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## Determinants of customer satisfaction with mobile banking services: The mediating role of trust

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**Abstract.** The article aims to develop and empirically test an integrated model explaining customer satisfaction with mobile banking by examining the effects of service quality, perceived security, and user experience through the mediating role of customer trust. A quantitative research approach was employed using survey data collected from 500 mobile banking users in Armenia, and the proposed model was tested using PLS-SEM with SmartPLS4. The findings demonstrate that perceived security ( $\beta = 0.437$ ,  $p < 0.001$ ), service quality ( $\beta = 0.285$ ,  $p < 0.001$ ), and user experience ( $\beta = 0.260$ ,  $p < 0.001$ ) significantly and positively influence customer trust. Furthermore, customer trust has a substantial positive effect on customer satisfaction ( $\beta = 0.948$ ,  $p < 0.001$ ) and significantly mediates the relationships between the examined factors and satisfaction. The model

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demonstrates high explanatory power, explaining 90.7% of the variance in customer trust and 89.9% of the variance in customer satisfaction. This study contributes to the mobile banking literature by highlighting trust as a central mechanism connecting technological and service-related factors with customer satisfaction in an emerging economy context. The findings provide practical implications for banks by emphasizing the importance of secure, reliable, and user-centered digital banking solutions to enhance customer satisfaction.

**Keywords:** mobile banking, customer satisfaction, customer trust, service quality, perceived security, user experience, PLS-SEM.

**JEL Classification:** G21, D12, C8, O33

## 1. INTRODUCTION

The rapid development of digital technologies has significantly transformed the banking sector, changing the way financial institutions deliver services and customers interact with banks. Mobile banking has become one of the most important digital channels, enabling users to conduct financial transactions conveniently, quickly, and securely through mobile devices (Shaikh et al., 2023; Akhter et al., 2020). Advances in financial technology (FinTech), artificial intelligence (AI), cloud computing, and digital platforms have further expanded the capabilities of mobile banking applications, transforming them from simple transaction tools into customer-oriented digital ecosystems (Siano et al., 2020; Nazaritehrani & Mashali, 2020; Souiden et al., 2021; Malaquias & Hwang, 2025; Hernik et al., 2025).

Despite the increasing adoption of mobile banking, customer satisfaction remains a critical challenge for financial institutions. Customers evaluate mobile banking services not only based on technological functionality but also on service quality, security, usability, and trust (Jun & Palacios, 2016; Palamidovska-Sterjadovska et al., 2025; Saibaba, 2026). Issues related to data privacy, cybersecurity, system reliability, and uncertainty regarding digital transactions continue to influence customers' perceptions and willingness to maintain long-term relationships with financial institutions. Therefore, identifying the factors that enhance customer satisfaction has become an important research and managerial priority.

Previous studies have demonstrated that service quality, perceived security, user experience, and trust significantly influence mobile banking adoption, satisfaction, and continuance intention. However, existing research has often examined these factors separately, while limited attention has been given to their combined effects within an integrated framework. Moreover, although trust has been recognized as an important determinant of digital banking behavior, its mediating role between technological and service-related factors and customer satisfaction requires further investigation.

This research gap is particularly relevant in emerging economies, where digital banking services are developing rapidly but customer expectations and trust toward electronic financial services continue to evolve. In Armenia, mobile banking adoption has increased substantially (all 17 commercial banks have their mobile banking applications); however, empirical studies examining the determinants of customer satisfaction in this context remain limited. Understanding these factors can provide valuable insights for financial institutions seeking to improve digital service quality and strengthen customer relationships.

Therefore, this study aims to develop and empirically test an integrated model explaining customer satisfaction with mobile banking services in Armenia. Specifically, the study examines the effects of service quality, perceived security, and user experience on customer trust and investigates the mediating role of trust in the relationship between these factors and customer satisfaction. The research applies Partial Least Squares Structural Equation Modeling (PLS-SEM) using data collected from 500 mobile banking users.

This study contributes to the existing literature in three ways. First, it integrates service quality, security, user experience, and trust into a comprehensive framework for explaining mobile banking satisfaction. Second, it highlights the mediating role of customer trust as a key mechanism connecting service-related factors with satisfaction outcomes. Third, it extends mobile banking research by providing empirical evidence from an emerging economy context.

## 2. LITERATURE REVIEW

Mobile banking has become one of the primary channels for delivering financial services, enabling customers to conduct banking transactions conveniently through smartphones and other mobile devices. Rapid advances in financial technology (FinTech), artificial intelligence (AI), cloud computing, and digital service platforms have fundamentally transformed banking operations and customer experiences. Consequently, mobile banking is no longer regarded merely as a technological innovation but as a strategic tool that enhances service accessibility, operational efficiency, customer engagement, and financial inclusion (Siano et al., 2020; Nazaritehrani & Mashali, 2020; Souiden et al., 2021; Shaikh et al., 2023; Okoli, 2025).

As digital banking services continue to evolve, customers increasingly evaluate mobile banking applications based on both technological capabilities and service performance. Secure transactions, personalized services, intelligent recommendation systems, AI-powered assistance, and user-friendly interfaces contribute significantly to customers' perceptions of service quality and encourage continued usage (Manser Payne et al., 2021; Alnaser et al., 2023). In particular, AI-driven technologies have enhanced customer interactions through improved responsiveness, operational efficiency, and personalized financial support, thereby creating greater customer value (Alnaser et al., 2023).

These developments demonstrate that mobile banking has evolved beyond a digital transaction platform into an intelligent, customer-centric ecosystem in which technological innovation and service quality jointly shape customer experiences and long-term relationships with financial institutions. The expanding functionality of this ecosystem is also evident in banking applications that use transaction data to estimate customers' carbon footprints and provide personalized sustainability recommendations (Caro-Carretero, 2026).

