EPH - International Journal of Business & Management Science

ISSN (Online): 2208-2190
Volume 05 Issue 02 May 2019

DOI: https://doi.org/10.53555/eijbms.v5i2.83

MEASURING CUSTOMER SATISFACTION LEVEL OF MOBILE BANKING: A STUDY ON INDONESIAN BANK

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Abstract:-

Mobile banking usage in Indonesia increased significantly in the last decade. This research's objective is to identify factors affecting customer satisfaction level in mobile banking usage and to understand contributing factors in keeping loyalty of mobile banking customers. The sampling is taken from customers of one of Indonesian bank to measure satisfaction based on six dimensions: user-interface design, usefulness, reliability, relative advantage, perception on risk and ease of use. The correlation between overall customer satisfaction and intend to recommend also was reviewed. A survey to collect data from one of Indonesian Banks resulted 297 valid respondents were received. The results support hypotheses on user-interface design, reliability and ease of use, which significantly affect customer satisfaction. Customer satisfaction, in turn, have positively related to intend to recommend.

Keywords: - *Mobile banking, Customer satisfaction, Customer loyalty, Indonesia.*

INTRODUCTION

Mobile banking has become a major way of delivering multi-channel services to customers, which is challenging Traditional banking models (Cortiñas et al., 2010). As one of electronic channel services, mobile banking system Contributes to move the traditional transaction to automated transaction.

Mobile banking system allows bank customers to perform transactions such as checking balance, checking transaction history, transfer to another account, and bill settlements, etc. Customers will get benefits including usefulness, cost benefit, convenience and privacy services. The convenience raises customer expectations for instant, innovative and effortless service available 24/7. At the end, mobile banking finally impacts every financial business process design and model.

The usage of digital banking in Indonesia is increasing in the last few years. According to Indonesian Financial Services Authority (OJK), SMS banking, Internet banking and mobile banking users increased 270% from 13.6 million customers in 2012 to 50,4 million users in 2016. Transaction frequencies also increased 169% from 150,8 million transactions in 2012 to become 405,4 million transactions in 2016**.** The trends indicated that most of financial transactions will be conducted via mobile phones in the future.

The initial stage of mobile banking development was SMS banking as well as Internet (web-based) banking. Currently, with increasing Internet penetration and mobile communication, mobile apps downloaded from Play Store (Android) or App Store (iOS) getting more popularity. With more than 200%, the percentage of growth in Finance App Downloads in Indonesia, 2017 vs 2015 was the biggest in the world according to App Annie Restropective 2017 Report.

As a frontline technology, with its growing numbers of usage, mobile banking become the critical touch point for the bank to deliver service to customer. Because of the industry's higher expectations, identifying the factors that contribute to customer satisfaction in mobile banking apps needs to be focused on. Understanding the factors that contribute to poor customer satisfaction will be necessary as well.

Our study will focus on mobile banking apps downloaded via Android (Play Store) or iOS (Pasture) not SMS or Internet/web-based banking. Considering the above points, the objective to this research is as follows:

- To identify factors affecting satisfaction in mobile banking usage
- To understand how customer satisfaction affecting loyalty of mobile banking customers At the end of the research, we expect to answer the following research question:
- What are the major factors that affect customer satisfaction in mobile banking?
- How does customer satisfaction in mobile banking affect customer loyalty?

LITERATURE REVIEW

According to Mbama (2018), the main factors that determine customer experience in Digital Banking are service quality, functional quality, perceived value, employee-customer engagement, perceived usability and perceived risk. There is a significant relationship among customer experience, satisfaction and loyalty, which is related to Financial Performance.
Shaikh and Karjaluoto (2016) stated that research on the outcomes of mobile banking is completely lacking. They pointed out that mobile banking literature has so far concentrated on examining intentions to use mobile banking and often relies on samples of individuals that do not have prior experience of using the service. Shaikh and Karjaluoto concluded that mobile banking user satisfaction has a strong positive association with usage of mobile banking applications.

Kahandawa and Wijayanayake (2014) pointed out that the parameters (usefulness, ease of use, relative advantage, perception on risk and user lifestyle and current needs of customers), contribute customer satisfaction of mobile banking. Technology Acceptance Model and Innovation Diffusion Theory developed Kahandawa and Wijayanayake's research. Technology Acceptance Model accentuates on the importance of perceived usefulness in technology adoption. Meanwhile, Innovation Diffusion Theory describes other points such as: relative advantage compared with its predecessors, e.g. mobile banking vs ATM, perceived risk and user life style.

