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THE INFLUENCE OF TRUST, PERCEIVED USEFULNESS, AND PERCEIVED EASE UPON CUSTOMERS' ATTITUDE AND INTENTION TOWARD THE USE OF MOBILE BANKING IN JAKARTA

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ABSTRACT

The rapid development of information technology has encouraged the banking industry to innovate in serving its customers. One of the most phenomenal technology service facilities is m-banking. This could be seen from the use of mobile banking is steeply increasing in recent years since almost every bank offers mobile banking services. In response to this fact, this study aims at examining the influence of trust, perceived benefits and perceived ease upon attitudes and intention of customers to use mobile banking. This study used technological acceptance model (TAM) with trust. The collection of data was conducted through a survey-based empirical study of 150 of respondents using convenience sampling. The result of study shows that attitude highly influences the intention to use mobile banking and attitude, as mediation, is influenced by perceived benefits, ease and trust.

Keywords: *Trust, Perceived Usefulness, Perceived Ease, Attitude, Intention.*

1. INTRODUCTION

Technology development has created a new trend in banking transaction, one of which is mobile banking. Mobile banking as part of E-banking is widely understood as the ability to utilize mobile phone facilities to conduct mobile banking transactions. This technology is implemented to gain competitive advantage through personalized banking services and a reduction in operating costs [1], [2]. It is not surprising if the development of m-banking is so fast because the presence of m-banking has been able to answer all the needs of modern society that prioritizes mobility and speed. In other words, mobile banking is growing because the service is able to provide flexibility and practicality of the transaction.

Compared to other E-Banking services, The development of mobile banking is faster than most other e-banking services [3] because It creates value for the customers as a wireless delivery channel [2]. The results of a survey of international financial research institutions revealed 35% of all online activities carried out in every home throughout the world will turn to M-Banking services. It is predicted, the value of M-Banking transactions will double every year. Furthermore, it will increase to four times after 2011.

In Indonesia, in the last five years the user of Mobile Banking has increased significantly with an average increase of 135.3% per year. In 2003 there were only 315 thousand Mobile Banking users, but four years later 2007 it had reached 8.2 million people. While a rapid increase occurred from 2012 to 2016, based on Indonesia Financial Services Authority (OJK) records, the number of e-banking users (SMS banking, phone banking, mobile banking, and internet banking) increased by 270% from 13.6 million customers in 2012 to 50.4 million customers in 2016. While the frequency of e-banking users transactions increased 169% from 150.8 million transactions in 2012 to 405.4 million transactions in 2016 [4].

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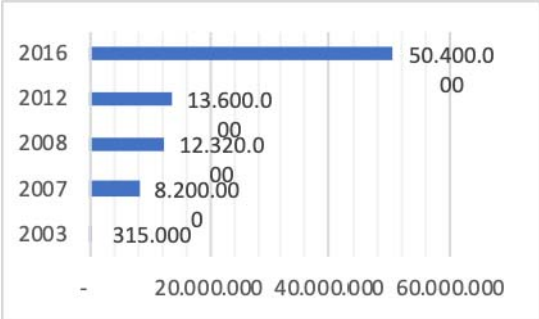

Fig. 1 Indonesia M-banking users, 2016

Mobile banking as an innovation concept, depends very much on the level of customer acceptance. Therefore, it is necessary to investigate the factors affecting the individual to adopt mobile banking. Some previous studies that examined the determinants of mobile banking adoption had inconsistent results [5]–[8]. In other words, the results of previous studies have not yet found agreement on the factors that influence the decisions of customers utilizing mobile banking services

One model that is often used to measure how individuals receive a new technology is the Technological acceptance model (TAM) [9]. TAM is firstly introduced by Davis in 1989.This model focuses on the users' attitude towards the use of technology and information by developing it based on perceived advantages and ease of use in using technology and information [10] . It became one of the best models in technology acceptance research. The concept aims to describe the intentions of users and user behavior to use technology. It can explain comprehensively the process of accepting a new technology compared with the previous ones. Because of this, the researchers are interested in using this model. This model has two sides. The first are beliefs consisting of perceived ease of use (PEOU) and perceived usefulness (PU). The second are attitude, behavior intention to use, and usage behavior. PU and PEOU is the main relevance to the attitude of technology acceptance [10].

