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The use of UTAUT model to understand user intention and user behavior of mobile banking BIMA PT Bank Jateng

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Abstract
Purpose: The purpose of this study is to investigate the variables that affect users' behavioral intentions and actual usage patterns of PT Bank Jateng's BIMA mobile banking application. Contextual factors including user happiness, perceived delight, and mobile self-efficacy enhance it.
Research/methodology: 384 BIMA users participated in a structured survey that used a quantitative approach. The data was analyzed using structural equation modeling, or SEM, via SmartPLS. AVE and Composite Reliability were used to test validity and reliability, and SRMR, NFI, R2, and Q2 values were used to evaluate model fit.
Results: Ten of the thirteen proposed links were confirmed. Mobile self-efficacy significantly influenced perceived enjoyment, which in turn significantly influenced performance expectancy, effort expectancy, and happiness. The most important element influencing intention to use, which in turn affected usage behavior, was shown to be consumer satisfaction. Moreover, social influence and favorable circumstances have a big impact on behavioral results. Nevertheless, neither effort expectancy nor facilitating conditions had a significant effect on intention to use, nor did performance expectancy have a significant effect on satisfaction.
Conclusions: Emotional factors like perceived enjoyment and satisfaction, along with social influences, play a more dominant role than purely functional factors (e.g., effort or performance expectancy) in determining adoption and continued use of mobile banking. The findings suggest a shift from technical-centric to user experience-centric approaches in digital banking development.
Limitations: This study focuses solely on the BIMA mobile banking app using a cross-sectional design and PLS-SEM method. It does not account for moderating or mediating variables and may limit generalizability beyond the study context.
Contribution: The study extends the UTAUT model by adding emotional and contextual factors to better explain mobile banking usage and offers practical insights for improving user experience and digital adoption in regional banking.

Keywords: *Behavioral Intention, BIMA, Mobile Banking, Mobile Self-Efficacy, Usage Behavior, User Satisfaction, UTAUT*

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1. Introduction

The transformation of banking services is progressing rapidly, in keeping with society's increased reliance on technology and the need for financial services that are quicker, more useful, and more effective. The ability of banks to offer digital services is supported by information technology

breakthroughs including the internet, mobile devices, and artificial intelligence. Additionally, the shift in societal lifestyles, which increasingly rely on cashless transactions and digital platforms, further accelerates the process of digitalization. A significant contributing factor to the acceleration of digitization was the COVID-19 pandemic, which prompted restrictions on physical contact and accelerated the adoption of digital technologies across a variety of industries, including banking.

Speaking of digital banking services, the use of mobile banking in Indonesia has shown significant growth compared to internet banking. PT Bank Central Asia (BCA) reported a 23% year-on-year increase in mobile banking users in Q3/2023, reaching 30.8 million users. Furthermore, PT Bank Rakyat Indonesia (BRI) recorded a 38.5% year-on-year growth in users of the BRImo mobile banking application during the same period, with a total of 29.8 million users. PT Bank Mandiri (Persero) Tbk. (BMRI) reported 21 million users, a 55% increase as of September 2023 (Vinatra, Bisnis, Veteran, & Timur, 2023). When discussing the development of digital services in Regional Development Banks (BPD), in 2023, out of the three BPDs in Java, namely Bank BJB, Bank Jatim, and Bank Jateng, BIMA mobile banking from Bank Jateng had the lowest number of mobile banking users compared to Bank BJB and Bank Jatim. In Q3 2023, the number of mobile banking users for DIGI BJB from Bank BJB was 1.6 million users (Rep Teguh, 2023), Jconnect from Bank Jatim was 606,239 users, and BIMA mobile banking from Bank Jateng had 601,992 users.

Despite the growing popularity of mobile banking due to its convenience in accessing banking services anytime and anywhere, there are still various challenges and dissatisfaction experienced by users. Common complaints include technical issues such as frequent app malfunctions or slow performance, difficulties during registration, and confusing features. An analysis of user reviews or feedback can be conducted to understand their perspective on the app's performance. Reviews regarding speed, readability, or the app's effectiveness provide direct indicators of performance expectations. Analyzing user reviews on platforms such as the Play Store can offer direct insights into satisfaction levels. Criticisms involving praise for features or complaints about technical issues can serve as indicators of customer satisfaction. Currently, many people in remote areas still lack the resources to access the internet and do not have adequate devices, which remains a significant challenge in using mobile banking. This situation indicates that, although mobile banking usage continues to grow, improvements are still needed in terms of technology, internet resources, and digital inclusion to ensure that the service fully meets user needs.

BIMA mobile banking is a digital application managed by Bank Jateng. Research on this application is still limited, especially when compared to studies on mobile banking applications from national banks such as BCA Mobile or BRImo. The focus on BIMA mobile banking offers a different perspective on understanding banking digitalization at the regional level. Bank Jateng, as a BPD, plays a specific role as a financial institution assisting regional development. Research on BIMA mobile banking provides an opportunity to investigate how banking digitalization contributes to increasing financial inclusion at the local level, particularly in Central Java. Since not much research has been done on the adoption of digital banking technologies in relation to BPDs, this is a novel field. Thus, "Using the UTAUT Model to Understand Users' Intentions and Behavior in Using Bima Mobile Banking by PT Bank Jateng" is the title of this study.

2. Literature Review

2.1. Theoretical Framework

Within the context of mobile banking technology, the study's theoretical framework involves additional approaches along with key variables from the UTAUT model (performance expectancy, effort expectancy, social influence, and facilitating conditions). These include mobile self-efficacy, perceived enjoyment, and satisfaction, which are considered more appropriate for explaining mobile banking users' behavior in the digital era.