As four and Haddad (2014) used seven dimensions to determine the impact of using mobile banking services on customer satisfaction. Those dimensions include reliability, flexibility, and privacy, and accessibility, ease of navigation, efficiency and safety. Their research indicated that privacy and accessibility are more influential compare to other dimensions.
Asfour and Haddad has compiled some of the previous research on mobile banking dimensions

Dimensions / Year	Authors
Reliability	(Behjati et al, 2012) (El-kiki & Lawrence, 2007) (Fang et al, 2013).
Flexibility	(Anderou et al, 2000) (Saleem & Rashid, 2011)
Security	(Ma&Zhao, 2012) (Anand, 2007) (El-Kiki & Lawrence, 2007) (Bilal & snaker, 2011) (Khraim et al, 2011)
Ease navigation	(Van Riel et al, 2001)
Privacy	(El-kiki & Lawrence, 2007) (Kim et al, 2006) (Khraim et al, 2011)
Efficiency	(Anand, 2007) (Ma & Zhao, 2012)
Accessibility	(Behjati et al, 2012) (Khrais, 2012) (Zeithaml st al, 2002) (Migdadi, 2012)

In the earlier research, Lee and Chung (2009) pinpointed on the approaches whereby three quality factors in mobile banking have an effect on customer satisfaction. Those factors are system quality, information quality and interface design quality. Their research model was derived on DeLone and McLean's model. Below are some notes from Lee and Chung (2009) related to DeLone and McLean's model:

DeLone and McLean (1992) defined a model of the interrelationship among six IS success factors:

1. *System quality*
2. *Information quality*
3. *IS use*
4. *User satisfaction*
5. *Individual impact and*
6. *Organizational impact.*

Based on prior studies, DeLone and McLean (2003) updated their model of IS success by adding a "service quality" measure.

Mobile banking can be considered as a type of Information System. According to DeLone and McLean (2003), information quality or system quality may be the most important quality component for measuring the overall success. DeLone and McLean (1992) urged that information system's quality impacts the degree of its use as well as users satisfaction, inevitably affecting the actions of individuals/organizations.

In case of mobile banking, organization and presentation of information become very critical, due to the small mobile phone screen which limits the content to be displayed

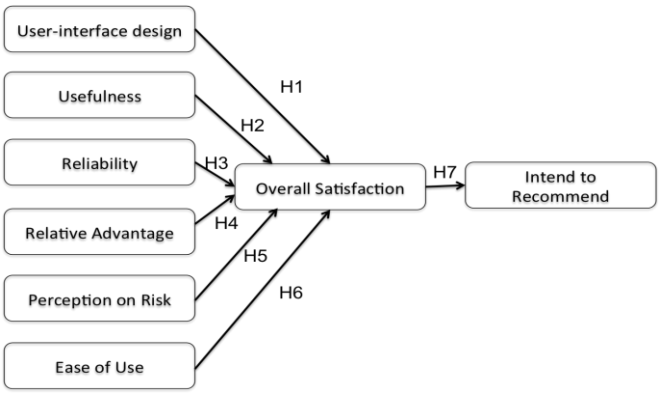
System quality is based on productivity model, which evaluates the extent of information system resource and investment utilization, while information quality signifies the quality of information output by the system, rather than the quality of the system itself.

The most important aspects in the IS success model are system quality and information quality which affect users trust in financial transaction. This is due the fact that mobile banking does not entail face-to-face contact.

With reference to Shaikh and Karjaluoto (2009) above that research on outcomes of mobile banking is still lacking, our study will focus more on the usage of mobile banking from customers who use mobile banking on daily basis.

MATERIALS AND METHODS

The conceptual model guiding this study is illustrated in this figure below:



Ability to navigate mobile banking apps will help customer to save money and time. Therefore, it is important to provide user-interface design which is easy to understand. A good user-interface design will increase usability. Thus, it can be hypothesized that

H1: A better user-interface design of mobile banking services could have a positive impact on the customer satisfaction.

