Analysis of user readiness toward ICT usage at small medium enterprise in south tangerang

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Abstract. Utilization of Information and Communication Technology (ICT) is still relatively low in the level of SMEs due to various limitations ranging from access to capital, till the marketing network. ICT is present to provide the ability for SMEs in improving the benefits and competitive advantage of the organization. This study aims to determine the level of readiness of SMEs in utilizing technology, especially ICT. The methodology used is a survey to see the technology readiness of 107 SMEs in South Tangerang selected by purposive sampling. The approach used is TRI (Technology Readiness Index) which is the individual perception of technology based on four criteria that is optimism, innovativeness, discomfort and insecurity. The results showed that the optimis m and innovativeness variables significantly positively influence the technology readiness while the variables of discomfort and insecurity also significantly positively influence the readiness of ICT.

1. Introduction
The role of small and medium enterprises (SMEs) in Indonesia is very strategic in making a significant contribution to the national economic growth because SMEs are the largest business operators with percentage above 99% of the total national business actors [1]. SMEs are also a buffer of the national economy where SMEs are proven to survive when Indonesia is experiencing a crisis or a prolonged global economic recession. What makes SMEs survive is the characteristic of SMEs themselves. SMEs that most of the perpetrators of local communities also use local resources in their business so that it does not depend on raw materials or import resources. Furthermore, SMEs have the advantage of products based on local resources that exist in their respective areas and create opportunities for export due to the uniqueness or characteristic of the products produced. Therefore, it can be said that the role of SMEs as the spearhead of the progress of the national economy is very important and could

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not be underestimated. The number of SMEs in Indonesia according to BPJS (2012) has reached 56.5 million where most of them are micro business actors [2]. SMEs increased by 2.02% over the previous year and have proven to employ 107 million (99.6%) of the workforce by 2012 where the SMEs sector contributes substantially to 56.7% of Gross Domestic Product (GDP).

Although the role is very strategic but the SMEs sector in Indonesia can be said in a less favourable conditions. This is due to the high level of business competition, especially with large-scale companies that generally have utilized modern technology in developing and running its business. In addition, low capital access is due to the lack of alignment of banks or financial institutions to SMEs or the lack of government policies in support of this small and medium sized business sector. In addition, there is an open free market era like Asean Free Trade Area (AFTA) that will threaten the existence of SMEs if their products are unable to compete with foreign products. The low competitiveness of SMEs is generally due to limited capital, human resources and access to information to network marketing. To overcome the above mentioned, SMEs require an innovation to the whole series of activities or business processes in order to provide added value or superiority of products / services offered. One way to innovate is with the utilization of Technology, especially ICT. In other words, ICTs can facilitate SMEs in the innovation process. The rapidly growing ICTs provide great potential and opportunities that can help solve SMEs problems caused by various limitations.

Despite the considerable the benefits of ICT, the utilization of one in SMEs is still relatively new, characterized by low technological and managerial capabilities [3]. The use of ICT at the SME level is still lagging behind so that SMEs are considered less competitive in the market. Some studies indicate the adoption of ICT by SMEs is still low especially when compared with large-scale companies [4]. This is one of them can be shown by the results of research conducted by research institute AMI Partners in 2000 that only 20% of SMEs who have computers in Indonesia [5]. Based on his research the reason why SMEs in Indonesia have not used ICT is that SMEs do not need ICT to support their business by 82.2%. SMEs do not have adequate budget for ICT expenditure of 41.1% and SMEs do not have human resources skilled in ICT field of 4.1%. In other words, the main reason for the weakness of ICT penetration in SMEs is the lack of awareness of SMEs about the potential of ICTs in improving excellence and competitiveness [6]. Awareness in this respect is a sufficient understanding of the strategic role that ICTs can provide in order to improve the channels of product / service marketing, customer relationships and product or service development [7][8]. Based on the mentioned problems related to the low utilization of ICT at the SME level so in this study want to know exactly how far the readiness level of SMEs in receiving and using technology especially ICT. This study is very important to help the success of SMEs in implementing ICT to improve competitiveness in this global era.

2. Literature Review

Based on Parasuraman (2000), the definition of technology readiness is the desire of the customers to use and adopt new technology to meet the needs and business goals and life every day. The concept of technological readiness can help organizations and academics to understand different user behaviours in adopting technology-based products and services [9]. Parasuraman (2000) emphasizes individual readiness to be a very important factor and affect the process of adoption of a technology. At a certain level of technological readiness, the individual as a user has a positive or negative view of a technology-based product or service [9]. This user view was evaluated based on four dimensions of personality traits: optimism, innovativeness, discomfort and insecurity [9].

