

Original Research  
Article

# The Influence of Digital Communication and Mobile Banking Services on Customer Satisfaction at Bank Mandiri

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## ABSTRACT

This study aims to examine the influence of digital communication and mobile banking services on customer satisfaction, with Bank Mandiri customers in Palembang City serving as the research object. Utilizing a quantitative approach, data were gathered through a questionnaire distributed to 100 respondents classified within the productive age group, selected using a stratified random sampling technique, the data analysis employed multiple linear regression with the support of the SPSS software. According to the findings, mobile banking services do not exhibit partial influence on customer satisfaction, but digital communication does have a significant partial impact. Nevertheless, when examined concurrently, mobile banking and digital communication services show a substantial influence on customer satisfaction, accounting for 28.4% of the total variance. Comparatively, factors outside the research model are responsible for the remaining 71.6%. These results suggest that, although mobile banking services may not directly affect customer satisfaction, integrating them with efficient digital communication can enhance the overall client experience at Bank Mandiri in Palembang City. This study implies that banks should not rely solely on technological features but must also strengthen their digital communication strategies to build trust and satisfaction. This study therefore shows that communication is as essential as innovation in achieving customer loyalty in the digital banking era.

## 1. INTRODUCTION

Clear and effective communication is very important in the financial and commercial services industry. It has a direct effect on how customers feel about their experience, how much they trust a service provider, and whether they stay loyal over time [1]. As digital technology changes quickly, so does how people talk to each other in customer-focused fields like banking. Chatbots, emails, and in-app messages are some of the new tools that have made interactions faster and more interesting [2]. The main reason for this digital shift in Indonesia is that more and more people are using the internet. There were 221 million people using the internet in 2024, which was about 79.5% of the country's population [3].

The Financial Services Authority (OJK) has pushed for digital innovation with its Blueprint for Digital Banking Transformation, which aims to make transactions faster, safer, and better for customers overall [4]. Bank Mandiri, one of Indonesia's largest banks with assets worth more than IDR 2,000 trillion [5], has made significant progress on its journey to become more digital. The mobile banking app for Mandiri is called Livin'. It features real-time chatbots, immediate transaction alerts, in-app communication, and easy access to transaction history. These tools demonstrate the bank's commitment to providing its customers with better, more personalized service. The results of all the research on mobile banking are still not precise. Some studies say that mobile banking features do not have a significant effect

on how satisfied customers are [6,7]. Other studies say that they do have a positive effect, but only for specific users and situations [8,9]. This difference shows that there is a gap in the current literature, especially when it comes to how digital communication affects customer satisfaction in mobile banking settings. This study aims to fill the gap by examining the impact of digital communication and mobile banking services on customer satisfaction among Bank Mandiri users in Palembang a city noted for its high use of digital platforms and financial technologies [10].

## 2. MATERIAL AND METHOD

### 2.1 Literature Review

Effendy [11] says that communication is the process by which a communicator sends a message to a communicant through a medium, which then has a specific effect. From these different points of view, communication is the act of sending messages from one person to another, either directly or indirectly, in order to create understanding or achieve a particular effect. In the context of digital banking services, the communication process is a systematic series of steps that use different digital channels to share information, build relationships, and make customers happier. The bank is the one who sends this message, and the customer is the one who gets it [12]. Messages can include information about transactions, financial education, product promotions, system notifications, or answers to customer complaints. A wide range of media is used, including official emails, social media accounts, chatbots, push notifications, and mobile banking apps like Livin' by Mandiri.