Usefulness is a critical factor in the information system and computing including banking technology such as mobile banking. Mobile banking considered useful if it could facilitate wide-ranging banking transactions including inquiry, fund transfer, bill payment, etc. Mobile banking usefulness is able to motivate customers for more frequent transactions and increase satisfaction. Therefore, it can be hypothesized that

H2: A higher usefulness of mobile banking services could have a positive impact on the customer satisfaction.

Reliability means stability of performance and delivery service properly, which could affect customer satisfaction. When using mobile banking, users expect to have acceptable response time and speed of transaction. As a service provider, the bank needs to ensure reliability of the mobile banking service to increase customer satisfaction. Therefore, it can be hypothesized that

H3: A higher reliability of mobile banking services could have a positive impact on the customer satisfaction.

Customers are aware and might compare the relative advantage of mobile banking over other channels such as ATM or Internet Banking. For example customer needs proof of transaction, which is different from ATM. However, they could retrieve the proof of transaction anytime at their convenience. In general, the relative advantage compare with other channels will convince customer and increase customer satisfaction. Therefore, it can be hypothesized that

H4: A higher relative advantage of mobile banking could have a positive impact on the customer satisfaction.

Security is critical issue in digital banking area. Perception of risk, e.g. security risk on using mobile banking will affect customer satisfaction. The intention to use mobile banking will depend on perceived security and risk associated with it. This will involve security when logging and during transaction. Therefore, it can be hypothesized that

H5: A negative perception on risk of mobile banking should have a negative impact on customer satisfaction.

Ease of use is critical issue in customer satisfaction. This starts from the first time when customer download the apps, activate the account until day-to-day transactions. All of those processes should be performed without any hassle. Mobile banking which is easy to use can improve customer satisfaction.

Therefore, it can be hypothesized that

H6: A higher ease of use of mobile banking services will have a positive impact on the customer satisfaction.

There are also correlation between customer satisfaction and intend to recommend. When mobile banking customer is satisfied, he or she may recommend the service to others. This behaviour is related to customer loyalty, which drive customer to become the product champion or evangelist. Therefore, it can be hypothesized that

H6: A higher degree of mobile banking customer satisfaction will have a positive impact on the intend to recommend.

Sampling & Variable Sampling Techniques

The population selected for the research is all of Bank XYZ's customers who already used mobile banking. The main reason for selecting that population is the Bank XYZ is one of the largest banks in Indonesia with wider customer segments and various products. Our target samples are Bank XYZ's customers who adopted mobile banking facility.

The data is taken from the bank database through random sampling for customers having mobile banking transaction within the last two week period.

An independent survey company has conducted survey using Computer-Assisted Telephone Interviewing (CATI) - a telephone surveying technique in which the interviewer follows a script provided by a software application. Finally, we received 297 customers responded to the survey.
Below is the demographic profile:

Gender	- Male - Female
Age Pattern	- 20-30 years - 31-40 years - 41-50 years - above 50 years
Occupation	- Government employees - Private sector employees - Business - Others

Interview method
To measure customer satisfaction, we ask the respondent with following question:
How satisfied are you with overall mobile banking service?
– 0 - very unsatisfied
– 1 - 9
– 10 very satisfied

For each dimension of mobile banking as a product, we ask the same question and expecting the same scale above to measure the impact to customer satisfaction:
User-interface Design
- Ease Navigation **(**e.g. a simple, highly intuitive navigation that saves users time)

Usefulness
- Completeness of menu/facilities (e.g., transfer, bill payments, telco prepaid top up, etc)

Reliability
- Response time, speed of transaction
- Clarity of transaction information status, i.e whether the transaction was successful or fail, information related to success/failure easy to understand

Relative advantage
- Availability of proof of transaction

Perception on risk
- Security during log in process
- Security during transaction
- Daily transaction limit

Besides dimensions related to mobile banking as a product, we select other dimensions related to **ease of use** on mobile banking:
- Get info about mobile banking
- Download mobile banking apps
- Activation process
- Create password
- Menu options for transaction
- Daily transaction usage
- Clarity of transaction status
- Update apps
- Get solution when having problem

