Journal of the Community Development in Asia (JCDA) Vol. 8 No. 1, pp. 62-79, January, 2025
E-ISSN: 2654-7279 P-ISSN: 2685-8819
https://www.ejournal.aibpmjournals.com/index.php/JCDA

The Influence of Service Failure on Mobile Banking Usage and Its Relation to User Satisfaction

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ARTICLE INFORMATION

Publication information

Research article

HOW TO CITE
Sugiono, O. D., Dewi, C. K., & Madiawati, P. N. (2024). The influence of service failure on mobile banking usage and its relation to user satisfaction. *Journal of the Community Development in Asia, 8*(1), 62-79.

DOI:
https://doi.org/10.32535/jcda.v8i1.3672

Received: 16 November 2024
Accepted: 19 December 2024
Published: 20 January 2025

ABSTRACT

The explosive expansion of the internet has changed the way banks communicate with their clients. MyBCA, a mobile banking (m-banking) application, is designed to meet the needs of customers who prefer banking from home. This study aims to analyze the impact of m-banking service failures on MyBCA user adoption and satisfaction. 390 respondents participated in this quantitative study, with data analysis using SMARTPLS 3.1. Results show that m-banking adoption is significantly affected by functional, system, information, and service failures. In addition, the use of m-banking was also found to have a significant influence on use satisfaction towards m-banking. Despite functional failures, users still use m-banking frequently. System failures, such as technical glitches, have a significant impact on usage. In contrast, information failures have less impact than other failures. Service failures, such as transaction errors, also have a major impact on usage. This study uses MBFM to analyze the interrelationships between service failures, m-banking adoption, and user satisfaction, providing important insights for the future development of m-banking services. The results of this study can be used as a basis for designing more targeted service quality improvement strategies, with a priority on improving the core features that are most frequently used by users.

Keywords: Functional Failure; Information Failure; Service Failure; System Failure; Use of M-Banking

INTRODUCTION

Currently, the development of information technology in this globalized era affects almost every sector, including the banking industry. In the midst of digitalization, banks are required to provide faster, easier, and more flexible services to meet customer needs. One significant innovation in banking is the implementation of mobile banking (m-banking), which utilizes mobile technologies, like phones, to make financial transactions easier. M-banking has changed the way customers deal with banks, allowing transactions to be done in real time without the need for a physical visit to the bank. This not only saves time but also provides efficiency in cost and resources.

One bank that has taken a strategic step in adopting this technology is PT Bank Central Asia Tbk (BCA), which launched the MyBCA application in 2021. The app is designed to be the ultimate digital platform for customers, with superior features such as multi-account access, biometric security, account management for up to five years, foreign exchange transfers, QRIS, PayLater, and various other transaction and financial management services. MyBCA is expected to be a comprehensive digital solution, which not only meets the needs of today's customers but also adapts to the ever-evolving digital lifestyle.

However, although MyBCA offers many conveniences, the app still faces various challenges. Based on download and review data on the Google PlayStore, MyBCA has been downloaded more than 5 million times but has a relatively low rating of 3.2 out of 5, compared to similar apps such as OCTO Mobile from CIMB Niaga or Sea Bank, which have higher ratings. User reviews indicate that many customers experience difficulties in accessing the app's features, with major complaints including verification failures, unstable systems, and features that are perceived as not meeting customer needs.

In this context, the study by Kamboj et al. (2022) is relevant as it highlights the importance of customer satisfaction in terms of m-banking service usage. They found that system quality strongly influences customer satisfaction with m-banking services, information, services, and the use of the application itself. They mentioned that the higher the frequency of application use, the greater the level of satisfaction felt by users. Kamboj et al. (2022) also emphasized that service failures, such as functional failure, system failure, and information failure, have a significant negative impact on customer satisfaction. When customers encounter these failures, they tend to reduce the frequency of application usage, which in turn affects their loyalty to the bank.

This research focuses on the phenomenon of service failure experienced by MyBCA customers, including various forms of failure such as functional, system, information, and service failures. These failures impact not only the application usage experience but also the overall level of customer satisfaction. Kamboj et al. (2022) assert that such failures can reduce customer trust in m-banking applications, which in turn impacts their loyalty. For example, recurring system failures may cause customers difficulty in completing transactions, while functional failures, such as the unavailability of expected features, may reduce the frequency of application usage.

Using the Mobile Banking Failure Model (MBFM) developed by Tan et al. (2016) and the Information Systems Development Model by DeLone and McLean (2003), this research aims to determine the impact of banking service failures on m-banking services and their relationship with user satisfaction. Kamboj et al. (2022) also revealed that when banks succeed in meeting customer expectations through improved quality systems, services, and information, the level of satisfaction and application usage increases, thereby creating higher loyalty among customers. Therefore, this study is important for identifying

elements that influence customer satisfaction in m-banking, particularly MyBCA application. In the increasingly competitive digital banking industry, banks offering m-banking services must continue to innovate and develop effective marketing strategies to maintain market share and attract more customers (Dilip et al., 2021). This research is important to conduct because these banks need to understand the changing needs and expectations of customers in order to provide appropriate and superior services compared to their competitors. The findings of this study are expected to provide banks with information to help them create plans to enhance the quality of their online offerings and boost client satisfaction and loyalty in the age of digital banking.

LITERATURE REVIEW

Mobile Banking (M-Banking)

According to Riswandi as cited in Mukhtisar et al. (2021), m-banking is an innovative service that allows consumers to conduct banking transactions using smartphones, enabling customers to perform transactions without visiting a physical bank, thereby saving time and money. Julius as cited in Herlina (2020) adds that m-banking is a part of banking services offered through electronic channels in the form of applications compatible with Android or iOS systems, accessible at internet speed. Factors influencing customer attitudes toward m-banking include system security, ease of access, user privacy, 24-hour service reliability, company credibility, and network connection speed (Mukhtisar et al., 2021). In addition, m-banking offers various advantages, such as wide coverage, easy access at any time, time and cost savings, user-friendly features, and secure account protection. However, it also has drawbacks, including the risk of data theft, the requirement for sophisticated devices, and dependence on signal quality, which can affect transactions.

