TECHNOLOGY ACCEPTANCE MODEL TO MEASURE CUSTOMER'S INTEREST TO USE MOBILE BANKING

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Abstract: One form of service developed by banks is online banking services. Online banking is a banking transaction service that can be done by customers anywhere using the internet network. One of the developments of online banking is m-banking, thanks to Mobile banking customers can use it to get banking services 24 hours a day without having to go to a bank branch for personal transactions. Mobile banking is a banking service provided by banks to support the smooth and easy banking activities, as well as the effectiveness and efficiency of customers in conducting various transactions. This study uses the Structural Equation Model method with SmartPLS 3.0 software, to examine the effect of perceived usefulness and perceived ease of use on attitudes and interests in using M-Banking on respondents, namely 100 state-owned bank customers in Jakarta.

The results showed that perceived usefulness has no significant effect on attitudes. perceived ease of use has significant effect on attitudes. perceived usefulness has no significant effect on interest using mobile banking. perceived ease of use has no significant effect on interest using mobile banking and attitudes has significant effect on interest using mobile banking.

Keywords: Technology Acceptance Models, Mobile Banking.

I. INTRODUCTION

Banking services continue to develop in line with the development of internet technology (online), online banking is a banking transaction service that can be carried out by customers either from home, business premises or in other locations that are not in real bank locations (branch offices) by using communication media such as computers, cell phones and landlines. Forms of online banking services are Automatic Teller Machine (ATM) and electronic banking (e-banking) (Irmadhani, 2012). In order to meet the demands of technological developments, many banking industries provide information technology (IT) based services, one of which is the use of Mobile Banking (M-banking). Mobile banking is a development of mobile technology used in the commercial domain. Mobile banking combines information technology and business applications together.

Increasing interest in using mobile banking is the main target for Bank Mandiri in welcoming the era of the industrial revolution 4.0. Interest is a behavioral tendency to keep using technology (S. F. Wibowo, Rosmauli, & Suhud, 2015). Interest is one aspect of human psychology that can encourage to achieve goals. Someone has an interest in an object, tends to give greater attention or feel happy to that object (Kurniawati, Arif, & Winarno, 2017). One method of measuring technology acceptance is the Technology Acceptance Model (TAM) method, the Technology Acceptance Model (TAM) developed (Davis, 1989). The Technology Acceptance Model (TAM) introduced is an adaptation of the Theory of Reasoned Action (TRA) developed by (Ajzen, 1991). TAM aims to provide a parsimonious explanation of the determinants of the adoption of information technology user behavior towards the acceptance of the use of information technology it self (Davis, et al., 1989).

According to (Andriyano & Rahmawati, 2016), citing Souranta's opinion, thanks to mobile banking, customers can use it to get banking services 24 hours a day without having to go to a bank branch for personal transactions. Mobile banking is a banking service provided by banks to support the smooth and easy banking activities, as well as the effectiveness and efficiency of customers in conducting various transactions.

Perceived Ease of Use according to (Jogiyanto, 2007) states that perceived ease of use is defined as the extent to which a person believes that using a technology will be free from effort. From the definition, it can be seen that perceived ease is a belief about the decision-making process. If someone believes that information systems are easy to use then he will use them. Research by (Ajzen, 1991) found that the construct of perceived usefulness is the main cause of interest in using the system (behavioral intention) for less experienced users. For experienced users, the main cause of interest in using the system is the perceived behavioral control construct. Research conducted by (Saputro & Sukirno, 2013) states that there is a positive and significant influence on the perceived ease of interest in using Internet Banking. (Novindra & Rasmini, 2017) concluded that perceived ease...
of use had a positive effect on interest. Research by (Kurniawati et al., 2017) also states that the perception of ease of use affects the behavior interest of mobile banking users.