To measure customer loyalty of mobile banking we use Net-Promoter Score (NPS) which is introduced by Reichheld (2003, 2006). The customer loyalty is measured by a single question asking customers how likely that they will recommend a specific brand or company to a friend or colleague. The answer scale is 0-10, where 0 is “not at all likely” and 10 is “extremely likely”

The Net-Promoter Score is the difference between the proportion of promoters and detractors. Promoters are those who choose 9 or 10 and detractors are those who choose between 0 and 6. Respondents of 7 or 8 are labeled Passives.
For all of other questions in the survey, we consistently use 11-Point Scale (0 to 10) rather than 10-Points Scale (1 to 10). Multiple surveys that use 11-Point Scale with 5 anchored as a midpoint consistently had the smallest amount of data missing compare to 10Points Scale.

INTERVIEW QUESTIONS

VARIABLE: OVERALL SATISFACTION
How satisfied are you with the overall service of Mobile Banking   ❍ 0 – *Very unsatisfied*   ❍ 1   ❍ 2   ❍ 3   ❍ 4   ❍ 5 – *Neither unsatisfied nor satisfied*   ❍ 6   ❍ 7   ❍ 8   ❍ 9   ❍ 10 – *Very satisfied*

How satisfied are you with the mobile banking in terms of the following:

VARIABLE	QUESTION	0 – *Very unsatisfied*	1	2	3	4	5 *	6	7	8	9	10 – *Very satisfied*	99 – *Don't know*
User-interface Design	(1) *Ease Navigation/Design*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Usefulness	(2) **Completeness of menu/facilities e.g., transfer, payments,etc.**	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Reliability	(3)*Response time, speed of transacton*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
	(4) *Clarity of transation status, i.e.success/fail*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Relative advantage	(5) *Proof of transaction*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Perception on Risk	(6) *Security during log in process*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
	(7) *Security during transaction*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
	(8) **Daily transaction limit**	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

VARIABLE: EASE OF USE

From scale 0-10, where 0 means very difficult and 10 means very easy, how difficult are you to perform the following

	0 – *Very Difficult*	1	2	3	4	5	6	7	8	9	10 – *Very Easy*	99 – *Don't know*
1. *Get info about mobile banking*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
2. *Download mobile banking apps*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
3. *Data and device verification*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
4. *Activation process*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
5. *Create password*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
6. *Access/login*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
7. *Using menu options for transcation, e.g. transaction flow easiness, availability of favorite's menu, etc*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
8. *Daily transaction usage*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
9. *Clarity of transaction status*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
10. *Update apps*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
11. *Get solution when having problem*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

4. *Activation process*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
5. *Create password*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
6. *Access/login*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
7. *Using menu options for transcation, e.g. transaction flow easiness, availability of favorite's menu, etc*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
8. *Daily transaction usage*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
9. *Clarity of transaction status*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
10. *Update apps*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
11. *Get solution when having problem*	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

VARIABLE: INTEND TO RECOMMEND

Considering all of your experience using Mobile Banking XYZ, how likely is it that you would recommend Mobile Banking XYZ to your family, friends or colleagues?

You may respond by choosing a number between 0 to 10, with 0 means 'not at all likely', and 10 means 'extremely likely'.

