

# *The Influence of Perception of Security and Perception of Ease on Loyalty of Mobile Banking Users Bank BSI KCP Sribhawono*

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**Abstract** — The tight business competition that exists in the banking industry requires banking companies to be able to provide the best customer satisfaction services, one of which is digital banking services, namely mobile banking. This research aims to determine the extent to which digital mobile banking user loyalty influences perceptions of security and perceptions of convenience at Bank BSI KCP Sribhawono. The sample size for this research was 99 respondents obtained using the Slovin sampling method. In this research, data was collected using an analytical tool in the form of a digital questionnaire. The analysis model uses multiple linear regression testing with partial hypothesis testing (T). The results of this research show that the independent variables consisting of perceived security and perceived convenience have a significant positive effect on the loyalty of mobile banking users at Bank BSI KCP Sribhawono.

**Keywords** — Banking, Service, Mobile Banking, Customer, Satisfaction

## I. INTRODUCTION

The world is currently experiencing the fourth revolution or what is better known as the era of revolution 4.0, where what is happening is that there is a lack of human power as operators, but there is more interaction between machines and machines. Based on an initial evaluation of the country's readiness to face the industrial revolution 4.0, Indonesia is estimated as a country with high potential. From this, it can be said that Indonesia must be ready to face the industrial revolution 4.0 [1]. The impact of technological advances makes human activities easier. One of the technological developments that can be felt in the 4.0 era is internet technology where computers can be connected to the same network. In the past, Maslow's pyramid of needs theory stated that basic needs (physical needs) were the basis of the pyramid, in the future what will be at the base of the pyramid will be data connection needs, aka the need for data access, because society seems unable to live without access to data [1].

Bank Syariah Indonesia is one of the sharia banks that provides services equipped with digital services to face competition with conventional banking. Digital services are currently being developed with the latest innovations in order to provide good, effective and efficient services to customers. According to McKinsey.Co survey results, digital banking consumers in Asia, including Indonesia, will increase sharply from 670 million people in 2016 to 1.7 billion million people in 2020 [2]. One banking technology that takes advantage of the rapid development of smartphone and internet users in this mobile era is a payment system using smartphones called mobile banking. Mobile Banking can provide benefits for banks and customers. For banks, using mobile banking is a solution to save costs in infrastructure development compared to opening ATM outlets. Meanwhile, for customers, using mobile banking provides comfort and convenience to make transactions freely, without limitations on time and location without having to go to a branch office or ATM for personal transactions.

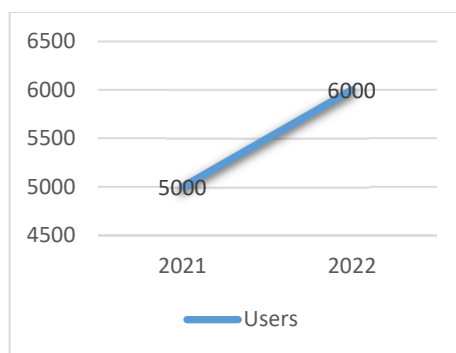


Fig. 1. BSI Mobile users (2021-2022)

Source: *bsikcpsribhawono*

Figure 1 above shows that mobile banking users at the BSI KCP Sribhawono bank have increased quite significantly. In 2021, there were 5,000 BSI KCP Sribhawono bank customers using BSI Mobile, then in 2022 there was an increase of 6,000 customers. This shows that BSI KCP Sribhawono bank customers have a high interest in the presence of mobile banking. The post-adoption consequences and continued use of mobile banking are very much needed by the banking industry because the cost of acquiring new customers is five times greater than the cost of retaining existing customers. Banks must be able to build long-term relationships with their customers so that mobile banking users do not switch to other services [3].

Using mobile banking, which is considered difficult and prone to data theft and fraud, makes customers feel that service at the teller counter is the right choice. So to make customers loyal to this service, improving service quality such as ease of use and security of this service is the best solution. [4] explained that when using an information system, most users will see its ease, the more someone feels that the system is easy, the higher a person's intention to use it. That way, someone tends to be more loyal to the system. Then, [5] also stated that there are still many customers who think that using mobile banking is complicated and doubt the security aspect because they consider transactions carried out directly at teller counters to be safer and verified by the bank. Therefore, customers prefer to wait and are willing to queue long to carry out various banking transactions.

Based on this background, the aim of this research is to analyze the influence of perceived security and perceived convenience on mobile banking user loyalty at Bank BSI KCP Sribhawono.