Mobile banking is a digital banking service that lets people use their smartphones to make financial transactions [13]. According to Bank Indonesia (BI), mobile banking, or m-banking, refers to the use of personal mobile devices, such as smartphones, for online banking transactions. The money for the transactions comes from the customer's savings account. One way that banks are responding to the public's need for faster, safer, and more flexible access to services is by developing mobile banking. Mobile banking offers numerous benefits, including easy access for various groups, an ongoing security system improvement, and new features that simplify customer business operations. Mobile banking is now also linked to other services like e-commerce and digital wallets, which makes it even more helpful. Hamidi and Safareeyeh [16] further emphasize that mobile banking adoption can significantly strengthen customer interaction and satisfaction, as it provides both convenience and efficiency in banking activities. The book "Wisely Electronically" talks about some important parts of mobile banking, such as checking your balance, paying bills for electricity, water, and the internet, paying taxes, buying or adding to digital currencies like Dana, OVO, and Gopay, paying insurance premiums, and banking administration services like changing your ATM PIN and printing transaction receipts.

In business, it is essential to keep customers satisfied. Schnaars said that the primary goal of business is to satisfy customers. The word "satisfaction" comes from the Latin words *satis*, which means "enough" or "adequate," and *facio*, which means "to make" or "to do." In this case, satisfaction means that a person feels that their needs or wants have been met. Satisfaction is the feeling that comes over you when you accomplish something or when something you want happens [14]. Also, satisfaction can mean meeting a need or want, or finding a good way to solve a problem, pay off a debt, or settle a complaint.

To establish a solid foundation for a conceptual framework and guide the direction of this research, the researcher reviewed some relevant studies. This literature review aims to emphasize key patterns, findings, and existing gaps in the fields of digital communication, mobile banking services, and customer satisfaction. Several studies have examined the

quality of mobile banking services and customer satisfaction from various perspectives. [7] did a sentiment analysis of user reviews of BCA Mobile, Livin' by Mandiri, and BNI Mobile. They found that all three apps, including Livin', were seen as having poor user experience and service quality. Wilyningsih et al. [6] found that the features of Livin' by Mandiri did not have a significant effect on customer satisfaction, but the security features did. It supports the idea that the features of Livin' by Mandiri did not have a significant effect on customer satisfaction. On the other hand, Harahap [8] found that there was a strong link between mobile banking services and customer satisfaction in the area of Prabumulih. Fitria et al. [9] found that mobile banking, internet banking, and SMS banking had a significant effect on customer satisfaction when used together. However, not all of the services worked well on their own. At the same time, Syarif et al. [15] stressed how important digital communication is in and of itself, showing that it made customers much more likely to do online banking transactions. It suggests that communication is still a significant factor in getting people to use digital banking, in addition to technical service features.

While previous studies have focused either on mobile banking features or on digital communication in isolation, there is still limited research that examines the combined effect of digital communication and mobile banking services on customer satisfaction, especially in the context of Indonesian banking. This study aims to fill that gap by analyzing both variables simultaneously, providing a more comprehensive understanding of how digital strategies can enhance customer satisfaction in Bank Mandiri Palembang.

## **2.2 Research Method**

This study used quantitative methods to examine the impact of digital communication and mobile banking services on customer satisfaction. It focuses on Bank Mandiri customers in Palembang, Indonesia, aged 17 to 64, who have used the Livin' by Mandiri app for at least three months. We used stratified random sampling to pick 100 people so that each age group was fairly represented. We used a structured questionnaire with questions that could only be answered with likert scale from 1 to 5 to get information about each variable. We obtained primary data directly from the respondents and secondary data by reading relevant journals, books, and documents. Prior to hypothesis testing, classical assumption tests were conducted, including normality (Kolmogorov-Smirnov), multicollinearity (Tolerance and VIF), and heteroskedasticity (Glejser test), to ensure the validity of regression analysis. The primary instrument used to analyze the data in this study was SPSS software for multiple linear regression. This made it possible to look at both the partial and simultaneous effects of the independent variables on customer satisfaction.

