

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: This study explores factors influencing users' behavioral intention and actual usage of the BIMA mobile banking application by PT Bank Jateng. It applies the Unified Theory of Acceptance and Use of Technology (UTAUT), enhanced with contextual variables such as mobile self-efficacy, perceived enjoyment, and satisfaction.

Research/methodology: A quantitative approach was conducted through a survey of 384 BIMA users. Data were analyzed with Structural Equation Modeling (SEM) using SmartPLS. Reliability and validity were tested with AVE and Composite Reliability, while model fit was assessed through SRMR, NFI, R², and Q² values.

Results: Of 13 hypothesized paths, 10 were supported. Mobile self-efficacy strongly affected perceived enjoyment, which significantly influenced performance expectancy, effort expectancy, and satisfaction. Satisfaction emerged as the most influential factor on intention to use, which in turn impacted usage behavior. Social influence and facilitating conditions also contributed positively. However, performance expectancy did not significantly affect satisfaction, and both effort expectancy and facilitating conditions showed no significant effect on intention to use.

Conclusions: Emotional factors like enjoyment and satisfaction, together with social influence, dominate over functional aspects in shaping adoption and continued use of mobile banking, suggesting a shift toward user experience-driven digital banking strategies.

Limitations: The study is limited to one application, cross-sectional design, and PLS-SEM, reducing broader generalization.

Contribution: This research extends UTAUT by incorporating emotional and contextual variables, providing practical insights for enhancing user experience and digital adoption in regional banking.

Keywords: Behavioral Intention, 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 line with the increasing adoption of technology in society and the growing demand for faster, more practical, and efficient financial services. This development is driven by advancements in information technology, such as the internet, mobile devices, and artificial intelligence, which enable banks to provide digital services. Additionally, the shift in societal lifestyles, which increasingly rely on cashless transactions and digital platforms, further accelerates the process of digitalization. The COVID-19 pandemic has also played a significant role in expediting digitalization, as it prompted physical interaction restrictions and accelerated the implementation of digital technologies across various sectors, 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. This is a novel area, as there is still limited research exploring the adoption of digital banking technology in the context of BPDs. Therefore, this research is titled "Using the UTAUT Model to Understand Users' Intentions and Behavior in Using Bima Mobile Banking by PT Bank Jateng".

2. Literature review

2.1. Theoretical Framework

The theoretical framework of this study combines key variables from the UTAUT model (performance expectancy, effort expectancy, social influence, and facilitating conditions) with additional approaches to align with the context of mobile banking technology. 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, which are rarely discussed in the context of mobile banking adoption. 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 following is the conceptual framework of this research:

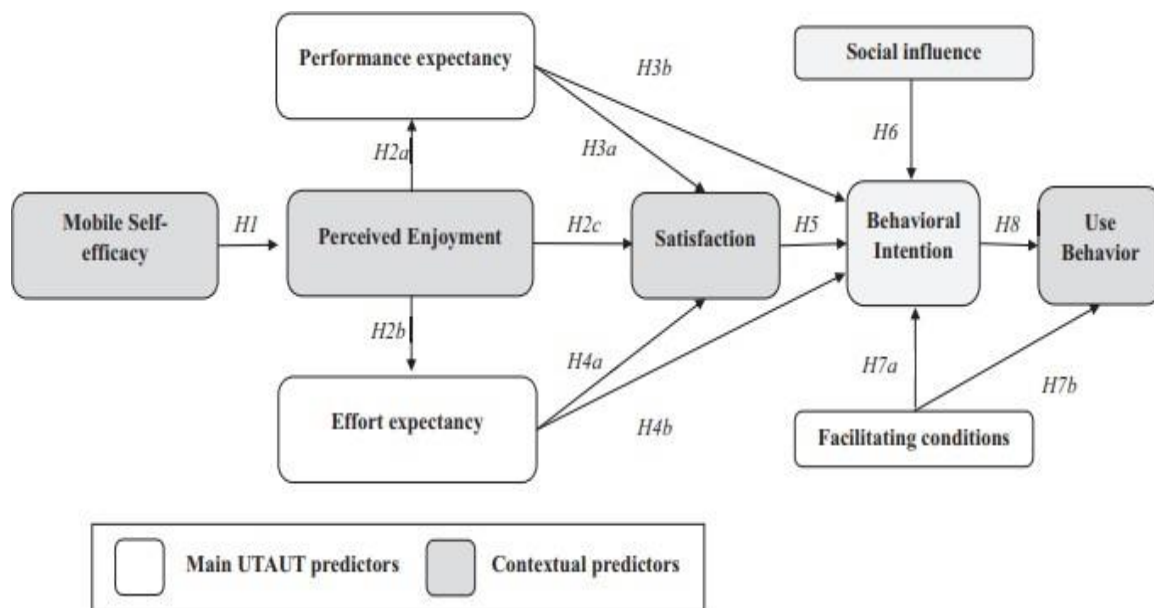


Figure 1. Conceptual Framework of the Study
Source: (Esawe, 2022)