(Rahman & Dewantara, 2017) state perceived usefulness as a subjective probability of potential users using a particular application to facilitate performance on their work. This facilitated performance can produce better benefits both physically and non-physically, such as the results obtained will be faster and with more satisfying results compared to not using products with the new technology. Research conducted by (Candraditya, 2013) shows that the perceived benefit variable has a significant and significant effect on interest in using. Research by (S. F. Wibowo et al., 2015) states that the variable of perceived benefits has a significant effect on interest in using. (Sari, 2017) concluded that Perceptions of Benefits had a significant positive effect on the use of Bank Mandiri internet banking in Surabaya. (Anggraeni, 2015) study also concluded that perceived usefulness has a positive and significant effect on intention to use.

Attitude Toward Using attitude towards using TAM technology is conceptualized as an attitude towards using a system in the form of acceptance or rejection as an impact when someone uses it as an aspect that affects individual behavior. The attitude of using technology is defined by Davis (1989) as a positive or negative feeling from someone if they have to do the behavior that will be determined. The attitude of using technology as a user evaluation of their interest in using the system (Ardana, 2014). Research by (Mintardjo, Mandey, & Binalay, 2016) states that attitude is the most dominant variable that affects interest. (Adinata & Yasa, 2018) produces a conclusion on attitudes towards online repurchase intentions. (Sakdiyah, Effendi, & Kustono, 2019) resulted in a conclusion that attitudes towards behavioral interest have a positive effect. (Kendarto, 2018) also states that there is a significant relationship between attitude towards behavioral intention.

II. LITERATUR REVIEW

Mobile Banking
Mobile banking is a banking facility through mobile communication such as mobile phones with facilities that are almost the same as ATMs except for taking cash (Hutabarat, 2010). Mobile banking is a banking service via a channel via wireless. Mobile banking is a part of electronic banking that uses mobile phone technology. There are two forms of mobile banking, namely SMS-banking which is accessed by sending written messages and WAP-banking which is a form of mobile internet service which is accessed via a GPRS (internet) connection. Mobile banking is an option because it is easy to use, practical, and safer (Mattila, Pento, & Karjaluoto, 2003). The use of the system according to (Davis, 1989) is a real condition of system use. Conceptualized in the form of measurement of the frequency and duration of technology use. Someone will be satisfied using the system if they believe that it is easy to use and will increase their productivity, which is reflected in the real conditions of use. Tangke in (S. F. Wibowo, Rosmauli, & Suhud, 2015) stated that Mobile banking as a form of system application can also be used to increase user productivity. Therefore, the use of Mobile banking can be interpreted as a real condition of the use of Mobile banking services by bank customers.

Technology Acceptance Model (TAM)
The Technology Accepted Model or commonly known as the Technology Accepted Model (TAM) is used to predict user acceptance of the use of new technology. The model introduced by Davis (1989) is the model most widely used in information systems research, because it produces good validity. TAM is an adaptation of the theory developed by Fishbein, namely Theory of Reasoned Action (TRA) which is a theory of action based on the assumption that a person's reactions and perceptions of something will determine the person's attitude and behavior. TAM adds two main constructs to the TRA model. These two main constructs are perceived usefulness and perceived ease of use. TAM argues that individual acceptance of information technology systems is determined by these two constructs (Jogiyanto, 2007). The initial TAM models were as follows:

![Initial Model Technology Acceptance Model](source: Jogiyanto (2007))

**Figure 1. Initial Model Technology Acceptance Model**
Perceived Usefulness

Perceptions of usefulness are defined as the extent to which a person believes that using a technology will improve his job performance, the perception of benefits is a person's or customer trust in the bank in making decisions. If someone already believes and makes this decision, someone will use it or take advantage of it. Conversely, if someone lacks confidence and cannot make decisions, then that person will not use them (Maulidiya, 2017). According to Jogiyanto (2007) it is defined as the level at which someone believes that using a certain system can improve their performance. Perceived usefulness is a thought about the use of information technology to improve performance and provide benefits for its users. Perceived usefulness is something that states individuals believe that the use of a certain technology will improve the performance of the individual (Andriyano & Rahmawati, 2016).

