

# Technology mobile banking on customer Satisfaction

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**Abstract.** This study aims to analyze the effect of mobile banking, trust, and customer satisfaction on Bank Muamalat Indonesia DKI Jakarta Branch. The sample in this study cover 124 respondents using non-probability sampling technique. The data analysis technique used is Structural Equation Modeling Part Least Square (SEM-PLS) with the Smart PLS application. The results of this study prove that the relationship of mobile banking services to trust is significant, mobile banking to satisfaction is significant, trust to satisfaction is significant, and trust is able to be an intervening variable in this study that mediates the influence of mobile banking on customer satisfaction.

## 1. Introduction

Era of technological revolution, all banks certainly use technology, especially in delivering service to customers. One of the technologies used by banks is the mobile banking service, where the service makes it easier for customers to carry out all banking transactions, so that conventional transactions have almost left by banks. Customers have interactions through technology, mobile banking services provided by banks have their respective characteristics. In this way, mobile banking plays an important role in reducing operational costs [1] and helps banks build better relationships with customers. Mobile banking (M-Banking) can facilitate banking services in developing countries. The advantages of M Baking service are not limited to users of this service and are very beneficial to customers [2; 3]. Mobile banking became a part of technological innovation in the revolution era 4.0, mobile banking is useful for interacting with banks through mobile devices, such as cellphones or other electronic devices, this proves that banks must provide mobile banking services to customers [4; 5].

Era of technological revolution, all banks certainly use technology, especially in delivering The banking industry itself has realized that the mobile banking service is the proper service to meet the regular needs of customers. This is in accordance with the current lifestyle of the society where almost all aspects of life are affected by the digital world, which originates from the penetration of internet usage in Indonesia which reached 171 million people or 64% of the total population of 264 million people [6], then the PwC survey Indonesia in 2018 at 43 banks in Indonesia stated that from 2015 - 2018, the use of digital transaction channels increased up to 35% compared to the use of traditional



transaction channels through branches [7]. This makes banks in Indonesia tend to strengthen the front end (digital platforms, big data usages, fintech) and strengthen the back end thereafter (cloud, blockchain, automation) for the next 2-3 years.

In 2015 Bank Muamalat Indonesia launched its mobile banking service as part of ebanking services, in addition to ATMs, Internet Banking and Gerai Muamalat. Features offered include account information (balance inquiry, account statement inquiry), financial transaction features (book transfer, SKN, RTGS, online transfer), purchase features (credit, PLN), payment features (telephone bill, Telkom group, tv subscription, Zakat Infaq Shodaqoh / ZIS, Virtual Account, etc.). The features offered aim to improve the level of trust and level of customer satisfaction, the mobile banking features of each bank are different, but the purpose of using it remains the same, to provide services to customers [8; 9; 10; 11; 7]

This study aims to measure and investigating the use of Bank Muamalat Indonesia mobile banking application with the level of trust in customer satisfaction. In past research findings, mobile banking is very effective for innovative, on time, and high-security virtual uses related to satisfaction because users want features interesting features, because attractive features are very essential in mobile banking innovation, and contribute significantly to satisfaction [12].

## 2. Methods

A quantitative approach was chosen in this study, since this is one of the scientific inquiry efforts based on the philosophy of logical positivism, this study was conducted to explain, to examine the relationship between variables and to seek the generalizations that have predictive value. This study utilize questionnaires as the instrument that generates numerical data to be analysed with statistical techniques. This study utilize a non-probability sampling technique, and because of the sampling process does not provide equal opportunity for each individual, then the sampling quota used to determine the sample size is 124 customers of Bank Muamalat Indonesia DKI Jakarta Branch, and the customer criteria is the customers already using Mobile Banking Muamalat Islamic Bank. The data analysis technique used to test the hypotheses in this study was Structural Equatin Modeling Part Last Square (SEM-PLS).

## 3. Results and Discussion

This study uses a questionnaire that contains 26 question items, these questionnaire has been proved to see the validity and reliability. These questionnaires were distributed to 124 customers of Bank Muamalat Indonesia DKI Jakarta Branch, the 124 questionnaires were used for analysis. General description of respondents can be presented in table 1.

