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Security and perceived ease of use in mobile banking users in Islamic banks: The mediating role of customer trust

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ABSTRACT

This study aims to examine the effects of security and perceived ease of use on BSI Mobile usage, with customer trust as an intervening variable. An explanatory research design was applied using survey data collected from 100 BSI Mobile users in Malang, Indonesia, selected through purposive sampling. Data were analyzed using Structural Equation Modeling with the Partial Least Squares (SEM-PLS) approach to ensure accurate measurement of both direct and indirect relationships among variables. The results indicate that security has a positive and significant direct effect on both trust and BSI Mobile usage. This suggests that users are more likely to adopt and continue using mobile banking services when they perceive the system as secure and reliable. Perceived ease of use also positively and significantly influences trust and mobile usage, indicating that a simple, intuitive, and user-friendly interface can enhance user confidence and satisfaction. Mediation analysis reveals that trust mediates the relationship between perceived ease of use and BSI Mobile usage, highlighting the importance of building user confidence through accessible technology. However, trust does not mediate the relationship between security and mobile usage, indicating that security independently drives user behavior without necessarily relying on trust as an intermediary factor. These findings suggest that strong security systems directly enhance users' willingness to adopt mobile banking, while ease of use increases usage primarily by strengthening customer trust. Therefore, improving security features, ensuring data protection, and developing user-friendly interfaces are essential strategies to encourage sustained use and long-term engagement with Islamic mobile banking services.

Contribution/Originality: This study extends the existing literature by demonstrating that security and perceived ease of use influence mobile banking adoption through different mechanisms. Security directly encourages usage, while perceived ease of use influences adoption indirectly through trust. Overall, the findings suggest that trust functions as a key mechanism that transforms usability perceptions into actual usage behavior.

1. INTRODUCTION

The Islamic financial system has become an increasingly important component of Indonesia's national economic framework, particularly in supporting inclusive growth and financial stability. Rooted in Sharia principles that emphasize justice, risk-sharing, and real-sector linkages, Islamic finance offers an alternative model that aligns economic development with ethical and social values. In a country with the world's largest Muslim population, the development of Islamic banking is not only economically relevant but also socially and culturally significant.

Within this broader context, Islamic banking is projected to grow above the national banking average in 2025, driven by increasing financing disbursements and third-party funds. Amid domestic economic challenges, the Islamic financial sector is expected to remain resilient, with Islamic banking acting as a key growth engine. Bank Syariah Indonesia (BSI), as the largest Islamic bank in Indonesia, holds a strategic position in this development. BSI provides inclusive financial access across various segments of society, including micro, small, and medium enterprises (MSMEs), through programs such as microfinance financing that support economic empowerment and strengthen the national halal ecosystem. Through continuous innovation and institutional strengthening, BSI plays a central role in advancing the Islamic financial sector and supporting national economic growth (Takhim et al., 2023).

Alongside this institutional growth, technological advancement has fundamentally transformed customer behavior from conventional to digital-oriented practices. The digital era emphasizes speed, efficiency, and accessibility, reshaping how financial services are consumed. The banking industry has consequently transitioned from offline-based services to digital platforms. Within this transformation, Islamic banking faces a dual challenge: responding to rapid digitalization while maintaining compliance with Sharia principles. For BSI, digital transformation is no longer optional but essential, as customer expectations increasingly favor mobile-based, real-time, and user-friendly banking services.

As public awareness of Sharia compliance has matured, the primary competitive challenge for Islamic banking has shifted from legitimacy concerns toward service quality, technological capability, and digital trust. These behavioral shifts are evident in the increasing reliance on e-commerce and digital payment platforms, which have accelerated demand for mobile banking services. Mobile banking represents a key innovation within digital financial services, offering convenience, efficiency, and transactional flexibility. Features such as ease of access, time efficiency, and enhanced security encourage users to transition from offline to online financial activities (Kurniati, Nuringwahyu, & Daidan, 2024).

As digital banking adoption intensifies, understanding the determinants that influence continued usage becomes increasingly important, particularly within the Islamic banking context. Among these determinants, security plays a critical role in shaping user confidence in mobile banking services. Perceived security reflects users' beliefs regarding data protection, transaction safety, and minimal risk of information misuse (Strzelecki & Rizun, 2022). Similarly, perceived ease of use refers to the degree to which a system is considered effortless to learn and operate, contributing to efficiency and practicality in daily transactions (Al-Adwan et al., 2023). In digital financial services, both security and ease of use are consistently identified as key drivers of technology adoption and continued usage (Al-Qudah et al., 2024). Prior studies have extensively examined factors influencing digital payment and mobile service adoption.

In a study by Ariffin, Abd Rahman, Muhammad, and Zhang (2021), the focus was found to be on factors influencing consumer intention to adopt e-wallet services, with their tendencies identified as related to key elements. The study was found to focus on several crucial variables, such as perceived benefits, ease of application, attitudes, subjective norms, positive confirmation, and perceived behavioral control. The study's results demonstrate that the integrative model proposed by the technology acceptance model, the theory of planned behavior, and the expectation model effectively explains consumer intention to adopt e-wallets sustainably. Factors such as perceived benefits, perceived application, attitudes, subjective norms, positive confirmation, perceived behavioral control, and satisfaction with the application have been shown to significantly influence the intention to use digital wallet or e-wallet services. A study conducted by Keni, Tjoe, Wilson, and Negara (2020) found that perceptions related to security, application, and benefits significantly influence people's intention to use mobile payment services in Indonesia. The study concluded that these three factors are crucial in encouraging people to use electronic payments in their daily shopping activities. Thus, companies providing electronic payment services can apply the results to increase consumer awareness and understanding of their services. A study conducted by Siagian, Tarigan, Basana, and Basuki (2022) also examined the influence of perceived security, ease of use, and usability on consumer behavioral intentions in utilizing digital payment platforms, with trust as a mediating variable. The study results show that all three

perceptions significantly influence trust, which ultimately influences users' behavioral intentions. Thus, trust plays a crucial mediating role in linking the influence of these performance factors to consumer intentions to adopt digital payment services.