M-Banking Failure

According to Kamboj et al. (2022), m-banking failure occurs when banking services through mobile devices fail to meet user expectations, needs, or preferences. These failures may manifest as system, data, or service failures. Functional failure can be defined as a person's inability to perform self-care activities or cooperate with others, potentially jeopardizing the ability of others. System failure arises when outdated public policy models cannot address new challenges in a changing environment. Information failure occurs when insufficient or inaccurate information hinders effective decision-making. Finally, service failure occurs when services provided do not meet the expectations or standards set, often due to system errors, human errors, or insufficient employee training. This study adopts the measurement of m-banking failure based on Kamboj et al. (2022).

Functional Failure

According to Kamboj et al. (2022), functional failure in m-banking services refers to the inability or failure to provide features or functionality expected by users. This includes aspects related to the system's ability to perform core m-banking functions properly, such as assisting users in meeting their financial needs and providing easy access to the information they need. According to Praja (2019), functional failure can be defined as the inability of a component or system to achieve or meet the expected performance standards. This indicates that the machine or system is not functioning according to expectations or specifications set, resulting in less than optimal performance or even not functioning at all. Functional failure can be caused by various factors, including design errors, component damage, operational errors, or a combination of these factors.

System Failure
According to Woolthuis et al. (2005), system failure in networking refers to the disruption or breakdown of connectivity between devices, which can be caused by server crashes, router or switch interruptions, and network software malfunctions, leading to service disruptions and unstable performance. Meanwhile, Kamboj et al. (2022) describe system failure in m-banking services as occurring when technical or operational issues, such as network disruptions, software bugs, or problematic system updates, prevent users from utilizing the service. It can also be caused by inadequate system maintenance.

Information Failure
According to Amsl et al. (2023), information failure can arise from information gaps where critical information, such as product descriptions, is missing or inaccurate, creating uncertainty for customers. Meanwhile, Kamboj et al. (2022) explain that information failure in m-banking services occurs when the information provided is not accurate, complete, relevant, or consistent. This can result from data input errors, a lack of updates, or poor system integration. Additionally, a poor understanding or misinterpretation of user needs by service providers can also lead to information failure.

Service Failure
According to Kim et al. (2020), service failures are errors that occur during customer interactions with companies, often leading to dissatisfaction. In the context of m-banking, service failure occurs when the service fails to meet users' expectations or needs, as noted by Kamboj et al. (2022). These failures may result from technical issues or insufficient attention to user experience. Fitzsimmons and Fitzsimmons (2020) classify service failures into two types, they are service error and customer error, indicating that failures do not always originate from the service provider but may also be due to user errors.

M-Banking Usage
According to Mustafa et al. (2020), financial information significantly impacts choices and intentions regarding the adoption of m-banking services. Users can efficiently utilize m-banking services and make informed choices if they have a solid understanding of financial concepts. According to Kamboj et al. (2022), m-banking service usage refers to the extent to which clients actively use banking services via mobile devices such as smartphones or tablets. These services are crucial for expanding access to banking, particularly for individuals without access to traditional banks or those facing difficulties in physically visiting branches. Additionally, m-banking increases efficiency and convenience in daily financial transactions. Kamboj et al. (2022) also describe several indicators of m-banking service usage, such as Use_mb1, which measures whether users actively use the service; Use_mb2, which evaluates the extent to which the service is used to manage accounts; Use_mb3, which measures usage for money transfers; and Use_mb4, which assesses whether users subscribe to financial products specialized in m-banking services.

User Satisfaction Toward M-Banking
According to Farida (2019), user satisfaction is a form of response and feedback after using an information system, where users' attitudes reflect how much they like the system. In this study, user satisfaction is reflected in complaints that arise, pride in using m-banking, convenience, and service conformity to user expectations. Kamboj et al. (2022) explain that user satisfaction with m-banking services refers to the level of contentment users feel regarding their experience with banking services through mobile devices. This satisfaction includes an evaluation of various aspects of the service, such as convenience, efficiency, information availability, and security, which impact user loyalty and perceptions of service quality. Kamboj et al. (2022) also emphasize that

customer satisfaction correlates with the frequency of service usage, where more frequent use leads to higher levels of satisfaction.

The indicators of user satisfaction with m-banking services, as identified by Kamboj et al. (2022), include satisfaction with meeting information needs, efficiency, effectiveness, and overall satisfaction with m-banking services. There is a positive reciprocal relationship between customer satisfaction and business performance, this is because high customer satisfaction can encourage increased loyalty, which leads to revenue growth and a positive company reputation (Yew et al., 2024). Customer expectations of m-banking services are dynamic and constantly evolving and are influenced by various factors, such as personal experience in transactions, influences from the social environment such as recommendations from friends or family, and information obtained from various sources, including bank promotions and competitors (Oh et al., 2021). Technological developments also play an important role in shaping customer expectations, with new features such as biometrics, artificial intelligence, and integration with other financial services becoming the new expected standard. To meet changing customer expectations, banks need to continue to innovate and improve the quality of their m-banking services.

Hypotheses Development

Functional Failure Toward Use of M-Banking

Functional failure in m-banking services refers to the system's inability to provide features that users expect, as described by Kamboj et al. (2022). The use of m-banking pertains to how actively users utilize banking services through mobile devices, which can enhance access and efficiency in banking services. Functional failure can reduce users' interest in using M-banking services, especially when their needs are not met (Mustafa et al., 2020; Tan et al., 2016). Other studies have also found that functional failure negatively impacts mobile payment adoption (Suhaeni, 2019) and m-banking service usage (Putri & Herani, 2023).

H1: Functional failure has a positive and significant effect on the use of m-banking in MyBCA.

System Failure Toward Use of M-Banking

According to Kamboj et al. (2022), system failure in m-banking refers to technical or operational failures that hinder users' access to the service, caused by network disruptions, software bugs, or failed system updates. A lack of proper maintenance can also trigger these failures. The use of m-banking is defined as the extent to which users utilize banking services through mobile devices, which improves access for individuals without easy access to traditional banks and increases the efficiency of daily transactions. According to Mustafa et al. (2020) and Putri & Herani (2023), system failures have a detrimental and substantial impact on m-banking usage, highlighting their influence on users' banking behavior.