2.1.1. UTAUT Model

Mobile banking enables customers to complete various financial transactions, such as checking bank account balances, transferring money, and conducting transactions without using traditional 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). The banking sector is currently integrating mobile banking into their systems by implementing mobile banking to improve banking effectiveness and service efficiency. 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 (Kamdjou, Wamba-Taguimdje, Wamba, & Kake, 2021). While mobile banking applications benefit customers, banks face challenges in retaining existing users and attracting new users.

Technical requirements, emerging competing technology products, user education, security issues related to mobile banking applications, and synchronization among users all pose potential barriers for banks (Sharma et al., 2020). Therefore, research is needed to understand the factors influencing the intention to adopt and actual use of mobile banking. In recent studies, the Unified Theory of Acceptance and Use of Technology (UTAUT) method has become 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). The purpose of this model is to outline the factors that influence technology adoption and use by users. 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 consists of four main constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions, along with four moderating factors: gender, age, experience, and voluntariness of use (Blut et al., 2022). However, to ensure that this study remains concise and relevant to previous research, Esawe (2022) incorporated additional variables such as mobile self-efficacy, perceived enjoyment, and satisfaction. In this study, the primary variables of the UTAUT model and additional variables such as mobile self-efficacy, perceived enjoyment, and satisfaction will be used to understand behavioral intention and use

behavior, similar to the previous study conducted by (Esawe, 2022). However, in this research, the focus is not on e-wallets, but rather on mobile banking.

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. According to Esawe (2022), mobile self-efficacy has a significant influence on perceived enjoyment. 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

Perceived enjoyment is the intrinsic motivation of mobile application or wallet users from an information technology perspective, so perceived enjoyment will enhance the ease of use of the mobile banking system for these users. There is a positive and significant relationship between perceived enjoyment and customer satisfaction (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) also supported that perceived enjoyment significantly affects performance expectancy and effort expectancy. In the research on e-wallets, it was found that performance expectancy has a positive effect on the intention to adopt e-wallets (Esawe, 2022). Previous studies also found that customer satisfaction significantly influences behavioral intention (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, & 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. Alfany, Saufi, and Mulyono (2019) found that user satisfaction significantly influences user intention. 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

Social influence is recognized as a key factor in the behavioral intention to use mobile banking. 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. Based on research by Dieu, Mamun, Nguyen, and Naznen (2025), social influence has a significant positive impact on use behavior. According to Esawe (2022), social influence has a significant positive impact on 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 reflects that the better the facilitating conditions available, the more likely an individual will have the behavioral intention to use mobile banking as part of digital transactions. According to Abdullah et al. (2020), facilitating conditions have a positive impact on intention and user behavior. According to Esawe (2022), facilitating conditions impact the intention and behavior of e-wallet users. Facilitating conditions have a significant impact on behavioral intention and use behavior (Widodo, Irawan, & Sukmono, 2019). According to Chawla and Joshi (2019), facilitating conditions influence users' intention.

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. According to Esawe (2022), there is a significant connection between behavioral intention and use behavior, which was also confirmed in the study by (Orús, Ibáñez-Sánchez, & Flavián, 2021). According to the UTAUT model, users' behavioral intention has a positive impact on their use behavior (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 Mandira, Suliyanto, and Tri Nawarini (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. In this study, the independent variables are mobile self-efficacy, perceived enjoyment, satisfaction, and four UTAUT model variables (performance expectancy, effort expectancy, social influence, facilitating conditions).

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 population determined in this study will define the boundaries for the research results. The population refers to the entire group of individuals, events, or phenomena that the researcher is interested in studying. The sample size used is based on the population size approach by (Indrawati, 2018), where the sample size used in this research refers to 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. Validity can also be defined as the degree to which a measuring instrument correctly assesses the intended variable. The higher the validity of a measuring instrument, the more precise it is in achieving the measurement goal (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 classified as having strong convergent validity if its AVE value is greater than 0.5. This means that the construct has a high dependency and can explain more than half of its indicators' variance. Before conducting validity and reliability tests, the study ensures that the loading factor for each item is greater than 0.70. If the loading factor is greater than 0.70, the item has good convergent validity (Hair, Risher, Sarstedt, & Ringle, 2019).