## II. RESEARCH METHODS

The type of research used is quantitative research with statistical methods. The approach to this research is survey research. In this study, the information collected took samples from one population and used a questionnaire as the primary data collection tool. This research focuses on matters related to the research title, namely security and convenience for mobile banking user loyalty. The measurements in this study used primary data obtained from the results of distributing questionnaires to BSI Bank customers at the head branch office East Lampung Regency, Sribhawono District who are currently or have used mobile banking services. The population in this research is Bank BSI KCP Sribhawono bank customers using mobile banking in 2022, a total of 6000 users. In this research, the following framework is used:

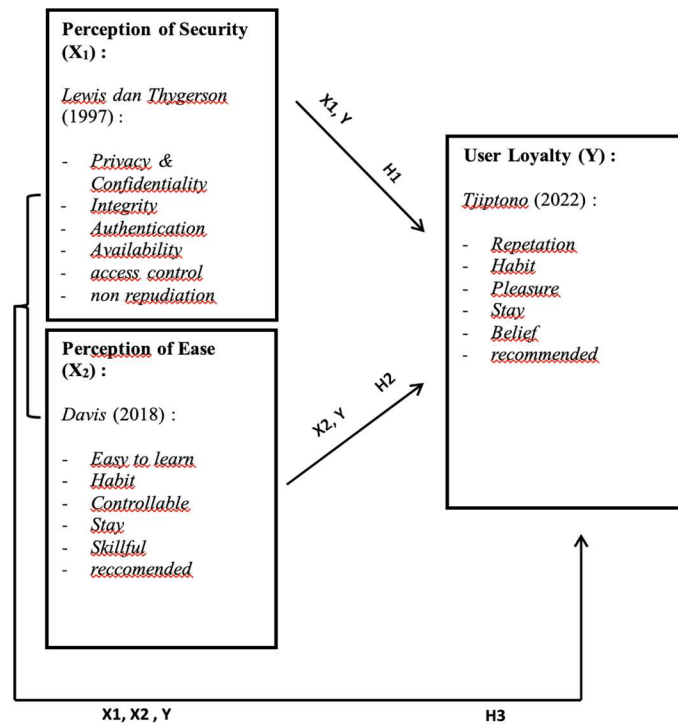


Fig. 2. Research Framework

The hypothesis proposed by researchers in connection with this research is:

H1: There is an influence between perceived security on the loyalty of BSI KCP Sribhawono bank mobile banking users.

: There is no influence between security perceptions on the loyalty of BSI KCP Sribhawono bank mobile banking users.

H2: There is an influence between perceived convenience on the loyalty of BSI KCP Sribhawono bank mobile banking users.

: There is no influence between perceived convenience on loyalty of BSI KCP Sribhawono bank mobile banking users.

H3: There is an influence between perceived security and perceived convenience on the loyalty of BSI KCP Sribhawono bank mobile banking users.

: There is no influence between perceived security and perceived convenience on the loyalty of BSI KCP Sribhawono bank mobile banking users.

Considering that this study had a population of 6000, the researcher determined the sampling technique in this study using the Slovin formula. The formula for calculating the sample size of a known population is to use the Slovin formula, which is as follows:

$$n = \frac{N}{1+N.e^2}$$

### III. RESEARCH RESULT

Based on the data obtained from 99 respondents, the characteristics of the respondents can be identified as follows:

TABLE I. CHARACTERISTIC OF RESPONDENT

Characteristic		Frequency	Percent
Gender	Male	44	44.3
	Female	55	55.7
Age	17-25 years old	43	44.3
	26-34 years old	36	37.1
	35-43 years old	15	15.4
	44-51 years old	5	5.2
	52-60 years old	0	0
	>61 years old	0	0
Last Education	SHS	31	31.9
	Diploma	15	15.4
	Bachelor	40	41.2
	Postgraduate	9	9.2
	Others	4	4.3
Profession	Students	20	20.6
	Employee	28	28.8
	Self-employed	31	31.8
	PNS	12	12.2
	Others	8	8.6

In table 1, It can be concluded that the majority of Mobile Banking users at Bank BSI KCP Sribhawono are female, the majority of respondents who use Mobile Banking at Bank BSI KCP Sribhawono are aged 17 to 25 years, the respondents' last education is dominated by a Bachelor's degree, the majority of respondents' profession is self-employed..