Service quality is a key determinant of customer satisfaction and the long-term success of mobile banking services. Unlike traditional banking, mobile banking service quality encompasses technological, informational, and relational dimensions, including security, privacy, reliability, responsiveness, efficiency, customer support, convenience, and system performance (Shankar et al., 2020; Khatoon et al., 2020; Khan et al., 2021; Zouari & Abdelhedi, 2021).

Extensive empirical evidence demonstrates that improvements in these dimensions significantly enhance customer satisfaction across diverse banking contexts (De Leon et al., 2020; Geebren et al., 2021; Kaur et al., 2021; Gautam & Sah, 2023; Ighomereho et al., 2023; Dangaiso et al., 2024). Meta-analytic findings further identify service quality as one of the strongest predictors of customer satisfaction, with reliability, responsiveness, security, privacy, and efficiency consistently emerging as the most influential dimensions (Khan et al., 2021; Kaur et al., 2021; Kumar et al., 2024).

Recent studies emphasize that technological quality - including self-service technologies, system quality, website quality, usefulness, ease of use, and security - enhances perceived value, customer satisfaction, and behavioral intentions (De Leon et al., 2020; Orehovački et al., 2022; Ighomereho et al., 2023). Likewise, text-mining research identifies security, convenience, responsiveness, ease of use, and customer support as the service attributes most strongly associated with positive customer evaluations (Kumar et al., 2023).

Service quality also exerts indirect effects through trust, perceived value, and customer satisfaction, which mediate its relationship with customer loyalty and continuance intention (De Leon et al., 2020; Geebren et al., 2021; Pokhrel & KC, 2024; Ejdys et al., 2025). Overall, the literature consistently identifies service quality as the foundation of successful mobile banking and a key driver of positive customer experiences and long-term relationships.

Another central construct in mobile banking research is customer satisfaction, reflecting customers' overall evaluation of digital banking experiences and serving as a key determinant of loyalty, continuance intention, and long-term customer relationships (Chochořáková et al., 2015; Belás et al., 2015). As mobile banking has evolved, research has increasingly focused on the factors shaping users' post-adoption experiences and sustained satisfaction.

Empirical evidence consistently identifies service quality as the primary driver of customer satisfaction, while technological performance, perceived value, trust, and customer experience also play significant roles (Raza et al., 2020; De Leon et al., 2020; Kaur et al., 2021; Yum & Yoo, 2023; Pokhrel & KC, 2024). Self-service technology quality, technology readiness, reliability, responsiveness, and efficient digital service delivery enhance perceived value and overall satisfaction.

Recent studies further highlight customer experience as an important determinant of satisfaction. Interactive, cognitive, affective, and ease-of-use experiences strengthen customer engagement and encourage continued use of mobile banking services (Garzaro et al., 2021; Molinillo et al., 2022; Sharma, 2024; Sharma et al., 2024). Similarly, trust and security enhance customer satisfaction by increasing confidence in digital banking platforms and frequently mediate the relationship between technological quality and customer outcomes (Geebren et al., 2021; Esmaili et al., 2021; Kim & Jindabot, 2022; Al-Habashneh et al., 2025).

Customer satisfaction also translates into favorable behavioral outcomes. Satisfied customers are more likely to remain loyal, continue using mobile banking services, and recommend them to others (Raza et al., 2020; Alonso-Dos-Santos et al., 2020; Supriyanto et al., 2021; Gautam & Sah, 2023; Pokhrel & KC, 2024). Evidence from the broader service literature also shows that sustainability-oriented service innovation can strengthen customer satisfaction and loyalty, although the magnitude of these relationships may differ across generational cohorts (Ruiz Molina et al., 2025). Furthermore, satisfaction varies across demographic groups, suggesting that banks should tailor digital services to different customer segments (Marinković et al., 2020; Merhi et al., 2021; Sharma et al., 2024). Comparable evidence from digital tourism platforms indicates that younger users tend to value speed and advanced mobile functionalities, whereas older users place greater emphasis on clarity, ease of use, reliable information, and personal reassurance (Křečková et al., 2025). Overall, the literature identifies customer satisfaction as the central mechanism linking service quality and technological performance to long-term customer relationships.

Trust and security are another fundamental determinants of customer satisfaction, loyalty, and continued use of mobile banking services. Unlike traditional banking, digital banking relies primarily on customers' confidence in technological systems, institutional safeguards, and the protection of personal and financial information. A recent bibliometric analysis of tourism risk research emphasizes that perceived risk and distrust can be amplified by digital narratives, framing, and repeated communication, pointing to the broader importance of transparent risk communication in rebuilding trust (Salman et al., 2026).

Empirical evidence consistently demonstrates that trust directly enhances customer satisfaction and frequently mediates the effects of service quality, system quality, information quality, and security on customer loyalty and continuance intention (Kalinić et al., 2020; Poromatikul et al., 2020; Geebren et al., 2021; Geebren & Jabbar, 2021; Esmaili et al., 2021; Nguyen et al., 2022; Almaiah et al., 2023). Security and privacy remain the principal antecedents of trust, as customers are more likely to adopt and continue using mobile banking services when they perceive secure transactions, reliable system performance, and effective

data protection (Shankar et al., 2020; Geebren et al., 2021; Almaiah et al., 2023; Al-Habashneh et al., 2025). Research on banking fraud points in the same direction: in a survey of bank employees in India, 80% named fraud detection technologies, and 77% named customer awareness, as the most effective means of preventing fraud (Bhasin, 2016).

Recent studies further indicate that AI-powered technologies, including intelligent chatbots and personalized financial services, strengthen customer trust by improving communication quality, responsiveness, and perceived intelligence (Alnaser et al., 2023). However, existing research remains fragmented, with trust being treated as an antecedent, mediator, or outcome across different theoretical frameworks. Moreover, the influence of emerging technologies, such as AI, biometric authentication, and adaptive security systems, on trust formation remains underexplored, highlighting the need for more integrated conceptual models.

