effect on both financial and non-financial performance. This research examined the SMEs with the whole business type without considering the IT implementation, therefore a deeper test can be conducted. This research has not been studied by other researchers. This research gives an implication to the SMEs owners and government to implement a good IT implementation strategy to enhance the performance.

Keywords: Owners' knowledge; Infrastructure; IT implementation; Financial performance; Non-financial performance.

1. INTRODUCTION

One of the firm strategies to face competition is a technology development/information system (Urquía Grande et al., 2011; Soudani, 2012). An SME as a company needs an IT for making strategic planning decision, performing innovation, and enhancing the product's quality (Miller, 1992; Bledsoe and Ingram, 1997; Dibrel et al., 2008). On the other hand, an SME needs IT to raise the flexibility of its operations, which in turn increase the company's performance (Budiarto et al., 2017). There are several problems faced by SMEs such as product's quality and low service, low digitalization, low competition, and limited IT's investment (Lee et al., 2009). There are many researchers, which investigate the technology implementation and SMEs performance in Indonesia, but this issue is still important for several reasons. First, most SMEs in Indonesia are traditional companies with low productivity (Tahi, 2011). Second, they are lack of innovative

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technology, inefficient production process, limited skill workers, inefficient capital investment, and lack of standardization of product. The government actually provides assistance for SMEs such as socialization and workshop programs to enhance their technical competence and revitalize the equipment to decrease such obstacles (Manzilati, 2015). One of the alternative solutions to reduce the SMEs weakness is an investment in IT, which may boost the company's growth and profitability (Wynn, 2008).

According to an investigation conducted by the Indonesian Central Bank, there are internal and external factors, which influence the development of SMEs. Internal factors consist of fund limitation, lack of human resources quality, inadequate legal entities and financial administration accountability. External factors include of uncertainty in a business environment, limited infrastructures and minimum access to technologies. This research aims to examine the effect of internal factors, which is the owner's knowledge and external factors, which is the access to technology on the success of IT implementation in SMEs.

2. THEORETICAL REVIEW AND HYPOTHESIS DEVELOPMENT

To achieve the high performance, SMEs need IT alignment (Ismail and King, 2005) and owner's knowledge in information systems (Chu, 2009). The owner's knowledge of IT developments will encourage the interest of SMEs owners to implement IT in the company. In addition, the owner's knowledge of IT development is not only an important point, but the owner's commitment to utilizing IT is also required to ensure the continuity of the information system. Information technology, especially the internet, has opened a new world, especially for the business. With information technology, companies can inform the various types of products or services to produce. Computer-based technology has provided an opportunity for the company owners to improve the productivity and efficiency of the company while they still obtain the business excellence and win the competition. The main problem faced by SMEs in IT implementation is related to unfamiliar owners of SMEs in using the Internet-based information for decision-making purposes. Based on the previous research, it can be concluded that the knowledge of SME's owners on information technology will drive the IT implementation (Ismail and King 2014). In line with those findings, Hussin et al., (2002) stated that SME's owners play an important role in the development of IT because all decisions in IT utilization depend on the knowledge of SME's owners. Owner's knowledge is the first stage that determines the success of IT implementation. Therefore, the owner's understanding of the information system will determine the appropriateness of IT selection for the company. Based on the result of the studies above, we propose the following hypothesis:

Hypothesis 1: Owner's knowledge has a significant effect on IT implementation.

According to a study conducted by the Indonesian Central Bank, infrastructure is one of the important factors that determine the development of IT on SMEs. When it is compare to that of the large firm, SMEs have limited access to reach customer satisfaction. Large firms have more flexible technology that is easily adjusted to market demand and customers loyalty. SMEs have big problems in technology when the market is dominated by large firms. This is a challenge for SMEs. Therefore, it becomes an interesting problem. Previous findings stated that the existing infrastructures such as internet and network technologies s help SMEs to increase their market share (Nieto and Fernández, 2005; Al Fayad, 2011); and speed up the technology transfer and

information sharing (Al Roubaie and Alvi, 2014). Based on the result of the studies above, we propose the following hypothesis:

Hypothesis 2: Infrastructure has a significant effect on IT implementation.