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 (ρ_A) is the upper bound for internal consistency reliability. The reliability coefficient (ρ_A) typically lies between these bounds and is used to indicate the internal consistency reliability representation of a construct. A construct is said to have high reliability if its value is 0.70 or higher. The recommended minimum value is 0.70 (or 0.60 for exploratory research) (Hair et al., 2019). To ensure the validity and reliability of measurements, bootstrap analysis is often conducted in PLS-SEM. Confidence intervals through bootstrapping are used to examine whether internal consistency reliability is significantly higher than the minimum recommended value (0.70) and whether reliability is below the maximum threshold (0.95) (Hair et al., 2019).

3.5. PLS-SEM Analysis

This study applies Structural Equation Modeling (SEM) with data calculations and processing using SMART PLS software. SEM is flexible for social research as it can analyze relationships between variables and link theory with data (Baharuddin, Riskarini, Widyastuti, & Azzahra, 2025). To predict the impact of more than two dependent variables on independent variables, the analysis used in this study applies the Partial Least Squares (PLS) approach. This method is designed to solve multiple regression calculations by considering specific data that causes problems or data loss, as well as simultaneous correlations between several variables studied. 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

The R-Square value functions as a determinant for endogenous constructs, with a value of 0.67

indicating a strong correlation, 0.33 indicating a moderate correlation, and 0.19 indicating a weak correlation.

b) *Q-Square*

The structural model is measured by how accurately the observation values produced by the model and its parameter estimates align. If the Q-square value exceeds 0 (zero), it indicates that the structural model has predictive relevance.

c) *Goodness of Fit Test*

To obtain regression model accuracy, a statistical goodness of fit is performed Ghazali and Latan (2015) to validate the performance of the combined measurement model and structural model. The GoF value ranges from 0 to 1 with the interpretation: 0-0.25 indicates a small GoF; 0.25–0.36 indicates a moderate GoF; and above 0.36 indicates a large GoF.

2. Hypothesis Testing

The hypothesis test aims to understand the impact of the UTAUT model (Performance expectancy, Effort expectancy, Social influence, Facilitating conditions) and three contextual predictors (Mobile Self-efficacy, Perceived Enjoyment, Satisfaction) on behavioral intention and use behavior. The hypothesis test refers to the t-statistic coefficient values. The required value must exceed 1.96 for a two-tailed hypothesis and exceed 1.64 for a one-tailed hypothesis at a 5% alpha level. 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. Before collecting the main data, a preliminary test (pre-test) was conducted to evaluate the validity and reliability of the instruments used. Before validity and reliability testing, the study ensured that each questionnaire item had a loading factor greater than 0.70. Validity testing was conducted using AVE (Average Variance Extracted). Reliability testing was conducted using composite reliability. This questionnaire was divided into several variables such as performance expectancy, effort expectancy, social influence, facilitating conditions, 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	0,909

	FC 2	0,835	Valid	(Valid)	(Reliable)
	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)

Based on Table 3, the validity and reliability test results for each indicator in the variables are shown. 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. In Table 3, each indicator has a composite reliability value greater than 0.70, indicating a high level of reliability (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

The research model is first illustrated using SmartPLS 4 with a path diagram construction. In SmartPLS 4, latent variables are depicted in blue circles, and indicators are shown in yellow squares. Figure 2 presents the path diagram in the SmartPLS application. 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).