This research refers to previous research conducted by [11], applying the extended model of TAM integrated with the diffusion innovation theory in Taiwan. Perceived cost and risk were included in the model of Technology Acceptance Model (TAM) to examine various factors influencing the acceptance of mobile commerce. The result shown that all variables, excluding perceived ease of use, highly influence the intention to use mobile commerce. Al-Ajam & Nor (2013), conducting a research on the intention to use internet banking in Yaman, concluded that perceived relative advantages, perceived ease of use, and trust influence the intention to adopt internet banking [12]. Gu et al (2013); and Jeung (2013) had also examined the influence of TAM constructs intehragted with trust towards the intention to adopt internet banking. The study indicated that trust positively influenced the intentio[13]n to adopt internet banking [14], [15].

This study also used the TAM model in the context of m-banking by integrating it with trust. Trust variable itself is actually not a new variable in TAM research. Some previous researchers have integrated this variable into the TAM model such as [16]–[21]. However, The researchers think that the trust construct is still very much relevant with the business circumstances in Indonesia. Trust is still regarded as one of the obstacles in the acceptance of m-banking. This is reinforced by the results of the IDC survey 2017, where Indonesia has the lowest digital trust index (DGI) compared to 10 other[10] countries in Asia in the financial service, telecommunications, and retail industry.

Costumers trust in online transaction is highly significant as it is the key in developing e-commerce [13]. Furthermore, trust is admitted as significant aspect in adopting online banking because it can increase adoption level [22].

This research aims at identifying and analysing various factors influencing bank customers to use mobile banking in Jakarta. There are actually many studies concerning on how bank customers adopt e-banking in Indonesia. However, there is only a few study concerning on the customer trust towards m-banking in Indonesia. This study investigates the significant factors influencing customer trust in using m-banking as well as explores the effect of the trust towards the customer intention to use m-banking in Indonesia.

2. THEORETICAL FRAMEWORK

2.1 Previous Studies

Wu & Wang applied the extended model of TAM which is integrated with the diffusion innovation theory in which perceived cost and risk are included into TAM to measure customer acceptance towards mobile commerce. The result shows that all variables, excluding perceived ease

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of use, highly influence the intention to use mobile commerce [11].

Laforet & Li examined customer attitude, behavior, motivation and culture influence towards the use of mobile banking in China. The result indicates some differences between China and other western countries in using perceived risks and technological skills as the main factor in adopting mobile banking [23]. Another research is also conducted by Sripalawat et al. which examines positive and negative factors influencing the acceptance of mobile banking in Thailand. Subjective norms, perceived usefulness, perceived ease of use, and self-efficacy are considered as the positive factors, whereas device barrier, perceived risk, lack of information, and perceived financial cost are assumed as the negative ones. The result shows also that subjective norm is one of the positive factors giving the most influence in adopting mobile banking [24].

The other research conducted by Al-Ajam & Nor, They examine numerous factors influencing the intention to use internet banking in Yamen. Their research applied perceived relative advantages, perceived ease of use, and trust as the variables to measure customer intention to adopt internet banking. The result shows that perceived relative advantages, perceived ease of use, and trust influence the attitude and intention to use internet banking [12]. In line with Al-Ajam & Nor, Suh & Han (2013) also conducted similar research applying TAM in their research. The result shows that trust significantly influences the acceptance of internet banking [25].