H2: System failure has a positive and significant effect on the use of m-banking in MyBCA.

Information Failure Toward Use of M-Banking

According to Kamboj et al. (2022), information failure in m-banking refers to the inability to provide accurate, complete, relevant, and consistent information. It includes aspects such as accuracy, clarity, and consistency of information. Information failure can occur due to data input errors, lack of updates, or poor system integration. Kamboj et al. (2022) also define the use of m-banking as the extent to which users actively utilize banking services through mobile devices, which is critical for expanding access to banking and

improving efficiency. Information failure can reduce m-banking usage due to inadequate information (Mustafa et al., 2020). However, Putri and Herani (2023) argued that the negative effect is not significant.

H3: Information failure has a positive and significant effect on the use of m-banking in MyBCA.

Service Failure Toward Use of M-Banking

According to Kamboj et al. (2022), service failure in m-banking occurs when the service does not meet user expectations due to technical problems, a misunderstanding of needs, or a lack of attention to the user experience. The use of m-banking refers to the extent to which customers use banking services via mobile devices, which is essential for enhancing accessibility and transactional ease. The relationship between m-banking usage and service failure indicates that service failures can reduce user satisfaction and prompt users to seek alternatives. Research by Mustafa et al. (2020) and Singh et al. (2017) showed a significant impact of service failure on customer behavior. Additionally, Maulana and Sumiyana (2022) stated that unresolved failures can increase users' intention to switch to other digital services.

H4: Service failure has a positive and significant effect on the use of m-banking in MyBCA.

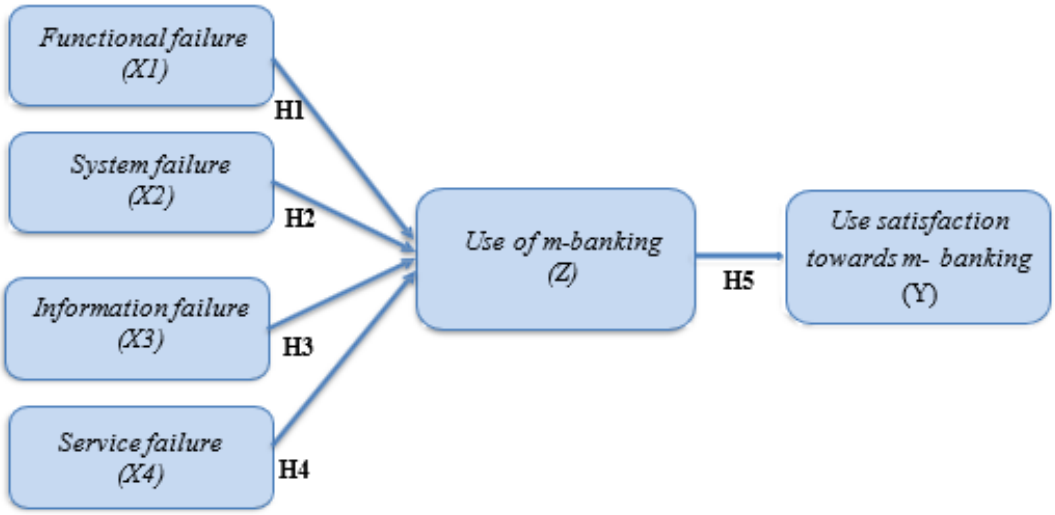
Use of M-Banking Toward User Satisfaction

Since m-banking fulfills or exceeds expectations, regular usage of the service boosts customer satisfaction. Prior research has shown a correlation between m-banking usage and user satisfaction (Anggiana & Yafiz, 2023; Putri & Herani, 2023). The degree to which consumers actively use financial services is referred to as the use of m-banking (Kamboj et al., 2022) through mobile devices, which is important for expanding access and improving the efficiency of financial transactions. User satisfaction with these services relates to their experience, including convenience, efficiency, and security, which can influence user loyalty.

H5: M-banking usage has a positive and significant effect on user satisfaction with m-banking services in MyBCA.

According to the explained theoretical review above, Figure 1 draws the conceptual framework of this research as follows.

Figure 1. Conceptual Framework



RESEARCH METHOD

In this quantitative study, an associative methodology is used to examine the causes and effects between different variables. The quantitative method, as described by Sugiyono (2019), utilizes numerical data and statistical analysis to support theories. The goal is to research and support theoretical explanations of an event (Ghozali, 2021). Starting from existing problems and adjusting to field realities, quantitative research follows a predetermined pattern from beginning to end. The Likert scale which assesses how people feel, think, and perceive social events is used as a measuring tool in this study. Sugiyono (2021) explains that items in the form of statements or questions are constructed from variables that are analyzed after being broken down into discrete indicators using a Likert scale. The Likert scale used in this study uses five scales, namely 1 for strongly disagree, 2 for disagree, 3 for quite agree, 4 for agree and 5 for strongly agree.

The sample is part of a population that has certain characteristics, as explained by Sugiyono (2021). This research focuses on the characteristics of MyBCA users. The sampling procedure used is purposive sampling, which selects participants based on certain criteria. According to Mustafidah and Suwarsito (2020), a sample is a portion of the population that has the same characteristics as the object of research and can be generalized to the population. Because the population of MyBCA users in Indonesia is unknown, researchers used the Cochran formula to determine the sample size. Based on the calculation, the required sample size was 384.16, and after distributing the questionnaires, 390 respondents were obtained. The sample consists of MyBCA users.

This study employed several analytical methods. In addition, SEM (Structural Equation Modeling) was used to analyze more complex relationships between variables, particularly in the context of measuring variables that cannot be directly observed. To select the most influential variables in the regression model, this study also employed the stepwise regression method. The Partial Least Square (PLS) method was chosen as it is suitable for limited sample analysis and helps build or develop theory by assessing the predictive power of the model. The evaluation was conducted through R-Square and Goodness-of-Fit values to ensure the model's adequacy. Hypothesis testing was conducted using a t-test with a significance threshold of 5% to evaluate how factors such as functional failure, system failure, information failure, and service failure affect m-banking customers' usage and satisfaction.