Perceived Ease of Use

Perceived Ease of Use is the level at which someone believes that technology is easy to understand (Davis, 1989). This definition is also supported by (A. Wibowo, 2008) which states that the perception of the ease of use of a technology is defined as a measure by which a person believes that the technology can be easily understood and used. According to Jogiyanto (2007), the perception of ease is a person's belief in using a technology to be free from effort. If someone believes that technology is easy to use, that individual will use it. But if it is the opposite, then the individual will not use it. Thus, it can be said that ease of use can reduce a person's efforts both time and effort to study a system or technology because individuals believe that the system or technology is easy to understand. The intensity of use and interaction between the user (user) and the system can also indicate ease of use. The more frequently used systems indicate that they are more familiar, easier to operate and easier to use by users.

Attitude towards Using

(Kotler, 2009) defines attitudes as emotional feelings and a tendency for actions to benefit or unfavorable and long-lasting actions for a person towards certain objects or ideas. Everyone has an attitude towards everything, including an interest in using new technology. Attitude is a person's positive or negative evaluation of an object or behavior (Ajzen, 1991) including feelings and responses that influence it. (Iwan, 2013) states that consumer attitudes are an important factor in purchasing decisions. There is a strong relationship between the attitude of a brand and buying interest. The more positive the consumer's attitude towards a product, the stronger the interest in the product (Ajzen, 1991).

Research on user attitudes in viewing new technological developments that affect interest in using was carried out by Davis, et al., (1989) who developed an information technology system acceptance model known as the Technology Acceptance Model (TAM). Davis, et.al. (1989) argue that the decision made by individuals to accept information technology is a conscious action that can be explained and predicted by their behavioral interests, while technology users will have an interest in using technology if they feel the technology system is useful and easy to use. Davis, et.al., Also stated that a person will carry out a behavior if he has a behavioral intention to do so. (Venkatesh, Morris, Davis, & Davis, 2003) studied theories about the acceptance of technology by users of a new system or technology, in the end the research resulted in the conclusion that there are four constructs of interest in using new technology, namely user attitudes (performance expectations), social influences and the conditions that facilitate them.

Interest

Interest is something that arises after receiving stimulation from the product he sees, then interest arises to try the product and finally the desire to buy and own the product arises (Triani, 2016). According to Jogiyanto (2007) behavioral intention is a desire (interest) for someone to do a certain behavior. Interest is related to behaviors or actions, but interest can change with time, the wider the time interval, the more likely someone's interest changes will occur.

According to (Harlan, 2014) interest is the tendency of the soul to pay attention to and reminisce about an activity or activity. Someone who is interested in an activity using banking service facilities and paying attention to these activities is based on pleasure, then someone will consistently use it in the future. Interest is a pleasure to do activities. Interest in the use of technology relates to the way companies plan and organize information technology in achieving potential and effective benefits. Information technology can be applied in accordance with business strategies.
Ajzen (1991) states that behavior interest shows a person's decision to do or not do a certain behavior. The concept of behavioral interest states that an individual's motivation to engage in a behavior is defined by the attitudes that influence that behavior. Behavioral interest shows how much effort an individual puts in to commit to a behavior. The amount of a commitment defines the realization of this behavior (Ajzen, 1991). In this study, the intention (intention) leads to the interest or desire of individuals to use mobile banking.

**Framework**

![Research Framework](image)

**Hypothesis:**
- H1: There is an effect of perceived usefulness on attitudes using mobile banking.
- H2: There is an effect of perceived ease of use on attitudes to using mobile banking.
- H3: There is an effect of perceived usefulness on interest in using mobile banking.
- H4: There is an effect of perceived ease of use on interest using mobile banking.
- H5: There is an effect of perceived attitudes on interest using mobile banking.

**III. RESEARCH METHOD**

**Object of research**
The object of research is the object that is researched and analyzed. In the research conducted by the author, the object of research under study is perceived usefulness, perceived ease of use and attitudes toward interest. This study aims to determine whether the effect of perceived usefulness, perceived ease of use of users and attitudes towards interest in using m-banking is mediated towards BUMN Bank customers in Jakarta. This research was conducted on customers of BUMN Banks in Jakarta who use Mobile Banking, online, during September 2020.