Technology acceptance theories provide the main theoretical foundation for explaining customers' adoption and continued use of mobile banking services. The most widely applied frameworks include the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), the Information Systems Success (IS Success) Model, and the Expectation Confirmation Model (ECM). Together, these theories demonstrate that technological quality, customer perceptions, and post-adoption experiences jointly shape mobile banking behavior.

TAM explains technology adoption through perceived usefulness and perceived ease of use. Empirical studies confirm that these factors, together with trust, self-efficacy, subjective norms, and personal innovativeness, positively influence customers' adoption intentions across different banking contexts (Suhartanto et al., 2020; Kumar et al., 2020; Malaquias & Silva, 2020). Recent extensions of TAM further incorporate trust, perceived security, service quality, lifestyle compatibility, reputation, and perceived risk, reflecting the growing importance of technological and relational factors in digital banking (Chawla & Joshi, 2021; Nguyen et al., 2022; Almaiah et al., 2023).

UTAUT complements TAM by emphasizing the roles of social influence, facilitating conditions, effort expectancy, and habit in technology adoption. Studies consistently demonstrate that these factors, together with trust, perceived value, and service quality, significantly influence customers' intentions to adopt and continue using mobile banking services (Souiden et al., 2021; Chetoui et al., 2023). Research on other digital service platforms has likewise extended UTAUT2 by incorporating trust and perceived risk. The findings suggest that trust may operate as part of a broader configuration of conditions influencing application use, even when its isolated linear effect is not statistically significant (Gil-Cordero et al., 2025).

In contrast, the IS Success Model and ECM focus on post-adoption behavior, highlighting the importance of system quality, information quality, service quality, trust, and customer satisfaction in explaining continuance intention (Poromatikul et al., 2020; Geebren & Jabbar, 2021; Alnaser et al., 2023). Collectively, these theories provide complementary perspectives on mobile banking behavior and support the development of integrated models that explain customer satisfaction and long-term usage.

Customer loyalty and continuance intention are widely recognized as critical indicators of long-term success in mobile banking, reflecting financial institutions' ability to retain customers and strengthen sustainable relationships. While initial technology adoption remains important, recent research increasingly emphasizes customers' continued use of mobile banking applications as a key source of competitive advantage.

A substantial body of literature identifies customer satisfaction as the strongest predictor of loyalty and continuance intention. Customers who perceive mobile banking services as reliable, efficient, and valuable are more likely to continue using digital banking applications, recommend them to others, and maintain long-term relationships with their financial institutions (Raza et al., 2020; Alonso-Dos-Santos et al., 2020; Supriyanto et al., 2021; Gautam & Sah, 2023; Ngo & Pavelková, 2017; Paulík et al., 2015). Furthermore,

numerous studies demonstrate that customer satisfaction mediates the effects of service quality, customer experience, trust, and justice perceptions on loyalty and continuance intention, highlighting its central role in transforming high-quality digital services into favorable behavioral outcomes (Khatoon et al., 2020; Yum & Yoo, 2023; Pokhrel & KC, 2024; Sharma, 2024; Aftab Khan et al., 2021).

Trust further reinforces long-term customer relationships by increasing customers' confidence in digital banking platforms and reducing perceived risk. Similarly, relationship marketing, positive customer experiences, and interaction quality strengthen customer engagement and encourage continued usage of mobile banking services (Esmaeili et al., 2021; Garzaro et al., 2021; Banerjee & Sreejesh, 2022).

Artificial intelligence (AI) in its turn has transformed digital banking by enabling personalized and efficient financial services. Empirical evidence demonstrates that AI positively influences customer satisfaction, trust, and technology acceptance by improving service quality, responsiveness, and customer engagement (Manser Payne et al., 2021). AI capabilities, such as intelligent interactions, effective communication, and problem-solving, strengthen customers' trust and acceptance of digital banking services, while communication quality, expectation confirmation, visual attractiveness, and corporate reputation further enhance customer satisfaction (Alnaser et al., 2023). In addition, AI-driven personalization and predictive analytics enable financial institutions to anticipate customer needs and deliver customized financial solutions, reinforcing customer loyalty and long-term relationships.

Despite these benefits, AI also raises challenges related to data privacy, cybersecurity, algorithmic transparency, ethical decision-making, and trust in automated financial services. Although existing studies generally report positive effects of AI, limited attention has been paid to potential risks such as algorithmic bias and reduced human interaction. Overall, AI has emerged as an important driver of customer satisfaction, trust, and service innovation in digital banking.

The preceding literature demonstrates that customer satisfaction in mobile banking is influenced by multiple technological, service-related, and behavioral factors. However, important theoretical and empirical gaps remain. Existing studies primarily examine individual factors such as service quality, trust, perceived security, and technology acceptance separately rather than within an integrated framework explaining customer satisfaction. Although models such as TAM, UTAUT, the IS Success Model, and ECM provide valuable insights into mobile banking adoption and continuance behavior, they often focus on specific aspects of customer experience while overlooking the combined influence of technological, service-related, and relational factors (Suhartanto et al., 2020; Kumar et al., 2020; Malaquias & Silva, 2020; Poromatikul et al., 2020; Geebren & Jabbar, 2021).

Furthermore, while previous research highlights the importance of service quality, perceived security, user experience, and trust in shaping customer satisfaction, limited attention has been given to their integrated effects and the mediating role of trust in mobile banking contexts (De Leon et al., 2020; Geebren et al., 2021; Kaur et al., 2021; Esmaeili et al., 2021; Nguyen et al., 2022). Moreover, the majority of empirical studies have been conducted in developed markets, creating a need for further investigation of mobile banking satisfaction in emerging economies with rapidly evolving digital financial services (Nazaritehrani & Mashali, 2020; Souiden et al., 2021; Shaikh et al., 2023).