This framework extends the conventional UTAUT model by incorporating variables related to the digital experience, such as mobile self-efficacy, perceived enjoyment, and satisfaction, rarely explored in relation to the adoption of mobile banking. This framework integrates theoretical and practical

approaches, allowing for an explanation of both psychological and technical factors that influence mobile banking user behavior (Esawe, 2022). The conceptual framework for this study is as follows:

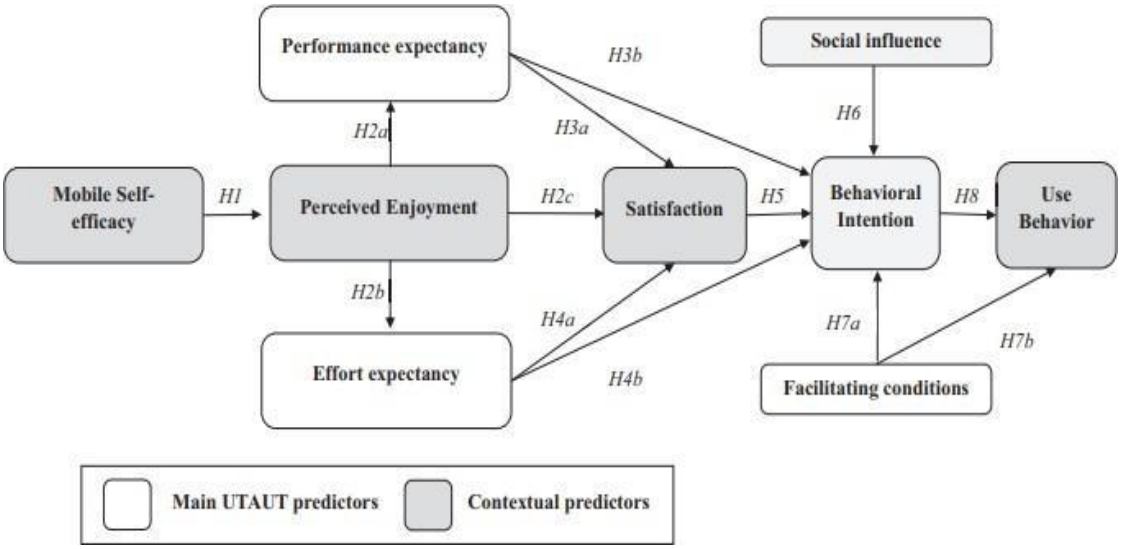

Figure 1. Conceptual Framework of the Study
Source: (Esawe, 2022)

2.1.1. UTAUT Model

Customers can use mobile banking to perform a number of financial tasks, including moving funds, monitoring bank account balances, and executing transactions without the need for conventional methods like visiting a bank branch, using an ATM, calling the bank, or utilizing e-banking. Mobile banking provides a range of innovative services that offer convenience, effectiveness, and cost savings (Sharma, Singh, & Sharma, 2020). In order to increase banking efficacy and service efficiency, the banking industry is actively incorporating mobile banking into their systems. The use of mobile banking allows customers to access customer data, transfer money, engage in e-commerce, withdraw cash without cards, perform QR code transactions, invest, pay bills, and other features that can be accessed from anywhere, anytime (Kamdjoug, Wamba-Taguimdje, Wamba, & Kake, 2021).

While mobile banking applications benefit customers, banks struggle to draw in new customers and keep hold of their current clientele. Technical specifications, new and competing technological items, user training, and security issues related to mobile banking applications, and synchronization among users all pose potential barriers for banks (Sharma et al., 2020). More research is needed to understand the factors impacting both the intention to embrace and the actual use of mobile banking. In recent studies, the Unified Theory of Acceptance and Use of Technology (UTAUT) method has become more and more popular. This model is one of the most widely used due to its simplicity and resilience. It has also proven to be more effective than other competing models (Blut, Chong, Tsiga, & Venkatesh, 2022).

This model's objective is to delineate the elements that impact consumers' adoption and utilization of technology. UTAUT integrates concepts from eight previous theories related to technology adoption to provide a comprehensive understanding (Abdalla, Al-Maamari, & Al-Azki, 2024). In their research, they revealed that UTAUT can explain up to 70% of the variance in users' intention to adopt technology, a predictive figure higher than that of other models, which only explain a small portion of that variance. This indicates that UTAUT is more efficient in analyzing and predicting the factors that influence technology acceptance across various situations.

UTAUT is composed of four main constructs: performance expectancy, effort expectancy, social influence, and facilitating factors. In addition, there are four moderating factors: age, gender, experience, and voluntary use (Blut et al., 2022). To ensure that this study remains concise and relevant

to previous research, Esawe (2022) added additional factors, such as mobile self-efficacy, perceived enjoyment, and satisfaction. Similar to the earlier study by Esawe (2022), this study would employ the UTAUT model's primary factors together with other variables including mobile self-efficacy, perceived enjoyment, and satisfaction to explain behavioral intention and use behavior. However, mobile banking is the main emphasis of this study.

2.2. Research Hypotheses

2.2.1. H1 Mobile Self-Efficacy and Perceived Enjoyment

The knowledge required to understand consumer intention to use mobile banking extends beyond just the use of smartphones. For example, mobile banking users may face challenges with certain mobile banking functions if they are unable to complete specific tasks using their mobile phones. Therefore, the perceived enjoyment of mobile banking users will increase as a result of higher Mobile Self-Efficacy (MSE), as they possess the necessary skills to operate mobile banking effectively. Esawe (2022) asserts that perceived satisfaction is significantly impacted by mobile self-efficacy. Flavián, Guinaliu, and Lu (2020) also utilized the mobile self-efficacy variable to further emphasize how users adopt technology.

H1: Mobile self-efficacy has a significant positive effect on perceived enjoyment for users of the BIMA mobile banking app at PT Bank Jateng

2.2.2. H2 Perceived Enjoyment and Effort Expectancy

From an information technology standpoint, users of mobile applications or wallets are motivated by perceived satisfaction, which will make the mobile banking system easier for them to use. Perceived happiness and customer satisfaction are positively and significantly correlated (Chao, 2019). According to Esawe (2022), perceived enjoyment can be seen as an important external factor in the UTAUT model, which suggests that users' enjoyment of digital services is expected to increase as digital services become more common for transactions, indicating that perceived enjoyment significantly affects satisfaction. His research on e-wallets showed that perceived enjoyment greatly influences satisfaction.