In addition, Graziolly et al. (2000) also conducted a research on the influence of trust towards the acceptance of internet banking. The result concludes that trust positively influence the adoption of internet banking [26]. Shaikh & Karjaluoto (2014) applied the same model with the four previous researches—TAM—and concluded that variable compatibility (life style and device), perceived usefulness, and attitude are very significant factors for customer in adopting mobile banking services in both developed and developing country [27]. Naimat (2014) identified numerous dominant factors which influence the intention to adopt internet banking technology. The result of their research indicates that perceived usefulness, trust, perceived credibility and perceived ease of use are the main factors giving the most influence towards the acceptance of internet banking [28] .

2.2. Mobile Banking

The rapid development and advancement of technology related to internet drives society to change the way company interact with the customer [29]. The use of mobile phones has spread widely in both developing and developed countries. Mobile apps have also quickly changed the way business organizations deliver their services to their customers and how customers can interact with their service providers to meet their needs. Mobile apps have been used in many segments including banking. With the rapid growth of mobile phones, mobile services are becoming a promising alternative to various sectors including the banking sector.

Mobile banking is a part of electronic banking which underlies both determining factor of banking and also the specific condition of mobile commerce. Mobile banking is a system that allows mobile financial institution customers to offer banking services to make deposits, withdraw, and to send or receive funds from mobile accounts through mobile devices such as mobile phones or personal digital assistants.

2.3 The Concept of Acceptance

Research on customer acceptance has given an important understanding in explaining the success and the failure of new products or services [30]. This research also explained how and why an individual adopts new information technology [31]. Users' acceptance is defined as a willingness to use information technology designed to support assignments or tasks in a group of users [32]. The lack of customer acceptance is a significant obstacle to the success of new information system [33]. The customers do not even use information system which provides impressive advantages. Therefore, customer acceptance has been seen as the most significant factor in determining both the success and the failure of every project in information system [10]. Like other innovation concepts M-banking also relies heavily on user acceptance.

2.4 TAM (*Technology Acceptance Model)*

Technology Acceptance Model (TAM) is developed by Davis (1989) [10]. Davis et al. (1989) explain why users accept and reject information technology. The model (TAM) was developed from a psychological theory that explains that the behavior of information

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technology-based service users is based on beliefs, attitudes, desires, and user behavior relationships. TAM is the adaptation of Theory of Reasoned Action (TRA) [34], which is specifically adjusted by the users to the model of information system acceptance. The purpose of this m[35]odel is to explain and estimate user acceptance and the main factors of a user's behavior in receiving an information technology. The TAM model is one of the most frequently used theories in measuring the level of customer acceptance and understanding in using a service that has just been launched. In contrast to TRA, TAM issues attitude constructs to make the model simpler and to explain beliefs, attitudes, desires, and user behavior relationships better.

Tchnological Acceptance Model

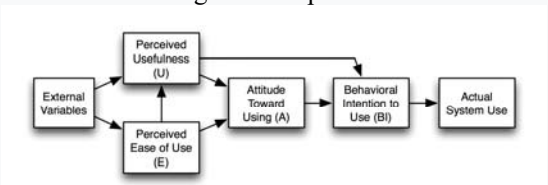

Fig. 2 Tachnological acceptance Model

This model has two sides. The first are beliefs consisting of perceived ease of use (PEOU) and perceived usefulness (PU). The second are attitude, behavior intention to use, and usage behavior. PU and PEOU is the main relevance to the attitude of technology acceptance. PU is the degree to which a prospective user believes that using a particular system would enhance his or her job performance. Whereas PEOU is the degree to which a prospective user believes that using a particular system would be free of effort [10], [36]. TAM does not put social norm as the determinant of intention to act.

Numerous researchers suggest that TAM need to add other variable which gives stronger model. Hence, TAM need to be examined and developed to be TAM2 [31], [36] and Unified Theory of Acceptance and Use of Technology [31], [37]. TAM3 has been proposed as well in the context of e-commerce by adding trust and perceived risk variable towards the system used [38].