The measurement model or outer model shows the relationship between indicators and latent constructs. All variables in this study adopted from research (Kamboj et al., 2022) which uses five indicators to measure functional failure (X1), system failure (X2) with five indicators, information failure (X3) with five indicators, service failure (X4) with five indicators, use of m-banking (Z) using four indicators, and the last variable, namely user satisfaction with m-banking (Y) using four indicators from the study. The indicators measured in this study cover various aspects of m-banking services designed to assess user experience. M-banking services allow users to compare various services, purchase desired products, and track products that have been purchased. In addition, this service provides easy access, flexibility in use, and requires little effort and time to use it. Users also feel safe when using m-banking services, which provide accurate, complete, correct, relevant, and consistent information. Security and trust during transactions are also a concern, with services that understand user needs and provide individual attention. M-banking services are also able to respond to user interests quickly, provide attractive visual facilities, and function well from the first time they are used. These indicators provide a comprehensive picture of the quality of m-banking services based on user needs and perceptions. The SmartPLS 3.1 program is used to check the dependability and validity of these markers.

RESULTS

Respondent Demographics

This study was conducted in 2024 using a quantitative approach with purposive sampling non-probability sampling. The questionnaire was distributed using a Likert scale of 1-5 and 390 respondents were then used as primary data. The questionnaire used included several characteristics of respondents such as gender, age, and occupation. The results of these characteristics are shown in Table 1.

Table 1. Respondent Demographics

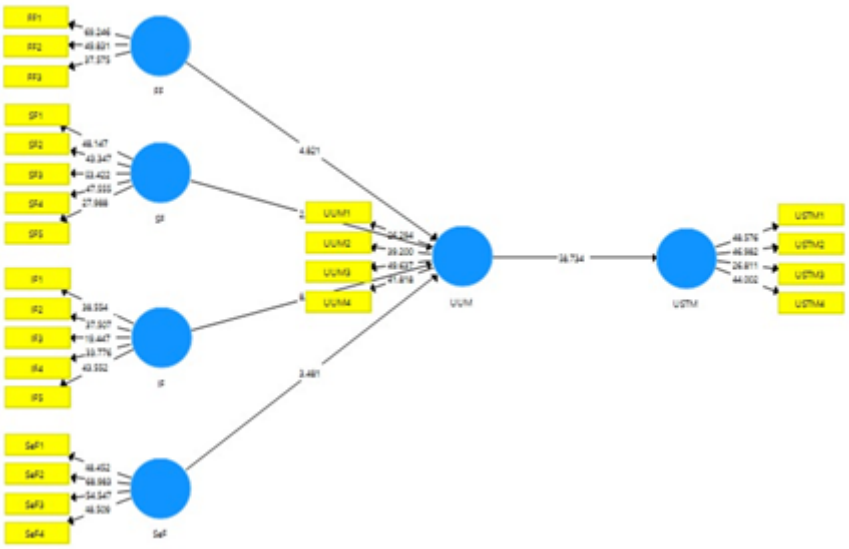
Category		Frequency	Percentage
Gender	Male	236	60.5
	Female	154	39.5
Age	17-21	123	31.5
	22-30	199	51
	31-40	63	16.2
	>40	5	1.3
Occupation	Students	243	62.3
	Employees	54	13.8
	Civil Servant	51	13.1
	Self Employed	42	10.8

Based on Table 1, MyBCA m-banking users are dominated by men, with a proportion of 60.5% or 236 people, compared to women who only reach 39.5% or 154 people. In terms of age, the majority of respondents are in the 22-30 years range, which is 51% or 199 people, followed by respondents aged 17-21 years by 31.5% or 123 people, respondents aged 31-40 years by 16.2% or 63 people, and respondents aged over 40 years by 1.3% or 5 people. In terms of occupation, the majority of users are students with a percentage of 62.3% or 243 people, followed by employees at 13.8% or 54 people, civil servants (PNS) at 13.1% or 51 people, and self-employed at 10.8% or 42 people. This data shows that MyBCA m-banking users are mostly male, aged 22-30 years, and are students.

This study employed SEM to analyze the impact of mobile banking failures on the usage of mobile banking services and their relationship with user satisfaction. The measurement model, also known as the outer model, illustrates the connection between

individual indicators and their respective latent variables. To evaluate the measurement model, validity testing of the indicators was conducted using SmartPLS 3.1 software. The outer model developed for this research is presented in the following figure.

Figure 2. Path Diagram of Outer Model



Based on the path diagram in Figure 2, it is clear that the Outer Loading value for each indicator is above 0.7, indicating that all indicators have a significant level of contribution to the construct being measured. This indicates that these indicators have a strong and relevant relationship with the intended construct, so they can be said to be valid and provide accurate measurements in the estimation model. To find out whether data is valid or not, it can be seen using outer loading and AVE values. Outer loading is shown in Figure 2 and is found to be valid. Then to see the AVE value, it can be seen in Table 2 and it is found that all variables have AVE values above 0.5 so that from outer loading and AVE both are declared valid.

Measurement Models
This research's measuring model is depicted in the following table:

Table 2. Measurement Model

Construct	Code Items	Loading	CA	CR	AVE
Functional Failure (FF)	FF1	0.872	0.798	0.881	0.712
	FF2	0.829			
	FF3	0.831			
Information Failure (IF)	IF1	0.806	0.852	0.894	0.629
	IF2	0.825			
	IF3	0.719			
	IF4	0.798			
	IF5	0.812			
System Failure (SF)	SF1	0.864	0.896	0.992	0.703
	SF2	0.840			
	SF3	0.884			
	SF4	0.861			
	SF5	0.733			
Service Failure (SeF)	SeF1	0.843	0.887	0.916	0.731
	SeF2	0.871			
	SeF3	0.848			

	SeF4	0.856			
Use Of M-Banking (USTM)	USTM1	0.787	0.814	0.876	0.639
	USTM2	0.819			
	USTM3	0.766			
	USTM4	0.825			
User Satisfaction Toward M-Banking (UUM)	UUM1	0.765	0.812	0.876	0.639
	UUM2	0.815			
	UUM3	0.816			
	UUM4	0.801			

Table 2 reveals that 25 indicators have outer loading values greater than 0.7, confirming their validity. With the outer loading validity established, the next step involves testing the Average Variance Extracted (AVE). According to Ghozali (2016), an AVE value above 0.5 is recommended. The test results indicate that all variables exceed the critical AVE value of 0.5, meeting the criteria for both convergent and discriminant validity. Additionally, reliability testing was conducted using composite reliability and Cronbach's alpha. The results show that each variable achieved values above 0.7 for both metrics, demonstrating strong reliability and internal consistency.