H2: Perceived enjoyment has a significant positive effect on performance expectancy (H2a), effort expectancy (H2b), and consumer satisfaction (H2c) for users of the BIMA mobile banking app at PT Bank Jateng

2.2.3. H3 Performance Expectancy, Satisfaction, and Behavioral Intention

The confidence level of an individual in using mobile banking can enhance their performance, which is a form of cognitive satisfaction due to the functionality of mobile wallet applications that are easy to use, making consumers more satisfied with using mobile banking apps. In the research by Elok and Hidayati (2021), performance expectancy significantly affected satisfaction. According to Chao (2019), perceived enjoyment influences customer satisfaction. Fagan (2019) showed that subjective satisfaction has a significant influence on performance expectancy and effort expectancy. According to an e-wallet study, performance expectancy has a positive effect on the intention to adopt e-wallets (Esawe, 2022). According to earlier research, behavioral intention is strongly influenced by customer satisfaction (Lee, Fu, Mendoza, & Liu, 2021).

H3: Performance expectancy has a significant positive effect on consumer satisfaction (H3a) and consumer intention to use (H3b) the BIMA mobile banking app at PT Bank Jateng

2.2.4. H4 Performance Expectancy, Effort Expectancy, Satisfaction and Behavior Intention

It is important to consider effort expectancy, as the ease of using a mobile wallet will certainly lead to increased user satisfaction, as users can make digital transactions more easily. Performance expectancy and effort expectancy are among the factors that influence behavioral intention (Esawe, 2022). Meanwhile, effort expectancy positively affects satisfaction (Elok & Hidayati, 2021). Abdullah, Redzuan, and Daud (2020) consider effort expectancy as a key element that influences users' intention to adopt mobile banking, which is in line with (Esawe, 2022) focusing on e-wallets.

H4: Effort expectancy has a significant positive effect on consumer satisfaction (H4a) and consumer intention to use (H4b) the BIMA mobile banking app at PT Bank Jateng

2.2.5. H5 Satisfaction and Use Behavior

If someone has expectations or has evaluated a particular object and produced positive results, there is

a tendency for consumers to have an intention to purchase, specifically in the usage of PT Bank Jateng's mobile banking. According to Chao (2019), customer satisfaction is influenced by how well users' expectations are met, their perception of the technology's benefits, service quality, system quality, and overall user experience. If the technology presents significant benefits, a pleasant experience, and quality service and systems, user satisfaction will increase.

According to Liébana-Cabanillas, Molinillo, and Japutra (2021), satisfaction is the opinion and experience users feel when using a technology service. According to Alfany, Saufi, and Mulyono (2019), user intention is strongly influenced by user happiness. Phuong, Luan, Van Dong, and Khanh (2020) also found that user satisfaction significantly influences user intention.

H5: Consumer satisfaction has a significant positive effect on consumer intention to use the BIMA mobile banking app at PT Bank Jateng

2.2.6. H6 Social Influence and Use Behavior

The behavioral intention to utilize mobile banking is known to be significantly influenced by social influence. Promotional campaigns about mobile banking can be targeted to encourage consumers to spread positive comments and recommendations through social media about the benefits of mobile banking to motivate their friends and close relatives to adopt the technology. Dieu, Mamun, Nguyen, and Naznen (2025) research indicates that social influence significantly improves usage behavior. Esawe (2022) asserts that social influence significantly improves use behavior.

H6: Social influence has a significant positive effect on the consumer's intention to use the BIMA mobile banking app at PT Bank Jateng

2.2.7. H7 Facilitating Conditions, Behavior Intention and Use Behavior

Mobile banking is part of the innovation within financial technology, continuously offering user-friendly service concepts and ecosystems as part of facilitating mobile banking users to conduct financial transactions more effectively, timely, and efficiently. This indicates that an individual is more likely to have the behavioral intention to use mobile banking as part of digital transactions if there are greater facilitating conditions available. Intention and user behavior are positively impacted by facilitating conditions, claim (Abdullah et al., 2020). Esawe (2022) asserts that enabling circumstances influence e-wallet users' intentions and actions. Behavioral intention and use behavior are significantly impacted by facilitating conditions (Widodo, Irawan, & Sukmono, 2019). Chawla and Joshi (2019) assert that users' intentions are influenced by conducive situations.

H7: Facilitating conditions have a significant positive effect on the consumer's intention to use (H7a) and usage behavior (H7b) of the BIMA mobile banking app at PT Bank Jateng

2.2.8. H8 Behavior Intention and Use Behavior

Using mobile banking for transactions from the consumer's perspective is more efficient, easier, and more organized in terms of transaction records. This reflects that the higher the individual's behavioral intention in using mobile banking, the more likely they are to exhibit usage behavior in digital transactions using mobile banking. Esawe (2022) states that behavioral intention and use behavior are significantly correlated, a finding that was also supported by the research conducted by (Orús, Ibáñez-Sánchez, & Flavián, 2021). The UTAUT model states that users' use behavior is positively impacted by their behavioral intention (Dieu et al., 2025).

H8: Consumer's intention to use has a significant positive effect on usage behavior for the BIMA mobile banking app at PT Bank Jateng

3. Research Methods

3.1. Research Type

The method applied in this study is a qualitative method. Quantitative research is used to investigate a specific population or sample. Sampling is generally done randomly, data collection is conducted with research instruments, and data analysis is quantitative or statistical, aimed at testing predefined hypotheses. According to Indrawati (2018), the application of quantitative research methods is intended to test a model or prove hypotheses using statistical data taken from a sample, which is then used to draw conclusions about the population.

Table 1. Research Characteristics

No	Research Characteristics	Type
1	Based on research objectives	Causal
2	Based on theoretical development approach	Deductive
3	Based on research strategy	Survey
4	Based on research method	Quantitative
5	Based on investigation type	Correlational
6	Based on level of involvement	Non-intervention
7	Based on research setting	Non-contrived setting
8	Based on time design	Cross-sectional

Source: Processed Data

3.2. Variable Operationalization

A variable is anything that contributes to providing value and can be shown with diverse or dissimilar results. An assessment of an object conducted over different periods may yield different outcomes, whereas assessments conducted at the same time may result in similar outcomes (Indrawati, 2018). According to Indrawati (2018), the operationalization of a variable is an elaboration of all the variables involved in the research, where each variable can be described in more detail and reflect a measurement that exists in the research problem formulation. This process facilitates research by generating data that is ready to be processed further during data collection. According to Suliyanto (2018), for something to become a variable, it must be the focus of attention that can represent and describe the object being studied and have measurable values that vary depending on the object being researched. This study includes the following variables:

a) Independent Variables (X)

Independent variables are those that cause or influence another aspect. These are often referred to as predictor or stimulus variables. The four UTAUT model variables (performance expectancy, effort expectancy, social influence, and facilitating factors) as well as mobile self-efficacy, perceived enjoyment, and satisfaction are the independent variables in this study.

b) Dependent Variables (Y)

Dependent variables are those that are affected or influenced by the occurrence of certain events or conditions and represent the core of the object being researched. In this study, the dependent variables are behavioral intention and use behavior.