Accordingly, the research gap of this study does not lie in the absence of trust as a mediating variable per se but rather in the contextual and institutional specificity that remains underexplored. Existing studies have yet to comprehensively investigate how trust operates as a mediating mechanism between perceived security, perceived ease of use, and mobile banking usage within Islamic banking institutions, particularly BSI Mobile, as Indonesia's largest Sharia-based digital banking platform. The integration of Islamic values, Sharia governance, and religious assurance potentially alters how trust is formed and how security and convenience are interpreted by users, distinguishing Islamic mobile banking adoption from conventional digital payment systems. Trust, in this context, encompasses users' beliefs in institutional competence, integrity, benevolence, and compliance with both technological and Sharia standards (Wolor, Eranza, Rababah, Nurkhin, & Hoo, 2024). Given that trust functions not only as a psychological construct but also as a religious and ethical assurance in Islamic banking, examining its mediating role within BSI Mobile provides novel empirical contributions.

This study adopts the Technology Acceptance Model (TAM) as its theoretical foundation. TAM is particularly suitable for this research because it emphasizes perceived ease of use and perceived usefulness as core determinants of technology adoption, while allowing for the integration of external variables such as security and trust. Compared to broader models such as UTAUT or UTAUT2, TAM offers a more parsimonious and context-sensitive framework that is appropriate for analyzing individual-level behavioral acceptance in specific organizational settings. The inclusion of security as an external variable aligns with TAM's flexibility in incorporating contextual factors that influence users' perceptions and behavioral responses. Within the context of Islamic digital banking, TAM enables a focused examination of how perceived security and perceived ease of use influence trust, which subsequently affects mobile banking usage.

This approach allows for a clearer understanding of the psychological and technological mechanisms underlying BSI Mobile adoption, without overextending the model with social or infrastructural variables beyond this study's scope. Based on these considerations, this research aims to analyze the effect of perceived security and perceived ease of use on BSI Mobile use, with trust as a mediating variable, among Indonesian Islamic banking users. The findings are expected to provide empirical insights into digital banking adoption within Islamic financial institutions and offer practical implications for strengthening user trust, improving digital service design, and enhancing mobile banking utilization in Sharia-compliant banking environments.

2. METHODS

2.1. Research Design

2.1.1. Research Context

This study was conducted at Bank Syariah Indonesia (BSI), located in Malang, East Java, Indonesia. The research period was three months, from November to January 2025. This location was chosen based on the consideration that the bank is one of the few Islamic banks with a high level of adoption and implementation of digital banking services in its operations and services. Furthermore, the bank continues to demonstrate a commitment to developing innovative digital services and expanding banking access to all levels of society, including MSMEs.

2.2. Data Collection

In this study, primary data were collected through online questionnaires distributed via Google Forms and administered directly to customers visiting Bank Syariah Indonesia (BSI) branches in Malang. The sampling technique employed was purposive sampling, targeting respondents who were active users of the BSI Mobile application. A total of 100 valid responses were obtained and used for analysis. This non-probability sampling

approach was chosen due to practical constraints related to access and respondent availability during the data collection period.

However, it is important to acknowledge that the use of purposive sampling and a relatively small sample size constitutes a significant methodological limitation. As a non-probability sampling technique, purposive sampling restricts the representativeness of the sample and limits the generalizability of the findings beyond the specific context of BSI Mobile users in Malang. Therefore, the results of this study should be interpreted with caution and understood as context-specific rather than broadly generalizable to all Islamic banking customers or mobile banking users in Indonesia.

Secondary data were obtained from various sources, including books, academic literature, journal articles, and previous empirical studies relevant to digital banking, technology acceptance, and customer trust. All variables were measured using a Likert scale, with indicators adapted from established and validated prior studies. The security variable was measured based on indicators adopted from Almaiah et al. (2023), which included three indicators: not worried about providing information, trust that information is protected, and security of money in mobile banking is guaranteed during transactions. The perceived ease of use variable was measured based on indicators from Siagian et al. (2022), which consisted of four indicators: easy to learn, easy to use, clear and easy to understand, and being skillful. The mobile banking usage variable was measured using three indicators from Segars and Grover (1993), which consisted of: intention to use, continuous usage intention, and intention to continue using. The trust variable was measured using indicators from Wolor et al. (2024), which consisted of three indicators: ability, benevolence, and integrity. All items from these indicators were measured using a Likert scale with 5 points, with 1 indicating "strongly disagree" and 5 indicating "strongly agree".

2.3. Data Analysis

The data obtained were analyzed using Structural Equation Modeling (SEM) techniques to test variable relationships, utilizing Smart PLS software version 4.0. Additionally, the outer model evaluation was conducted, which included the measurement model and the inner model evaluation, focusing on the model structure. To assess construct validity and reliability, SEM analysis with intervening variables was employed to test hypotheses and determine the extent of interconnections among variables (Hair et al., 2021). Measurement and structural models were evaluated based on several criteria, including convergent validity, composite reliability, discriminant validity, average variance extracted, variance inflation factor, R-square, and hypothesis testing through bootstrapping. SEM involved three simultaneous activities: checking the instrument's validity and reliability (confirmatory factor analysis), testing the relationships between variables (path analysis), and identifying a suitable model for prediction (structural model and regression analysis).

3. HYPOTHESES DEVELOPMENT

3.1. Security to Trust

Security is a fundamental factor in digital financial services, particularly in mobile banking, where users are required to disclose sensitive personal and financial information. In the context of digital finance, trust emerges primarily from users' perceptions that the system is capable of protecting data integrity, ensuring transaction confidentiality, and preventing unauthorized access. Recent studies emphasize that perceived security is not merely a technical attribute, but a psychological assurance that directly shapes users' trust in digital banking platforms. Alkhowaiter (2020) highlights that security perceptions are among the most influential antecedents of trust in digital banking adoption, especially in environments characterized by high perceived risk. Similarly, Almaiah et al. (2023) demonstrate that perceived security significantly strengthens customer trust in mobile banking applications by reducing concerns related to data breaches and financial fraud. In line with this, Fang and Quintos (2023) argue that

robust security mechanisms, such as encryption, authentication, and transaction monitoring, function as trust-building signals that enhance users' confidence in digital banking services.