To address these gaps, this study proposes an integrated framework (Figure 1) combining service quality, perceived security, user experience, and trust to explain customer satisfaction in mobile banking.

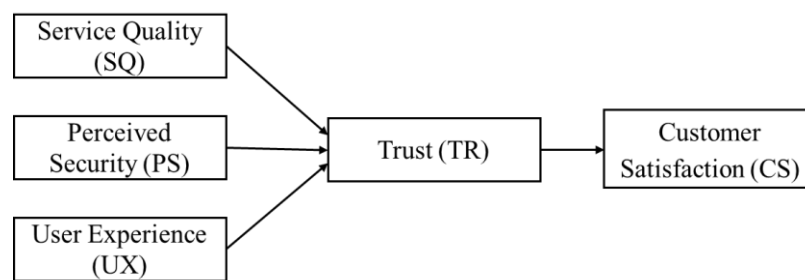


Figure 1. Conceptual framework of customer satisfaction in mobile banking

*Source:* Developed by the authors

Based on previous empirical findings, service quality, perceived security, and user experience are expected to enhance customer satisfaction and strengthen trust in digital banking environments (De Leon et al., 2020; Geebren et al., 2021; Kaur et al., 2021; Esmacili et al., 2021; Ryadi et al., 2021). Furthermore, trust is considered a key mechanism that reduces uncertainty and increases customers' confidence in mobile banking services, thereby contributing to higher satisfaction (Kalinić et al., 2020; Nguyen et al., 2022). Therefore, the following hypotheses are proposed:

**H1:** Service quality has a positive and significant effect on customer trust in mobile banking services.

**H2:** Perceived security has a positive and significant effect on customer trust in mobile banking services.

**H3:** User experience has a positive and significant effect on customer trust in mobile banking services.

**H4:** Customer trust has a positive and significant effect on customer satisfaction with mobile banking services.

**H5:** Customer trust mediates the relationship between service quality and customer satisfaction with mobile banking services.

**H6:** Customer trust mediates the relationship between perceived security and customer satisfaction with mobile banking services.

**H7:** Customer trust mediates the relationship between user experience and customer satisfaction with mobile banking services.

### 3. METHODOLOGY

This study employed a quantitative research design to examine the factors influencing customer satisfaction with mobile banking services. A cross-sectional survey was conducted to collect primary data from mobile banking users.

A structured questionnaire was developed by the authors and administered to individuals who use mobile banking applications in Armenia. The survey was online, the anonymity of responses was provided. The survey was done in June, 2025. The questionnaire consisted of two sections. The first section collected demographic information, including gender, age, education level, occupation, and frequency of mobile banking usage.

The general population was the number of customers serviced in the banking system of Armenia, which was 4752873 in 2024 according to the Statistical Committee of the RA (2025). The sample size was calculated with the online Calculator.net (n.d.) with the confidence level of 98% and 5% margin of error, accounting 543. As a result, a total of 500 valid responses were obtained and included in the final analysis. This sample size satisfies the minimum requirements for Partial Least Squares Structural Equation Modeling (PLS-SEM) and provides sufficient statistical power for hypothesis testing.

The questionnaire consisted of five latent constructs measuring the main determinants of customer satisfaction with mobile banking services. All constructs were measured using multiple-item scales adapted from previous studies and assessed on a five-point Likert scale ranging from 1 = Strongly disagree to 5 = Strongly agree.

Service Quality (SQ) was measured using four items that evaluated respondents' perceptions of the accuracy, availability, responsiveness, and reliability of mobile banking services.

Perceived Security (PS) was assessed using four items examining users' perceptions of transaction safety, protection of personal and financial information, the adequacy of security mechanisms (e.g., passwords, biometric authentication, and one-time passwords), and overall confidence in the application's security.

User Experience (UX) was measured through four items capturing the ease of navigation, visual attractiveness of the interface, convenience and enjoyment of using the application, and the degree of personalization offered by the mobile banking application.

Trust (TR) was measured using four items evaluating users' trust in the mobile banking application, its dependability, the bank's ability to fulfill its commitments, and users' confidence in conducting financial transactions through the application.

Customer Satisfaction (CS) was assessed using four items reflecting respondents' overall satisfaction with the mobile banking application, the extent to which it met their expectations, its ability to satisfy their banking needs, and satisfaction with the quality of services provided.

All constructs were specified as reflective measurement models and were subsequently evaluated for reliability and validity using Partial Least Squares Structural Equation Modeling (PLS-SEM). This method was selected because it is appropriate for analyzing complex relationships among multiple latent constructs and simultaneously assessing both measurement and structural models.

The collected data were analyzed using SmartPLS 4 software. The analysis followed the two-stage approach recommended by Hair & Alamer (2022). In the first stage, the measurement model was evaluated by examining indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Indicator reliability was assessed through outer loadings, with values above 0.70 considered acceptable. Internal consistency reliability was evaluated using Cronbach's alpha and Composite Reliability (CR), with threshold values exceeding 0.70. Convergent validity was examined using the Average Variance Extracted (AVE), where values greater than 0.50 indicated satisfactory convergent validity. Discriminant validity was assessed using both the Fornell–Larcker criterion and the Heterotrait–Monotrait Ratio (HTMT).

In the second stage, the structural model was evaluated by examining path coefficients, effect sizes ( $f^2$ ), coefficients of determination ( $R^2$ ), model fit using the Standardized Root Mean Square Residual (SRMR), and the significance of the hypothesized relationships. The explanatory power of the endogenous constructs was evaluated using the coefficient of determination ( $R^2$ ), while effect sizes ( $f^2$ ) were used to assess the relative contribution of each exogenous construct to the endogenous variables.