3.2.1 Measurement Scale

A scale is a benchmark used to differentiate one measurement from another, thereby providing different values within the same measurement dimension of variables in research (Indrawati, 2018). In this study, the scale used to measure variables is the Likert scale.

Table 2. Likert Measurement Scale

Rating Level	Value
Strongly Disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly Agree	5

3.3. Population and Sample

The boundaries of the research findings will be established by the population identified in this study. The population is the entire set of individuals, objects, or events that the researcher is interested in studying. The sample size used in this investigation, which was determined using Indrawati (2018) population size technique, is displayed in Table 2. From that table, the total population in this study reaches 601,992, which are BIMA mobile banking users, included in the N category of 1,000,000.

Therefore, based on this table, the required minimum sample size is 384.

3.4. Validity and Reliability Test

3.4.1. Validity Test

A validity test shows how accurate and valid an instrument is in making measurements to achieve a high level of validity. The extent to which a measuring device accurately evaluates the desired variable is another definition of validity. A measuring device's accuracy in accomplishing the measurement objective increases with its validity (Adil, Sapar, & Jasman, 2023). This measure is used to ensure how strongly the measurement is positively related to other measures within the same concept. The Average Variance Extracted (AVE) value is then used to evaluate convergent validity. A model is considered to have considerable convergent validity if its AVE value is more than 0.5. This indicates that the construct has a high degree of reliance and is able to account for over half of the variance of its indicators. The study makes sure that each item's loading factor is more than 0.70 before doing validity and reliability testing. A loading factor above 0.70 indicates that the item has excellent convergent validity.

3.4.2. Reliability Test

The items in the questionnaire not only need to be valid but also reliable, meaning that the measurement results from the questionnaire items should provide consistent or similar outcomes. Reliability is related to the extent to which the results of a measurement are dependable, consistent, or stable, meaning how far the measurement scores are free from errors (Ramadhan & Mudzakar, 2022). Composite Reliability (ρA) is the upper bound for internal consistency reliability. The internal consistency reliability representation of a construct is indicated by the reliability coefficient (ρA), which usually falls between these ranges. If a construct's value is 0.70 or greater, it is considered to have good reliability. According to Hair, Risher, Sarstedt, and Ringle (2019), a minimum value of 0.70 is advised, or 0.60 for exploratory research. In PLS-SEM, bootstrap analysis is frequently performed to guarantee the validity and reliability of measurements. Internal consistency reliability is tested using bootstrapping confidence intervals to see if it is much higher than the minimum suggested value of 0.70 and whether reliability is below the maximum threshold (0.95) (Hair et al., 2019).

3.5. PLS-SEM Analysis

Structural Equation Modeling (SEM) is used in this work, while SMART PLS software is used for data processing and calculations. SEM is flexible for social research as it can analyze relationships between variables and link theory with data (Baharuddin, Riskarini, Widyastuti, & Azzahra, 2025). The Partial Least Squares (PLS) method is used in this study's research to predict how more than two dependent variables would affect independent variables. By taking into account particular data that leads to issues or data loss, as well as concurrent correlations between various variables under study, this method is intended to handle multiple regression computations.

Partial Least Squares (PLS) does not rely on specific assumptions, so it does not require data normalization and can be applied effectively even with small sample sizes. One advantage of the PLS approach is its ability to project theoretical relationships between two variables, X and Y. In addition, the PLS approach can estimate latent variables that are a linear combination of an indicator, which helps address issues of indeterminacy (Ghozali & Latan, 2015). This analytical tool is used for several reasons related to the research structure, where there is a complex relationship between several variables tested in this study. Furthermore, the consideration of using SEM analysis tools enhances the ability to explain and provides statistical efficiency, serving as a model for conducting thorough testing.

A structural model can analyze the cause-and-effect relationship of latent variables measured using t-tests with the Partial Least Squares (PLS) approach. The steps to analyze the structural model are as follows (Ghozali & Latan, 2015):

1. Model Testing
   Structural model (*inner model*)
   a) *R-Square endogen*
      With a value of 0.67 signifying a strong correlation, 0.33 signifying a moderate connection, and

0.19 signifying a weak correlation, the R-Square value serves as a determinant for endogenous constructs.

b) Q-Square

The degree to which the observation values generated by the model and its parameter estimations agree is a measure of the structural model. The structural model has predictive importance if the Q-square value is greater than 0 (zero).

c) *Goodness of Fit Test*

The regression model's accuracy is assessed using a statistical goodness of fit test. Ghozali and Latan (2015) validated the performance of the combined measurement model and structural model. The GoF value, which goes from 0 to 1, can be interpreted as follows: A GoF is minor if it is 0-0.25, moderate if it is 0.25-0.36, and large if it is greater than 0.36.

2. Hypothesis Testing

The objective of the hypothesis test is to determine how behavioral intention and use behavior are affected by the UTAUT model (Performance expectancy, Effort expectancy, Social influence, Facilitating conditions) and three contextual predictors (Mobile Self-efficacy, Perceived Enjoyment, Satisfaction). The hypothesis test refers to the t-statistic coefficient values. At a 5% alpha level, the necessary value must be greater than 1.96 for a two-tailed hypothesis and greater than 1.64 for a one-tailed hypothesis. In this hypothesis testing, the t-statistic value used is 1.64 for one-sided testing with a 5% alpha. Based on that reference value, the criteria for accepting or rejecting hypotheses can be determined. If H1 is accepted and H0 is rejected, the t-statistic value should be > 1.64. To accept or reject hypotheses using probability, H1 is accepted if $p < 0.05$.

4. Results and Discussion

4.1. Validity and Reliability Testing

This study uses a questionnaire consisting of 37 indicators from 9 variables to measure various factors influencing the use of the BIMA mobile banking app at PT Bank Jateng.A pre-test was carried out to assess the validity and reliability of the instruments used before the collection of the primary data. Before validity and reliability testing, the study ensured that each questionnaire item had a loading factor greater than 0.70. AVE (Average Variance Extracted) was used for validity assessment. Composite reliability was used for reliability testing. is questionnaire separated out several characteristics, including performance expectancy, effort expectancy, social influence, facilitating factors, perceived enjoyment, satisfaction, mobile self-efficacy, behavioral intention, and use behavior.