The following are the operational definitions of the variables: Digital communication ( $X_1$ ) refers to the interaction between the bank and its customers via email, chatbots, and in- app notifications. Mobile banking services ( $X_2$ ) include features such as sending money, paying bills, and checking balances within the app. Customer satisfaction (Y) is the level of happiness customers feel based on how well the service meets their expectations. We used T-tests, F-tests, and the coefficient of determination ( $R^2$ ) to assess the strength and importance of the relationships between variables. This study aims to test the following hypotheses:

- $H_1$  : Digital communication ( $X_1$ ) has a significant partial effect on customer satisfaction (Y) of Bank Mandiri in Palembang
- $H_2$  : Mobile banking services ( $X_2$ ) have a significant partial effect on customer satisfaction (Y) of Bank Mandiri in Palembang.
- $H_3$  : Digital communication ( $X_1$ ) and mobile banking services ( $X_2$ ) have a significant simultaneous effect on customer satisfaction (Y) of Bank Mandiri in Palembang.

## **3. RESULT AND DISCUSSION**

### **3.1 Classical Assumption Tests**

The regression model passes all of the classical assumption tests, indicating that it is statistically robust and suitable for further analysis.

a) Tests of Normality

The Kolmogorov–Smirnov method was also used to test the normality of the residuals. The goal of this test is to see if the distribution of residuals is very different from a normal distribution. The Asymp. Sig. (2-tailed) is based on the test results. It was worth 0.200. The p-value is higher than the significance level used in this study ( $\alpha = 0.05$ ). So, it does not have enough evidence to reject the null hypothesis ( $H_0$ ), which means that the residuals are normally distributed. In other words, the Kolmogorov–Smirnov test shows that the residuals are not very different from what is normal.

Table 1 Normality Test

**One-Sample Kolmogorov-Smirnov Test**

		Unstandardized Residual
N		100
Normal Parameters <sup>a,b</sup>	Mean	.0000000
	Std. Deviation	5.08206607
Most Extreme Differences	Absolute	.068
	Positive	.043
	Negative	-.068
Test Statistic		.068
Asymp. Sig. (2-tailed) <sup>c</sup>		.200 <sup>d</sup>

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.
- d. This is a lower bound of the true significance.

b) Multicollinearity Test

The purpose of the multicollinearity test is to ensure that independent variables in the regression model do not exhibit a strong linear relationship with each other. The Tolerance and Variance Inflation Factor (VIF) values from the SPSS output were used to check for multicollinearity in this study. The results showed that the Tolerance values for  $X_1$  and  $X_2$  were both 0.752, and the VIF values were 1.331. There is no sign of multicollinearity because all of the Tolerance values are greater than 0.10 and all of the VIF values are less than 10. Because of this, the multiple linear regression model meets the requirement that the variables are not multicollinear and can be used for further analysis.

Table 2 Multicollinearity Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	13.207	4.385		3.012	.003		
	X1	.569	.112	.502	5.065	<.001	.752	1.331
	X2	.063	.110	.057	.576	.566	.752	1.331

a. Dependent Variable: Y

c) Heteroskedasticity Test

We did the heteroskedasticity test to see if the residuals in the linear regression model have the same variance at all levels of the predictor variables. Homoskedasticity, which

means that the residuals have the same variance, is one of the most important ideas behind linear regression. If the residuals have different variances (heteroskedasticity), the regression model may become biased and less effective, which makes the estimates less reliable. We used the Glejser test to check for heteroskedasticity in this study. The following criteria were used:

- a) There is no heteroskedasticity if the significance value is higher than 0.05.
- b) Heteroskedasticity is present if the significance value is less than 0.05.

The results of the heteroskedasticity test in Table 3 show that neither the digital communication variable nor the mobile banking service variable shows signs of heteroskedasticity. The significance values of 0.172 and 0.299 for each of these variables are both greater than 0.05. This means that the residuals have constant variance and the model meets the assumption of homoskedasticity.