More recent empirical evidence further confirms the central role of security in trust formation. Gómez-Hurtado, Gálvez-Sánchez, Prados-Peña, and Ortíz-Zamora (2025) find that perceived security positively and significantly affects trust in e-wallet and digital payment systems, particularly among younger digital-native users. Likewise, Salah and Ayyash (2025) show that security perceptions are a critical determinant of trust in mobile wallet and mobile banking adoption within extended Technology Acceptance Model (TAM) frameworks. These findings collectively suggest that in digital financial services, security acts as a foundational driver of trust by mitigating perceived risk and uncertainty. Therefore, higher levels of perceived security are expected to lead to stronger customer trust in mobile banking services such as BSI Mobile. Based on this argument, the following hypothesis is proposed.

H_1: Security (X_1) has a positive and significant effect on Trust (Z).

3.2. Perceived Ease of Trust

The perceived ease of use of a digital banking system reflects the extent to which users believe that interacting with the system requires minimal effort. In digital finance, ease of use not only influences functional adoption but also contributes to the development of trust, as intuitive and user-friendly systems reduce cognitive burden and perceived uncertainty. When users can easily navigate and operate a mobile banking application, they are more likely to perceive the system as reliable. Wilson, Keni, and Tan (2021) demonstrate that perceived ease of use significantly enhances trust by reinforcing users' confidence in the system's functionality and consistency. Similarly, Leitão (2023) finds that ease of use indirectly strengthens adoption intention through trust, suggesting that trust plays a crucial mediating role between system usability and usage behavior. In the context of digital banking, simple interfaces, clear transaction flows, and responsive features foster users' belief that the system will perform as expected.

Accordingly, perceived ease of use is expected to positively influence trust in mobile banking services. Based on this reasoning, the following hypothesis is formulated: In the Indonesian context, empirical research consistently highlights trust as a crucial driver of mobile banking adoption and usage. Wijanarko and Sihite (2024) reveal that perceived security and ease of use significantly influence intention to use mobile banking, with trust acting as a mediating variable. Similarly, Batubara, Jannah, and Ritonga (2023) find that trust mediates the effects of perceived usefulness, ease of use, and security on customers' interest in using BSI Mobile services. Andini, Suhud, and Kasofi (2026) further demonstrate that perceived security and service quality enhance user satisfaction and continued usage intention through trust. These findings suggest that within emerging digital banking markets such as Indonesia, trust serves as a critical link between technological attributes and actual mobile banking usage behavior.

H_2: Perceived Ease (X_2) has a positive and significant effect on Trust (Z).

3.3. Trust in the Use of Mobile Banking

Trust is widely recognized as a central construct in digital finance, particularly in technology-based financial services where users face high levels of uncertainty and perceived risk. In digital banking environments, trust functions as a psychological mechanism that reduces users' concerns regarding data misuse, transaction failure, and opportunistic behavior by service providers. A systematic literature review by Jafri, Amin, Rahman, and Nor (2024) confirms that trust consistently emerges as a key determinant of FinTech and digital banking adoption, with perceived security and technological reliability acting as its primary antecedents. Similarly, Mai, Thi, and Cao (2025) emphasize that trust in digital finance is shaped not only by system functionality but also by users' beliefs regarding institutional safeguards, regulatory compliance, and technological transparency. Gupta and Shukla (2024) further argue that trust formation in digital banking is closely linked to the effectiveness of security infrastructures and legal protection mechanisms that assure users of transaction integrity. Collectively, these studies position trust as a foundational construct in digital finance, mediating the relationship between technological attributes such as security

and usability and user adoption behavior. To strengthen the robustness of trust-related research in digital finance, several methodological and review-based studies provide complementary insights. Apau, Titis, and Lallie (2025) emphasize the importance of accurately measuring perceived security in mobile banking applications, arguing that security perceptions strongly influence users' trust judgments. Waliullah et al. (2025) highlight that cybersecurity threats and perceived digital risks significantly affect trust formation and adoption decisions in digital banking ecosystems. Additionally, Kanaparthi (2024) discusses how emerging technologies, such as AI-based personalization, can enhance trust in digital finance by improving system transparency and user experience. These studies offer methodological and conceptual support for integrating trust, security, and technological factors within digital banking adoption models.

Thus, higher trust is expected to increase the likelihood of customers using mobile banking services. Therefore, the following hypothesis is proposed.

H_3: Trust (Z) has a positive and significant effect on Mobile Usage (Y).

3.4. Security towards Mobile Usage

Perceived security and confidentiality are a person's belief in using a system for a sense of security, a very small risk of data loss, and minimal risk of theft (Strzelecki & Rizun, 2022). When individuals use a new technology, there must be a sense of concern over their use of the technology. This concern means whether the technology is safe and whether individual personal data is kept confidential properly when used. According to Al-Qudah et al. (2024), the perception of security and privacy indicates the level of security and privacy when using an e-wallet for transactions. This means that security can provide safe privacy when using online transactions. This is supported by research by Salah and Ayyash (2025), which shows that mobile banking security has a significant effect on the use of mobile wallets. This means that high security increases user trust and comfort when making digital transactions. Thus, the following hypothesis can be drawn.

H_4: Security (X_1) has a positive and significant effect on Mobile Usage (Y).

3.5. Perceived Ease of Mobile Use

Perceived ease of use is an important factor influencing the use of electronic payments. The easier it is to use a product, the more interest in using the product increases (Siagian et al., 2022). This is in line with Prastiawan, Aisjah, and Rofiaty (2021) research, which found that perceived ease of use and social influence are empirically proven to directly impact mobile banking use. And supported by research by Fernandes, Panda, Venkatesh, Swar, and Shi (2022), ease of use and online consumer reviews positively and significantly affect purchasing decisions. The intended purchase decision is to use an online application. Then it is also supported by research by Chinomona (2013), explaining that there is an influence between perceived ease of use and intention to use. Based on this description, the following hypothesis is obtained.