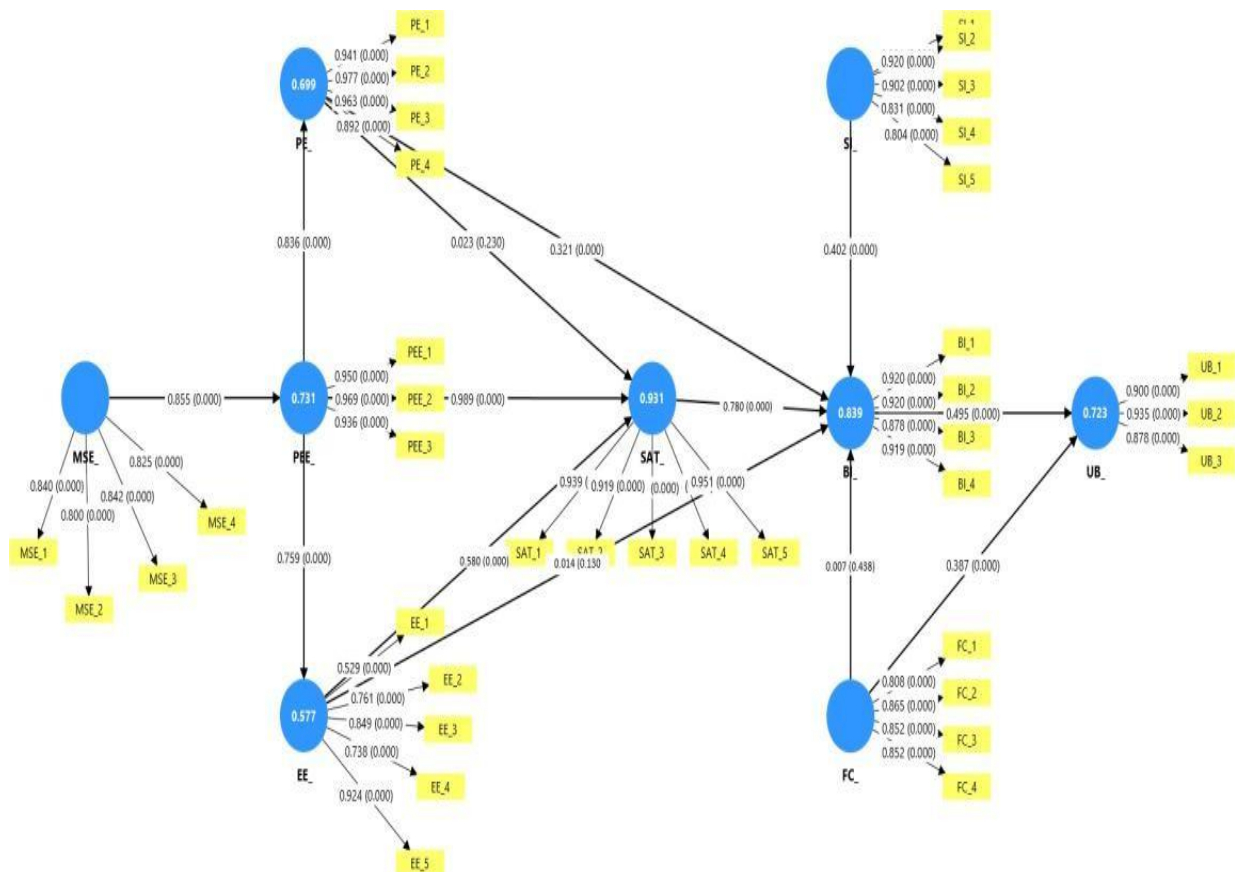


Figure 2. Path Diagram Construction
Source: Processed data by the author in SmartPLS (2025)

4.3. Discriminant Validity Test

The discriminant validity test can be seen from the square root of the AVE. According to Hair et al. (2019), discriminant validity evaluation is used to measure how much a construct differs from other constructs in empirical standards. Mandagi, Lapian, and Tumewu (2021) compare the square root of the AVE values with the correlation of latent variables in this study. The results of the Square Root of AVE testing can be seen 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)

Table 4 shows that the Square Root of AVE for all latent variables tested is above 0.7, which is the accepted threshold to indicate good discriminant validity (Hair et al., 2019). Thus, the indicators for each latent variable can clearly differentiate themselves from other latent variables in this research model.

4.4. Structural Model Evaluation

After testing the measurement model, the next step is to analyze the structural model or inner model. The structural model evaluation is conducted in three stages: goodness of fit, hypothesis testing, and the final test of the f-square

4.4.1. Model Fit Test (Goodness of Fit)

Table 5. Model Fit Test

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

Source: Processed Data (2025)

1) SRMR (Standardized Root Mean Square Residual)

SRMR (Standardized Root Mean Square Residual) is a statistical measure used in SEM-PLS to assess how well the theoretical model fits the actual data. The SRMR calculation result for this study is 0.072, which is below 0.08, indicating a good model fit (Hair et al., 2019).

2) NFI (Normed Fit Index)

NFI compares the built model with the null model, which is a model with no relationships between variables. The NFI value ranges from 0 to 1, with values closer to 1 indicating a better model fit. $NFI \geq 0.90$ indicates a good fit, and the NFI value for this study is 0.931, meaning the model has a good fit.