The significance of the direct and indirect effects was assessed through the bootstrapping procedure using 5,000 bootstrap subsamples. Path coefficients ( $\beta$ ), t-values, p-values, and confidence intervals were used to determine the statistical significance of the proposed hypotheses. Mediation analysis was conducted by examining the indirect effects of Service Quality, Perceived Security, and User Experience on Customer Satisfaction through Customer Trust.

#### 4. EMPIRICAL RESULTS

The demographic information showed that about 40 % of respondents were male and 60 % - female. About 30% were in 18-24 age group, 35% were 25-34 years old, 20 % were 35-44 years old, 10% were 45-54 years old and 5 % were 55 and above. More than 80 % had higher education. Only 1.2% was retired or unemployed.

The majority was using mobile banking every day and even several times a day, accounting 60% of the total. The regularly used services were money transfers, balance inquiry and utility payments (Table 1).

Table 1

Mobile banking usage among respondents

| Category                                                           | Frequency | Percent |
|--------------------------------------------------------------------|-----------|---------|
| <b>Frequency of mobile banking use</b>                             |           |         |
| <i>Several times a day</i>                                         | 134       | 26.8    |
| <i>Every day</i>                                                   | 166       | 33.2    |
| 4–6 times a week                                                   | 71        | 14.2    |
| 1–3 times a week                                                   | 98        | 19.6    |
| Less than once a week                                              | 31        | 6.2     |
| <b>Mobile banking services regularly used (multiple responses)</b> |           |         |
| <i>Money transfers</i>                                             | 446       | 89.2    |
| <i>Balance inquiry</i>                                             | 309       | 61.8    |
| <i>Utility payments</i>                                            | 213       | 42.6    |
| Loan repayments                                                    | 170       | 34.0    |
| QR/contactless payments                                            | 136       | 27.2    |
| Deposit/savings management                                         | 113       | 22.6    |
| Currency exchange                                                  | 51        | 10.2    |
| Investment services                                                | 30        | 6.0     |
| Transfers between accounts/cards                                   | 2         | 0.4     |

Source: Composed by the authors based on the analysis, using SPSS.

The measurement model was evaluated by examining indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Following the recommendations of Hair & Alamer (2022), indicator outer loadings, Cronbach's alpha, Composite Reliability (CR), Average Variance Extracted (AVE), the Fornell–Larcker criterion, and the Heterotrait–Monotrait (HTMT) ratio were assessed before evaluating the structural relationships (table 2).

Table 2

Indicator reliability (outer loadings)

| Construct                  | Indicators | Outer Loadings |
|----------------------------|------------|----------------|
| Customer Satisfaction (CS) | CS1–CS4    | 0.96–0.98      |
| Perceived Security (PS)    | PS1–PS4    | 0.95–0.97      |
| Service Quality (SQ)       | SQ1–SQ4    | 0.93–0.97      |
| Customer Trust (TR)        | TR1–TR4    | 0.97–0.98      |
| User Experience (UX)       | UX1–UX4    | 0.94–0.96      |

Source: Composed by the authors based on the analysis, using SmartPLS 4 software.

All indicators exhibit very high standardized outer loadings (all above the recommended threshold of 0.70). These results confirm excellent indicator reliability, indicating that each observed variable strongly reflects its corresponding latent construct. None of the indicators required removal because every item contributed meaningfully to measuring its intended construct.

The reliability analysis demonstrates excellent internal consistency for all constructs. Cronbach's alpha values range from 0.963 to 0.982, substantially exceeding the recommended minimum value of 0.70.

Similarly, Composite Reliability (CR) values vary between 0.973 and 0.987, confirming that the indicators consistently measure their respective latent variables.

Convergent validity was assessed using the Average Variance Extracted (AVE). All AVE values exceed the recommended threshold of 0.50, ranging from 0.899 to 0.950. These findings indicate that each construct explains more than 89% of the variance in its indicators, demonstrating excellent convergent validity and confirming that the measurement items adequately represent their theoretical constructs (Table 3).

Table 3

| Internal consistency reliability |                  |                               |                               |                                  |
|----------------------------------|------------------|-------------------------------|-------------------------------|----------------------------------|
|                                  | Cronbach's alpha | Composite reliability (rho_a) | Composite reliability (rho_c) | Average variance extracted (AVE) |
| CS                               | 0.981            | 0.982                         | 0.986                         | 0.947                            |
| PS                               | 0.971            | 0.971                         | 0.979                         | 0.920                            |
| SQ                               | 0.963            | 0.964                         | 0.973                         | 0.899                            |
| TR                               | 0.982            | 0.982                         | 0.987                         | 0.950                            |
| UX                               | 0.964            | 0.965                         | 0.974                         | 0.903                            |

Source: Composed by the authors based on the analysis, using SmartPLS 4 software.

Discriminant validity was assessed using both the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio. The Fornell–Larcker criterion confirmed satisfactory discriminant validity, as the square root of the AVE for each construct exceeded its correlations with all other constructs. This suggests that each construct shares more variance with its own indicators than with other constructs included in the model (Table 4).

Table 4

| Fornell-Larcker criterion |       |       |       |       |       |
|---------------------------|-------|-------|-------|-------|-------|
|                           | CS    | PS    | SQ    | TR    | UX    |
| CS                        | 0.973 | -     | -     | -     | -     |
| PS                        | 0.896 | 0.959 | -     | -     | -     |
| SQ                        | 0.901 | 0.917 | 0.948 | -     | -     |
| TR                        | 0.948 | 0.932 | 0.923 | 0.975 | -     |
| UX                        | 0.908 | 0.904 | 0.916 | 0.915 | 0.950 |

Source: Composed by the authors based on the analysis, using SmartPLS 4 software.

The HTMT values indicate relatively strong relationships among the study constructs (table 5).