H_5: Perceived Ease (X_2) has a positive and significant effect on Mobile Usage (Y).

3.6. Security of Mobile Usage through Trust

When individuals use a new technology, concerns often arise regarding its security, especially in terms of protecting personal data and security risks during transactions (Strzelecki & Rizun, 2022). A high level of security in a system can increase user trust, which encourages them to be more comfortable adopting the technology. This is in line with the findings of Alkhowaiter (2020), which states that high security perceptions play an important role in increasing user trust, which in turn encourages the adoption of digital banking services. With strong security guarantees, users will be more confident that their data and transactions are protected, so they are more willing to rely on digital services in their financial activities. Based on this explanation, the hypothesis in this study can be formulated as follows:

H_6: Security (X_1) has a positive and significant effect on Mobile Usage (Y) mediated by Trust (Z).

3.7. Perceived Ease of Mobile Use through Trust

Perceived convenience is an important factor influencing the use of electronic payments. The easier a technology is to use, the more interest in using the product increases (Wilson et al., 2021). When users feel that a system is easy to understand and operate, they tend to have more confidence in the reliability and benefits of the technology, which in turn increases their intention to use it. Conversely, if users experience difficulties in using technology, their interest in adopting it will decrease. This is supported by Chawla and Joshi (2023), who found that the effect of perceived ease of use on technology usage intention is fully mediated by trust. In other words, although ease of use has an impact on technology adoption, this effect only really has an impact if users also feel the benefits of the technology and have confidence in the system used. Based on this explanation, the following hypothesis can be drawn.

H_7: Perceived Ease (X_2) has a positive and significant effect on Mobile Usage (Y) mediated by Trust (Z).

Stimuli known to trigger mobile banking adoption include convenience and security. These stimuli provide a boost to trust, namely confidence and security in making transactions boldly, and act as an intermediary between the stimulus and the response. Ultimately, this trust is known to influence mobile banking adoption, characterized by spontaneous decisions on the part of customers. This model attempts to test seven hypotheses regarding mobile banking adoption, with trust producing a crucial intermediary influence.

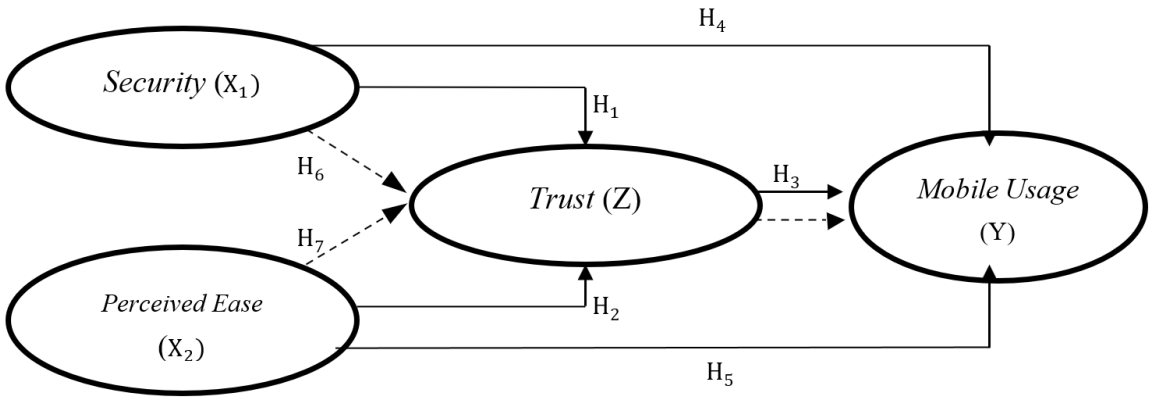

Figure 1. Hypothesis Framework.

The analysis of the results of this study begins with an attempt to present a respondent profile that includes distribution based on gender, age, status, or occupation. The data points presented in Table 1 show that the majority of respondents are female, accounting for 67% of the total participants, while male respondents make up 33%. Regarding age, the largest group is in the 21-to-30-year age range, representing 41% of respondents. Additionally, most respondents are students, comprising 37% of the total.

Table 1. Characteristics of respondents.

Items	Component	Percentage
Gender	Male	33%
	Female	67%
Age	17 – 20 years old	25%
	21 – 30 years old	41%
	31 – 40 years old	27%
	>40 years old	5%
Status/Employment	College student	37%
	Civil Servants	30%
	Self-employed	23%
	Other	10%

The next stage in the statistical analysis is the assessment of the measurement modality to ensure the accuracy and consistency of the indicators applied in the study Hair et al. (2021). The model evaluation is conducted based on convergent and discriminant validity, which is assessed based on key characteristics. First, the outer loading value should ideally be slightly greater than 0.70, although values between 0.40 and 0.70 are acceptable under certain conditions (Hair et al., 2021). Based on the analysis presented in Table 2, it can be determined that all indicators present an outer loading value above 0.60, which provides an understanding that the indicators are valid and suitable for application in this study. Furthermore, the results presented in Table 3 provide an understanding that the reliability of the composite and the value has been positioned above the threshold of 0.60, providing confirmation that the entire construct presents good reliability. Furthermore, the value of the average position is greater than 0.50, further strengthening that convergent validity has been achieved well. Thus, all the characteristics of convergent validity in this study have been met.

