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The Effect of Perceived Security, Ease of Use and Perceived Usefulness on Intention to Use toward Mobile Payment Services in Indonesia

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Abstract
This study aims to understand the impact of perceived security, perceived usefulness, and perceived ease of use on intention to use among Indonesians in the e-payment sector. This study implements survey method, in which a total of 106 respondents participated in this study. All data then were analyzed using PLS-SEM method using SmartPLS 3.2.8 software. Based on the results of the data analysis, it could be concluded that perceived usefulness, perceived ease of use, and perceived security had a positive impact on consumers' intention to use e-payment services in Indonesia. The results of this study could be implemented in order to raise and increase e-payment companies' awareness and understanding toward the importance role of perceived usefulness, perceived security and perceived ease of use in stimulating people's intention to use e-payment services in daily purchasing activities.

Keywords: Perceived Security, Ease of Use, Perceived Usefulness), Intention to Use, Payment Service

1. Introduction

The rapid development of technology had changed and re-shape the way people are conducting their purchasing activities, in which, nowadays, a lot of people are paying te things that they buy in a cashless manner [1]. Cashless payment means that people are not required to use physical money anymore to paying their purchases, but instead, they're using virtual money stored on specific apps installed on their phone. This trend is also known as e-payment. And, with more and more e-payment companies being established in Indonesia, the rapid growth of users or people implementing these e-payment method in order to finance their purchases are inevitable. Previous studies had underlined that perceived ease of use, perceived usefulness and perceived security as three definite antecedents which had an important effect on people's intention to omplement these services [2][3]. Perceived usefulness could be define as people's believe and perception that the implementation of certain technologies will enhance the quality of their life [4], while perceived ease of use could be define as people's perception that certain technologies are easy to learn, easy to use, effortless, and their time won't be wasted on learning to use the technology [5]. Furthermore, perceived security could be understood as consumer or people's

perception and believe that all of their personal and private data or information won't be abused or use for fraudulent purposes [6]. Together, These 3 (three) variables form the Technology Acceptance Model (TAM), in which, such model has an incredibly important role in defining people's usage and re-usage intention in the technology-related sector. As this model deals with people or consumers' perception regarding the form of technology that they're going to adopt or use, perceived ease of use, usefulness and perceive security had a simultaneous effect in affecting people's intention to use a technology. As a new technology was released or launched, people who got attracted by the technology will try to thoroughly learn about it's form, functionality, and benefits, in which, after doing all of these actions, consumers' have such tendency to assess it's importance on their life. In the other words, people will try to assess and judge whether or not the adoption of such technology could significantly improve the state and quality of their life. Moreover, some will consider using such technology if they felt that such technology could speed up the completion of their job faster than before (when they haven't use such technology). Such perceptions or judgements illustrate the concept of perceived usefulness in terms of the technology that people will going to adopt.

Other than determined by such judgements or perceptions regarding the usefulness or benefits that people or consumers could get from using such technology, people's assessments on whether or not the process of learning such technology will costs a lot of time (perceived ease of use), and people's judgements regarding whether or not using such technology is secure and that their personal data won't get breached and misused by irresponsible party (perceived security) also play an equally significant role in determining people's intention to use or adopt a technology. Therefore, it is important to understand the basic concept of these 3 (three) main variables forming the Technology

Acceptance Model) in order to further increase our knowledge on the effect on these three variable toward people or consumers' intention to use in the technology-related sector.

Meanwhile, intention to use could be understood as people's probability of learning, using, or adapting certain technologies to their daily activities [7]. Intention to use should be an important factor which affect public's intention to implement these services in their daily purchasing activities, since people won't download (or even) use the services if their intention to use certain technologies is low. Moreover, people with high intention to use tend to be more active in searching for some information or learn about certain technologies as compare to those who have low intention to use toward certain technologies.

Previous study only put an emphasis on whether or not perceived ease of use and usefulness positively affected people's repurchase intention and loyalty in the Indonesian e-commerce sector, in which, the impact of perceived security was not included in the the previous study [13]. Considering that perceived security is also one of a variable which forms the Technology Acceptance Model (TAM) (along with perceived usefulness and perceived ease of use), authors decided to conduct this study in order to fill the gap left by previous study, in which, perceived security was included in this study, and along with perceived usefulness and ease of use, will be analyzed in regard with whether or not these 3 (three) variables have a significant impact on consumers' intention ot use in the Indonesian mobile payment sector. Therefore, based on the explanations described above, authors are interested to understand the impact of perceived ease of use, perceived usefulness, and perceived security toward people's intention to use in the Indonesian e-payment sector.