Tabel 3. Pretest

Variable	Indicator	Factor Loading	Result	AVE (*Average Variance Extracted*)	*Composite Reliability*
Performance Expectancy	PE 1	0,941	Valid	0,891 (Valid)	0,970 (Reliable)
	PE 2	0,977	Valid		
	PE 3	0,963	Valid		
	PE 4	0,892	Valid		
Effort Expectancy	EE 1	0,529	Not Valid	0,595 (Valid)	0,877 (Reliable)
	EE 2	0,761	Valid		
	EE 3	0,894	Valid		
	EE 4	0,738	Valid		
	EE 5	0,924	Valid		
Social Influence	SI 1	0,939	Valid	0,761 (Valid)	0,941 (Reliable)
	SI 2	0,919	Valid		
	SI 3	0,955	Valid		
	SI 4	0,916	Valid		
	SI 5	0,951	Valid		
Facilitating Condition	FC 1	0,808	Valid	0,713 (Valid)	0,909 (Reliable)
	FC 2	0,835	Valid		

	FC 3	0,852	Valid		
	FC 4	0,825	Valid		
Perceived Enjoyment	PEE 1	0,950	Valid	0,906 (Valid)	0,970 (Reliable)
	PEE 2	0,969	Valid		
	PEE 3	0,936	Valid		
Satisfaction	SAT 1	0,939	Valid	0,877 (Valid)	0,973 (Reliable)
	SAT 2	0,919	Valid		
	SAT 3	0,955	Valid		
	SAT 4	0,916	Valid		
	SAT 5	0,951	Valid		
Mobile Self efficacy	MSE 1	0,840	Valid	0,684 (Valid)	0,896 (Reliable)
	MSE 2	0,800	Valid		
	MSE 3	0,842	Valid		
	MSE 4	0,825	Valid		
Behavior Intention	BI 1	0,920	Valid	0,827 (Valid)	0,950 (Reliable)
	BI 2	0,920	Valid		

Source: Processed Data, 2025

The validity and reliability test results for each of the variables' indicators are shown based on Table 3. However, there is an indicator in the questionnaire item EE 1 that has a factor loading below 0.7. This indicates that the convergent validity of the questionnaire item EE 1 is not very good. Referring to Abdillah and Hartono (2015) in their book, they state that indicators with loading values between 0.50–0.70 can be retained if AVE and composite reliability meet the established criteria. Apart from the EE 1 questionnaire item, there are no other items with a loading factor below 0.7, which leads to the conclusion that all other questionnaire items demonstrate good convergent validity.

Next, reliability testing was conducted using Average Variance Extracted (AVE). Table 3 shows results above 0.50 for each item. This means that the indicators consistently measure the same construct and are valid for representing the latent variables to be tested. After validity testing, reliability testing was performed using composite reliability. A high level of dependability is shown by each indicator in Table 3 having a composite reliability value more than 0.70 (Hair et al., 2019). Overall, the variables demonstrate good results in terms of validity and reliability, which suggests that this data can be used for further analysis.

4.2. Path Diagram Construction

First, a path diagram is constructed using SmartPLS 4 to represent the study concept. In SmartPLS 4, latent variables are depicted in blue circles, and indicators are shown in yellow squares. The SmartPLS application's path diagram is shown in Figure 2. There are two analyses performed when using the PLS method: Goodness of Fit, which consists of GoF for the outer model (measurement model) and GoF for the inner model (structural model).

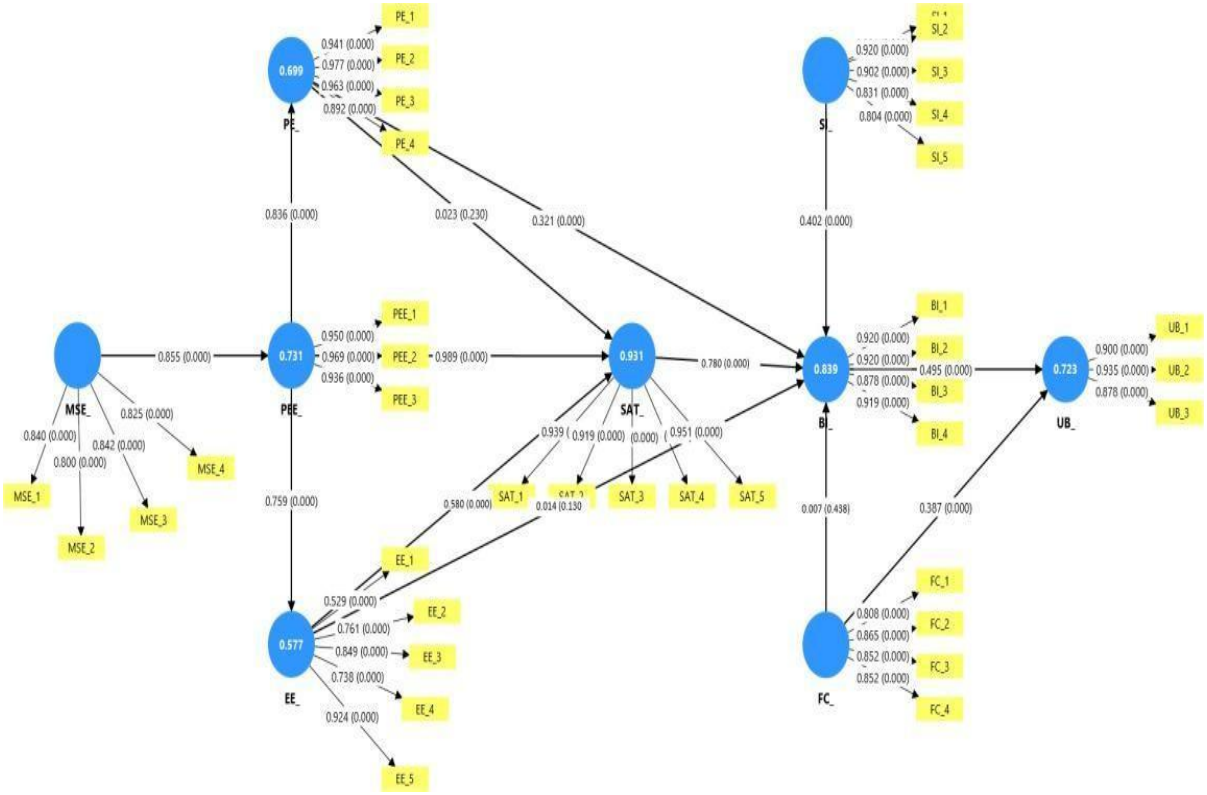

Figure 2. Path Diagram Construction
Source: Processed data by the author in SmartPLS (2025)