**Population and Sample**
Population is a generalization area consisting of objects / subjects that have certain qualities and characteristics that are determined by the researcher for study and then draw conclusions. (Sugiyono, 2016). According to (Arikunto, 2010) the population is the entire research subject. If someone wants to research all the elements that exist in the research area, then the research is a population study. The population can be divided into 2, among others:
1. Infinite population, which is a population where the object is infinite or uncountable.
2. A finite population, namely a population whose objects are finite or can be counted in number.

In this study the authors used an infinite population, because the population was unknown and it was the Bank’s confidentiality. In this study the population used is the customers of BUMN Banks in Jakarta.

Samples are needed to prove the correctness of answers that are still provisional (hypothesis), then the researcher collects data on certain objects. Because the objects in the population are too broad, researchers use the unknown population formula (Riduwan & Achmad, 2007).

\[
n = \left( \frac{z_{a/2}^2 \cdot \sigma^2}{e} \right)^2
\]
Information:
\( n \) = Number of samples
\( Z_{\alpha/2} \) = confidence level measure
\( a = 0.05 \) (95% confidence level means \( Z_{0.05} = 1.96 \))
\( e \) = the level of provision used by suggesting the maximum error size is 20% or 0.20 (error of estimate)

Sample Calculation

\[
n = \left( \frac{1.96}{0.20} \right)^2 = 96.04
\]

Based on the sample calculation, the researcher is sure with the 95% confidence level that the random sample is 96.04 in size. Seeing these results, to make it easier to calculate the data, the researcher rounded the sample size to 100 people by giving the difference in estimation of less than 0.05.

Method of Analysis

In this study, the data analysis used was partial least square analysis, the data used was obtained by distributing questionnaires to respondents. Quantitative data is data in the form of computable numbers, which is obtained from the calculation of the questionnaire that will be carried out related to the problem under study. Data analysis was performed using the component-based SEM method using PLS as the analytical tool in this study. The Partial Least Square (PLS) technique was chosen because this tool is widely used for complex causal-predictive analysis and is a suitable technique for use in predictive applications and theory development such as in this study.

PLS is a more appropriate approach for prediction purposes, this is especially so in conditions where the indicators are formative. With the latent variable in the form of a linear combination of the indicators, the prediction of the value of the latent variable can be easily obtained, so that the prediction of the value of the latent variable that is affected can also be easily obtained, so that prediction of the latent variable that is affected can also be easily done. According to (Ghozali, 2014) the indicator model based on the operationalist model states that a concept will be a measurement and has no meaning outside of the measurement itself, if the overall meaning of the concept is associated with its measurement and the theoretical concept is only one and has one measurement.

IV. RESULT AND DISCUSSION

Validity Test

In the use of the PLS method, an indicator is declared valid if it has a loading factor above 0.70 against the intended construct (Ghozali, 2014). Based on the results of data processing, here are the results of the validity test in this study.
Based on the test results from Figur 2, that the perceived usefulness variable is 7 statements, perceived ease to use variable is 7 statements, attitudes variable is 8 statements and interest using mobile banking is 6 statements. Of the four variables, all statements are declared valid because all of them has a loading factor above 0.70.

Reliability Test

To see the results of reliability, it can be seen that the average variance extracted (AVE) value must be above 0.5 and Composite Reliability must be above 0.7 (Ghozali, 2014).

Table 1. Reliability Test

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach’s Alpha</th>
<th>rho_A</th>
<th>Composite Reliability</th>
<th>Average Variance Extracted (AVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minat</td>
<td>0.953</td>
<td>0.956</td>
<td>0.962</td>
<td>0.809</td>
</tr>
<tr>
<td>Persepsi_Kemanfaatan</td>
<td>0.954</td>
<td>0.960</td>
<td>0.962</td>
<td>0.782</td>
</tr>
<tr>
<td>Persepsi_Kemudahan</td>
<td>0.982</td>
<td>0.983</td>
<td>0.985</td>
<td>0.904</td>
</tr>
<tr>
<td>Sikap</td>
<td>0.976</td>
<td>0.976</td>
<td>0.986</td>
<td>0.858</td>
</tr>
</tbody>
</table>

Based on table 1, it is found that there is no AVE value below 0.5 and the Composite Reliability value above 0.7. Likewise, the Cronbach Alpha value was above 0.6 and the rho_A value was 0.7, so that all variables met the reliability requirements according to the opinion of Ghozali (2014).