2.5 Trust

As the number of cyber rimes is massively rising such as account hacking, Trust becomes the significant factor considered by the customers when they want to start using e-banking. Several resources define Trust from some points of view [35]. In the beginning, Trust was mostly studied from the psychological perspective in as much as Trust strongly relates to human behavior. However, as the science has developed, Trust is then studied from numerous points of view, including form economic perspective which, in this case, is e-commerce. Trust will occur when someone has a trust when doing a transaction with a partner who has a high integrity and trustworthiness [39].Trust exists when a party has a strong belief on other party's ability and integrity [39]. According to Keller (1993), trust develops from the mutual relationship based on the shared values implemented between two parties that it is considerably significant to loyalty aspect [40].

Mayer et al. opined that there are several factors forming someone's trust which are ability, benevolence, and integrity [41]. Folake even added a variable to these factors, which is reputation [28]. Trust is basically formed by three dimensions which are perceived risk, customer's orientation, and reputation [35]. The perceived risk exists due to economical transaction involving trust on online banking, in which bank and customer are physically separated. This transaction is basically difficult to monitor since there is no physical transaction between customer and the bank. Furthermore, the cyber laws are still imprecisely applied. It also must be highlighted that customers' orientation on optimizing the use of technology tends to represent their trust on internet banking. Customers have a set of scale to evaluate electronic transaction such as the speed of connectivity [35]. Reputation of a bank also becomes the determining factor from which society recognize the quality and value of the bank. Reputation is the most significant factor of trust. From the explanation above, this study therefore employs three dimensions of trust stated by Nath and Mukherjee [35].

2.6 Perceived Ease of Use and Perceived Usefulness

Perceived ease of using technology is scaled when someone is able to operate a system to do a task without any difficulties or barrier [10]. Customer's perception on the ease of using technology is supported by several factors: a. features offered by the technology; b. the sign value (prestige) of technology gained by the customer; and c. supporting advanced features. There are several indicators used to measure customers' perception on the ease of using mobile banking: a. Mobile banking is easy to learn; b. mobile banking offers simplicity in transaction; c. mobile banking

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could improve customers' skill; and d. Mobile banking is easy to operate.

Perceived usefulness occurs when customers believe that technology will significantly help to increase the result of their work [10]. Customers' perception on the usefulness of technology is measured from several factors: a. usefulness including providing advantages and increasing productivity; b. effectiveness, in which technology can enhance the effectiveness and increase the quality and quantity of the work.

2.7 Attitude toward Using

Based on TAM, Attitude toward Using is defined as an attitude expressed by the customers when using a system, in which it might be either an acceptance or a refusal as the result of using technology in their work [7], [10]. Other researchers stated that attitude as one aspect that influence individual behavior. The attitude consists of several characteristics which are cognitive, affective, and behavioral components [42].

2.8 Behavioral Intention to Use

Behavioral Intention to Use is a tendency to keep using a certain technology. The level of someone's sophistication and intensity in using a technology can be seen from their behavior and awareness toward the technology. For instance, they want to add the supporting peripheral in the technology device, keep motivated to use the technology, and will to motivate (persuade) others' to use the technology.

3. Hypothesis Development and Research Framework

TRA model explains that attitude and behavioral intention are indicated by relevant beliefs and TAM approves this explanation [10]. TAM suggests that perceived ease of use and perceived usefulness have direct influence towards behavioral intention to use internet banking. Perceived ease of use refers to someone's belief that a system can be understood easily, whereas perceived usefulness refers to someone's belief that the use of a system can upgrade ones working achievement. The result of research conducted by Perceived ease of use and perceived usefulness significantly influence the attitude towards using of internet banking. In marketing [43], various studies found that trust might influence the attitude [25], or trust is positively linked to attitude [44]. Graziolli & Jarvenpaa suggest that attitude is shown by trust in the context of internet shopping mall [26]. Therefore, trust might be one of the factors influencing the attitude beside the perceived ease of use and perceived usefulness.