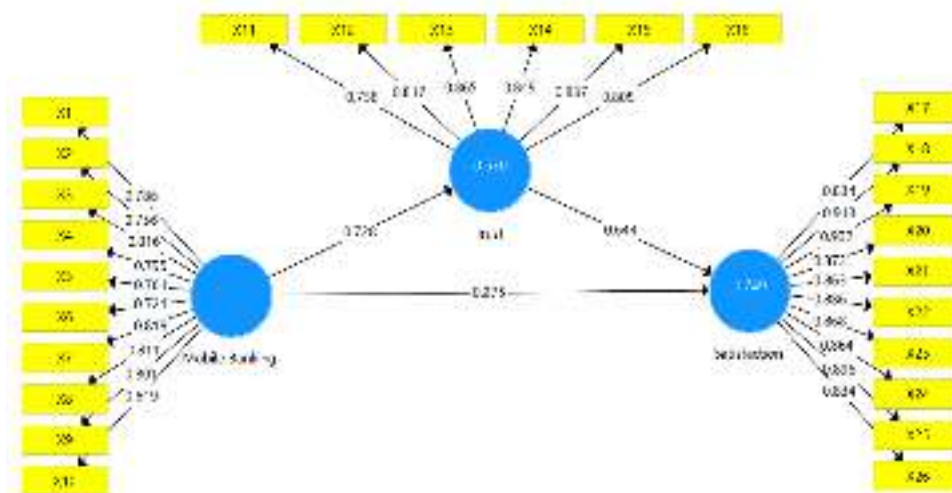
**Table 1.** Demographic Respondents

Demographic Information of Total Respondent		Number 124	Percentage 100%
Gender	Male	65	52,41
	Female	59	47,59
Age	17 – 20 year	0	0
	21 – 25 year	5 people	4,03
	26 – 30 year	28 people	22,58
	31– 35 year	34 people	27,41
	36 – 40 year	39 people	31,45
	> 40 year	18 people	14,53
Status	Married	107 people	86,29
	Single	17 people	31,71
Education	SMA	0	0
	S1	113 people	91,12
	S2	11 people	8,8
	S3	0	0
Employment Status	unemployed	3 people	2,41
	Non Government Employee	116 people	93,54
	PNS/BUMN/BUMD	1 people	0,80
	Entrepreneur	4 people	3,25
Customer year of loyalty	Below 6 month	1 people	0,80

	6 months - 1 year	6 people	4,83
	1 - 3 year	17 people	31,71
	3 - 4 year	7 people	5,64
	5 years and above	93 people	57,82
Frequency of Mobile Banking usage in 1 month	1 – 6 times	16 people	12,90
	Every day	42 people	33,87
	Once a week	7 people	5,64
	> 7 times	59 people	47,59

### 3.1 Evaluasi Measurement (Outer) Model

Hypothesis testing to predict the influence between latent variables and structural models in this study, the evaluation of the Structural Equation Modeling Part Last Square (SEM PLS) model will be done first through two stages. First stage is the evaluation phase on the measurement model and the evaluation of the structural model, which aims to verification indicator. The first is to look at the value of the Indicator reliability or the value of the indicator variance that can be explained by the construct. If the loading value ( $\lambda$ ) is smaller than 0.4 then the reliability indicator or reflective indicator must be eliminated from the measurement model, the following result is the loading factor value ( $\lambda$ ) in Figure 1.



**Figure 1.** Evaluation Measurement (Outer) Model

Figure 1, shows the construct of mobile banking is measured by 10 indicators namely X1, X2, X3, X4, X5, X6, X7, X8, X9, X10. Trust construct is measured by 6 indicators namely X11, X12, X13, X14, X15, X16, and Satisfaction formed with 10 indicators namely X17, X18, X19, X20, X21, X22, X23, X24, X25, X26. The direction of the arrow between the indicator and the construct variable shows that the study uses reflective indicators. Convergent validity of the measurement model with reflexive indicators can be seen from the correlation between indicator scores and construct scores. The indicator is considered reliable if it has a correlation value above 0.70. Based on the results for outer loading (figure 1), all indicators has a loading above 0.70 and is significant, at the scale development research stage, loading 0.50 to 0.60 is still acceptable. The results for outer loading (Table 1) then all indicators have loading above 0.50 and are significant. The Smart PLS output for loading factor gives the results in show figure 1.