Hypothesis test

In this study, an equation is made based on the model structure image, and the following is the result of data processing using the PLS Bootstrapping method.

Figure 3. PLS Bootstraping
Furthermore, in order to clarify the structural equation coefficients, consider the following table:

**Table 2. Path coefficients (Mean, STDEV, T-Values)**

<table>
<thead>
<tr>
<th></th>
<th>Original Sample (O)</th>
<th>Sample Mean (M)</th>
<th>Standard Deviation (STDEV)</th>
<th>T Statistics (O/STDEV)</th>
<th>P Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persepsi_Kemanfaatan ↔ Minat</td>
<td>-0.090</td>
<td>-0.036</td>
<td>0.238</td>
<td>0.050</td>
<td>0.478</td>
</tr>
<tr>
<td>Persepsi_Kemanfaatan ↔ Sikap</td>
<td>0.012</td>
<td>0.071</td>
<td>0.078</td>
<td>0.161</td>
<td>0.631</td>
</tr>
<tr>
<td>Persepsi_Kemudahan ↔ Minat</td>
<td>0.007</td>
<td>0.012</td>
<td>0.097</td>
<td>0.002</td>
<td>0.348</td>
</tr>
<tr>
<td>Persepsi_Kemudahan ↔ Sikap</td>
<td>0.945</td>
<td>0.898</td>
<td>0.662</td>
<td>0.295</td>
<td>0.000</td>
</tr>
<tr>
<td>Sikap ↔ Minat</td>
<td>1.019</td>
<td>0.966</td>
<td>0.349</td>
<td>4.087</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Table 3. Indirect Effect (Mean, STDEV, T-Values)**

<table>
<thead>
<tr>
<th></th>
<th>Original Sample (O)</th>
<th>Sample Mean (M)</th>
<th>Standard Deviation (STDEV)</th>
<th>T Statistics (O/STDEV)</th>
<th>P Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persepsi_Kemanfaatan &gt; Minat</td>
<td>0.013</td>
<td>0.044</td>
<td>0.172</td>
<td>0.079</td>
<td>0.942</td>
</tr>
<tr>
<td>Persepsi_Kemanfaatan &gt; Sikap</td>
<td>0.060</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Persepsi_Kemudahan &gt; Minat</td>
<td>0.563</td>
<td>0.685</td>
<td>0.340</td>
<td>2.532</td>
<td>0.065</td>
</tr>
<tr>
<td>Persepsi_Kemudahan &gt; Sikap</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Sikap &gt; Minat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 4. R-Square**

<table>
<thead>
<tr>
<th></th>
<th>R Square</th>
<th>R Square Adjusted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minat</td>
<td>0.907</td>
<td>0.904</td>
</tr>
<tr>
<td>Sikap</td>
<td>0.913</td>
<td>0.911</td>
</tr>
</tbody>
</table>

Based on Table 2, the substructure equation is obtained as follows:

**Equation 1**

\[
\text{Attitudes} = 0.012\text{Perceived}_\text{Usefulness} + 0.945\text{Perceived}_\text{Ease}_\text{of}_\text{Use} + 0.087 \ (e = 1 - 0.913)
\]

**Equation 2**

\[
\text{Interest to Using} = -0.090\text{Perceived}_\text{Usefulness} + 0.007\text{Perceived}_\text{Ease}_\text{of}_\text{Use} + 1.019\text{Attitudes} + 0.093 \ (e = 1 - 0.907)
\]

To test the direct effect hypothesis using the output path coefficients (Mean, STDEV, T-Values), and for the indirect effect using the indirect effect provided that the t statistical value obtained from the table is greater than 1.96 then the hypothesis between the existing variables be accepted. Conversely, if the value of t statistics is smaller than 1.96 then the hypothesis is rejected. Meanwhile, to determine the magnitude of the influence of each independent variable on the dependent variable can be seen from the path coefficient value. Based on the results of statistical testing, the explanation of each variable effect is explained as follows:
Hypothesis 1 in this study is that perceived usefulness has a significant effect on attitudes. From table 2, it is found that the value of T-statistic = 0.060 <1.96 and P-Value = 0.952 > 0.05, from these results, the conclusion is that the perceived usefulness has no significant effect on attitudes. 