3) Determination Coefficient Test (R²)

Based on the evaluation of the structural model, the R² values for the endogenous variables in the research model are observed. R² is a measure of the model's prediction accuracy, showing the combined effect of exogenous variables on the endogenous variables. According to Hair et al. (2019), a good R² value falls between 0.25 and 0.75. Table 5 shows that the R² 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 (Q²)

According to Table 4.14, the Q² test is used as a means to assess the relevance of the predictive model for the endogenous constructs. A value greater than zero for a specific endogenous construct indicates the predictive relevance of the path model for that specific construct.

Table 6. Q² 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 Q² Predict test conducted using the blindfolding approach in PLS-

SEM show that all endogenous variables have positive and fairly high Q² 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 conducted to evaluate the structural model is hypothesis testing. Hypothesis testing is performed by examining the t-statistic or p-value. If the t-statistic is greater than 1.96 and the p-value is less than 0.05, then there is a significant effect between the variables. The f² test (effect size test) is used in Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis to determine the magnitude of the effect of an independent variable on the dependent variable in the structural model. An f-square value of 0.02 is considered small, 0.15 moderate, and 0.35 large (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:

For the first hypothesis, "Mobile self-efficacy has a significant positive influence on perceived enjoyment," it is supported with a significant effect of mobile self-efficacy on perceived enjoyment, with a path coefficient of 0.855 and a p-value of 0.000 (which is < 0.05). Any change in mobile self-efficacy will increase perceived enjoyment, with a 95% confidence interval for the effect of mobile self-efficacy on perceived enjoyment ranging from 0.835 to 0.876, with a high effect at the structural level (f-square = 0.713).

2) Results of H2:

The second hypothesis, "Perceived enjoyment has a significant positive effect on performance expectancy," is accepted, with a significant effect of perceived enjoyment on performance expectancy, path coefficient (0.836), and p-value ($0.000 < 0.05$). Any change in perceived enjoyment will increase performance expectancy, with a 95% confidence interval for the effect of perceived enjoyment on performance expectancy ranging from 0.817 to 0.855, showing a moderate effect at the structural level (f-square = 0.321). Then, perceived enjoyment has a significant positive effect on effort expectancy, with a path coefficient of (0.759) and a p-value ($0.000 < 0.05$). Any change in perceived enjoyment will increase effort expectancy, with a 95% confidence interval for the effect of perceived enjoyment on effort expectancy ranging from 0.730 to 0.791, showing a high effect at the structural level (f-square = 0.361). Next, perceived enjoyment has a significant positive effect on satisfaction, with a path coefficient of (0.989) and a p-value ($0.000 < 0.05$). Any change in perceived enjoyment will increase satisfaction, with a 95% confidence interval for the effect of perceived enjoyment on satisfaction ranging from 0.947 to 1.026, showing a high effect at the structural level (f-square = 0.417).

3) Results of H3a:

The third hypothesis, "Performance expectancy has a significant positive effect on satisfaction," is rejected. The results show that performance expectancy does not significantly affect consumer satisfaction, as the p-value is greater than 0.05 (0.230).

4) Results of H3b:

On the other hand, "Performance expectancy has a significant positive effect on consumer's intention to use" is accepted, with a significant effect of performance expectancy on consumer's intention to use, path coefficient (0.321) and p-value ($0.000 < 0.05$). Any change in performance expectancy will increase consumer's intention to use, with a 95% confidence interval for the effect of performance expectancy on consumer's intention to use ranging from 0.239 to 0.386, showing a low effect at the structural level (f-square = 0.134).

5) Results of H4:

The fourth hypothesis, which tests whether effort expectancy has a significant positive effect on satisfaction, is accepted, with a significant effect of effort expectancy on satisfaction, path coefficient (0.580), and p-value ($0.000 < 0.05$). Any change in effort expectancy will increase satisfaction, with a 95% confidence interval for the effect of effort expectancy on satisfaction ranging from 0.498 to 0.990, showing a high effect at the structural level (f-square = 0.414). However, the test for the effect of effort expectancy on consumer's intention to use is rejected. The results show that effort expectancy does not significantly affect consumer's intention to use, as the p-value is greater than 0.05 (0.130).