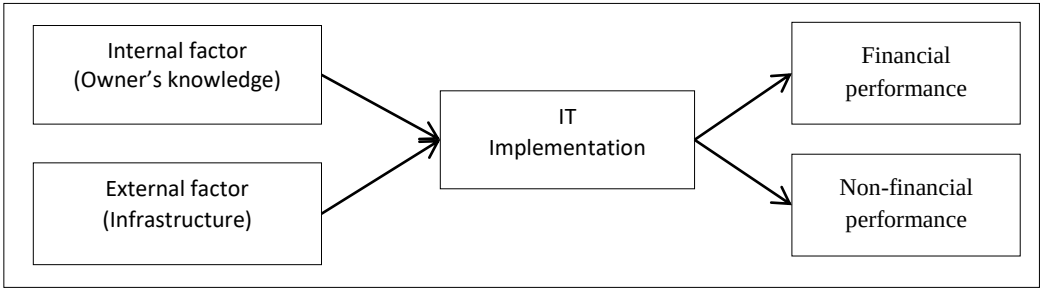
The main advantage of the company which has implemented the technology and information systems is the easiness in adapting to environmental changes (Isobe et al., 2008). IT implementation will bring the company to the competitive advantage and the wider market share. Dibrell et al., (2008) state that the performance of SMEs can be achieved if all elements in the information system can be synergized. It means that the better IT implemented, the better the firm performance (Rao et al., 2015; Budiarto et al., 2018). IT implementation will improve productivity and performance if human resources are committed to technology development. Based on the result of the studies above, we propose the following hypothesis:

Hypothesis 3: IT implementation has a significant effect on financial performance
Hypothesis 4: IT implementation has a significant effect on non-financial performance

3. RESEARCH MODEL

The research model (Figure 1) describes the relationship between IT and several factors that might affect the implementation of technology. Owners' knowledge and infrastructure are expected to support the success of IT implementation on SMEs, which in turn increase the performance. This research model is developed based on previous researches model (Hussin et al., 2002; Ismail and King, 2006; Budiarto, 2014).

Figure 1: Research Model



Respondents of this study are SMEs owners, due to they have a responsibility for the IT development to achieve the organizational performance. The populations are all SMEs owners who use IT in Yogyakarta Special Region. SMEs are spread over five areas namely Sleman, Bantul, Kulon Progo, Gunung Kidul, and Yogyakarta City. The purposive sampling method is used in this research. It is a sampling method based on the assessment of some characteristics appropriate to the sample members. This sampling technique allows the researcher to select the sample according to its purpose (Zikmund, 2000).

Owner's knowledge is the owner's familiarity with information technology. The instrument to collect data is questionnaires which are adapted from Ismail and King (2014). The answer is measured by 5 point scales, in which 1 = do not understand and 5 = very understand. The 5 question indicators are related to the owner's knowledge of databases, internet, email, and other computer applications. Infrastructure is measured by 4 indicators, which is obtained from the study of Indonesian Central Bank, which consists of limited infrastructure and technology, simple technology, and consumer tastes.

Information technology is the importance of IT because it improves firm effectiveness. IT implementation is measured by 5 point scales, in which 1= do not agree and 5= strongly agree. The 5 indicators are related to the importance of IT, the use of IT, and the shortcoming of IT (Pérez Estébanez et al., 2010).

Non-financial performance is a measure of organizational performance which is measured by using a qualitative approach. Based on research conducted by Choe (2002) there are 7 non-financial performance measurements related to the use of information systems. Respondents will answer questions with 5 point scales (1 = no information: 5 = available information). These question instruments are related to the product defect, quality, number of product returned and damage of raw materials. Financial performance is the ability of SMEs, which is measured from a financial perspective by using return on asset ratio (Soudani, 2012).

4. RESEARCH FINDING

Questionnaires are given to 500 respondents which are SMEs owners from 4 regencies (Bantul, Sleman, Kulonprogo, Gunung Kidul) and Yogyakarta city. Respondents' data are obtained from Industry, Trade and Cooperatives Department and are presented in Table 1. The results of this research indicate that most SMEs are retail companies with less than 10 employees and have a company's age between 5 to 10 years. After analyzing the respondent's characteristics, the next step is to test the validity and reliability of the research instruments. The validity test result shows that all of the instruments are valid with probability value < 0.001. The example for validity testing for a non-financial variable is shown in table 2. Reliability test is performed by Cronbach alpha for all research variables and the result is presented in Table 3.

5. HYPOTHESIS TESTING

The first regression models are used to examine the effect of internal factor (Int) and external factor (Ext) on IT implementation (IT). The second regression model is used to test the effect of IT implementation on financial performance (Fin). The third regression model is used to examine the effect of IT implementation on non-financial performance (Nfin). The result of the hypothesis testing is shown in Table 4.