Table 3 Heterokedasticity Test

<b>Coefficients<sup>a</sup></b>					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	4.478	2.514		1.781	0.078
Komunikasi Digital	-0.089	0.064	-0.155	-1.375	0.172
Layanan Mobile Banking	0.060	0.057	0.118	1.044	0.299

a. Dependent Variable: ABS\_RES

### 3.2 Multiple Linear Regression Analysis

The next step was to build a multiple linear regression model after making sure the data was valid and reliable and passing all the classical assumption tests. This method was used to look into how two independent variables, digital communication ( $X_1$ ) and mobile banking services ( $X_2$ ), affected the customer satisfaction (Y) of Bank Mandiri customers in Palembang. The SPSS analysis gave us the following regression equation:

$$Y = 13.207 + 0.569X_1 + 0.063X_2$$

This model shows how the independent variable relates to the variables and the dependent variable, where:

- a) Constant ( $a = 13.207$ ): When both digital communication and mobile banking service are absent ( $X_1$  and  $X_2 = 0$ ), customer satisfaction is predicted to be 13.207.
- b) Regression coefficient for digital communication ( $X_1 = 0.569$ ): A one-unit increase in digital communication is expected to raise customer satisfaction by 0.569 units, assuming  $X_2$  remains constant. With a standard error of 0.112, this estimate is relatively stable.
- c) Regression coefficient for mobile banking service ( $X_2 = 0.063$ ): A one-unit increase in mobile banking service leads to a predicted increase of only 0.063 in customer satisfaction. However, its standard error is 0.110, which suggests the estimate is less reliable and potentially not statistically significant.
- d) This indicates that digital communication has a stronger and more stable influence on customer satisfaction than mobile banking services in this context. Further significance testing using the t-test will provide statistical confirmation of these relationships.

Table 4 Multiple Linear Regression Analysis Test

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	13.207	4.385		3.012	0.003
X1	0.569	0.112	0.502	5.065	0.000
X2	0.063	0.110	0.057	0.576	0.566

a. Dependent Variable: Y

**3.3 Hypothesis Testing**

**a) Partial Test (T-Test)**

The t-test showed that the digital communication variable ( $X_1$ ) had a statistically significant effect on how satisfied customers were. The t-count (5.065) was higher than the critical t-table value (1.984), and the significance value was less than 0.001. This shows that talking to people online really does affect how satisfied they are. The first hypothesis ( $H_1$ ), which states that digital communication has a significant effect on customer happiness, is accepted. The mobile banking service variable ( $X_2$ ), on the other hand, did not have a statistically significant effect. The t-count (0.576) and the significance value (0.566) were both below the critical threshold. When you look at mobile banking services on their own, this means that they do not have a significant effect on how satisfied customers are. This means that the second hypothesis ( $H_2$ ) is not supported. It means that customers may not consider the features of the mobile banking service essential to their satisfaction, at least in this study.

Table 5 Partial Test Result

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	13.207	4.385		3.012	0.003
X1	0.569	0.112	0.502	5.065	0.000
X2	0.063	0.110	0.057	0.576	0.566

a. Dependent Variable: Y

b) Simultaneous Test (F-Test)

Table 6 Simultaneous Test  
ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1013.598	2	506.799	19.226	<.001 <sup>b</sup>
	Residual	2556.912	97	26.360		
	Total	3570.510	99			

a. Dependent Variable: Y

b. Predictors: (Constant), X2, X1

A simultaneous hypothesis test using the F-test was performed to assess whether digital communication ( $X_1$ ) and mobile banking services ( $X_2$ ) collectively affect customer satisfaction (Y). Based on the results, the significance value was less than 0.001, and the F-count (19.226) exceeded the F-table value (3.090), indicating that both independent variables have a significant joint influence on customer satisfaction. Thus, the third hypothesis ( $H_3$ ) is accepted.

c) Coefficient of Determination ( $R^2$ )

The model gave an R-squared value of 0.284, which means that digital communication and mobile banking services can explain 28.4% of the difference in customer satisfaction. The Adjusted R Square value of 0.269 shows that the model is reliable and not too complex. The regression model is considered moderately accurate and suitable for analysis because it has a standard error of 5.134.