1st Hypothesis: Customer trust has positive influence towards the attitude to use mobile banking.
2nd Hypothesis: Perceived usefulness has positive influence towards the attitude to use mobile banking.
3rd Hypothesis: Perceived ease of use has positive influence towards the attitude to use mobile banking.

Researcher on marketing field has also verified empirically cause and effect relationship between trust and the behavioral intention. Customer trust was related to the behavioral intention to use vendor in the future [45]. It is also supported by Gefen who concluded that trust can increase people's intention to use vendor web site [16].

4th Hypothesis: Customer trust has positive influence towards the behavioral intention to use mobile banking.

The theory of reasoned action (TRA), proposed by [46] is a model which has been applied extensively to predict and explain human behavior in various domain [47]. Davis (1989) proposed TAM which comes from TRA. TAM has already examined and developed. The original TAM consists of Perceived ease of use (PEOU), Perceived usefulness (PU), attitude toward using (ATU) Behavioral intention to use (BI) and actual system use (AU). Lastly, PU and PEOU are the two significant factors for system use and ATU has a direct influence towards behavioral intention to use (BI) [10].

5th Hypothesis: Customer attitude directly influences behavioral intention to use mobile banking.

4. RESEARCH METHOD

The present study employs verification-based model, which aims to examine the relation of causality or the influence of inter-variable based on the hypothesis proposed and validated with empirical data [48]. The study also examines the effect of Trust, Ease, Usefulness, Attitude toward

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the Intention to Use mobile banking in Jakarta. Instead of a probability sampling technique, this study used a convenience sampling. Actually, probability sampling is the suitable technique to avoid sampling bias and result generalizability [49], but it is very hard to get m-banking users' data in relation to bank secrecy rules. The online-survey was used to facilitate the researchers to distribute the questionnaires. The constructs of TAM were measured by using items adapted from [10], [31], [36], and trust by using items adapted from [17], [41], [50], [51].

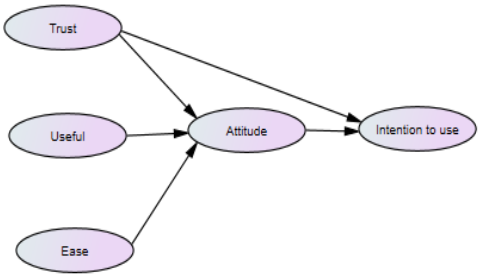

Figure. 3 Proposed Model

5. Population and Sample

The population in this study are customers of the banks which provide mobile banking service in the city of Jakarta. The population are mainly focused on the customers of large banks. The data collected from five regions of Jakarta; East, West, South, Nort and Central Jakarta. This study uses 150 customers of banks which provide mobile banking service spread across 5 regions of Jakarta.

6. RESULTS AND DISCUSSION

6.1 Result

6.1.1 Profile of Respondents

Table 1. Profile of Respondents

Variable	Frequency n = 150	Percentage
Age		
- < 30 years old	98	65.3
- 31 - 40 years old	46	30.7
- 41 - 50 years old	6	4
Gender		
- Male	91	60.7
- Female	59	39.3
Education		
- SMA (Senior High School)	1	0.7
- D3 (Diploma)	3	2
- S1 (Undergraduate)	136	90.7
- S2 (Graduate)	10	6.7
Frequency of Internet Use		
- daily	28	18.7
- weekly	63	42
- monthly	58	38.7
- never	1	0.7

All respondents are the active users of smartphones and have used mobile banking at least once in their transaction. Based on the profile, most of the respondents age less than 30 years (65.3%), are male (60.7%), and are the graduate of bachelor degree (90.7%).