❍ 0
❍ 1
❍ 2
❍ 3
❍ 4
❍ 5
❍ 6
❍ 7
❍ 8
❍ 9
❍ 10

RESULT

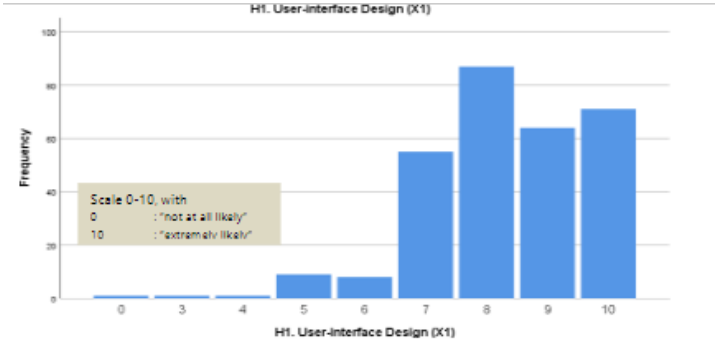


Figure 2 : H1. User-interface Design of of bank XYZ's Mobile Banking Services

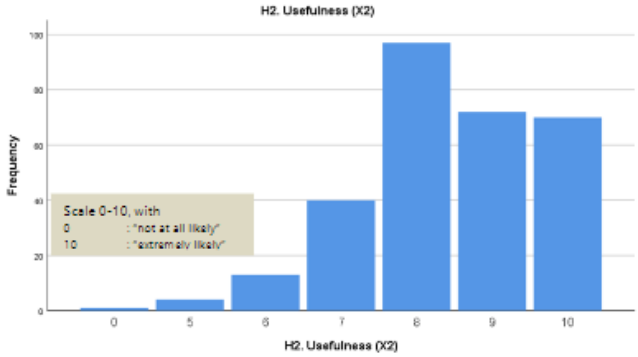


Figure 3 : H2. Usefulness of of bank XYZ's Mobile Banking Services

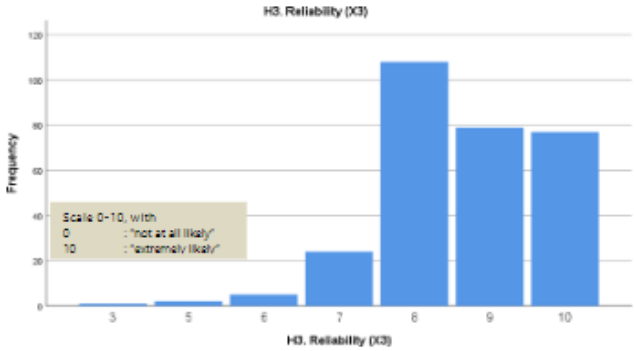


Figure 4 : H3. Reliability of bank XYZ's Mobile Banking Services

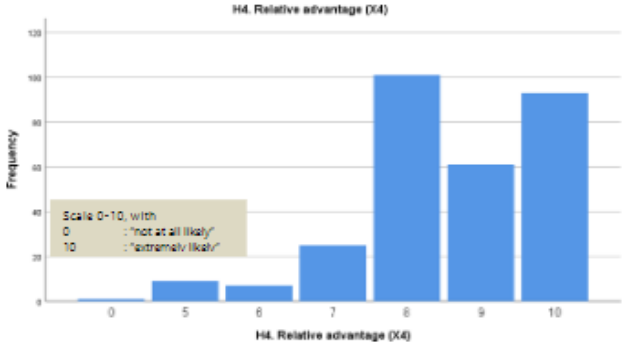


Figure 5 : H4. Relative advantage of bank XYZ's Mobile Banking Services

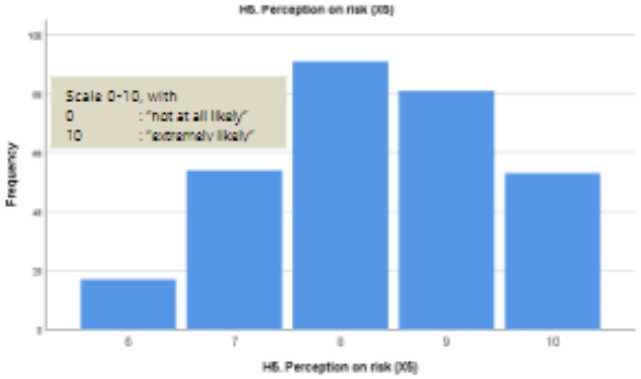


Figure 6 : H5. Perception on risk of bank XYZ's Mobile Banking Services

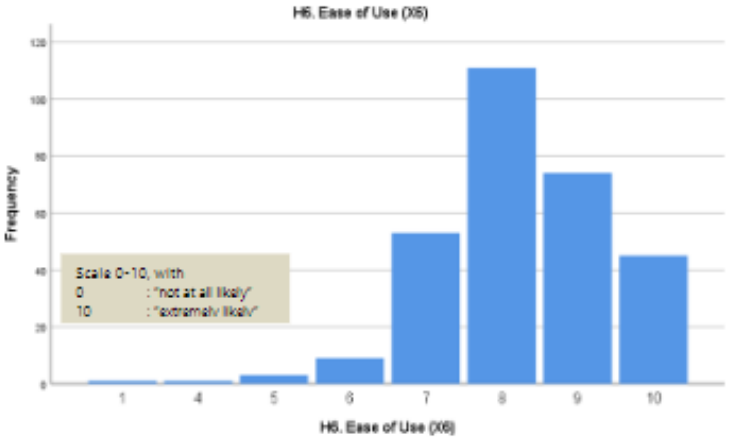


Figure 7 : Ease of Use of of bank XYZ's Mobile Banking Services

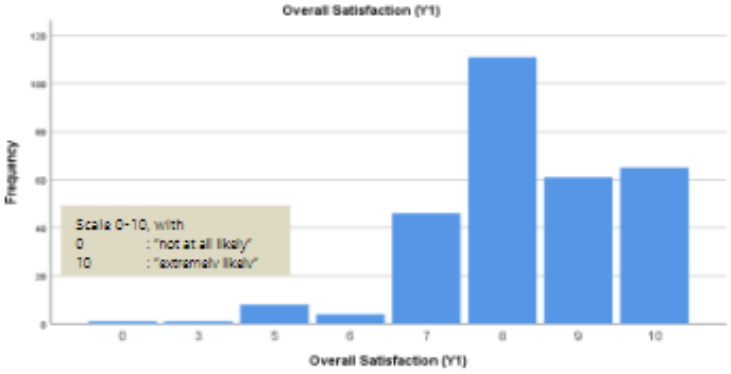


Figure 8 : Y1. Overall customer satisfaction of bank XYZ's Mobile Banking

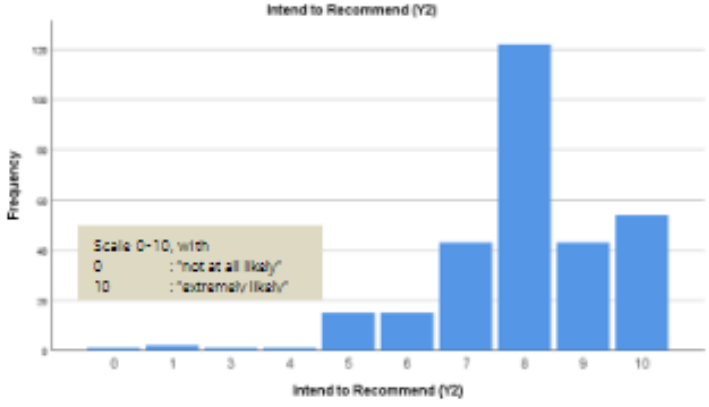


Figure 9 : Y2. Willing to recommend of bank XYZ's Mobile Banking Services

HYPOTHESIS TESTING

We use a **multiple regression analysis** to explore if there is a statistically significant relationship between sets of variables, dependent variable (or 'criterion') and the independent variables (or 'predictors').

We also perform testing to confirm the goodness of fit of the parameters to see the discrepancy between observed values and the values expected under the model in question. Statistical significance is checked by an F-Testing of the overall fit, followed by T-Testing of individual parameters.