The dimensions of optimism and innovativeness are contributors that contribute positively to improving the user’s readiness to technology while the dimensions of discomfort and insecurity are included in the category of inhibitors that negatively contribute to technological readiness. Individuals who are said to be ready to adopt technology generally have high level contributors with low inhibitors. These four dimensions of TRI (optimism, innovativeness, discomfort and insecurity) can be used to predict whether users have a positive perception of technology and eventually adopt the technology. Optimism can be defined as the level of user confidence that technology will be useful in
improving productivity in business and life, innovativeness is defined as the desire of the user to always be a leader in the utilization of the latest technology. Discomfort indicates the user's difficulty in adopting technology due to incompetence, etc. While insecurity associated with the user's trust in data security, especially in conducting transactions.

The TRI model is based on user beliefs on a technology. This user's belief is related to user openness and acceptance of technology [10]. In other words, the higher the level of user confidence in technology will drive the level of acceptability and ultimately adopt the technology. Based on the TRI model, users or individuals are classified into five groups of readiness: explorer, pioneer, sceptic, paranoid and laggard [11]. The explorer type is a group of users that had the highest level of readiness, while the laggard one is a group will adopt the technology lately.

3. Research Methodology

The methodology used in this study is a survey with a quantitative approach to determine the extent of the level of readiness of SMEs (Small and Medium Enterprises) in utilizing technology, especially ICT. The survey was conducted on 107 respondents representing SMEs in South Tangerang city where the questionnaire was designed based on TRI (Technology Readiness Index) approach proposed by Parasuraman (2000). Based on Parasuraman (2000), individual readiness is a determining factor in adopting a technology because it concerns the individual's beliefs about the technology product. Therefore respondents are asked to respond to their beliefs about ICTs from 4 dimensions of optimism, innovation, discomfort and insecurity through four Likert scoring scales: STS = "strongly disagree", TS = "disagree", S = "agree" and SS = "strongly agree".

The TRI model has 4 dimensions and 34 research variables where the optimism dimension consists of 9 indicators, innovative dimensions has 7 indicators, discomfort dimensions are 9 indicators and the dimensions of insecurity consists of 9 indicators. The theoretical model to be studied in this research is TRI (Technology Readiness Index) model which consists of five hypotheses as follows:

H1: Optimism has a significant positive influence on ICT Readiness
H2: Innovativeness has a significant positive influence on ICT Readiness
H3: Discomfort has a significant negative influence on ICT readiness
H4: Insecurity has a significant negative influence on ICT Readiness

Hypothesis testing in this study based on multiple regression analysis using tool of SPSS IBM ver. 2.2 to analyse the data of the questionnaire results. The general equation of multiple linear regression can be presented as follows:

\[ Y = a + b1X1 + b2X2 + cX3 + dX4 + e \]  (1)

Where:
Y = ICT Readiness
a = Direct relation of independent and bound variable
b1 = Optimism Coefficient
b2 = Innovative Coefficient
b3 = Discomfort Coefficient
b4 = Insecurity Coefficient
e = Residue error

4. Result and Discussion
Before the hypothesis testing to see the effect of optimism, innovativeness variables, discomfort and insecurity to technological (ICT) readiness at SMEs level, first tested the validity and reliability of the questionnaire data. Total 250 questionnaires were distributed, the rate of return (response rate) only reached 42.80% ie 107 respondents. Overall data 107 respondents calculated the coefficient of validity and reliability for each research variable. For validity test using Pearson correlation where \( r_{\text{count}} \) (corrected item-total correlation) must be greater than \( r_{\text{table}} \) (\( r_{\text{table}} \) for 107 respondents with significance level 0.0005 is 0.313). Thus items that do not meet the minimum requirements (\( r_{\text{count}} \) > \( r_{\text{table}} \)) were eliminated from the list of questionnaire items. Total 34 items of the tested study, only the remaining 21 valid items are optimism variables consisting of 9 items (OP1-OP9), innovative variables are 3 items (INO1, INO5 and INO6), the discomfort variables consist of 4 items (DIS2, DIS6, DIS 8 and DIS 9) and the insecurity variables (INS1-INS4 and INS8) because they had fulfilled the minimum requirement (\( r_{\text{count}} \) > \( r_{\text{table}} \)) with \( r_{\text{table}} \) is 0.313. Furthermore, reliability testing was conducted by computing the Cronbach Alpha coefficient of each item showed good consistency and satisfaction result.