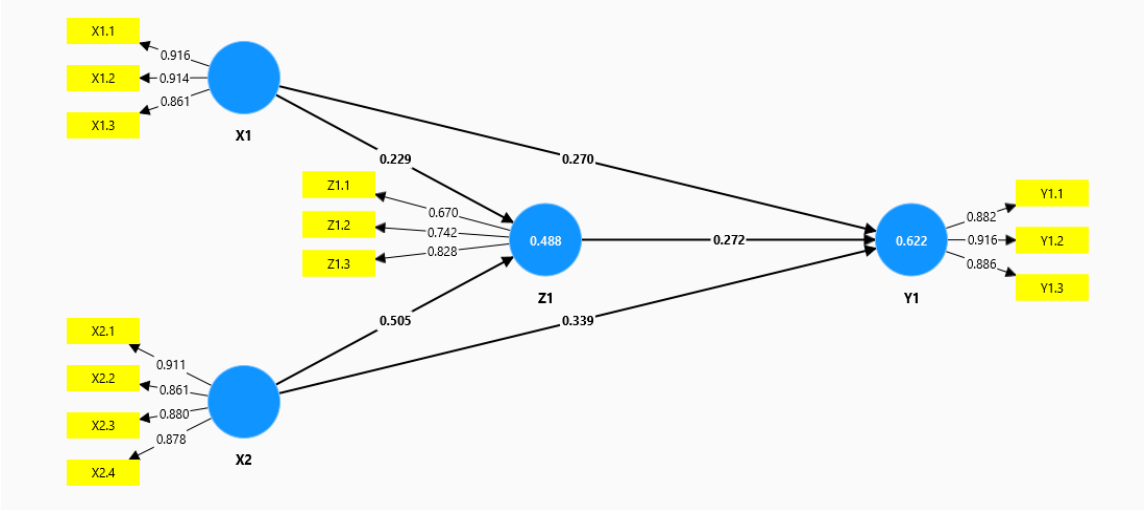

Figure 2. Outer model test.

Table 2. Outer loading.

Variables	Item	Outer Loading
Security (X1)	X1.1	0.916
	X1.2	0.914
	X1.3	0.861
Perceived Ease (X2)	X2.1	0.911
	X2.2	0.861
	X2.3	0.880
	X2.4	0.878
Mobile Usage (Y)	Y1.1	0.882
	Y1.2	0.916
	Y1.3	0.886
Trust (Z)	Z1.1	0.670
	Z1.2	0.742
	Z1.3	0.828

Table 3. Convergent validity and reliability.

Variables	Cronbach's Alpha	Composite Reliability	AVE
Security	0.879	0.925	0.805
Perceived Ease	0.905	0.934	0.779
Mobile Usage	0.875	0.923	0.800
Trust	0.651	0.792	0.562

The evaluation of the measurement model confirms that all constructs demonstrate satisfactory reliability and validity. All indicators exhibit outer loading values above the recommended threshold, indicating that each item adequately represents its respective construct. This suggests that respondents consistently perceived the concepts of security, perceived ease of use, trust, and mobile banking usage in accordance with their theoretical definitions. The reliability assessment further supports these findings. Composite reliability and Cronbach's alpha values for all constructs exceed acceptable levels, confirming strong internal consistency among the measurement items.

In addition, the Average Variance Extracted (AVE) values surpass the minimum criterion, indicating that each construct explains a substantial proportion of variance in its indicators. Collectively, these results confirm that the measurement model is robust and suitable for subsequent structural analysis. Discriminant validity was assessed using the Heterotrait–Monotrait Ratio (HTMT). Discriminant validity was measured using the Heterotrait–Monotrait Ratio (HTMT). Table 4 presents the results of the discriminant validity test using the HTMT method. The HTMT values for each pair of constructs were below the recommended threshold of 0.90. This finding confirms that security, perceived ease of use, trust, and mobile banking usage represent separate conceptual dimensions, not overlapping perceptions.

Table 4. Discriminant validity (Heterotrait - Monotrait ratio).

Construct	Security	Perceived Ease	Mobile Usage	Trust
Security				
Perceived Ease	0.869			
Mobile Usage	0.799	0.819		
Trust	0.750	0.794	0.793	

The second stage in this analysis is testing the structural model, which is done by testing the R-square value and path coefficient. Before that, it is important to ensure the absence of multicollinearity between variables using the Variance Inflation Factor (VIF) statistic. A VIF value of less than 5 indicates that there is no multicollinearity between the variables in the model (Hair et al., 2021). Based on the analysis results in Table 5, all VIF values between constructs are below 5, which means there is no collinearity problem in this study.

Table 5. Collinearity statistic (VIF).

Construct	Security	Perceived Ease	Mobile Usage	Trust
Security	_	_	2.637	2.534
Perceived Ease	_	_	3.033	2.534
Mobile Usage	_	_	_	_
Trust	_	_	1.955	_

According to Hair et al. (2021), an R-square value of 0.25 is categorized as weak, 0.50 is moderate, and 0.75 is considered strong. Based on the data in Table 6, the R-square value in this study of 0.622 indicates that the relationship between variables is moderate because it is between 0.50 and 0.75. The R-square value of 0.622 on the usage variable indicates that the construct variable (X) contributes 62.20% to usage, while other factors outside the model influence the remaining 37.80%. As for the trust variable, the R-square value of 0.488 indicates that 48.80% of its variation can be explained by the construct variable (X), while external factors influence the remaining 51.20%.

Table 6. R-Square.

Construct	R-Square	R-Square Adjusted
Mobile Usage	0.622	0.610
Trust	0.488	0.478

Furthermore, the path coefficient test is carried out to test the hypothesis by analyzing the t-statistic value and p-value. A hypothesis is considered to have a significant and acceptable effect if the t-statistic value is more than 1.96 and the p-value is less than 0.05 (Sekaran & Bougie, 2016). Based on the results of hypothesis testing presented in Table 7, it is found that each hypothesis provides varying results. Hypotheses H1, H2, H3, H4, H5, and H7 are proven to have a significant effect, so all of these hypotheses can be accepted. In contrast, hypothesis H6 does not show a significant effect, so this hypothesis is rejected. This finding indicates that not all variables in the research model have a real impact on the variables analyzed, so further studies are needed to understand other factors that may contribute to the relationship in the model.

Table 7. Result of hypothesis testing.