### 3.1. Data Quality Test Result

In order to test the items for each question in the questionnaire, a validity and reliability test was first carried out by giving 20 questionnaire questions to 99 respondents (n=99) from Bank BSI KCP Sribhawono customers are users or have used Mobile Banking using a confidence level of 95% ( $\alpha=0.05$ ), and the r table is significant at 0.05 or 5%, so the r table value is 0.197. The question items can be said to be valid seen from the validity test results in the following table:

TABLE II. VALIDITY TEST RESULTS

Variable	Item	$r_{\text{count}}$	$r_{\text{table}}$	Conclusion
Perception of Security ( $X_1$ )	1	1.000	0.198	Valid
	2	0.233	0.198	Valid
	3	0.381	0.198	Valid
	4	0.326	0.198	Valid
	5	0.292	0.198	Valid
	6	0.327	0.198	Valid
	7	0.267	0.198	Valid
	8	0.588	0.198	Valid
Perception of Ease ( $X_2$ )	1	1.000	0.198	Valid
	2	0.525	0.198	Valid
	3	0.548	0.198	Valid
	4	0.434	0.198	Valid
	5	0.211	0.198	Valid
	6	0.410	0.198	Valid
User Loyalty ( $Y$ )	1	1.000	0.198	Valid
	2	0.667	0.198	Valid
	3	0.485	0.198	Valid
	4	0.625	0.198	Valid
	5	0.307	0.198	Valid
	6	0.283	0.198	Valid

From these results, it can be seen that of the 20 statements submitted to 99 respondents, the  $r$  value was greater than the  $r$  table of 0.198, which means that all items were declared valid.

TABLE III. RELIABILITY TEST RESULTS

Variable	Cronbach's Alpha	N of Items
$X_1$	0.835	6
$X_2$	0.811	6
$Y$	0.838	6

From the test results, it can be seen that all research Cronboach's alpha values are greater than 0.60, so it can be concluded that all research instruments are reliable.

### 3.2. Classic Assumption Test Results

TABLE IV. NORMALITY TEST RESULTS

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		99
Normal Parameters <sup>a,b</sup>	Mean	,0000000
	Std. Deviation	1,84276043
Most Extreme Differences	Absolute	,049
	Positive	,035
	Negative	-,049
Test Statistic		,049
Asymp. Sig. (2-tailed)		,200 <sup>c,d</sup>

In this study, the Kolmogorov-Smirnov test was used to test whether the variables came from the same distribution. A variable is said to be normally distributed if the significance value is  $> 0.05$ . In the table above the significance value, in the Asymp. Sig. (2-tailed) is 0.200. This means that  $0.200 > 0.05$  means the data tested is normal. With normal data available, this research can be continued.

TABLE V. MULTICOLLINEARITY TEST RESULTS

Coefficients <sup>a</sup>							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,833	1,847		,451	,653	
	keamanan	,319	,076	,395	4,197	,000	,407
	kemudahan	,515	,105	,464	4,924	,000	,407

a. Dependent Variable: loyalitas

Based on table 5 above, the tolerance value for Perception of Security ( $X_1$ ) is 0.407, and Perception of Ease ( $X_2$ ) is 0.407. Then the VIF of Perception of Security ( $X_1$ ) is 2.458 and Perception of Ease ( $X_2$ ) is 2.458, all less than the VIF value of 10. It can be concluded that the regression equation model does not have multicollinearity problems and can be used in this research.

TABLE VI. HETEROSCEDASTICITY TEST RESULTS

Coefficients <sup>a</sup>					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	,183	,214		,858
	SQRT_KEAMANAN	-,079	,052	-,240	,136
	SQRT_KEMUDAHAN	,082	,063	,206	,199

a. Dependent Variable: ABS\_RESIDUAL

Based on table 6 above, the significance value of Perception of Security ( $X_1$ ) is 0.136 and Perception of Ease ( $X_2$ ) is 0.199, where both variables are greater than 0.05. It can be concluded that the regression equation model does not have heteroscedasticity problems and can be used in this research.

### 3.3. Descriptive Analysis

Descriptive data analysis was carried out to show and explain the available data. In this research there is an independent variable (X) consisting of Perception of Security ( $X_1$ ), Perception of Ease ( $X_2$ ), and the dependent variable, namely customer loyalty (Y). The description contained in the data is in the form of questions for each variable, minimum number of values, maximum number of values, average (mean) and standard deviation of each variable which has been processed using test equipment in the form of IBM Statistics SPSS 25. The results rather than descriptive analysis, it can be seen in table 4.10 which is as follows:

TABLE VII. DESCRIPTIVE ANALYSIS RESULTS

Variable	Question item	$\Sigma$ Minimum value	$\Sigma$ Maximum value	Mean	Std. Dev
$X_1$	8	24	40	34.17	3.87
$X_2$	6	18	30	26.71	2.81
Y	6	18	30	25.50	3.13

Table 7 shows that the questions on the Perception of Security variable ( $X_1$ ) are 8, the Perception of Ease variable ( $X_2$ ) is 6 and the BSI KCP Sribhawono bank mobile banking user loyalty variable (Y) is 6, where the lowest total value is 18 and the total The highest value is 40. To determine the quality dimensions of each variable, namely the independent variable consisting of the Perception of Security variable ( $X_1$ ), the Perception of Ease variable ( $X_2$ ), and also the dependent variable, namely the BSI KCP Sribhawono bank mobile banking user loyalty variable (Y). It can be seen that among the research variables above, the security perception variable ( $X_1$ ) has the best research question quality dimension, amounting to 34.17 or the quality of questions on the research variable is very good.