4.3. Discriminant Validity Test

The discriminant validity test results are displayed by the square root of the AVE. To measure how much a construct differs from other constructs in empirical criteria, discriminant validity evaluation is utilized (Hair et al., 2019). Mandagi, Lapian, and Tumewu (2021) examine the square root of the AVE values with the correlation of latent variables in this study. The results of the Square Root of AVE test are shown in Table 4.

Table 4. Discriminant Validity Test

	BI_	EE_	FC_	MSE_	PEE_	PE_	SAT_	SI_	UB_
BI_									
EE_	0.950								
FC_	0.895	0.920							
MSE_	0.881	0.900	0.957						
PEE_	0.857	0.890	0.921	0.926					
PE_	0.839	0.794	0.909	0.869	0.876				
SAT_	0.838	0.759	0.896	0.867	0.872	0.862			
SI_	0.831	0.732	0.881	0.798	0.769	0.832	0.775		
UB_	0.818	0.685	0.755	0.681	0.760	0.649	0.779	0.732	

Source: Processed Data (2025)

According to Hair et al. (2019), Table 4 demonstrates that the Square Root of AVE for every latent variable examined is greater than 0.7, the generally recognized cutoff point for indicating strong discriminant validity. Thus, the indicators for each latent variable can clearly differentiate themselves from other latent variables in this research model.

4.4. Structural Model Evaluation

Analyzing the structural model, also known as the inner model, comes after testing the measurement model. The structural model is evaluated in three steps: the final f-square test, hypothesis testing, and goodness of fit.

4.4.1. Model Fit Test (Goodness of Fit)

Table 5. Model Fit Test

Indicator	Result		Criteria
SRMR	0,072		< 0,08 → Model fit is good
NFI	0,931		NFI ≥ 0,90 → Model fit is adequate
	BI	= 0.739	R^2 ≥ 0,75 → Substantial
	EE	= 0.577	R^2 ≥ 0,50 → Moderate
R^2	PEE	= 0.731	R^2 ≥ 0,25 → Weak
	PE	= 0.699	
	SAT	= 0.731	
	UB	= 0.723	
Q^2	Measures the predictive relevance of the model for endogenous variables		$Q^2 > 0$ → Model has predictive relevance

Source: Processed Data (2025)

1) SRMR (Standardized Root Mean Square Residual)

A statistical metric called SRMR (Standardized Root Mean Square Residual) is employed in SEM-PLS to evaluate how well the theoretical model matches the empirical data. A satisfactory model fit is indicated by the study's SRMR calculation value of 0.072, which is less than 0.08 (Hair et al., 2019).

2) NFI (Normed Fit Index)

NFI is used to compare the developed model with the null model, which is a model in which there are no relationships between variables. A value nearer 1 indicates a better model fit. The NFI value is a number between 0 and 1. The model has an excellent fit, as indicated by the NFI value of 0.931 for this study, which is ≥ 0.90.

3) Determination Coefficient Test (R^2)

The evaluation of the structural model yields the R^2 values for the endogenous variables in the research model. R^2, which shows the combined effect of exogenous and endogenous variables, is a measure of the model's prediction accuracy. According to Hair et al. (2019), a good R^2 value falls between 0.25 and 0.75. Table 5 shows that the R^2 values in this study fall within this range, indicating that the model, based on the determination coefficient test, is categorized as good.

4) Cross-Validated Redundancy Test (Q^2)

The Q2 test is employed to evaluate the prediction model's applicability to the endogenous constructs, as shown in Table 4.14. The predictive relevance of the path model for a certain endogenous component is shown by a value larger than zero for that particular construct.

Table 6. Q^2 Test Results

Endogenous Variable	Q^2 Predict Value	Interpretation
Behavioral Intention (BI)	0.819	Very strong (very high predictive relevance)
Effort Expectancy (EE)	0.587	Strong (high predictive relevance)
Perceived Enjoyment (PEE)	0.729	Very strong
Performance Expectancy (PE)	0.555	Strong
Satisfaction (SAT)	0.660	Strong
Usage Behavior (UB)	0.686	Strong

Source: Processed Data (2025)

Based on Table 6, the results of the Q^2 Predict test conducted using the blindfolding approach in PLS-

SEM show that all endogenous variables have positive and fairly high Q^2 values. Therefore, the constructed structural model has good predictive validity and can be relied upon for data-driven decision-making in the context of this study.

4.4.2. Hypothesis Testing and f-square

The second test for evaluating the structural model is the hypothesis testing. Hypothesis testing is done by looking at the t-statistic or p-value. If the p-value is less than 0.05 and the t-statistic is more than 1.96, there is a meaningful link between the variables. The f2 test, also known as the effect size test, is used in Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis to determine how much an independent variable affects the dependent variable in the structural model. An f-square value of 0.02 is considered modest, 0.15 is considered moderate, and 0.35 is considered big, per (Hair et al., 2019).