Although several HTMT values exceed the conservative threshold of 0.90, the Fornell–Larcker criterion confirms satisfactory discriminant validity. Given the strong theoretical distinction among the constructs and the satisfactory overall measurement model, the constructs were retained for structural model assessment.

Table 5

| Heterotrait-monotrait ratio (HTMT) - List |                                    |
|-------------------------------------------|------------------------------------|
|                                           | Heterotrait-monotrait ratio (HTMT) |
| PS <-> CS                                 | 0.918                              |
| SQ <-> CS                                 | 0.926                              |
| SQ <-> PS                                 | 0.947                              |
| TR <-> CS                                 | 0.966                              |
| TR <-> PS                                 | 0.954                              |
| TR <-> SQ                                 | 0.948                              |
| UX <-> CS                                 | 0.933                              |
| UX <-> PS                                 | 0.933                              |
| UX <-> SQ                                 | 0.950                              |
| UX <-> TR                                 | 0.940                              |

Source: Composed by the authors based on the analysis, using SmartPLS 4 software.

The overall model fit was assessed using the Standardized Root Mean Square Residual (SRMR). The estimated model yielded an SRMR value of 0.021, which is well below the recommended threshold of 0.08 (Hair & Alamer, 2022), indicating an excellent fit between the proposed model and the observed data.

The structural model was evaluated using the bootstrapping procedure with 5,000 resamples to examine the significance of the hypothesized relationships.

The structural model reveals that all hypothesized direct relationships are positive and statistically significant (table 6). Perceived Security exerts the strongest influence on Customer Trust ( $\beta = 0.437$ ), indicating that customers' confidence in the security and privacy of mobile banking services plays a crucial role in developing trust. This finding highlights the importance of secure authentication, transaction protection, and privacy safeguards in encouraging users to rely on mobile banking applications.

Service Quality also demonstrates a significant positive effect on Customer Trust ( $\beta = 0.285$ ). This suggests that reliable services, responsiveness, and efficient system performance contribute substantially to strengthening customer trust.

Similarly, User Experience positively influences Customer Trust ( $\beta = 0.260$ ), implying that an intuitive interface, ease of navigation, and overall usability enhance users' confidence in the application.

Among all structural relationships, the strongest effect is observed between Customer Trust and Customer Satisfaction ( $\beta = 0.948$ ). This exceptionally high coefficient indicates that trust is the primary determinant of customer satisfaction in the proposed model, emphasizing its central role in shaping users' overall evaluation of mobile banking services.

Table 6

Direct Effects (Path Coefficients)

| Path                | $\beta$ (Original Sample) | t-value | p-value | Result    |
|---------------------|---------------------------|---------|---------|-----------|
| PS $\rightarrow$ TR | 0.437                     | 10.461  | <0.001  | Supported |
| SQ $\rightarrow$ TR | 0.285                     | 6.705   | <0.001  | Supported |
| UX $\rightarrow$ TR | 0.260                     | 5.491   | <0.001  | Supported |
| TR $\rightarrow$ CS | 0.948                     | 71.121  | <0.001  | Supported |

Source: Composed by the authors based on the analysis, using SmartPLS 4 software.

Effect size ( $f^2$ ) analysis showed that Perceived Security had a medium effect on Customer Trust ( $f^2 = 0.277$ ), whereas Service Quality ( $f^2 = 0.103$ ) and User Experience ( $f^2 = 0.098$ ) exerted small effects. In contrast, Customer Trust demonstrated an extremely large effect on Customer Satisfaction ( $f^2 = 8.946$ ), highlighting its dominant role in explaining customer satisfaction within the proposed model.

Bootstrapping was further employed to examine the indirect effects of Service Quality, Perceived Security, and User Experience on Customer Satisfaction through Customer Trust (Table 7).

Table 7

Mediation (indirect effects through trust)

| Indirect Path                        | $\beta$ | t      | p      | Result      |
|--------------------------------------|---------|--------|--------|-------------|
| PS $\rightarrow$ TR $\rightarrow$ CS | 0.414   | 10.486 | <0.001 | Significant |
| SQ $\rightarrow$ TR $\rightarrow$ CS | 0.270   | 6.652  | <0.001 | Significant |
| UX $\rightarrow$ TR $\rightarrow$ CS | 0.246   | 5.456  | <0.001 | Significant |

Source: Composed by the authors based on the analysis, using SmartPLS 4 software.

The mediation analysis demonstrates that Customer Trust significantly mediates the relationships between all three antecedent variables and Customer Satisfaction.

Among the indirect effects, Perceived Security exhibits the strongest mediated influence on Customer Satisfaction, followed by Service Quality and User Experience. These findings indicate that improvements in security, service quality, and user experience enhance customer satisfaction primarily by strengthening

customers' trust in the mobile banking application. Therefore, Customer Trust functions as the key psychological mechanism linking service-related attributes to customer satisfaction.

The coefficient of determination indicates excellent explanatory power for the proposed model (Table 8).

Table 8

| R <sup>2</sup> (explained variance) |                |                |
|-------------------------------------|----------------|----------------|
| Construct                           | R <sup>2</sup> | Interpretation |
| Trust (TR)                          | 0.907          | Very High      |
| Customer Satisfaction (CS)          | 0.899          | Very High      |

*Source:* Composed by the authors based on the analysis, using SmartPLS 4 software.

Specifically, the independent variables (Perceived Security, Service Quality, and User Experience) explain 90.7% of the variance in Customer Trust. Furthermore, Customer Trust explains 89.9% of the variance in Customer Satisfaction. According to commonly accepted PLS-SEM guidelines, these values indicate a very high level of predictive accuracy, suggesting that the proposed conceptual model successfully explains customer satisfaction within the context of mobile banking.