6.1.2 Result of Hypothesis Test

Table 2. Hypothesis Test

Hypothesis	Original sample	Sample mean	Standart deviation	t-statistic	P-value	status
ATTITUDE -> INTENTION	0.420	0.420	0.114	3.674	0.000	Significant**
EASE -> ATTITUDE	0.310	0.307	0.115	2.701	0.004	Significant**
TRUST -> ATTITUDE	0.186	0.192	0.091	2.049	0.020	Significant**
TRUST -> INTENTION	0.335	0.342	0.099	3.371	0.000	Significant**
USEFULLNESS -> ATTITUDE	0.353	0.357	0.120	2.946	0.002	Significant**

Note: ** Significant at 5% level, * Significant at 10% level

The influence of exogenous latent variable upon the endogenous latent variable is resulted from:

1. The coefficient of line parameters obtained from the influence of Trust variable on the Attitude is at 0.186 with the value of

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$s_{statistic}$ 2,049 > 1,977 at significance level α = 0,05 (5%) stating that there are positive influence and significance of Trust upon Attitude. The value of 0.186 on the parameter coefficient means that the higher the trust is, the better attitude will be

2. The coefficient of line parameters obtained from the influence of Usefulness variable upon the Attitude of 0.353 with the value of $_{statistic}$ 2,946 > 1.977 at significance level α = 0.05 (5%) stating that there are positive influence and significance of Usefulness upon Attitude. The value of 0,353 on the parameter coefficient means that the better the perception of usefulness, the better the attitude of the customer will be.
3. The coefficient of line parameters obtained from the influence of Ease variable to the attitude is 0.310 with the value of $s_{tatistic}$ 2,701> 2.042 at significance level α = 0.05 (5%) stating that there are positive influence and significance of Ease upon Attitude. The value of 0,310 on parameter coefficient means that the easier the technology/ application, the better the attitude of the customer to use mobile banking will be.
4. The coefficient of line parameters obtained from the influence of Trust variable on the Intention to Use is equal to 0.335 with the value of $_{statistic}$ 3,371,> 1.977 at significance level α = 0.05 (5%) stating that there are positive influence and significance of Trust variable upon the Intention to Use. The value of 0,335 on the parameter coefficient means that the higher the trust is, the higher the attitude of the customer will be .
5. The coefficient of line parameters obtained from the influence of Attitude variable towards the intention to use is equal to 0,420 with the value $_{tstatistic}$ 23,674 > 1.977 at significance level α = 0.05 (5%) stating that there are positive influence and significance of Attitude variable upon the intention to use. The value of 0,420 on the parameter coefficient means that the better the customer attitude, the better the intention to use the technology.

Based on the coefficients of line parameters obtained in Table 2, the formation of structural equation model is explained in the following diagram of research line model:

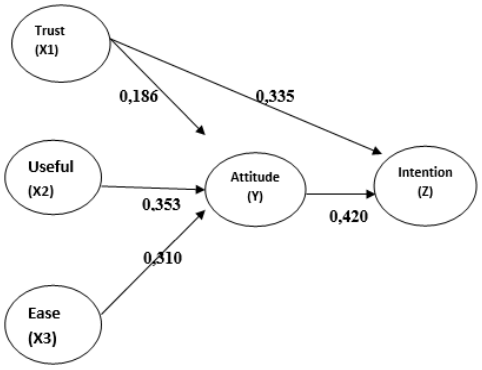

Figure 4. Diagram of Research Line Model

Based on the above diagram of research line, it can be converted into the following equation:

Table 3. Model of Structural Equation

Model of Structural Equation	Trust (X_1)
Model 1: Attitude (Y_1)	0,186 2,049**
Model 2: Intention to Use (Z)	0,335 3,371**

Not: ** significance at level 5%.
Source: Processed Data

Table 3. Model of Structural Equation
Not: ** significance at level 5%.
Source: Processed Data

If the above research model is converted into structural equation, the research model can be seen as follows:

$$Y = 0{,}186X1 + 0{,}353X2 + 0{,}310X4 + e1 \quad .....(1)$$

$$Z = 0{,}420\ Y1 + e2 \quad .....(2)$$

In the first model, the influence of Usefulness upon Attitude retains the highest value of coefficient compared to the coefficient parameters of Trust and Ease, meaning that the higher the perception of usefulness is, the higher costumer's attitudes towards mobile banking will be and vice

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versa. Therefore, if the perceived Usefulness decreases, the costumer's Attitude will correspondingly decrease.