Table 7 Coefficient of Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.533 <sup>a</sup>	0.284	0.269	5.134	0.284	19.226	2	97	0.000

3.4 Discussions

a) The Influence of Digital Communication on Customer Satisfaction

The t-test results show that digital communication ( $X_1$ ) has a significant partial effect on customer satisfaction (Y), supported by a p-value < 0.001 and a t-value of 5.065 > 1.984. This indicates that clear, fast, and accurate digital interactions via apps, social media, email, and chatbots positively influence customer satisfaction at Bank Mandiri Palembang. Effendy (2011) and Bangun (2022) say that digital communication can help with monitoring (like real-time alerts), motivation (like promotions), and emotional expression (like personalized responses). Syarif et al. (2022) also support this by demonstrating that digital channels increase customer engagement and trust, leading to greater satisfaction.

b) The Influence of Mobile Banking Services on Customer Satisfaction

The t-test results show that mobile banking services ( $X_2$ ) do not have a significant effect on customer satisfaction (Y), with a p-value of 0.566 and a t-value of 0.576, which is below the critical threshold. In this case, it seems that mobile banking features are not the most important thing that makes customers satisfied. Some reasons for this could be a low perception of service quality, unmet user expectations, or not using all of the mobile banking features. This result differs from other studies, which have shown that mobile banking has a significant positive effect. This shows that mobile banking's effects depend on factors such as digital infrastructure, user experience, and the level of tech-savviness among users.

#### c) Simultaneous Influence of Digital Communication and Mobile Banking Services

The F-test results show that digital communication ( $X_1$ ) and mobile banking ( $X_2$ ) jointly exert a significant impact on customer satisfaction (Y), even though mobile banking did not show any significant partial effect. The p-value was less than 0.001, and the F-value was  $19.226 > 3.090$ . It demonstrates how effective communication and service channel integration raise customer satisfaction levels. According to supporting research, a combination of digital channels improves the customer experience more than any one feature alone. In order to provide a comprehensive and fulfilling user experience, effective digital banking necessitates not only dependable technology but also emotionally charged communication.

## 4. CONCLUSION

Based on the analysis of the data and the conversation about how digital communication and mobile banking services affect customer satisfaction, the following conclusions can be drawn:

- a) The digital communication variable ( $X_1$ ) has a significant partial effect on customer satisfaction (Y) at Bank Mandiri in Palembang, as evidenced by a p-value  $< 0.001$  and a t-value of 5.065, which exceeds the critical value of 1.984. This finding indicates that effective digital communication plays a crucial role in building trust, strengthening relationships, and improving the overall customer experience.
- b) The mobile banking services variable ( $X_2$ ) does not show a significant partial effect, with a p-value of 0.566 and a t-value of 0.576, both of which do not meet the criteria for significance. Although mobile banking alone may not directly enhance customer satisfaction, its role should not be underestimated. Improving security, usability, and feature personalization could increase its contribution in future banking strategies.
- c) However, when tested simultaneously, both digital communication ( $X_1$ ) and mobile banking services ( $X_2$ ) have a statistically significant combined effect on customer satisfaction, supported by a p-value  $< 0.001$  and an F-value of 19.226, exceeding the F-table value of 3.090. This result highlights that an integrated approach; combining mobile banking with effective digital communication creates a stronger impact on customer satisfaction than either factor alone.

The study offers empirical evidence that digital communication is a primary factor influencing customer satisfaction within the Indonesian banking sector. It adds to the body of knowledge by clarifying the complementary role of mobile banking, which, although not very useful on its own, becomes useful when combined with communication strategies. In practice, it provides banks with valuable insights on enhancing their digital communication channels and continually improving the current features of mobile banking, to help them develop in the competitive era.

## CONSENT

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editorial office/Chief Editor/Editorial Board members of this journal.'

**COMPETING INTEREST DISCLAIMER:**

Authors have declared that they have no known competing financial interests or non-financial interest or personal relationships that could have appeared to influence the work reported in this paper.

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