Furthermore, the effect size analysis indicates that Customer Trust exerts a substantial effect on Customer Satisfaction, whereas Perceived Security demonstrates a moderate effect on Customer Trust and Service Quality and User Experience exhibit small effects. The SRMR value also indicates that the proposed model provides an excellent overall fit.

The hypothesis testing results indicate that all proposed hypotheses were supported. The findings confirm that Service Quality, Perceived Security, and User Experience significantly enhance Customer Trust, which, in turn, has a substantial positive effect on Customer Satisfaction. Moreover, Customer Trust serves as a significant mediating variable, demonstrating that the influence of these antecedent factors on customer satisfaction is transmitted through the development of trust (table 9).

Table 9

| Hypotheses evaluation             |           |
|-----------------------------------|-----------|
| Hypothesis                        | Result    |
| H1: Service Quality → Trust       | Supported |
| H2: Perceived Security → Trust    | Supported |
| H3: User Experience → Trust       | Supported |
| H4: Trust → Customer Satisfaction | Supported |
| H5: Trust mediates SQ → CS        | Supported |
| H6: Trust mediates PS → CS        | Supported |
| H7: Trust mediates UX → CS        | Supported |

*Source:* Composed by the authors based on the analysis.

To complement the quantitative findings, the questionnaire included one open-ended question asking respondents to suggest improvements that could enhance customer satisfaction with mobile banking services. The qualitative responses were analyzed using thematic analysis, whereby similar comments were grouped into common themes. The main suggestions identified from the respondents' answers are presented below:

- ✓ Improve the technical performance and reliability of mobile banking applications which includes reducing technical failures, application crashes, and system downtime, increasing the speed of transactions and ensuring stable application performance, improving the accuracy and timeliness of transaction processing.
- ✓ Strengthen security and customer trust by introducing stronger security and fraud prevention mechanisms, enhancing personal data protection and account verification, improving online loan security and recipient account verification to reduce fraudulent activities.

- ✓ Simplify the user interface and improve ease of use by making the application more intuitive and user-friendly, reducing the number of steps required to complete transactions, improving accessibility for elderly and less technologically experienced users, better organizing menus and reduce unnecessary advertisements.
- ✓ Enhance customer support services by providing 24/7 customer support through live chat or messaging, introducing AI-powered assistants or chatbots for faster responses, improving the responsiveness and competence of customer service representatives.
- ✓ Expand the range of available banking services, by offering more transaction and payment options, improving international money transfers and interbank services, integrating additional government and public services into mobile banking applications.
- ✓ Introduce financial management and budgeting tools by providing spending statistics, budgeting features, and financial analytics, categorizing expenses automatically and displaying financial reports and graphs, improving transaction history and filtering options.
- ✓ Increase personalization of banking services based on customer preferences, offering customized financial products and targeted notifications, implementing AI-based financial assistants to provide personalized recommendations.
- ✓ Improve interbank integration by enhancing cooperation and data exchange between different banks, improving cross-bank loan payment functionality and account synchronization, facilitating faster and more accurate interbank transactions.
- ✓ Review pricing and reward policies by reducing transfer fees and service charges, introducing loyalty rewards, bonuses, or personalized interest rates based on customer history.

The respondents were also asked to mention which feature they would like to see added in the mobile banking application (table 10).

Table 10

Respondents' preferred emerging features for mobile banking applications

| Which emerging feature would you most like to see added to your mobile banking application? (Select all that apply)                                                                                                                                                                                                                               | Frequency  | Percent     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------|
| AI-powered financial assistant                                                                                                                                                                                                                                                                                                                    | 179        | 35.8        |
| Personalized budgeting recommendations                                                                                                                                                                                                                                                                                                            | 150        | 30.0        |
| <i>Smarter fraud detection</i>                                                                                                                                                                                                                                                                                                                    | <i>230</i> | <i>46</i>   |
| Voice banking                                                                                                                                                                                                                                                                                                                                     | 97         | 19.4        |
| <i>Faster customer support</i>                                                                                                                                                                                                                                                                                                                    | <i>212</i> | <i>42.4</i> |
| Other (Simpler interface and improved usability; Real-time transaction visibility; AI-based expense categorization and financial analytics; Card subscription management and security control; Intelligent chatbot/customer service automation; Cardless cash withdrawal; Cryptocurrency services; Privacy and cybersecurity; System reliability) | 15         | 3.0         |

Source: Composed by the authors based on the analysis.

The results indicate that security, responsiveness, and intelligent personalization are the main priorities of mobile banking users. The most demanded feature is smarter fraud detection (46.0%), demonstrating that customers consider cybersecurity and protection against unauthorized transactions as a fundamental requirement for digital banking services.

## 5. Discussion

This study examined the determinants of customer satisfaction with mobile banking services in Armenia by integrating service quality, perceived security, user experience, and customer trust into a unified PLS-SEM framework. The findings provide strong empirical support for the proposed conceptual model,

as all direct and indirect hypotheses were confirmed. In particular, customer trust emerged as the central mechanism through which service quality, perceived security, and user experience influence customer satisfaction.

The results demonstrate that perceived security has the strongest positive effect on customer trust ( $\beta = 0.437$ ,  $p < 0.001$ ). This finding is consistent with prior studies that identify security and privacy as fundamental antecedents of trust in digital banking environments (Shankar et al., 2020; Geebren et al., 2021; Almaiah et al., 2023). In the context of mobile banking, customers are highly sensitive to the protection of personal and financial information, secure authentication procedures, and fraud prevention mechanisms. The strong effect observed in this study suggests that Armenian mobile banking users place substantial importance on cybersecurity and transaction safety when forming trust in digital banking applications. This finding also aligns with the qualitative results, where respondents emphasized stronger security measures, fraud detection, and enhanced data protection as key areas for improvement. It also echoes evidence from Indian banks, where technology-based fraud detection and customer awareness are viewed as the most effective safeguards (Bhasin, 2016).