Table 7. Hypothesis Testing and f-square

	Hypothesis	Path Coefficient	P-Values	95% Confidence Interval for Path Coefficient		F square
				Lower Bound	Upper Bound	
H1	Mobile self-efficacy positively influences perceived enjoyment	0.855	0.000 (*Supported*)	0.835	0.876	0.713
H2a	Perceived enjoyment positively influences performance expectancy	0.836	0.000 (*Supported*)	0.817	0.855	0.321
H2b	Perceived enjoyment positively influences effort expectancy	0.759	0.000 (*Supported*)	0.730	0.791	0.361
H2c	Perceived enjoyment positively influences consumer satisfaction	0.989	0.000 (*Supported*)	0.947	1.026	0.417
H3a	Performance expectancy positively influences consumer satisfaction	0.023	0.230 (*Not Supported*)	0.020	0.078	0.002
H3b	Performance expectancy positively influences consumer intention to use	0.321	0.000 (*Supported*)	0.239	0.386	0.134
H4a	Effort expectancy positively influences consumer satisfaction	0.580	0.000 (*Supported*)	0.0498	0.990	0.414
H4b	Effort expectancy positively influences consumer intention to use	0.014	0.130 (*Not Supported*)	0.010	0.025	0.003
H5	Consumer satisfaction positively influences consumer intention to use	0.780	0.000 (*Supported*)	0.580	0.946	0.380
H6	Social influence positively influences consumer intention to use	0.402	0.000 (*Supported*)	0.347	0.456	0.436
H7a	Facilitating conditions positively influence consumer intention to use	0.007	0.438 (*Not Supported*)	0.002	0.016	0.005
H7b	Facilitating conditions positively influence usage behavior	0.387	0.001 (*Supported*)	0.269	0.507	0.445
H8	Consumer intention to use positively influences usage behavior	0.495	0.000 (*Supported*)	0.364	0.623	0.237

Source: Processed Data (2025)

1) Result of H1:
The first hypothesis, "Mobile self-efficacy has a significant positive influence on perceived enjoyment," is supported by the fact that mobile self-efficacy has a significant impact on perceived enjoyment, as indicated by the path coefficient of 0.855 and the p-value of 0.000 (less than 0.05). Any change in mobile self-efficacy will increase perceived happiness, according to a 95% confidence interval (CI) between felt enjoyment and mobile self-efficacy that ranges from 0.835 to 0.876. Additionally, there is a substantial structural effect (f-square = 0.713).

2) Results of H2:
With a significant impact of perceived enjoyment on performance expectancy, path coefficient (0.836), and p-value (0.000 < 0.05), the second hypothesis, "Perceived enjoyment has a significant positive effect on performance expectancy," is accepted. Performance expectancy will rise in response to any change in perceived enjoyment; the 95% CI for the relationship between perceived enjoyment and performance expectancy ranges from 0.817 to 0.855, indicating a moderate influence at the structural level (f-square = 0.321). Then, with a p-value of 0.000 < 0.05 and a path coefficient of 0.759, experienced satisfaction significantly increases effort expectancy. A 95% confidence interval for the relationship between perceived enjoyment and effort expectancy ranges from 0.730 to 0.791, indicating a high influence at the structural level (f-square = 0.361). Any change in perceived enjoyment will raise effort expectancy. Next, with a p-value of 0.000 < 0.05 and a path coefficient of 0.989, satisfaction is significantly positively impacted by perceived enjoyment. A 95% confidence interval for the relationship between perceived enjoyment and satisfaction ranges from 0.947 to 1.026, indicating a strong structural effect (f-square = 0.417). Any change in perceived enjoyment will result in an increase in satisfaction.

3) Results of H3a:
"Performance expectancy has a significant positive effect on satisfaction," the third hypothesis, is disproved. The p-value is higher than 0.05, indicating that performance expectancy has no discernible impact on customer satisfaction (0.230).

4) Results of H3b:
As the p-value (0.000 < 0.05) and path coefficient (0.321) both demonstrate a significant impact of performance expectancy on consumer's intention to use, the statement "Performance expectancy has a significant positive effect on consumer's intention to use" is supported. The association between consumer intention to use and performance expectancy has a 95% CI between 0.239 and 0.386, suggesting a negligible structural impact (f-square = 0.134). Any change in performance expectancy will increase consumer intention to use.

5) Results of H4:
The fourth hypothesis assesses whether effort expectancy has a significant positive impact on satisfaction and is supported by a substantial effect of effort anticipation on satisfaction, path coefficient (0.580), and p-value (0.000 < 0.05). The effect of effort expectancy on satisfaction has a significant structural impact (f-square = 0.414), with a 95% CI ranging from 0.498 to 0.990. This indicates that any change in effort expectancy will boost satisfaction. The test for how effort expectancy affects a consumer's intention to use, however, is disregarded. The results show that effort expectancy has no appreciable effect on consumers' intention to use, as the p-value is greater than 0.05 (0.130).

6) Results of H5:
As the path coefficient (0.780) and p-value (0.000 < 0.05) show that customer satisfaction significantly influences their intention to use, the fifth hypothesis, "Satisfaction has a significant positive effect on consumer's intention to use," is accepted. A 95% confidence interval for the relationship between satisfaction and consumer intention to use ranges from 0.580 to 0.946, indicating a high effect at the structural level (f-square = 0.380). Any decrease in satisfaction will enhance the consumer's desire to use.

7) Results of H6:
With a significant impact of social influence on consumers' intention to use, as indicated by the path coefficient (0.402) and p-value (0.000 < 0.05), the sixth hypothesis, "Social influence has a significant positive effect on consumer's intention to use," is accepted. The impact of social influence on consumers' intention to use has a 95% CI between 0.347 and 0.456, suggesting a significant structural effect (f-square = 0.436). This means that any change in social influence will raise consumers' intention to use.

8) Results of H7a:
The seventh hypothesis, "Facilitating conditions have a significant positive effect on consumer's intention to use," is not supported. According to the results, there is no detectable influence of conducive conditions on consumers' intents to use, as the p-value is larger than 0.05 (0.438).

9) Results of H7b:
With a significant impact of facilitating conditions on usage behavior, path coefficient (0.387), and p-value (0.001 < 0.05), the statement "Facilitating conditions have a significant positive effect on usage behavior" is then accepted. A 95% confidence interval for the impact of facilitating conditions on usage behavior ranges from 0.269 to 0.507, indicating a low effect at the structural level (f-square = 0.145). This means that any change in facilitating conditions will result in an increase in usage behavior.

10) Results of H8:
With a considerable impact of the consumer's desire to use on usage behavior, path coefficient (0.495), and p-value (0.000 < 0.05), the eighth hypothesis, "Consumer's intention to use has a significant positive effect on usage behavior," is finally accepted. With a 95% CI for the relationship between consumer intention to use and usage behavior ranging from 0.364 to 0.623, any change in consumer intention to use will result in an increase in usage behavior. This indicates a moderate effect at the structural level (f-square = 0.237).