Table 1: Respondent Characteristic

	Total	Percentage
Type of business:		
Retail	68	61%
Manufacture	30	28%
Service	12	11%
Company's age:		
< 5 years	20	18%
years	75	68%
>10 years	15	14%
Number of employees:		
<10 employees	62	56%
10-20 employees	38	26%
>20 employees	20	18%

Table 2: Validity test of the non-financial performance variable

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	Total
N.1	1							
N.2	0.637**	1						
N.3	0.613**	0.823**	1					
N.4	0.643**	0.791**	0.812**	1				
N.5	0.639**	0.731**	0.757**	0.769**	1			
N.6	0.511**	0.621**	0.676**	0.550**	0.588**	1		
N.7	0.481**	0.531*	0.567**	0.570**	0.542**	0.670**	1	
Total	0.775**	0.881**	0.901**	0.881**	0.862**	0.791**	0.743**	1

** Significant at p < 1%

Table 3: The test of reliability

Variable	Cronbach alpha
Owner's knowledge	0.882
Infrastructure	0.800
IT implementation	0.858
Non-financial performance	0.927

Table 4: The result of hypothesis testing

Models	Beta	T value	R^2/ Adj R^2	F value
Int → IT	0.832	0.000**	0.793/ 0.789	0.000**
Ext → IT	0.116	0.021*		
IT → Fin	0.332	0.000**	0.110/ 0.102	0.000**
IT → NFin	0.334	0.000**	0.118/ 0.110	0.000**

*Significant at p < 5%, ** Significant at p < 1%

6. RESULT AND DISCUSSION

The result of the hypothesis (H_1) shows that internal factor (owner's knowledge) has a significant effect on the IT implementation with p-value of 0.000 (significant). These results are consistent to the previous findings (Ismail & King 2014) which report that SMEs owners who understand IT will invest carefully on IT and IT implementation was appropriately conducted. SMEs owners who have a dominant role in SMEs development can reduce the errors during IT implementation by relying on IT's comprehension and experiences. The result of hypothesis testing (H_2) shows that external factor (infrastructure) has a significant effect on the success of IT implementation with p-value of 0.021 (significant). These findings indicate that infrastructure can reduce the costs and accelerate the coordination with suppliers, which in turn increase the efficiency and optimize the company's operations (Hempell and Zwick, 2008; Al Fayad, 2011; Al Roubaie and Alvi, 2014). The result of hypothesis testing (H_3 & H_4) shows that IT implementation has a significant effect on the financial and non-financial performance with p-value of 0.000 (significant). This finding is consistent to Dibrel et al. (2008); Lim et al. (2011); and Rao et al. (2015), which state that IT implementation will enhance the synergy among various elements in the system. Therefore, the information can be produced quickly and the company will operate more efficiently.

7. CONCLUSION

The main purpose of this research is to examine the effect of external and internal factors on the success of IT implementation and SMEs performance. The research's result proves that internal and external factors significantly influence SMEs performance both financially and non-financially. This research provides an insight into the SMEs owners that owner's knowledge about IT is very important. Owner's knowledge will support the efficiency of SMEs in technology investments. Owner's knowledge on IT will facilitate the SMEs to implement the corporate strategy and increase SMEs performance.

This research has several limitations. Firstly, this research does not differentiate the ownership structure of SMEs into individual ownership and family ownership. Future research can be conducted by separating such ownership, since the different types of ownership may lead to differences in performance (Chu, 2009). Secondly, this research does not distinguish the business type that allows a bias in the IT implementation among retail companies, services, and manufacturing. Future research may be performed by involving the differentiation among business type since the success of IT implementation among business type is varied (Ou et al., 2010).

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THE U-SHAPED RELATIONSHIPS BETWEEN BUSINESS UNITS' STRATEGY, USE OF ACCOUNTING PERFORMANCE MEASURES AND BUDGETARY SLACK

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ABSTRACT

Budgetary slack has been debated over the last two decades among the accounting behaviorists and economists regarding the performance consequences and its determinants. Current study provides a conclusive finding as a way out of the unsolved debate among those views by testing the non-linear effects of strategic and financial control determinants of budgetary slack. Using the sample from Indonesian Business Units and thorough analyses using non-monotonic structural equation modeling we found the presence of (inverse) U-shaped relationships between those strategies on reliance on accounting performance measures and budgetary slack.

Keywords: Business unit strategy; Diversification; Reliance on accounting performance measures; Budgetary slack; Polynomial structural equation modeling

1. INTRODUCTION

Current study explores the presence of non-monotonic relationships among the antecedents and dysfunctional outcome (budgetary slack) of reliance on accounting performance measure. The non-linear relation may act as an alternative solution when prior theories fail to acknowledge the real pattern of the relationships. The proposed non-linear relation in particular could be observed on the determinants of budgetary slack that remains unsolved puzzle in management accounting research (Hartmann and Maas 2010).

Budgetary slack has been defined as the corporate intentional behavior to lower the performance targets below their actual levels (Langevin and Mendoza 2013, Webb 2002), despite the fact that variations may always occur in expected-actual relations (Kihn 2011). Yet, prior research is inconclusive in identifying the effectiveness and benefit of the use of budgetary slack (Dunk and Nouri 1998) that may possibly lead to the misspecification of the model developed (Chenhall2003). For example, taking a positive view, behaviorists have suggested that slack creation may be used

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