Service quality was also found to have a significant positive effect on customer trust ( $\beta = 0.285$ ,  $p < 0.001$ ). This result supports previous research demonstrating that reliability, responsiveness, efficiency, and system performance are critical dimensions of mobile banking service quality that enhance customers' confidence in digital banking platforms (De Leon et al., 2020; Kaur et al., 2021; Ighomereho et al., 2023). The findings indicate that when mobile banking applications provide accurate transactions, stable system availability, and responsive customer support, customers are more likely to perceive the service as dependable and trustworthy. Therefore, service quality remains a fundamental driver of positive customer perceptions in digital banking.

Similarly, user experience was found to positively influence customer trust ( $\beta = 0.260$ ,  $p < 0.001$ ). This finding is in line with recent studies emphasizing the importance of intuitive interfaces, ease of navigation, visual attractiveness, and personalized digital experiences in strengthening customer engagement and confidence (Garzaro et al., 2021; Molinillo et al., 2022; Sharma et al., 2024). A positive user experience reduces cognitive effort and uncertainty, enabling customers to interact with mobile banking applications more comfortably and confidently. The qualitative analysis further supports this result, as respondents highlighted the need for simpler interfaces, fewer transaction steps, and improved accessibility for elderly and less technologically experienced users.

The strongest relationship identified in the structural model was between customer trust and customer satisfaction ( $\beta = 0.948$ ,  $p < 0.001$ ). This exceptionally high coefficient confirms that trust is the primary determinant of customer satisfaction in the proposed model. The finding confirms earlier studies suggesting that trust directly enhances customer satisfaction and mediates the effects of technological and service-related factors on customer outcomes (Kalinić et al., 2020; Esmaeili et al., 2021; Nguyen et al., 2022). In mobile banking, trust reduces perceived risk and uncertainty, allowing customers to evaluate their banking experiences more positively. Consequently, financial institutions seeking to improve customer satisfaction must prioritize strategies that strengthen customer trust. At the same time, the role of trust is not universal: in an extended technology acceptance study of e-grocery services in Indonesia, perceived risk lowered trust, yet trust did not significantly affect the intention to use the service (Ryadi et al., 2021), which suggests that the outcome variable and service context matter.

The mediation analysis provides additional evidence of the central role of trust. Customer trust significantly mediated the relationships between service quality, perceived security, and user experience and customer satisfaction. Among the indirect effects, perceived security exhibited the strongest mediated influence on customer satisfaction ( $\beta = 0.414$ ), followed by service quality ( $\beta = 0.270$ ) and user experience ( $\beta = 0.246$ ). These findings extend previous research by demonstrating that the effects of service-related

attributes on customer satisfaction are not only direct but are largely transmitted through the development of customer trust. Thus, trust functions as a psychological bridge linking customers' evaluations of mobile banking services with their overall satisfaction.

The model also demonstrated very high explanatory power, with service quality, perceived security, and user experience explaining 90.7% of the variance in customer trust, and customer trust explaining 89.9% of the variance in customer satisfaction. These  $R^2$  values exceed those commonly reported in mobile banking studies and indicate that the proposed integrated framework has substantial predictive accuracy. The findings therefore contribute to the literature by combining technological, service-quality, and relational factors into a comprehensive model that explains customer satisfaction in an emerging economy context.

From a theoretical perspective, this study contributes to mobile banking research by integrating elements of the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and the Information Systems Success (IS Success) Model into a single framework. While previous studies often examined service quality, security, user experience, or trust separately, this research demonstrates their combined influence on customer satisfaction through the mediating role of trust. Moreover, by focusing on Armenia, the study addresses the geographical gap in the literature, as most prior research has been conducted in developed markets.

The findings also have important practical implications for banks and financial institutions. First, banks should prioritize investment in advanced cybersecurity technologies, including biometric authentication, real-time fraud detection, and enhanced data protection systems, as security was identified as the strongest driver of trust. Second, improving service quality through reliable system performance, faster transaction processing, and responsive customer support can further strengthen customer trust and satisfaction. Third, banks should enhance user experience by simplifying application interfaces, reducing transaction complexity, and offering personalized digital services. The qualitative findings additionally suggest that customers value AI-powered financial assistants, personalized budgeting recommendations, and faster customer support, indicating significant opportunities for innovation in digital banking services.

Overall, this study confirms that customer satisfaction in mobile banking is shaped by a combination of perceived security, service quality, and user experience, with customer trust serving as the key mediating mechanism. The findings underscore the importance of building trustworthy, secure, and user-centered mobile banking ecosystems to foster long-term customer satisfaction and loyalty.

## 5. CONCLUSION

This study developed an integrated framework to explain customer satisfaction with mobile banking services in Armenia. The findings highlight the central role of customer trust in connecting technological and service-related factors with satisfaction. By providing evidence from an emerging economy, the study expands understanding of mobile banking behavior beyond developed markets.

The study contributes to mobile banking and information systems literature by demonstrating the importance of trust as a key mechanism in explaining customer satisfaction. It extends existing theories by integrating service quality, security, user experience, and trust into a unified framework.

The findings suggest that banks should adopt customer-centered digital strategies focused on secure systems, reliable services, and improved application usability. Enhancing trust through effective security practices and personalized digital solutions can support stronger customer relationships.

*Limitations and future research directions.* This study has several limitations. First, the research employed a cross-sectional design, which limits the ability to establish causal relationships among the constructs. Second, the data were collected exclusively from mobile banking users in Armenia, which may restrict the generalizability of the findings to other countries and cultural contexts.

Future studies should employ longitudinal research designs to examine changes in customer trust and satisfaction over time. Comparative studies across different countries and banking systems could also provide a broader understanding of mobile banking behavior in diverse cultural contexts.

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