However, three hypotheses were not accepted: the effect of performance expectancy on customer satisfaction (H3a), effort expectancy on consumer's intention to use (H4b), and facilitating conditions on consumer's intention to use (H7a). These three relationships did not show statistical significance, indicating that perceptions about usefulness, ease, or availability of facilities do not necessarily directly impact satisfaction or the intention to use the application. Overall, the findings of this study emphasize the significance of perceived enjoyment, satisfaction, and social influence as the main drivers in creating intentions and usage behavior of the app, rather than just perceptions regarding usefulness or supportive resources.

5. Conclusion

Based on the results of the research, 13 effects were analyzed in this study, with 10 relationships showing significant effects, while 3 others did not show any effects. Mobile self-efficacy, perceived enjoyment, performance expectancy, effort expectancy, consumer satisfaction, social influence, facilitating conditions, and intention to use on related variables are among the factors that made a significant contribution. On the other hand, no significant association was established between performance expectancy and customer satisfaction, effort expectancy and desire to use, as well as facilitating conditions and intention to use. This indicates that emotional factors and user experience have a greater influence on usage behavior compared to just technical factors or performance perceptions. A detailed explanation is as follows:

1) PT Bank Jateng users' perceptions of their satisfaction with the BIMA mobile banking app are significantly improved by mobile self-efficacy, especially the confidence in using BIMA mobile banking when someone can be contacted for help.
2) Perceived enjoyment has a significant positive effect on performance expectancy (H2a), and perceived enjoyment also has a significant positive effect on effort expectancy (H2b) for users of the BIMA mobile banking app at PT Bank Jateng. Additionally, perceived enjoyment shows the strongest and most significant effect on consumer satisfaction, particularly in the enjoyable process of using the BIMA mobile banking app, with the highest effect in this relationship (H2c).

3) Performance expectancy has a significant positive impact on consumers' intention to use the BIMA mobile banking app, particularly since using the app speeds up transaction completion (H3b), but it has no effect on consumer satisfaction for users of the BIMA mobile banking app at PT Bank Jateng (H3a).
4) For users of PT Bank Jateng's BIMA mobile banking app, effort expectation significantly improves customer happiness, especially when it comes to the app's user-friendly design (H4a). However, the tendency of customers to utilize the BIMA mobile banking app is unaffected by effort expectancy (H4b).
5) Customers' intention to use PT Bank Jateng's BIMA mobile banking app is significantly positively impacted by their level of satisfaction, especially since most users are happy with the app.
6) Customers' intention to use the BIMA mobile banking app at PT Bank Jateng is significantly positively impacted by social influence, particularly from close friends and family who have the biggest say in the matter.
7) Although facilitating conditions have a significant positive impact on the usage behavior of the BIMA mobile banking app, particularly with regard to the necessary conditions to use the app (H7b), they have no effect on consumers' intention to use the BIMA mobile banking app at PT Bank Jateng (H7a).
8) Customers' intention to use the BIMA mobile banking app at PT Bank Jateng significantly improves their usage behavior, particularly when it comes to utilizing the app's many features.

Theoretical Recommendations

This study includes the body of knowledge in the area of technology adoption, especially when it comes to digital applications, like mobile banking. Several academic recommendations can be proposed, such as the expansion of the model. Future researchers could develop the model by incorporating other variables like trust, perceived value, or habits to deepen the understanding of the factors influencing intentions and actions. Additionally, applying different theoretical approaches is suggested. Future research might conduct a thorough analysis by integrating theories such as the Technology Acceptance Model (TAM), Expectation Confirmation Theory (ECT), or Uses and Gratifications Theory (UGT) to assess a comparison of data. The last academic suggestion is to create broader and more diverse user segmentation methods for the application. Future academic research is advised to investigate the role of demographic or psychographic variables as moderators, such as age, education level, or frequency of technology usage.

Practical Recommendations

For Bank Jateng, based on the results of this study, perceived enjoyment is the most influential factor affecting user satisfaction with the mobile banking application. As a result, Bank Jateng should focus more on improving the user experience (UX) by offering engaging and comfortable experiences. Improving the user interface design can be achieved by adding interactive features, such as visually appealing displays. The goal of this step is to increase the emotional engagement of users when using the app. Furthermore, the impact of social influence has proven to be significant in shaping the intention to use the app. This emphasizes the importance of community-based communication and marketing strategies. Bank Jateng is advised to optimize digital marketing potential by utilizing customer testimonials, support from local figures, and collaboration with digital communities. Strategies such as referral or loyalty programs based on community engagement could enhance social influence and encourage active user participation in promoting the app to others.

Although facilitating conditions did not affect the intention to use the app, this variable significantly influenced actual usage behavior, indicating that the presence of supporting facilities is crucial for users to fully access and utilize the app optimally. Therefore, Bank Jateng should provide responsive 24-hour technical support, update the FAQ navigation system to be more user-friendly, and offer a chatbot service to quickly and accurately answer questions within the app. Moreover, given that user satisfaction is a key indicator of intention to use, Bank Jateng should proactively enhance its digital customer service. Strategic actions such as embedding satisfaction surveys directly within the app and providing incentives for users who provide feedback could serve as a form of appreciation and a method for continuous service improvement. Finally, to ensure the continued use of the app, regular evaluations

based on data are necessary. Bank Jateng is advised to form a digital insight team responsible for analyzing user behavior through data, ensuring that app feature development is targeted and based on actual user needs.

Academic Recommendations

This study has made a significant contribution to understanding the elements that influence the desire and behavior in using mobile banking applications. However, there is still much potential for further advancements in the future. As an alternative to the Partial Least Squares (PLS-SEM) approach used in this study, future researchers are urged to take into account Covariance-Based Structural Equation Modeling (CB-SEM). CB-SEM is more suitable for theoretically well-established models and allows for more rigorous testing of overall model fit (model fit indices), which can complement the results obtained from the more exploratory PLS-SEM approach. Additionally, future researchers could include mediation or moderation variables to enrich the research model and provide deeper insights into the relationships between variables. For example, the relationship between intention and action may be strengthened or weakened by moderating variables like perceived risk or digital trust. In a similar vein, user satisfaction might be investigated further as a mediating factor that links the influence of performance expectations to usage intention.

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