Previous study had found that both perceived ease of use and usefulness had a

significant and positive effect on consumers' purchase intention (and ultimately repurchase intention) in the Indonesian e-commerce sector [13]. Similarly, another study had also found the importance of both perceived ease of use and perceived usefulness toward consumers' behavioral intention in the Hong Kong online booking sector [12]. Furthermore, another study conducted by Morosan & DeFranco (2016) had also found that there's a positive impact of perceived security on consumers' intention to use toward NFC technology in the U.S. Therefore, based on these previous studies, authors would like to posit the following hypotheses:

H1: **Perceived Usefulness had a significant impact toward Intention to Use**

H2: **Perceived Ease of Use had a significant impact toward Intention to Use**

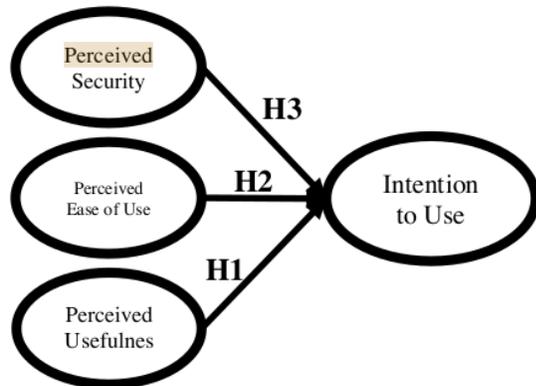**H3:** **Perceived Security had a significant impact toward Intention to Use**

Figure 1. Research Model

2. Method
2.1. Sample and Questionnaires
Survey method is utilized, in which questionnaires were used in order to gather all of the data from the respondents. There are 106 participants in this study, in which all of them are those living in Jakarta and have ever used any e-payment app services. All questionnaires were distributed both physically and electronically directly to the respondents. Furthermore, Questionnaires used in this research implement a Five-Points Likert Scale, with a response of "1" implying that respondents expressing their "Strong Disagreement", "2" implying that respondents expressing their "Disagreement"; "3" implying that respondents expressing their "Neutrality" toward the statement, "4" implying that respondents expressing their "Agreement" toward the statement, and "5" implying that respondents expressing their "Strong Agreement" toward the statement. Furthermore, in regard with the indicators used in the questionnaire, a total of 16 items representing all 4 variables were presented in the questionnaire, in which, all indicators were adapted from previous study [8].

2.2. Method
Data were analyzed using PLS-SEM method, with the help of SmartPLS 3.2.8 software. In terms of implementing the PLS-SEM method, before implementing the inner model analysis in, the outer model analysis required to be conducted beforehand in order to test the the data and the model as a whole. In this analysis, there are some aspects which all data require to pass, which include: factor loadings of each items should exceeded 0.50, the AVE of each variable should exceed 0.50, the composite reliability of each variable should exceed 0.70, and fonrlel-larcker value of each variable should be higher than the variable's highest squared correlation with any other variables [9][10][11].

3. Results and discussion
3.1. Outer Model Analysis
Before conducting the inner model analysis in order to assess and determine the impact or

relationship of variables discussed in this study, the outer model analysis required to be executed in order to determine the appropriateness of the data and the model as a whole. In this analysis, all data and the model are required to pass the following aspects: factor loadings of each items should exceed 0.50, the AVE of each variable should exceed 0.50, the composite reliability (CR) of each variable should exceed 0.70, and the fornell larcker value of each variable should be higher than the squared correlation with any other latent construct (discriminant validity analysis) [9][10][11]. The results of the outer model analysis were presented on table 1 and 2. Based on both tables, it can be well-concluded that all indicators, variables, and model had exceeded all of the criteria required in this analysis.

Table 1. Outer Model Analysis

Indicators	Variables	Loadings	CR	AVE
PU1	Perceived Usefulness	0.718	0.841	0.546
PU2		0.812		
PU3		0.808		
PU4		0.764		
PEOU1	Perceived Ease of Use	0.843	0.827	0.524
PEOU2		0.729		
PEOU3		0.773		
PEOU4		0.784		
PSC1	Perceived Security	0.869	0.836	0.531
PSC2		0.725		
PSC3		0.807		
PSC4		0.733		
ITB1	Intention to Buy	0.823	0.881	0.553
ITB2		0.871		
ITB3		0.813		
ITB4		0.814		

Table 2. Discriminant Validity Analysis

	PEOU	PSC	ITB	PU
PEOU	**0.812**			
PSC	0.447	**0.724**		
ITB	0.501	0.586	**0.779**	
PU	0.336	0.529	0.605	**0.806**

3.2 Inner Model Analysis
This analysis was executed in order to determine the relationships between variables discussed in this study. The results generated in this analysis will also be implemented in order to determine whether or not the hypotheses were accepted. A cut-off t-value of 1.96 is implemented in this study, in which, hypotheses were rejected if the t-value between variables is well below the cut-off value of 1.96, while in the contrary, hypotheses were supported when the t-value between variables are above 1.96. The results of the inner model analysis were presented on

table 3 and 4 respectively. Based on the results, authors find out that all independent variables have a significant impact on people's intention to use in the Indonesian e-payment sector.