6) Results of H5:

The fifth hypothesis, "Satisfaction has a significant positive effect on consumer's intention to use," is accepted, with a significant effect of satisfaction on consumer's intention to use, path coefficient (0.780) and p-value ($0.000 < 0.05$). Any change in satisfaction will increase consumer's intention to use, with a 95% confidence interval for the effect of satisfaction on consumer's intention to use ranging from 0.580 to 0.946, showing a high effect at the structural level (f-square = 0.380).

7) Results of H6:

The sixth hypothesis, "Social influence has a significant positive effect on consumer's intention to use," is accepted, with a significant effect of social influence on consumer's intention to use, path coefficient

(0.402) and p-value ($0.000 < 0.05$). Any change in social influence will increase consumer's intention to use, with a 95% confidence interval for the effect of social influence on consumer's intention to use ranging from 0.347 to 0.456, showing a high effect at the structural level (f-square = 0.436).

8) Results of H7a:

The seventh hypothesis, "Facilitating conditions have a significant positive effect on consumer's intention to use," is rejected. The results show that facilitating conditions do not significantly affect consumer's intention to use, as the p-value is greater than 0.05 (0.438).

9) Results of H7b:

Then, "Facilitating conditions have a significant positive effect on usage behavior" is accepted, with a significant effect of facilitating conditions on usage behavior, path coefficient (0.387) and p-value ($0.001 < 0.05$). Any change in facilitating conditions will increase usage behavior, with a 95% confidence interval for the effect of facilitating conditions on usage behavior ranging from 0.269 to 0.507, showing a low effect at the structural level (f-square = 0.145).

10) Results of H8:

Finally, the eighth hypothesis, "Consumer's intention to use has a significant positive effect on usage behavior," is accepted, with a significant effect of consumer's intention to use on usage behavior, path coefficient (0.495) and p-value ($0.000 < 0.05$). Any change in consumer's intention to use will increase usage behavior, with a 95% confidence interval for the effect of consumer's intention to use on usage behavior ranging from 0.364 to 0.623, showing 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. Conclusions

5.1. 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. The factors that significantly contributed include mobile self-efficacy, perceived enjoyment, performance expectancy, effort expectancy, consumer satisfaction, social influence, facilitating conditions, and intention to use on related variables. On the other hand, no significant relationship was found between performance expectancy and consumer satisfaction, effort expectancy and intention 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) Mobile self-efficacy has a significant positive effect on perceived enjoyment for users of the BIMA mobile banking app at PT Bank Jateng, 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 does not have an effect on consumer satisfaction for users of the BIMA mobile banking app at PT Bank Jateng (H3a), but performance expectancy has a significant positive

effect on consumer's intention to use the BIMA mobile banking app, especially as using the app allows users to complete transactions faster (H3b).

- 4) Effort expectancy has a significant positive effect on consumer satisfaction for users of the BIMA mobile banking app at PT Bank Jateng, particularly on the user-friendly design of the app (H4a). However, effort expectancy does not have an effect on consumer's intention to use the BIMA mobile banking app (H4b).
- 5) Consumer satisfaction has a significant positive effect on consumer's intention to use the BIMA mobile banking app at PT Bank Jateng, particularly as users are generally satisfied with the app.
- 6) Social influence has a significant positive effect on consumer's intention to use the BIMA mobile banking app at PT Bank Jateng, especially from close acquaintances who have the greatest influence on the decision to use the app.
- 7) Facilitating conditions do not have an effect on consumer's intention to use the BIMA mobile banking app at PT Bank Jateng (H7a), but facilitating conditions have a significant positive effect on usage behavior of the BIMA mobile banking app, especially in terms of the necessary conditions to use the app (H7b).
- 8) Consumer's intention to use has a significant positive effect on usage behavior for the BIMA mobile banking app at PT Bank Jateng, especially in using the various features available in the app.

5.2. Theoretical Recommendations

This study contributes to the development of literature in the field of technology adoption, particularly in the context of digital applications, specifically 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 could conduct a comprehensive study by integrating theories such as the Technology Acceptance Model (TAM), Expectation Confirmation Theory (ECT), or Uses and Gratifications Theory (UGT) to analyze a comparison of findings. 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.

5.3. 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.

5.4. 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. Future researchers are encouraged to consider alternative analytical methods such as Covariance-Based Structural Equation Modeling (CB-SEM) as a comparison to the Partial Least Squares (PLS-SEM) method applied in this study. 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, variables such as digital trust or perceived risk could be used as moderating variables that strengthen or weaken the relationship between intention and action. Similarly, user satisfaction could be further explored as a mediating variable that connects the impact of performance expectations to the intention to use.

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