Table 3. Discriminant Validity

	Functional Failure (FF)	Information Failure (IF)	System Failure (SF)	Service Failure (SeF)	Use Of M-Banking (USTM)	User Satisfaction Toward M-Banking (UUM)
Functional Failure (FF)	0.907					
Information Failure (IF)	0.737	0.928				
System Failure (SF)	0.648	0.716	0.765			
Service Failure (SeF)	0.613	0.770	0.553	0.926		
Use Of M-Banking (USTM)	0.719	0.661	0.626	0.757	0.930	
User Satisfaction Toward M-Banking (UUM)	0.677	0.605	0.646	0.727	0.752	0.933

Based on Table 3, the discriminant validity criteria have been met for all constructs in the estimated model. This is indicated by the AVE square root value of each construct which is greater than the correlation value between constructs, in accordance with the requirements set. In addition, the analysis results show that the value of the variable is greater than the value of other variables. Thus, the Fornell-Larcker criteria have been met, and the indicators used are declared valid.

It is evident from the preceding table that this variable's value is greater than the values of the others. This indicates that it satisfies the Fornell-Larcker criterion, making it

qualified. The statistical model that is used makes use of the coefficient of determination, or R^2, to ascertain the degree to which fluctuations in the dependent variable can be explained. Predictive relevance is another test (Q^2). The purpose of this test is to confirm the model's capacity for prediction. This will be carried out if the second quarter's predictive relevance result is higher than zero, indicating that the exogenous latent variable may predict the endogenous variable. To ascertain if the model used in the research is appropriate for the data, the goodness of fit evaluation is employed. The following table displays the findings.

The results show that all indicators meet the criteria for convergent validity, with AVE values exceeding 0.5 and outer loadings above 0.7. Discriminant validity is also confirmed through the Fornell-Larcker criterion and cross-loading analysis. Reliability tests, including Cronbach's Alpha and composite reliability, yielded values above 0.7, indicating consistent and reliable data. The structural model (inner model) evaluates the relationships between latent variables using R-squared values and t-tests.

Table 4. Saturated Model Results

Construct	R^2	Adj. R^2	Q^2	SRMR
User Satisfaction Toward M-Banking	0.707	0.706	0.772	0.056
Use of M-Banking	0.741	0.739		

The functional failure (X1), system failure (X2), information failure (X3), and service failure (X4) variables were shown in Table 4 to have an impact on user happiness of 70.7%, whereas the m-banking user satisfaction variable (Y) had an R^2 value of 0.707. 29.3% is impacted by other factors that have not yet been examined. The R^2 value for factors related to m-banking usage (Z) is 0.741. The model shows relevant predicting abilities, according to the Q^2 findings, which display a predictive relevance score of 0.772. Furthermore, the SRMR value of 0.056 (below 0.10) shows that this model satisfies the requirements for goodness of fit.

Table 5. Hypothesis Construction

Hypothesis		O	M	STDEV	|O/STDEV|	P Values	Decision
Direct Relationship							
H1	Functional Failure (X1) -> Use of M-Banking (Z)	0.241	0.240	0.054	4.504	0.000	Accept
H2	System Failure (X2) -> Use of M-Banking (Z)	0.448	0.448	0.055	8.174	0.000	Accept
H3	Information Failure (X3) -> Use of M-Banking (Z)	0.085	0.089	0.040	2.145	0.032	Accept
H4	Service Failure (X4) -> Use of M-Banking (Z)	0.224	0.223	0.066	3.410	0.001	Accept
H5	Use of M-Banking (Z) -> User Satisfaction Toward M-Banking (Y)	0.841	0.842	0.014	60.282	0.000	Accept

Indirect Relationship						
Functional Failure (X1) -> Use of M-Banking (Z) -> User Satisfaction Toward M-Banking (Y)	0.203	0.202	0.045	4.468	0.000	Accept
System Failure (X2) -> Use of M-Banking (Z) -> User Satisfaction Toward M-Banking (Y)	0.377	0.377	0.047	8.065	0.000	Accept
Information Failure (X3) -> Use of M-Banking (Z) -> User Satisfaction Toward M-Banking (Y)	0.072	0.075	0.034	2.140	0.033	Accept
Service Failure (X4) -> Use of M-Banking (Z) -> User Satisfaction Toward M-Banking (Y)	0.189	0.188	0.056	3.400	0.001	Accept

The analysis of this study's findings in Table 5 shows that user happiness and the usage of m-banking services are significantly impacted by the five tested hypotheses. With a t-statistic of 4.504 and a p-value of 0.000, the first hypothesis (H1) states that dysfunction, which includes the application's incapacity to provide the desired functionality, has a favorable and significant effect on the usage of m-banking services. This suggests that the usage of m-banking services increases with the incidence of functional disability. With a t-statistic of 8.174 and a p-value of 0.000, the second hypothesis (H2) similarly supports the substantial influence of system failures on the use of m-banking. This indicates that the level of application utilization is impacted by operational or technical issues, such as network or software defects.

Additionally, with a t-statistic of 2.145 and a p-value of 0.032, the third hypothesis (H3) shows that information glitches, such as the inability to receive correct and up-to-date information, have a substantial but moderate influence on the usage of m-banking. This implies that using the program may be impacted by missing information. According to this, system or feature flaws have a greater effect than inadequate information, even though the latter may still impair the user experience. Furthermore, with a t-statistic of 3.410 and a p-value of 0.001, disruption has a positive and substantial influence on m-banking usage, supporting the fourth hypothesis (H4). Despite some reservations, users who encountered disruptions, including transaction processing failures, continued using the platform.