In the second model, the attitude has an enormous influence compared to the coefficient of other parameters, with coefficient parameter of 0.420. It can be interpreted that the better the attitude of costumers is, the more interested the costumers are to use mobile banking.

7. DISCUSSION

7.1 The Influence of Trust upon the Attitude of Costumers

The results of the study indicate that there is a significant positive influence of Trust upon costumer attitudes. It can be said that when customers trusts the banks' commitment, reliability, security, confidentiality, and good performance, they tend to respond positively about their (un)conscious engagement with the banks. These findings strongly supported the research conducted by[7], [15], [25], [29], [43].

7.2 The Influence of Perceived Usefulness upon the Attitude of Costumers

The results of data analysis concluded that the perceived usefulness significantly influences the attitude of costumers toward the use of mobile banking. the more useful m-banking is, the more positive the customer attitude is to m-banking. This was in line with studies conducted by [10], [15], [43] showing that perceived usefulness positively correlate with and significantly influence the attitude toward the use internet banking. This idea also happens to use the use of mobile banking in which that perceived usefulness significantly influences the attitude toward the use of mobile banking[15], [21] and [52]..

7.3 The Influence of Perceived Ease upon the Attitude of Costumers

The results of data analysis concluded that the perceived ease significantly influences the attitude of costumers toward the use of m-banking. It means that the easier the use of m-banking, the higher the customer's intention to use it. This is in line with studies privous study which found that the perceived ease of use has a positive influence on attitude [21], [52]. Besides that, perceived ease of use had a positive influence on attitude in the context of internet baniking [11], [12], [15] and [43].

7.4 The Influence of Trust upon the Intention to Use

The study shows that there is the influence of trust upon the intention to keep using mobile banking. This shows that the higher the consumer's trust in m-banking, the higher the intention to use it. The results of this study support previous studies which concluded that trust can increase the interest of costumers in using mobile banking [12], [14], [28],

7.5 The Influence of Attitude upon the Intention to Use

The present study shows that attitude significantly influence the intention to use mobile banking. costumers with positive attitudes toward mobile banking will show positive interest for the use of mobile banking. The result supports the study conducted by Nor and Pearson which demonstrating that the attitude influences the interest in using the technology [53]. Other privious study also concluded that attitude significantly influence the interest in using mobile banking [14], [15], [51], [54].

8. Limitation and future studies

There are several limitations of this study including; First, the use of convenience sampling in this study has an impact on the generalizations of the research results. ideally the sampling technique used is probability sampling [49]. Second, the respondents characteristics relating to education showed that the majority of respondents (90.7 %) are undergraduate education and under 30 years old (65,3%). This caused the sample did not cover the group in the population aged 40 above and lower education respondents. It allowed the target population cannot be accurately described. Therefore, future studies should be carried out using more proportional and spacious sample. So that, it could be able to explain better the effect of TAM constructs on the intention to use m-banking. Furthermore, the study conducted in one province only (Jakarta). This caused the results could not be generalized to a larger population.

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9. CONCLUSION

This study illustrates how the costumer's interest in using mobile banking is influenced by several factors, such as trust, perceived usefulness, and perceived ease mediated by attitude. The results show that attitude highly influences the interest in using mobile banking. Furthermore, attitude, as mediation, is influenced by perceived usefulness, ease and trust. It must be highlighted that the constructs of trust directly influence the interest in using mobile banking and has the greatest impact in comparison with other constructs.

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