Hypothesis 2 in this study is that perceived ease of use has a significant effect on attitudes. From table 2, it is found that the value of T-statistic = 4.887 > 1.96 and P-Value = 0.000 < 0.05, from these results, the conclusion is that the perceived ease of use has no significant effect on attitudes. 

Hypothesis 3 in this study is that perceived usefulness has a significant effect on interest using mobile banking. From table 2, it is found that the value of T-statistic = 0.532 <1.96 and P-Value = 0.595 > 0.05, from these results, the conclusion is that the perceived usefulness has no significant effect on interest using mobile banking. 

Hypothesis 4 in this study is that perceived ease of use has a significant effect on interest using mobile banking. From table 2, it is found that the value of T-statistic = 0.032 <1.96 and P-Value = 0.975 > 0.05, from these results, the conclusion is that the perceived ease of use has no significant effect on interest using mobile banking. 

Hypothesis 5 in this study is that attitudes has a significant effect on interest using mobile banking. From table 2, it is found that the value of T-statistic = 4.087 >1.96 and P-Value = 0.000 < 0.05, from these results, the conclusion is that the attitudes has significant effect on interest using mobile banking. 

VI. CONCLUSION

Based on the description of the research results starting from theoretical exposure to data collection and data presentation as well as analysis and discussion, it can be concluded the following:

1. Perceived usefulness has no significant effect on attitudes.
   Perceptions of usefulness are defined as the extent to which a person believes that using a technology will improve his job performance, the perception of benefits is a person's or customer trust in the bank in making decisions. The results of this study indicate that Perceived usefulness does not affect attitudes in using M-Banking, thus the higher Perceived usefulness does not have an impact on attitudes in using M-Banking. This can indicate that customers do not yet have full confidence in the M-Banking system, the phenomenon of the many online frauds and breaches of banking transaction data in Indonesia that builds the perception that banking data security is not yet secure so it is vulnerable to being hacked. Therefore, system improvements in the form of improving transaction security with M-Banking need to be carried out continuously, so that the perception is built that M-banking is safe and reduces the doubt that consumers have about M-banking.

2. Perceived ease of use has significant effect on attitudes.
   Perceived ease of use is a system that can be used and operated easily by a person. The results of this study indicate that ease of use affects the attitude of using M-Banking, thus the higher the perception of ease of use will increase the attitude in using M-Banking. This shows that the improvement of the usage system becomes easy to be a big driver to increase the attitude variable using M-Banking. This also implies that in the future M-banking will develop and maintain better technological conveniences so that consumers can easily transact.

3. Perceived usefulness has no significant effect on interest using mobile banking.
   The results of this study indicate that Perceived usefulness does not affect the interest in using M-Banking, thus the higher the Perceived usefulness does not have an impact on the interest in using M-Banking. This can show that the M-Banking system of state-owned banks in Indonesia is not trusted by customers, so that the system is improved to be safe and useful. In addition, some respondents perceive M-Banking transactions as unsafe, this shows education to the public that M-Banking is beneficial and safe, and needs to be improved.

4. Perceived ease of use has no significant effect on interest using mobile banking.
   Ease of use is reflected in the ease in operating the system by customers. The results of this study indicate that ease of use does not affect the interest in using M-Banking, thus the higher the perception of ease of use does not have an impact on the interest in using M-Banking. This shows that improving the usage system becomes easy so that it does not increase the variable of interest in
using M-Banking, meaning that the M-Banking application is very easy, so that the improvement of the system of use becomes easy has no impact.

5. Attitudes has significant effect on interest using mobile banking.

The results of the study show that attitudes have a significant effect on the interest in using M-Banking, this indicates that if customers as M-Banking users feel happy, comfortable and accept the use of M-Banking, it will affect customer interest in using M-Banking, thus, application development.

M-Banking considers customer convenience so that customers are willing to accept the use of M-Banking voluntarily

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