Lastly, with a t-statistic of 60.282 and a p-value of 0.000, the fifth hypothesis (H5) validates that using m-banking significantly affects customer happiness. Despite a number of annoyances, customer satisfaction increases with the number of people using MyBCA's services. This outcome demonstrates how crucial it is to continue developing the quality of m-banking services in order to maintain and increase user satisfaction.

Hypothesis testing found that all service failure variables have a positive and significant effect on m-banking usage, which in turn increases user satisfaction. The mediation effect was also found to be significant, where service failure affects user satisfaction

through m-banking usage, with the mediation effect being complementary as the direct and indirect relationships are both significant.

DISCUSSION

Direct Relationship

The Influence of Functional Failure on The Use of M-Banking

The analysis of the impact of functional failure on MyBCA's mobile banking usage yielded a t-statistic of 4.504 (exceeding the threshold of 1.96) and a p-value of 0.000 (below the 0.05 significance level). These results lead to the rejection of H0, confirming H1 that functional failure significantly and positively influences the adoption of mobile banking. As functional failure increases, so does the usage of m-banking. Research by Mustafa et al. (2020) corroborated that functional failure adversely affects m-banking usage, with users experiencing low functional failure encountering challenges in attaining their objectives, thereby diminishing their interest in utilization. All stages in the m-banking service lifecycle, from need recognition to post-purchase, play a critical role in preventing functional failures. Failure at any of these stages can negatively impact the user experience and reduce customer interest in continuing to use the service.

The Influence of System Failure on The Use of M-Banking

The hypothesis test results indicate that system failure significantly impacts the use of mobile banking, as evidenced by a t-statistic of 8.174 (exceeding 1.96) and a p-value of 0.000 (below 0.05), leading to the rejection of H0, accepting H2. This suggests that system failure positively and significantly impacts m-banking usage; as system failures increase, so does usage. Permatasari and Utami (2024) noted that system failures require more user effort, potentially causing frustration and reducing motivation. Conversely, Hernandez and David (2022) found that system failure negatively affects BCA mobile users, emphasizing the importance of system quality on customer satisfaction. This shows that one of the main reasons why customers often cancel transactions in the middle of the road when using m-banking is because of technical constraints on the system. Previous studies have shown that the decline in m-banking application performance has a strong correlation with the decline in transaction success rates so when the performance of the m-banking system is poor, such as slow application response, it can cause customers to lose patience and decide to cancel transactions.

The Influence of Information Failure on The Use of M-Banking

For H3, the hypothesis regarding the effect of information failures on m-banking usage is supported by the results, with a t-statistic of 2.145 (greater than 1.96) and a p-value of 0.032 (less than 0.05). This indicates that information failures positively influence m-banking usage, though the effect is less pronounced compared to functional and system failures. These findings suggest that while users are affected by information failures, they may still find the service useful enough to continue its utilization. Mustafa et al. (2020) corroborated this finding, asserting that information failure does not impact m-banking usage. Conversely, research conducted by Tam and Oliveira (2016) indicated that information failure does have a significant effect. High-quality information leaves a favorable impression on users of information technology. This shows that information plays an important role in customer decision-making regarding m-banking services. When the information provided is inaccurate, incomplete, or does not meet customer needs, this can be considered an information failure and has a significant impact on customer usage behavior, such as decreased frequency of use and reduced trust in the service.

The Influence of Service Failure on The Use of M-Banking

The hypothesis test results show that service failure significantly affects the use of mobile

banking, with a t-statistic of 3.410 (above 1.96) and a p-value of 0.001 (below 0.05). These findings result in the rejection of H0 and the acceptance of H4. This shows a significant and important relationship between service failure and m-banking usage, indicating that increased service failures correlate with higher m-banking usage. Supporting this, Sihite and Widodo (2020) found a positive impact of service failure on BNI mobile users. The quality of service offered through a bank's mobile application is critical to the success of m-banking. When there is a disruption or failure in m-banking services, this can lead to decreased customer satisfaction and negatively impact their usage behavior. M-banking service failures can be caused by various factors, such as technical problems, system errors, or other external factors.

The Influence of Use of M-Banking on User Satisfaction Toward M-Banking

The hypothesis test reveals a p-value of 0.000 (below 0.05) and a t-statistic of 60.282 (exceeding 1.96), leading to the rejection of H0 and the acceptance of H5. This suggests that the adoption of m-banking and user satisfaction are positively and significantly correlated. In other words, higher customer satisfaction is linked to increased m-banking usage. This finding aligns with (Cheshin et al., 2018; Khot, 2019), which also demonstrates how using m-banking improves customer satisfaction. User satisfaction occurs when their experience using a service matches or even exceeds their expectations. The more frequently a service is used and the higher its quality, the more satisfied the user is. Previous research also shows that the more features or services used, the higher the level of user satisfaction.

Indirect Relationship

The Influence of Functional Failure on M-Banking User Satisfaction Through M-Banking Usage

Through hypothesis testing, it is evident that functional failure in m-banking impacts customer satisfaction with the service. Since the t-statistic is greater than 1.96 and the p-value is less than 0.05, H0 is rejected. This indicates a strong positive correlation, suggesting that as functional failures increase, m-banking usage also rises, which in turn enhances user satisfaction.

The Influence of System Failure on M-Banking User Satisfaction Through M-Banking Usage

The results of the hypothesis testing show a significant relationship between system failure and satisfaction with m-banking as a mediator of that satisfaction. The t-statistic of 8.065 (higher than 1.96) and a p-value of 0.000 (less than 0.05) support this, leading to the rejection of H0. An increase in system failure is associated with higher satisfaction levels with m-banking usage, which encourages greater involvement with m-banking, demonstrating a positive and statistically significant association.