Variable relationship	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T statistics (|O/STDEV|)	P values	Description
Direct Effect						
Security > Trust	0.229	0.236	0.117	1.967	0.049	Accepted
Perceived ease> Trust	0.505	0.504	0.116	4.374	0.000	Accepted
Trust > Mobile Usage	0.272	0.278	0.079	3.426	0.001	Accepted
Security > Mobile Usage	0.270	0.275	0.089	3.036	0.002	Accepted
Perceived ease> Mobile Usage	0.339	0.322	0.111	3.062	0.002	Accepted
Indirect Effect						
Security > Trust > Mobile Usage	0.062	0.064	0.035	1.783	0.075	Rejected
Perceived ease> Trust > Mobile Usage	0.137	0.141	0.055	2.507	0.012	Accepted

This can be proven by the statistical value of t of 1.967, which is known to have exceeded the minimum threshold of 1.96, and the P value of 0.049, which is below the significance level of 0.05. Thus, the hypothesis is accepted. This finding shows that the higher the level of security obtained by customers, the customer's integrity will also increase in services from BSI mobile. The results of this study are in line with the study conducted by Gómez-Hurtado et al. (2025), which presents an understanding that the security factor has a positive influence and has significance on trust, especially in digital banking services that depend on the protection of data and transactions from users (Fang & Quintos, 2023). Thus, to be able to increase customer trust, BSI needs to make efforts to optimize the security system, both in the technological aspect and education for customers related to data protection and security in digital-based transactions.

The results of the second hypothesis testing effort indicate that perceived ease of use has a positive influence and significance on integrity. The statistical value of t is 4.374, and the P value is 0.000. Wilson et al. (2021) explained that this factor has a positive influence and significance on the level of user trust. In BSI mobile, the perception of user convenience in significant aspects can lead to an increase in customer trust, with an effect size of 50.50%. This demonstrates that the easier a banking service is to use, the higher the level of customer integrity. The simplicity of access, navigation, and intuitive features within the BSI mobile application play a crucial role in fostering customer integrity in digital banking services. This finding reinforces the theory that factors influencing technology adoption are vital in establishing and maintaining trust in digital banking services.

Based on the third hypothesis testing results, it was found that the variable of trust has a positive influence and has a significant impact on the nature and application of BSI mobile services. This is evident in the statistical value of 3.426, which is greater than the threshold of 1.96, and the P value of 0.001, which presents an understanding of the value less than 0.05. Thus, the hypothesis has been accepted, which can be understood that the higher the level of customer trust in BSI mobile services, the greater the possibility that customers will actively use them. This finding provides an understanding that trust plays a crucial role in driving the adoption of digital banking services. Customers are more likely to use the BSI mobile when they have confidence that the application is safe, open, and can also rely on its services.

These results align with research by Singh and Sinha (2020), which states that trust has a positive and significant influence on digital wallet adoption. BSI Mobile, a Sharia-based digital banking application, offers convenience and security in transactions, as well as Islamic features that differentiate it from conventional banking applications. Features such as a zakat calculator, prayer schedule information, the location of the nearest mosque, and Sharia-compliant investment services provide added value that strengthens Muslim customers' trust in using the application. With this combination, BSI Mobile has successfully achieved high levels of integrity among its users, which has subsequently led to a significant increase in application adoption.

The fourth hypothesis suggests that the security variable has a positive and significant influence on the use of the BSI mobile. The statistical value of the test is 3.036, with a P value of 0.002. The results indicate that higher levels of security increase the likelihood of customers using the BSI mobile. Security is viewed as a crucial factor that can influence the decision to use the digital application. Customers tend to be more trusting and comfortable when they believe their personal data, transaction processes, and funds are protected from security risks such as hacking or misuse of information. This study aligns with the findings of Ngo and Le (2023), who also found a positive and significant impact of security on digital banking service usage. It can be understood that the higher the customers' trust in the security system of the banking application, the more likely they are to continue using it for their daily financial transactions.

BSI Mobile itself is known to have been equipped with various sophisticated security features, such as biometric authentication in the form of fingerprints and facial recognition, data encryption, and a real-time notification system for each transaction made. In addition, as an application that has Islamic banking principles, BSI Mobile is known to also strive to ensure that each transaction carried out is in accordance with Sharia, providing security that is not only based on a technical perspective but also on Sharia compliance. The results of the fifth hypothesis testing effort present an understanding of two perceptions that then present a positive influence and have significance on the application of BSI Mobile. This can be reviewed based on the statistical value of t with a figure of 3.062, which is known to have exceeded the threshold of 1.96, and the P value itself is 0.002, which is smaller than the figure of 0.05. Thus, the hypothesis can be accepted, and it can be understood that the easier a digital application or service is to use, the greater its use by customers in their daily banking. Customers tend to use mobile BSI more actively if they perceive the application to be intuitive, responsive, and to have simple and efficient navigation. This finding is in line with research by Al-Qudah et al. (2024), which explains that the convenience factor has a positive and significant influence on user decisions in efforts to adopt digital financial services.

The results of the sixth hypothesis testing effort show that the trust variable does not mediate the relationship between security and the application of BSI mobile. This is evidenced by the statistical value of 1.783, which is below the threshold of 1.96, and the P value of 0.075, which is greater than the significance level of 0.05. Therefore, the hypothesis is rejected, indicating that security does not significantly influence the application of BSI mobile based on customer trust.

In the context of the technology acceptance model theory, these results provide an understanding that security can directly influence technology acceptance without relying on trust. Based on this theory, users' decisions to adopt a technology are influenced by perceived usefulness and ease of application (Wilson et al., 2021). In this context, security can be considered part of perceived benefits because a secure system can increase user confidence that the application can be used without high risks. However, trust could not be proven as a mediator in this study; other factors, such as user experience and perceived ease of application, may play a more dominant role in driving application adoption.

Trust has a positive and significant effect on mobile banking usage, confirming its role as a key psychological driver of technology adoption. Users who trust the mobile banking system are more likely to engage with it consistently, indicating that trust facilitates the transition from favorable perceptions to actual usage behavior. Security also demonstrates a direct and significant influence on mobile banking usage. This result suggests that

security operates as a fundamental requirement that can motivate usage decisions independently of trust. In this context, visible security assurances appear sufficient to encourage customers to use mobile banking services without requiring an additional trust-building process.