Regression 1

❍ **Model Summary[b]**

Coefficient Of Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.615[a]	.379	.366	.973

a. Predictors: (Constant),User-interface Design (X1), Usefulness (X2),Reliability (X3), Relative advantage (X4), Perception on risk (X5), and Ease of Use (X6).

b. Dependent Variable: Overall Satisfaction (Y1)

The value of the coefficient of determination or R square = 0.379 from the above table shows that 37.9% of the variance of overall Satisfaction (Y1) could be explained by the model which related to the change in variable X1-X6. The remaining 62.1% could be explained by other factors outside the model.

F - Testing

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	166.788	6	27.798	29.34	0 .000[b]
	Residual	273.807	289	.947		
	Total	440.595	295			

a. Dependent Variable: Overall Satisfaction (Y1)

b. Predictors: (Constant), User-interface Design (X1), Usefulness (X2), Reliability (X3), Relative advantage (X4), Perception on risk (X5), and Ease of Use (X6).

In the table above the sig value = 0.000 <0.05, then H0 is rejected. This indicates that all independent variables, e.g. User-interface Design (X1), Usefulness (X2), Reliability (X3), Relative advantage (X4), Perception on risk (X5), and Ease of Use (X6), simultaneously have a significant effect on the Overall Satisfaction (Y1).