The Influence of Information Failure on M-Banking User Satisfaction Through M-Banking Usage

A t-statistic of 2.140 (greater than 1.96) and a p-value of 0.033 (greater than 0.05) were obtained from hypothesis testing. Although the relationship is not statistically significant, there is a positive correlation between information failure and satisfaction with m-banking. The mediating impact of actual m-banking use influences customer satisfaction.

The Influence of Service Failure on M-Banking User Satisfaction Through M-Banking Usage

The hypothesis test results show that service failure has a significant positive impact on user satisfaction with mobile banking. A t-statistic of 3.400 (exceeding 1.96) and a p-value of 0.001 (below 0.05) lead to the rejection of H0. This suggests that an increase in service failures is associated with higher user satisfaction, which could potentially

enhance mobile banking usage.

CONCLUSION

With a focus on the MyBCA, the largest private bank in Indonesia, this research attempts to use the MBFM to analyze the effects of m-banking service failures on customer usage and satisfaction. The findings indicate that m-banking usage is significantly impacted by functional, system, information, and service failures, which in turn affect user satisfaction. The first hypothesis found that despite functional failures, users still frequently use m-banking services. The second hypothesis also showed that system failures, such as technical glitches, have a significant impact on usage. The third hypothesis demonstrates that information failures, though statistically significant, have a relatively smaller impact on m-banking usage compared to functional and system failures. This suggests that information failures may not strongly deter users from engaging with the service. The fourth hypothesis shows that service failures, such as errors in transactions, also have a major impact on m-banking usage. Finally, the fifth hypothesis states that users are more satisfied with the MyBCA service the more they use it, even though they experience various problems with the service.

This study makes several contributions to the existing literature. First, it addresses gaps by exploring and analyzing various dimensions of service failure. Specifically, it provides a deeper understanding of how mobile banking (m-banking) failures influence customer usage behavior. Additionally, the study examines the mediating role of user satisfaction with m-banking in the relationship between m-banking usage and customer engagement. The research highlights the interactive nature of online services, where using m-banking for e-payments often fosters greater engagement between the provider and the customer. However, limited attention has been given to failures in m-banking services, which differ from traditional goods-based services. Furthermore, failure dimensions such as functional, informational, and system-related issues—identified in the model by Tan et al. (2016)—have not been extensively discussed. This study enhances the understanding of service failures in m-banking, emphasizing that beyond technological issues, factors such as overpricing, delays in service delivery, and unresponsiveness to customer inquiries also contribute to online service failures.

ACKNOWLEDGMENT
N/A

DECLARATION OF CONFLICTING INTERESTS
The authors declared no potential conflicts of interest.

REFERENCES

Amsl, S., Watson, I., Teller, C., & Wood, S. (2023). Product information failures on websites and their impact on mobile shopping behaviour. *International Journal of Retail & Distribution Management, 51*(9/10), 1135–1157. https://doi.org/10.1108/IJRDM-11-2022-0429

Anggiana, P., & Yafiz, I. A. (2023). Pengaruh penggunaan mobile banking terhadap kepuasan nasabah bank [The influence of mobile banking usage on bank customer satisfaction]. *Jurnal Ilmu Manajemen Saburai, 9*(1), 21–28. https://doi.org/10.24967/jmb.v9i1.1980

Cheshin, A., Amit, A., & Van Kleef, G. A. (2018). The interpersonal effects of emotion intensity in customer service: Perceived appropriateness and authenticity of attendants' emotional displays shape customer trust and satisfaction. *Organizational Behavior and Human Decision Processes, 144*, 97-111. https://doi.org/10.1016/j.obhdp.2017.10.002

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of Management Information Systems, 19*(4), 9-30. https://doi.org/10.1080/07421222.2003.11045748

Dilip, D., Sinha, R., Wei, O. L., Kee, D. M. H., Leei, O. J., Shuang, P. K., ... & Saifi, J. (2021). Effective/Differentiating marketing strategies of McDonald's in Malaysia and Indonesia. *Journal of the Community Development in Asia, 4*(1), 16-33. http://doi.org/10.32535/jcda.v4i1.995

Farida, L. (2019, October). The effect of mobile banking on user satisfaction and loyalty through the quality of mobile banking service (study on banks in East Java). In *2018 International Conference on Islamic Economics and Business (ICONIES 2018)* (pp. 34-40). Atlantis Press. https://doi.org/10.2991/iconies-18.2019.6

Fitzsimmons, J. A., & Fitzsimmons, M. J. (2020). *Service Management: Operations, Strategy, Information Technology* (10th ed.). McGraw Hill.

Ghozali, I. (2016). *Aplikasi Analisis Multivariate dengan Program IBM SPSS 23 [Multivariate Analysis Application with IBM SPSS 23 Program]* (8th ed.). Badan Penerbit Universitas Diponegoro.

Ghozali, I. (2021). *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 25 [Multivariate Analysis Application with IBM SPSS 25 Program]* (9th ed.). Badan Penerbit Universitas Diponegoro.

Herlina, H. (2020). Perubahan fluktuatif struktur ekonomi indonesia pada masa pandemi COVID-19 [Fluctuating changes in Indonesia's economic structure during the COVID-19 pandemic]. *Al-Mutharahah: Jurnal Penelitian Dan Kajian Sosial Keagamaan, 17*(2), 199-210. https://doi.org/10.46781/al-mutharahah.v17i2.142

Hernandez, A., & David, F. (2022). Pengaruh mobile banking terhadap kepuasan nasabah bank dalam transaksi sehari-hari [The influence of mobile banking on bank customer satisfaction in daily transactions]. *IT-Explore: Jurnal Penerapan Teknologi Informasi dan Komunikasi, 1*(1), 17-32. https://doi.org/10.24246/itexplore.v1i1.2022.pp17-32

Kamboj, S., Sharma, M., & Sarmah, B. (2022). Impact of mobile banking failure on bank customers' usage behaviour: The mediating role of user satisfaction. *International Journal of Bank Marketing, 40*(1), 128-153. https://doi.org/10.1108 /ijbm-10-2020-0534

Khot, A. S. (2019). The impact of mobile banking on customer satisfaction. *Internal Journal of Trend in Scientific Research and Development,* 21-23.