### 3.4. Quantitative Analysis

TABLE VIII. MULTIPLE LINEAR REGRESSION TEST RESULTS

Coefficients <sup>a</sup>					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	,180	,360		,499
	SQRT_KEAMANAN	,370	,088	,396	,000
	SQRT_KEMUDAHAN	,524	,107	,464	,000

a. Dependent Variable: SQRT\_LOYALITAS

Based on the table, the existing regression equation model can be obtained as follows:  $Y = 0.180 + 0.370 X_1 + 0.524 X_2 + e$ . The constant  $\alpha$  is 0.180; This means that if the Perception of Security and Perception of Convenience does not exist or the value is 0, then the loyalty of BSI KCP Sribhawono bank mobile banking users will be 0.180.

TABLE IX. CORRELATION COEFFICIENT ANALYSIS TEST RESULTS

Correlations			
		SQRT_KEAM ANAN	SQRT_KEMU DAHAN
SQRT_KEAMANAN	Pearson Correlation	1	,774**
	Sig. (2-tailed)		,000
	N	99	99
SQRT_KEMUDAHAN	Pearson Correlation	,774**	1
	Sig. (2-tailed)	,000	
	N	99	99

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Dependent Variable: User Loyalty (Y)

A correlation of 0.774 means that the relationship between the variables Perception of Security and Perception of Ease is very strong and in the same direction. The unidirectional definition is that if the perception of security increases then the perception of convenience increases, and vice versa. This is proven by the correlation results showing positive numbers. The significance of the correlation between the two variables is  $0.000 < 0.05$ , so the relationship between the two variables is significant..

TABLE X. RESULTS OF COEFFICIENT OF DETERMINATION ANALYSIS

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,811 <sup>a</sup>	,657	,650	,18670

a. Predictors: (Constant), SQRT\_PERCEIVED, SQRT\_SECURITY

Based on the data in the table above, the Adjusted R Square figure is 0.650 or (65%). This shows that the percentage of influence of the security perception and convenience perception variables on the BSI KCP Sribhawono bank mobile banking user loyalty variable is 65% or it could be said that the variation in the independent variables used in the model is able to explain 65% of the variation in the dependent variable. Meanwhile, the remaining 35% is influenced by other variables outside this research model.

### 3.5. Hypotesis Test

TABLE XI. T TEST

Coefficients <sup>a</sup>					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	,180	,360		,499
	SQRT_KEAMANAN	,370	,088	,396	,000
	SQRT_KEMUDAHAN	,524	,107	,464	,000

a. Dependent Variable: SQRT\_LOYALTY

Based on the table above, a  $T_{count}$  value of 4.198 can be obtained with a sig value. of 0.000. This shows that the calculated t value is greater than  $T_{table}$  of 1.660 and the sig value. smaller than 0.05. Thus  $H_0$  is rejected and  $H_a$  is accepted. This means that the Security Perception variable has a significant influence on the loyalty of BSI KCP Sribhawono bank mobile



banking users.

And based on the table above, a  $T_{count}$  value of 4.910 can be obtained with a sig value. of 0.000. This shows that the calculated t value is greater than  $T_{table}$  of 1.660 and the sig value. smaller than 0.05. Thus  $H_{o2}$  is rejected and  $H_{a2}$  is accepted. This means that the Perception of Convenience variable has a significant influence on the loyalty of BSI KCP Sribhawono bank mobile banking users.

TABLE XII. F TEST

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6,408	2	3,204	91,917	,000 <sup>b</sup>
	Residual	3,346	96	,035		
	Total	9,754	98			

a. Dependent Variable: SQRT\_LOYALTY

b. Predictors: (Constant), SQRT\_PERCEIVED, SQRT\_SECURITY

Based on the table 12 above, the calculated F value is 91.917 with a sig value of 0.000. This shows that the calculated F value is greater than the F table used of 3.09 and the sig value. smaller than 0.05. Thus  $H_{o3}$  is rejected and  $H_{a3}$  is accepted. This means that the independent variables consisting of perceived security and perceived convenience together have a significant influence on the loyalty of BSI KCP Sribhawono bank mobile banking users.