T – Testing

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.919	.511		3.753	.000
	H1. User-interface Design (X1)	.154	.062	.168	2.482	.014
	H2. Usefulness (X2)	.067	.066	.065	1.004	.316
	H3. Reliability (X3)	.344	.080	.308	4.321	.000

	H4. Relative advantage (X4)	.038	.065	.038	.577	.564
	H5. Perception on risk (X5)	-.013	.075	-.012	-.180	.857
	H6. Ease of Use (X6)	.172	.084	.156	2.036	.043

1. Since the sig value of variable X1=0.014<0.05, then H0 is rejected. **User-interface Design** (X1) individually has a **positive and significant effect** on Overall Satisfaction (Y1).
2. Since the sig value of variable X2=0.316>0.05, then H0 is not rejected. **Usefulness** (X2) individually **does not** significantly influence Overall Satisfaction (Y1).
3. Since the sig value of variable X3=0.000<0.05, then H0 is rejected. **Reliability** (X3) individually has a **positive and significant effect** on Overall Satisfaction (Y1).
4. Since the sig value of variable X4=0.564>0.05, then H0 is not rejected. **Relative Advantage** (X4) individually **does not** significantly influence Overall Satisfaction (Y1).
5. Since the sig value of variable X5 = 0.857> 0.05, then H0 is not rejected. **Perception on Risk** (X5) individually **does not** significantly influence Overall Satisfaction (Y1).
6. Since the sig value of the variable X6 = 0.043< 0.05, then H0 is rejected, **Ease of Use** (X6) individually has a **positive and significant effect** on Overall Satisfaction (Y1).

Regression 2
Coefficient of Determination

Coefficient Of Determination

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.668[a]	.446	.445	1.146

a.Predictors: (Constant), Overall Satisfaction (Y1)
b. Dependent Variable: Intend to Recommend (Y2)

The value of the coefficient of determination or R square = 0.446 from the above table shows that 44.6% of the variance of Intend to Recommend (Y2) could be explained by the model which related to the change in Overall Satisfaction (Y1). The remaining 55.4% could be explained by other factors outside the model.

F – Testing
The F -Testing is intended to test whether the independent variables together have a significant effect on the dependent variable.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	312.468	1	312.468	237.867	.000[b]
	Residual	387.519	295	1.314		
	Total	699.987	296			

a. Dependent Variable: Intend to Recommend (Y2)
b. Predictors: (Constant), Overall Satisfaction (Y1)

The sig value = 0.000 <0.05, then H0 is rejected. This indicates that the Overall Satisfaction (Y1) simultaneously has a significant effect on Intend to Recommend (Y2).

T – Testing
T-Testing is intended to test whether the independent variables partially have a significant effect on the dependent variable

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.483	.428		3.465	.001
	Overall Satisfaction (Y1)	.782	.051	.668	15.423	.000

a.Dependent Variable: Intend to Recommend (Y2)

The sig value = 0.001<0.05, then H0 is rejected. This indicates that the Overall Satisfaction (Y1) individually hasa significant effect on Intend to Recommend (Y2)

DISCUSSIONS

As one of electronic channel, mobile banking service performed significant growth recently. Customer is able to conduct transactions anywhere and anytime, no need to go the bank. It is important for the banking industry to understand critical factors that affect customer satisfaction.

As mentioned earlier that, the objective to this research is as follows:

- To identify factors affecting satisfaction in mobile banking usage
- To understand how customer satisfaction affecting loyalty of mobile banking customers and intend to recommend

At the end of the research, we expect to answer the following research questions:

- What are the major factors that affect customer satisfaction in mobile banking?
- How does customer satisfaction in mobile banking affect customer loyalty and intend to recommend?

Major factors which contribute to customer satisfaction in mobile banking

Based on this study, we found that variables that have positive correlation individually with customer satisfaction of mobile banking are **user-interface design, reliability** and **ease of use**. While other variables such as usefulness, relative advantage and perception of risk do not have significant correlation with the customer satisfaction.

The findings are parallel to Mbama (2018) who mentioned that the main factors that determine customer experience in Digital Banking are service quality, functional quality, perceived value, employee-customer engagement, perceived usability and perceived risk. In his research, Mbama categorized:

- User Interface Design or Easy to Navigate as part of **Perceived Functionality**
- Reliability as part of **Service Quality**, and
- Ease of Use as part of **Perceived Usability**

Based on analysis of our study, we found that reliability has lowest p-value (0.000) compared to p-value of User Interface Design (0.014) and Ease of Use (0.043). In terms of reliability testing, Ease of Use has the highest Cronbach's Alpha (0.952), which indicates the extent to which it is without bias (error-free) and hence ensures consistent measurement across time and across the various items in the instrument.