Table 3. Inner Model Analysis

	Hypotheses	Cut-Off Value	T-Value	Conclusion
H1	Perceived Usefulness had a significant impact on Intention to Use	1.96	4.213	**H1 Supported**
H2	Perceived Ese of Use had a significant impact on Intention to Use	1.96	3.574	**H2 Supported**
H3	Perceived Security had a significant impact on Intention to Use	1.96	4.031	**H3 Supported**

The first Hypotheses (H1) formulate that Perceived Usefulness had a significant impact on consumers' intention to use toward a mobile payment service in Indonesia. Based on the result of the data analysis, the relationship between perceived usefulness and intention to use had a t-value of 4.213, which iw well above the minimum acceptance value of 1.96. Therefore, based on this finding, authors conclude that perceived usefulness had a significant and positive impact on consumers' intention to use toward a mobile payment service in Indonesia. Based on this result, it underlines the importance of creating a valuable-yet-sophisticated system, which would not only make the system to be perceived as "state-of-the-art" which could enhance the quality and the efficiency of their work, but also brings or give some additional values to the consumers or users. When the new system developed by a company don't have any significant differences with the technologies which currently existed and have been used by most of the companies and people, then there's a high chance that people won't adopt or learn the new technology, since it would be preferable for them to use the current technology (which they've known and familiar with) as opposed to implementing a new system which they're not familiar with, while providing or giving same or similar

additional values to it's users. Therefore, it is incredibly important for a company to keep innovating and studying the possibilities of creating, enhancing or uprgrading the current technology to the next level, which will differentiate the newer system with the current one. Moreover, companies oculd also formulate or implement a new system which is completely new to the public (in a way that the system haven't been introduced before and that people haven't even known about it), but provided an additional value which, if people implement the system, then it could boost the effectiveness of their work and increase the ease of their life in a positive way. This way, there's a high chance that the new technology will be positively accepted by people, and will be adopted and used by many people across the country within a short time period.

Other than perceived usefulness, both perceived ease of use and perceived security have also been found to have a positive and significant impact toward people or consumers' intention to use, in which both hypotheses (H2 and H3 respectively) were supported, in which, the t-value of both hypotheses have exceeded the minimum acceptance value of 1.96 (with a t-value of 3.574 and 4.031 respectively). Based on these findings, it could be understood that people's perception on whether they need to spend a lot

of time in order to learn to understand a new technology (before they adopt it) could significantly affected people's intention on whether or not they're going to use or implement the new system or technology in their life. In regard with the topic of this study, this result indicate that people's or users' intention on whether or not they're going to use or adopt the mobile payment service actually depends on how "difficult" or "time-consuming" it is to learn to understand the entire system used on the mobile payment apps. When people perceive that such apps or services is quite difficult and require a lot of time to be understood, then there's a high chance that people will "abandon" such system and opted to use the current payment system which was deemed simpler and more effective as compared to when they're using the mobile payment services. Therefore, it is incredibly important for a company to create or make a system in the way that not only the system could easily provide or offer some additional values which could benefit it's users, but also that the system shouldn't be too complicated and complex to be learned and understood by potential users, in which such strategy could boost the number of people using the new technology or system.

Another result generated in this study also underline the significance and importance of perceived security toward users' or people's intention to use toward the mobile payment sector in Indonesia. As mobile payment service is connected to the internet network, and that all of it's users are required to input or provide all of their personal information to the company before they could use the service, there's a high chance or high risk that negative perceptions (regarding the possibility ot their data being hacked or misused by irresponsible party) arise in people or users' minds, in which, such perception could potentially hamper their intention to use or adopt the technology. Therefore, it was incredibly important for a company (who developed the system) to properly communicate the safety feature of it's system, not only in order to ensure and convince people that the system is safe and all of their personal data are secure, but also in order to increase epoeple's trust and beliefs toward the system and the company that al of the their data won't be breached or hacked by irresponsible party.

Conclusion

This study aims to assess the effect of perceived usefulness, perceived ease of use and perceived security on intention to use in the Indonesian e-payment sector. According to the results presented in the previous section, authors concluded that perceived usefulness, perceived ease of use and perceived security are affecting intention to use in a significant manner in the Indonesian e-payment sector, in which perceived usefulness plays a more important role in affecting people's intention to use as compare to the other factors. This could be seen from the higher t-value that perceived usefulness possess as compared the t-value possessed by perceived ease of use and perceived security had. Furthermore, based from this conclusion, authors would like to suggest to all corporations involving or specializing in the e-payment industry to regularly evaluate and maintain it's system, so that no error would occur during the transaction process using the system. Furthermore, since perceived usefulness revealed to have a stronger influence on the people's intention to buy (compared to perceived ease of use and perceived security), authors would like to suggest to all e-payment corporations all across Indonesia to actively and periodically upgrading their systems and constantly adding more and more technology, in which in the long run, it will bring much more benefits to people and consumers, which in turns will enhance and increase the number of people who'll implement and utilize the e-payment services for their purchasing behaviours.

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