Similarly, perceived ease of use has a significant direct effect on mobile banking usage. This finding indicates that usability not only enhances trust but also independently encourages adoption by reducing cognitive effort and transaction complexity. Users are more inclined to use a system that is easy to learn and operate, regardless of other considerations. In contrast, the mediating role of trust differs across relationships. Trust does not significantly mediate the relationship between security and mobile banking usage. This pattern suggests that security functions as a hygiene factor, reducing perceived risk directly rather than operating through relational or affective trust formation. Conversely, trust significantly mediates the relationship between perceived ease of use and mobile banking usage. This indicates that ease of use enhances trust, which in turn strengthens users' commitment to using the application. Taken together, these findings indicate that while both security and perceived ease of use are critical determinants of mobile banking usage, they operate through different mechanisms. Security primarily influences usage directly, whereas perceived ease of use affects usage both directly and indirectly through trust. These findings should be interpreted within the context of the proposed model and sample characteristics.

According to TAM, a user's decision to adopt a technology is influenced by Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) (Wilson et al., 2021). In this case, security can be considered as part of Perceived Usefulness, as a secure system increases users' confidence that the application can be used without high risk. However, since trust was not shown to be a mediator in this study, other factors, such as user experience and perceived ease of use, may have a more dominant role in encouraging the use of BSI Mobile. In addition, Aboobucker and Bao (2018) also found that while trust is vital in technology adoption, other factors such as ease of access and user experience have a more substantial influence in increasing acceptance of digital services. Thus, while security remains a fundamental element in digital banking services, BSI needs to focus on other factors in the TAM model, such as improving perceived benefits and ease of use, to drive optimal adoption of BSI Mobile.

The results of the seventh hypothesis test (H_7) show that perceived convenience has a positive and significant effect on the use of BSI Mobile, which is mediated by trust. This is evidenced by the t-statistic value of 2.507, greater than the threshold of 1.96, and a p-value of 0.012, less than 0.05. Thus, this hypothesis is accepted, which means that the easier a service is to use, the greater the level of customer trust in the service, which in turn encourages increased use of BSI Mobile. This means that although convenience directly impacts the use of digital services, the role of trust as an intermediary factor also strengthens the relationship. In other words, the easier it is for customers to access and use BSI Mobile, the greater their trust in the application, increasing the frequency and consistency of its use. The findings indicate that perceived security has a positive and significant effect on customer trust in mobile banking services. This suggests that users are more likely to trust mobile banking applications when they feel that their personal data and financial transactions are adequately protected. A strong perception of security reduces users' concerns about potential risks and enhances their confidence in the system. This result is consistent with Gómez-Hurtado et al. (2025), who emphasize that security perceptions play a crucial role in building trust in digital financial platforms.

The results show that perceived ease of use has a significant influence on trust in mobile banking services. This indicates that users tend to develop greater trust when the system is easy to understand and operate. Simple navigation and clear features reduce user effort and increase confidence in using the application. This finding supports Wilson et al. (2021), who report that convenience and usability significantly enhance user trust in digital service environments. Trust is found to have a positive and significant effect on mobile banking usage. This suggests that users are more willing to adopt and continuously use mobile banking services when they trust the system. Trust acts as a psychological mechanism that transforms positive perceptions into actual usage behavior. This result is consistent with the findings of Singh and Sinha (2020), who highlight trust as a key determinant of digital payment adoption.

The findings also reveal that perceived security directly influences mobile banking usage. This indicates that users may decide to use mobile banking services based on their perception of security, even without the formation of deeper trust. In this context, security functions as a fundamental requirement that reduces perceived risk and encourages usage behavior. This finding aligns with Ngo and Le (2023), who report a significant relationship between security and digital banking usage.

In the context of the Technology Acceptance Model (TAM) theory, ease of use (Perceived Ease of Use - PEOU) is a major factor influencing technology acceptance (Bakı, Bırgoren, & Aktepe, 2018). TAM explains that if a technology is considered easy to use, users will be more likely to adopt it directly or through an increase in perceived usefulness (PU). In this study, ease of use not only directly impacts the use of BSI Mobile but also builds trust, which drives more consistent adoption of the service. Trust plays an intermediary role in the TAM model because users feel that a digital banking application that is easy to use will increase their trust in the system's reliability. When BSI Mobile offers intuitive navigation, responsive features, and a comfortable user experience, customers are more confident that the app is reliable for their banking needs. This established trust then increases their motivation to continue using the app in the long term. Thus, this finding further reinforces the principle in TAM that ease of use not only directly impacts technology acceptance but also contributes to building psychological factors such as trust, which in turn increases loyalty and frequency of use of digital banking services such as BSI Mobile.

4. MANAGERIAL IMPLICATION

The findings of this study provide valuable insights for retailers in mobile banking services and understanding consumer behavior, especially in the use of e-banking/mobile banking. The results indicate that banks need to develop more comprehensive and integrated marketing strategies to encourage the use of mobile banking. Banks need to provide security and convenience to motivate trust so that customers will be satisfied using mobile banking. By providing a pleasant mobile banking experience, banks can increase customer satisfaction and motivate them to use it safely. In addition to this, to attract customers to use mobile banking, banks need to design more innovative marketing strategies. This can be done by providing exclusive promotions at certain moments, such as offering scholarships to students, holding account opening challenges with direct prizes, or educational moments, for example, promotions at universities by offering a safe and easy way to pay taxes through online/mobile banking, as well as providing personalized services through recommendations on the security and ease of mobile banking services tailored to the consumer's/customer's history and preferences. These strategies can help banks attract customers and increase mobile usage. With the right approach, banks can create a safe and easy mobile experience, significantly driving mobile usage. The results of this study indicate that BSI Mobile is a user of a sharia-based digital banking application that features Islamic elements. These features distinguish it from conventional banking applications. Islamic features such as zakat calculators, prayer schedule information, the location of the nearest mosque, and sharia-based investment services add value and enhance trust among Muslim customers. It has also been proven that Islamic features provide convenience and security, which has successfully built high trust among users, ultimately increasing the application's usage significantly.