The next criteria is to measure the composite reliability and discriminate validity (AVE) of the model, the measurements of reflexive indicators are valued based on the constructs of cross loading measurements. Measuring discriminate validity by looking at the value of the square root of average variance extracted (AVE), which is presented in Table 1 below:

**Table 2.** The Composite value of Reliability and AVE Model measurement

	<b>Cronbach's Alpha</b>	<b>rho_A</b>	<b>Composite Reliability</b>	<b>Average Variance Extracted (AVE)</b>
<b>Mobile Banking_Satisfaction</b>	0.923	0.925	0.936	0.594
<b>Trust</b>	0.966	0.967	0.971	0.769
	0.904	0.907	0.926	0.677

Table 1 shows the AVE value reach  $> 0.5$  for all constructs contained in this study model, the lowest AVE value in the Mobile Banking construct is 0.594. Next, continue with reliability test by looking at the composite reliability value of the indicator block that measures the construct. This obtained from the results of composite reliability which shows satisfactory value if above 0.7. Table 1 in the composite reliability column for all constructs has fulfilled since the criteria reach  $> 0.7$ , this shows that all constructs in the estimated model meet the discriminant validity criteria. The lowest composite reliability value is 0.926 in the Trust construct. To strengthen the reliability test, it is usually strengthened by looking at the Cronbach's Alpha value where the recommended output is  $> 0.6$ . Table 1 shows that the Cronbach's Alpha value for all constructs is above 0.6, the lowest value is 0.904 in the Trust construct.

### 3.2. The evaluation of Structural Model Measurement (Inner Model)

After going through the Measurement Evaluation (Outer) Model measurement, the structural model (inner) model evaluation is then carried out to provides an overview of the relationships between constructs that are evaluated using path coefficients.

**Table 3.** Cronbach Alpha

	<b>R Square</b>	<b>R Square Adjusted</b>
Trust	0.530	0.526
Satisfaction	0.749	0.745

Table 3, shows the value of 0.749 for the Satisfaction construct which means that mobile banking and trust can explain the satisfaction variance of 74.9%, while 25.1% is influenced by other factors. A value of 0.530 for the trust construct means that mobile banking can explain the trust variance of 53% while 47% is influenced by other factors.

After the requirements test assumption on SEM PLS completed, the next step is to test the hypothesis. The results of the path coefficient and the t-statistic value obtained through the bootstrapping process with the number of samples for resampling of 124 and repetitions of 5000 times are as follows:

**Table 4.** T-Statistic Results Value Loading Model Measurement

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>T Statistics</b>	<b>P Values</b>	
Mobile Banking_ -> Satisfaction	0.275	0.276	0.129	2.141	0.032	<b>Suggest</b>
Mobile Banking_ -> Trust	0.728	0.733	0.048	15.034	0.000	<b>Suggest</b>
Trust -> Satisfaction	0.644	0.645	0.110	5.857	0.000	<b>Suggest</b>
Mobile Banking_ -> Trust -> Satisfaction	0.469	0.471	0.079	5.918	0.000	<b>Suggest</b>

Table 4 shows the influence between mobile banking and trust is significant with a t-statistic value of 2.141 ( $> 1.65754$ ). The original sample estimate value is positive that is equal to 0.275, this shows

that mobile banking and trust have a positive relationship direction. Thus the H1 hypothesis which states that mobile banking has an effect on trust is found to be 'accepted'. The results of the F Square value between mobile banking and trust obtained a value of 1,127, this shows that mobile banking has a strong influence on trust. H2 hypothesis, shows that between mobile banking and satisfaction there is a significant relationship, with a t-statistic value of 15,034 ( $> 1.65754$ ). Furthermore the original sample estimate value is positive at 0.728, this means that the direction of the relationship between mobile banking and satisfaction is positive, thus the H2 hypothesis can be 'accepted'. At the F Square value, PLS testing between mobile banking and trust obtained a value of 0.142, this means mobile banking has sufficient influence on satisfaction. The influence between trust and satisfaction is significant with T-statistic of 5.857 ( $> 1.65754$ ). The original sample of the estimate value is positive – the value is 0.644, this shows the direction of the relationship between trust and satisfaction is positive. Thus the H3 hypothesis in this study states that trust influences satisfaction can be 'accepted'. In the F Square value of PLS testing between mobile banking and trust, a value of 0.778 is obtained, this means that trust has sufficient influence on satisfaction. The influence of mobile banking on satisfaction mediate by trust is significant with a T-statistic of 5.918 ( $> 1.65754$ ). The original sample estimate value is positive at 0.469, this indicates the direction of the relationship between mobile banking and satisfaction mediated by trust is positive. Thus the H4 hypothesis in this study states that mobile banking has an effect on satisfaction mediated by trusts can be 'accepted'. Thus, trust is able to mediate between mobile banking and job satisfaction. This research model can be seen after testing the model with bootstrapping as follows:

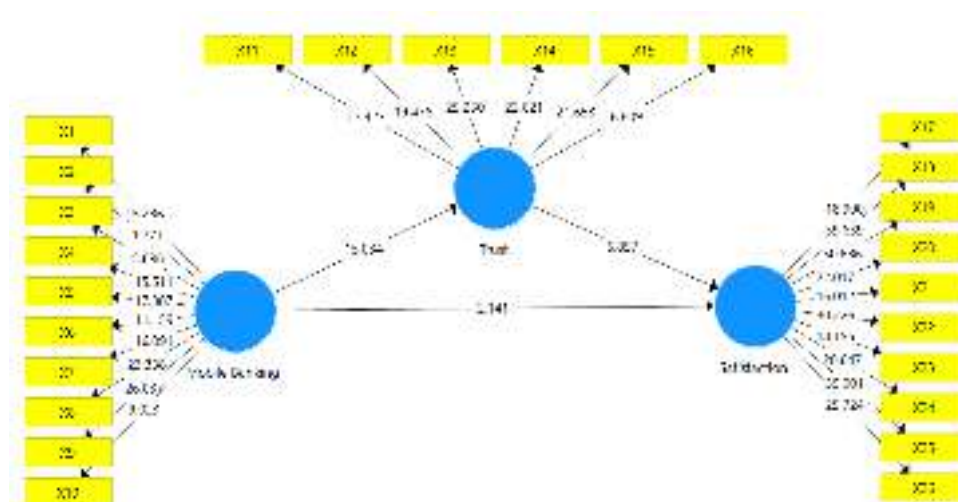


Figure 2. Results Framework Model

Based on the value of the original sample estimate, the results show that the highest value that affects satisfaction is trust, which is equal to 0.64423. This shows that trust has a higher influence on customer satisfaction, compared to the influence of car banking on satisfaction (0.275). Thus trust is the most dominant variable in influencing satisfaction, while mobile banking does not predominantly affect satisfaction by looking at the smallest original sample.

Regarding satisfaction, Mobile banking is very effective for virtual uses that are innovative, on time, and high security. Users want attractive features, because attractive features are very important in mobile banking innovation, and contribute significantly to satisfaction [12]. Then the use of smartphones with 3G and 4G cellular networks shows the results that trust influences the acceptance of mobile banking [13]. The combined application of several models (including TAM) called Unified Theory of Acceptance and Use of Technology (UTUT2), shows the results that behavioral intentions in adopting mobile banking services are influenced, among others, by Lebanese and British consumer confidence [14].

Initial trust has a significant influence on intention and behavior to use online banking services [15]. While the benefits offered by mobile banking are positively related to customer satisfaction, the effectiveness of using mobile banking will affect customer satisfaction [16]. To build trust and satisfaction of banking customers, it is necessary to pay attention to the quality of the mobile banking system, where the quality of the system and the quality of information significantly affects customer trust and satisfaction [17].

#### 4. Conclusion

The contribution from this study shows Bank Muamalat Indonesia mobile banking is one of the factors to increase satisfaction. To make mobile banking as an essential service, therefore, the features and the flexibility has to be enhanced towards a user-friendly digital banking. Furthermore, the use of mobile banking must be able to increase customer trust, thus customers feel secure while using mobile banking. The implications of this study are certainly the most important part of improving banking performance especially the use of mobile banking. Trust must always be given to customers to be able to increase customer satisfaction, not only the use of mobile banking but also the provision of internet banking by the banking industry.

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