Kim, D., Ko, Y., Lee, J. L., & Kim, Y. C. (2020). The impact of CSR-linked sport sponsorship on consumers' reactions to service failures. *International Journal of Sports Marketing and Sponsorship, 21*(1), 70-90. https://doi.org/10.1108/IJSMS-01-2019-0011

Maulana, P., & Sumiyana, S. (2022). Kegagalan layanan e-commerce dan perubahan pengalaman pada perilaku beralih konsumen [E-commerce service failures and changing experiences on consumer switching behavior]. *ABIS: Accounting and Business Information Systems Journal, 10*(2), 1–13. https://doi.org/10.22146 /abis.v10i2.75062

Mukhtisar, M., Tarigan, I. R. R., & Evriyenni, E. (2021). Pengaruh efisiensi, keamanan dan kemudahan terhadap minat nasabah bertransaksi menggunakan mobile banking (studi pada nasabah Bank Syariah Mandiri Ulee Kareng Banda Aceh) [The influence of efficiency, security and convenience on customer interest in transacting using mobile banking (study on Bank Syariah Mandiri Ulee Kareng Banda Aceh customers)]. *Jihbiz: Global Journal of Islamic Banking and Finance, 3*(1), 56-72. https://doi.org/10.22373/jihbiz.v3i1.9632

Mustafa, S. Z., Kar, A. K., & Janssen, M. F. W. H. A. (2020). Understanding the impact of digital service failure on users: Integrating Tan's failure and DeLone and McLean's success model. *International Journal of Information Management, 53*, 102119. https://doi.org/10.1016/j.ijinfomgt.2020.102119

Mustafidah, H., & Suwarsito, S. (2020*). Dasar-Dasar Metodologi Penelitian [Basics of Research Methodology]*. UMP Press.

Oh, Z. J., Liem, G. S., binti Ismail, S., Febrianto, I., Sia, S. W., Tan, J. Y., ... & Kee, D. M. H. (2021). Factors of the development and decline in new industrial era: A case study of 7-Eleven. *Journal of the Community Development in Asia, 4*(1), 1-15. https://doi.org/10.32535/jcda.v4i1.994

Permatasari, I. A., & Utami, F. N. (2024). Pengaruh kegagalan fungsional, kegagalan sistem, kegagalan informasi dan kegagalan layanan terhadap penggunaan m-banking serta kaitannya dengan kepuasan nasabah BCA Mobile di Indonesia [The influence of functional failure, system failure, information failure and service failure on the use of m-banking and its relationship to BCA Mobile customer satisfaction in Indonesia]. *Al-Kharaj: Jurnal Ekonomi, Keuangan & Bisnis Syariah, 6*(11). https://dx.doi.org/10.47467/alkharaj.v6i11.3720

Praja, I. I. (2019). *Analisis Perawatan Mesin Conveyor Unloading Phosphate Rock Mesir dengan Metode Reliability Centered Maintenance (RCM)(Studi Kasus di PT Petrokimia Gresik) [Analysis of Egyptian Phosphate Rock Unloading Conveyor Machine Maintenance with Reliability Centered Maintenance (RCM) Method (Case Study at PT Petrokimia Gresik)]* [Doctoral dissertation, Muhammadiyah University Gresik]. UMG Repository. http://eprints.umg.ac.id/2612/

Putri, T. A., & Herani, R. (2023). *Pengaruh Kegagalan Layanan Mobile Banking Terhadap Perilaku Penggunaan Nasabah Bank Dengan Variabel Mediasi Kepuasan Pengguna: Studi Pada Generasi Z [The Influence of Mobile Banking Service Failure on Bank Customer Usage Behavior with User Satisfaction as Mediating Variable: A Study on Generation Z]* [Undergraduate thesis, Gadjah Mada University]. ETD UGM. https://etd.repository.ugm.ac.id/penelitian/detail/224937

Sihite, M. R. A., & Widodo, T. (2020). Pengaruh kualitas layanan terhadap tingkat penggunaan internet banking (studi pada pengguna internet banking BNI di Kota Bandung) [The influence of service quality on the level of internet banking usage (study on BNI internet banking users in Bandung City)]. *eProceedings of Management, 7*(1), 401–410.

Singh, N., Srivastava, S., & Sinha, N. (2017). Consumer preference and satisfaction of M-wallets: A study on North Indian consumers. *International Journal of Bank Marketing, 35*(6), 944-965. https://doi.org/10.1108/ijbm-06-2016-0086

Sugiyono, S. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D [Quantitative, Qualitative, and R&D Research Methods]*. Alfabeta.

Sugiyono, S. (2021). *Statistika untuk Penelitian [Statistics for Research]*. Alfabeta.

Suhaeni, T. (2019). Analisis hambatan fungsional terhadap adopsi layanan mobile payment [Analysis of functional barriers to the adoption of mobile payment services]. *Jurnal Riset Bisnis dan Investasi, 5*(3), 36-45. http://dx.doi.org/10.35313/jrbi.v5i3.1579

Tam, C., & Oliveira, T. (2016). Understanding the impact of m-banking on individual performance: DeLone & McLean and TTF perspective. *Computers in Human Behavior, 61*, 233-244. https://doi.org/10.1016/j.chb.2016.03.016

Tan, C.-W., Benbasat, I., & Cenfetelli, R. T. (2016). An exploratory study of the formation and impact of electronic service failures. *MIS Quarterly, 40*(1), 1–30.

Woolthuis, R. K., Lankhuizen, M., & Gilsing, V. (2005). A system failure framework for innovation policy design. *Technovation, 25(*6), 609-619. https://doi.org/10.1016/j.technovation.2003.11.002

Yew, L. T., Ling, L. H., Reza, A. A. M. F., Afra, A. K., Aleeya, A. I., Adibah, A. M. H., & Kee, D. M. H. (2024). The impact of COVID-19 pandemic on customer satisfaction and business performance. *Journal of the Community Development in Asia, 7*(3), 482–498. https://doi.org/10.32535/jcda.v7i3.3502

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