5. CONCLUSION

This study successfully identified the effect of security and convenience on using mobile banking, with trust as an intervening variable for BSI customers. The analysis results show that security positively and significantly affects trust. This means that the safer mobile banking is offered, the higher the customer's trust in using mobile banking. Likewise, convenience has a positive and significant effect on trust. However, without trust mediation, security can directly trigger mobile banking use. Meanwhile, convenience can directly affect mobile usage, but its indirect effect operates through trust.

The theoretical implications of this study contribute to the digital banking literature by expanding the application of the Technology Acceptance Model (TAM) in the context of Islamic mobile banking. Rather than offering a completely new perspective, this study provides more in-depth empirical evidence regarding the conditional role of trust in shaping mobile banking usage behavior. The results show that internal factors, particularly trust, play an important role in connecting external stimuli such as perceptions of the ease of use of mobile banking with actual usage decisions. These findings reinforce the existing theoretical argument that trust can increase user confidence and mediate the decision-making process in digital financial services.

Based on these theoretical implications, the practical implications of this study indicate that banks need to apply a more integrated approach in designing and developing mobile banking systems. Emphasis should be placed on improving security and ease of use to strengthen customer trust and encourage the continued use of mobile banking. Additionally, providing responsive and user-friendly services can increase customer satisfaction and overall user experience. In the context of BSI, these implications are particularly relevant given the wide range of mobile banking services offered, including Islamic features that support daily worship activities, ease and speed of opening accounts for new and existing customers, comprehensive payment and purchase transactions, and various investment and financing options accessible through the mobile platform. By aligning technological reliability and value propositions with Sharia principles, BSI Mobile can strengthen customer engagement while affirming its strategic role in meeting the evolving needs of customers.

Despite its contributions, this study has several limitations that should be acknowledged. First, the relatively small sample size and the use of non-probability sampling techniques may limit the generalizability of the findings beyond the specific context of BSI customers. As a result, the conclusions drawn from this study should be interpreted with caution when applied to other Islamic banks or broader customer populations. Future research is therefore encouraged to employ larger sample sizes and probability-based sampling methods to enhance the robustness and external validity of the results. In addition, subsequent studies may consider expanding the research scope by involving customers from multiple Islamic banks or conducting comparative analyses between Islamic and conventional banks. Incorporating additional variables, such as perceived usefulness, religiosity, or digital literacy, may also provide a more comprehensive understanding of mobile banking adoption behavior in Islamic banking contexts.

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Institutional Review Board Statement: This study was approved by the Institutional Review Board of University of Islam Malang, Indonesia, under protocol number 063/B41/U.09/D/G.45/II/2026. Informed verbal consent was obtained from all participants, and all data were anonymized to protect participant confidentiality.
Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
Data Availability Statement: The corresponding author can provide the supporting data of this study upon a reasonable request.
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Appendices

Appendix A. Measurement Instrument.

Appendix A provides the complete list of measurement items used in this study. The questionnaire items were adapted from previously validated instruments to ensure construct validity and reliability. All items were measured using a five-point Likert scale ranging from **1 (Strongly Disagree)** to **5 (Strongly Agree)**.

Security (X1)

This construct measures users' perceptions of security related to data protection and transaction safety when using mobile banking services.

Code	Item Statement
X1.1	I am not concerned about providing personal data when using BSI Mobile
X1.2	I believe that BSI Mobile protects the confidentiality of each user's data information.
X1.3	I believe that BSI Mobile has a secure Sharia application.

Source: Almaiah et al. (2023).

Perceived Ease of Use (X2)

This construct reflects the extent to which users perceive BSI Mobile as easy to understand and operate.

Code	Item Statement
X2.1	The features offered by BSI Mobile are easy for me to learn.
X2.2	I feel that using BSI Mobile electronic payments makes payment transactions easier.
X2.3	The instructions and menu options in the BSI Mobile electronic payment feature that I use are clear and easy to understand.
X2.4	The features of BSI Mobile have improved my skills in using electronic money.

Source: Siagian et al. (2022).

Trust (Z)

This construct captures users' confidence in the competence, benevolence, and integrity of the mobile banking service.

Code	Item Statement
Z1.1	I believe that BSI Mobile is a high-quality digital service
Z1.2	I believe that BSI Mobile provides benefits to customers as users.
Z1.3	I believe that BSI Mobile can provide reliable services and offer Islamic features to customers as users

Source: Wolor et al. (2024).

Mobile Banking Usage (Y)

This construct measures users' intention and tendency to continue using mobile banking services.

Code	Item Statement
Y1.1	I feel like using BSI Mobile because it is a fast service.
Y1.2	I have always wanted to try using BSI Mobile services because they offer security and convenience.
Y1.3	Compared to other mobile banking apps, BSI Mobile has more complete features. I want to continue using BSI Mobile services.

Source: Al-Adwan et al. (2023).

Scale Description

All questionnaire items were measured using a five-point Likert scale as follows:

1 = Strongly Disagree

2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

Appendix B. Ethical Statement.

Appendix B presents the ethical considerations of the study involving human participants.

This study involved human participants and was conducted in accordance with ethical research standards. Participation was voluntary, and informed consent was obtained from all respondents prior to data collection. All responses were collected anonymously and treated confidentially for research purposes only.

Appendix C. Data Collection Procedure.

Appendix C presents the data collection procedure and sampling technique used in this study. Data were collected using an online questionnaire distributed via Google Forms and through direct distribution to BSI Mobile users. Respondents were selected using a purposive sampling technique, targeting individuals who actively used BSI Mobile services. A total of 100 valid responses were obtained and analyzed in this study.

Appendix D. Analytical Software.

Appendix D presents the data analysis technique applied in this study. The data analysis was conducted using SmartPLS version 4.0, applying Structural Equation Modeling (SEM-PLS) to evaluate both the measurement model and the structural model. Bootstrapping procedures were employed to assess the significance of the path coefficients.