This study supports previous research from Asfour and Haddad (2014) in terms of reliability and ease of navigation. Asfour and Haddad (2014) explored seven dimensions which includes: **reliability,** flexibility, privacy, accessibility, **ease of navigation**, efficiency and safety. Reliability, according to Asfour and Haddad (2014), indicates consistency of performance as well as delivery of service. The trends should show improvement and aligned with the bank's promise to the customer.

In terms of ease of use as influence factor on customer satisfaction, our study support partly of earlier research from Kahandawa and Wijayanayake (2014). However, other factors such as usefulness, relative advantage and perception on risk do not significantly affected to customer satisfaction, which is different from their research.

It is interesting to understand why those factors - usefulness, relative advantage and perception on risk - do not significantly affect customer satisfaction. Kahandawa and Wijayanayake (2014) developed their hypothesis based on variables which drive **consumer acceptance** of mobile banking and how they relate to customer satisfaction. All of those three factors were attributable to motivation and intention to use mobile banking facility. Their research also was based on survey to 64 initial customers who adopt mobile banking service in Colombo vicinity.

Our research was based on 297 respondents who are actively using mobile banking. The initial version of mobile banking apps of Bank XYZ based on Android and iOS was launched in 2012 and the SMS version was already available in 2003.The second version of the apps was then launched in 2017 with more robust functionalities. Considering the above condition, we can presume that the product is quite mature and bank customers already familiar with mobile banking service. The above three factors no longer relevant for the active customers who already use it on day-to-day basis. These factors, as stated by Kahandawa and Wijayanake are variables that affect consumer acceptance.

How customer satisfaction affecting loyalty of mobile banking customers and intend to recommend.
Our finding showed that customer satisfaction has significant impact to intend to recommend. Shaikh and Karjaluoto (2016) mentioned that user satisfaction has a strong positive association with usage of m-banking applications. Although not hypothesized, they also examined user satisfaction with intend to recommend. Based on their study, the effect of satisfaction with m-banking applications was significant, although it was weaker than the effect on overall satisfaction and relationship commitment.

Implication for theory
This research brings additional insight into theoretical foundation of mobile banking customer satisfaction and loyalty. It supports previous studies on mobile banking customer satisfaction, and give some insights on variables not having significant impact to customer satisfaction such as perception on risk, usefulness, as well as relative advantage. This research also shows how customer satisfaction implies to intend to recommend.
This research also support system quality and information quality as important factors in DeLone and McLean's IS success model.

Implication for practice
Customer satisfaction as well as loyalty is crucial in financial services industries. Thus, when providing a mobile banking service, the industries need to understand the importance of user interface design, reliability and ease of use to boost customer satisfaction.

Limitation and Direction for Future Research
One of the limitations of this study is related to mobile banking applications for banking transactions. Future research may cover other mobile services such as mobile payments, etc
Second limitation was related to the scope of the study, which only covers specific bank, e.g. respondent from Bank XYZ.

CONCLUSIONS

Mobile banking usage in Indonesia increased significantly in the last decade. It is important to understand what are the factors affecting satisfaction in mobile banking usage. Also, how overall customer satisfaction factor affecting intend to recommend.

The dimensions that affect mobile banking services' customer satisfaction are user-interface design, reliability, and ease of use. However for usefulness, relative advantage and perception on risk, we did not find any significant impact to customer satisfaction. From our research it is also found that there is a positive correlation between overall customer satisfactions and intend to recommend.

Since the research shows a positive relationship for some of the hypotheses tested, when designing a mobile apps, any financial institutions need to consider user-interface design, reliability, and ease of use. Those dimensions not only bring customer satisfaction, but also loyalty at the end.

This research focused on customers who already use mobile banking service on daily usage. A future research with focus on customers who have not yet used mobile banking service could answer factors that may prevent mobile banking adoption. Some variables that do not have impact to customer satisfaction, may need to be considered for this type of research.

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