In the following sections, it will be tested research hypothesis conducted by multiple regression analysis to see how far the relationship and influence of independent variables optimism, innovativeness, discomfort and insecurity to technology readiness (technology readiness). The results of multiple regression analysis can be seen in Table 5 below:

### Table 1. Result of regression analysis.

| Model          | Unstandardized Coefficients | Standardized Coefficients | t   | Sig. |
|----------------|----------------------------|---------------------------|-----|------|
|                | B                          | Std. Error                | Beta|      |
| 1 (Constant)   | -7.382E-5                  | .003                      | -.027| .979 |
| OPTIMISM       | .251                       | .001                      | .392 | 371.635 | .000 |
| INNOVATIVE     | .251                       | .001                      | .480 | 459.445 | .000 |
| DISCOMF        | .249                       | .001                      | .412 | 413.395 | .000 |
| INSECURE       | .250                       | .000                      | .534 | 544.383 | .000 |

a. Dependent Variable: ICT_READINESS

Based on Table 5 above, regression analysis results can be obtained by the following regression equation:

\[
Y = a + b1X1 + b2X2 + cX3 + dX4 + e \quad (2)
\]

\[
Y = -7.382E-5 + 0.251X1 + 0.251X2 + 0.249X3 + 0.250X4 \quad (3)
\]
Through T test (T-Test) can be shown the results of hypothesis testing where H1 is supported in this study because the optimism variable significantly and positively affect the readiness of technology. This is evidenced by a positive regression coefficient (0.251) and a significant probability of 0.000 (<0.05) with t value of 371.635. From the results of this study can be said in general the SMEs have felt confident to use technology, especially ICT because it is considered to increase business productivity. The result of subsequent hypothesis testing is H2 is also supported by this research because innovative variables have been proven to have a significant and positive influence on technology readiness. This can be seen from the magnitude of the regression coefficient is 0.251 and the probability significant 0.000 (<0.05) with t value of 459.445. From the results of this regression analysis can be said the SMEs have a positive view of ICT and tend to want to try and use the latest technology in the market.

Furthermore, the result of hypothesis testing of H3 indicates that the discomfort variable significantly influence the technological readiness. This can be seen from the magnitude of the significant probability 0.000 (<0.05) with a value of t that is 413.395. But from the regression coefficient obtained a positive relationship between the variables of discomfort with technology readiness. This can be due to SMEs in general are already familiar with the use of ICT as a means of communication and marketing or sales, especially social media like Facebook, Instagram and Whatsapp so they do not feel disturbed by the presence of ICT except for more advanced technologies such as data mining, big data, customer behaviour, etc.

H4 hypothesis test results also show that the variables of insecurity significantly affect the readiness of technology This can be seen from the magnitude of the significant probability 0.000 (<0.05) with the value of t is 544.383. However, from the regression coefficient obtained a positive or proportional relationship between the variables of insecurity with technology readiness. This can be due to the fact that SMEs in South Tangerang have not utilized online transactions for payment of products/services offered. Most SMEs still use traditional media such as cash payment or transfer via ATM machines. Thus it is necessary to socialize again to convince SMEs of the advantages and security of the use of online transactions.

The contribution of this study compared to the previous work was Hypothesis H3 and H4 that not supported according to Parasuraman (2000), the discomfort and insecurity are significantly negative respectively but the result showed vice versa. Next part is the testing result of the simultaneous parameters to see whether the parameters or variables optimism, innovative, discomfort and insecurity togetherly influenced the ICT readiness variable which can be presented in Table 6 below:

| Model | Sum of Squares | df   | Mean Square | F     | Sig. |
|-------|----------------|------|-------------|-------|------|
| 1     | Regression     | 7.620| 4           | 1.905 | 2.709E5 | .000a |
|       | Residual       | .001 | 102         | .000  |       |      |
| Total |                | 7.620| 106         |       |      |      |

Based on the F test (Anova) at Table 6 above, we could see the value of F arithmetic of 2.709E5 with probability significance 0.000. Because probability significance is much less than 0.05 (5%) so it can be concluded that optimism, innovativeness, discomfort and insecurity influenced the ICT readiness simultaneously.

5. Conclusion
The user's attitude towards Information and Communication Technology (ICT) is the key that determines whether the user will use the technology or not. A positive attitude will encourage users to take advantage of ICTs while negative attitudes become a barrier as users. SMEs in the midst of its
limitations require innovation of products/services produced in order to create competitive advantage and can survive in the era of increasingly fierce competition. ICT is present as a tool that can be used to increase the added value of products/services offered. The user's attitude in using technology is evaluated based on four variables: optimism, innovativeness, discomfort and insecurity based on Parasuraman & Colby (2001). The results showed that the four variables significantly influence the readiness of ICT which is proven through hypothesis testing with regression technique. SMEs are confident with the potential of ICT in supporting their business activities and not resistant to using new technology as long as it can improve business productivity and marketing of its products. The contribution of this study compared to the previous work was Hypothesis H3 and H4 that not supported according to Parasuraman (2000), the discomfort and insecurity are significantly negative respectively but the result showed vice versa. The SMEs in South Tangerang was familiar with social media but they have not fully utilized ICTs such as online transactions, thus awareness and technical assistance is needed.

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