#### IV. ANALYSIS AND DISCUSSION

The results of the data quality test show that all instruments in this research can be used as viable research tools. This is based on information that states that each statement item is valid and reliable which has been tested on IBM SPSS Statistics 25 for window's software.

In the classical assumption test, the normality test is carried out by looking at the results of the significance values using the Kolmogrov Smirnov method. Based on these results, the data in this study can be said to be normally distributed. On the other hand, the multicollinearity test using tolerance and VIF values stated that the regression equation model did not find symptoms of multicollinearity and could be used in research. In the heteroscedasticity test, the results of the Glejser analysis show that the regression equation model does not have heteroscedasticity problems so that the regression model is suitable to be used to predict the variables of perceived satisfaction and perceived convenience.

In the results of the correlation coefficient analysis, it is known that the relationship between all independent variables shows a figure above 0.025 for Pearson Correlation and a significance value below 0.05. It is said that correlation shows positive results and the relationship between the two variables is significant. In the results of the correlation coefficient analysis, the research variables consisting of perceived security and perceived ease explain the BSI KCP Sribhawono bank mobile banking user loyalty variable by 65% or the variation of the independent variables used in the model is able to explain 65%.

In the partial test results, it is known that the influence of the security perception variable on the loyalty of BSI KCP Sribhawono bank mobile banking users is 4.198, where the t-count value is  $4.198 > 1.660$  ( $t_{table}$ ) and the significance value is  $0.000 < 0.05$ . So it can be said that the security perception variable has a positive and significant effect. This means that the digital mobile banking service has provided services as promised and provided security for BSI KCP Sribhawono bank customers, as well as having an impact on user loyalty. So it can be said that perceived security influences the loyalty of BSI KCP Sribhawono bank mobile banking users.

In the partial test results, it is known that the influence of the perceived convenience variable on the loyalty of BSI KCP Sribhawono bank mobile banking users is 4.910, where the t-count value is  $4.910 > 1.660$  ( $t_{table}$ ) and the significance value is  $0.000 < 0.05$ . So it can be said that the perceived convenience variable has a positive and significant effect. This means that digital mobile banking services have made it easier for BSI KCP Sribhawono bank mobile banking users and have had an impact on customer satisfaction. So it can be said that perceived security influences the loyalty of BSI KCP Sribhawono bank

mobile banking users.

In the results of simultaneous testing, it can be seen that the influence of the variables perceived convenience and perceived convenience together on the loyalty of BSI KCP Sribhawono bank mobile banking users is 91.917 where the Fcount value is  $91.917 > 3.09$  (Ftable) with a significance value of  $0.000 < 0.05$ . So it can be said that the variables perceived security and perceived convenience have a positive and significant effect on the loyalty of BSI KCP Sribhawono bank mobile banking users.

## **V. CONCLUSIONS AND RECOMMENDATIONS**

From the research that has been carried out and based on the problem formulation and hypothesis test results that have been tested using a multiple linear regression analysis model, conclusions can be drawn, namely:

1. Based on the results of data processing, it can be concluded that the security perception variable has a significant effect on the loyalty of BSI KCP Sribhawono bank mobile banking users. This can be seen from the results of the t test hypothesis obtained, namely  $4.198 > 1.660$ , so it can be interpreted that H1 is accepted.
2. Based on the results of data processing, it can be concluded that the perceived convenience variable has a significant effect on the loyalty of BSI KCP Sribhawono bank mobile banking users. This can be seen from the results of the t test hypothesis obtained, namely  $4.910 > 1.660$ , so it can be interpreted that H2 is accepted.
3. Based on the results of data processing, it can be concluded that the variables perceived security and perceived convenience have a significant effect on the loyalty of BSI KCP Sribhawono bank mobile banking users. This can be seen from the results of the F test hypothesis obtained, namely  $91.917 > 3.09$ , so it can be interpreted that H3 is accepted.

Based on the results of the research that has been conducted, it can be seen that perceived security and perceived convenience influence the loyalty of BSI KCP Sribhawono bank mobile banking users. There are several suggestions from researchers:

1. For companies (bank BSI KCP Sribhawono): It is hoped that the quality of BSI bank's mobile banking can be improved again, which is expected to provide better ease of use of services and provide more reliable security by adding extra protection systems or guarantees for all customer transactions.
2. For future researchers: Because in this research there are 35% other factors outside of the research model that influence mobile banking user loyalty, for those who want to research further they can add other variables outside of this research that can influence user loyalty, for example, the speed perception variable. and mobile banking users' privacy perceptions.

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