

Factors influencing behavioral intention to use mobile banking: a PLS-SEM approach

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Abstract: The rapid expansion of mobile banking has redefined modern financial ecosystems, enabling users to perform banking activities anytime and anywhere through digital platforms. Despite its widespread adoption, the mechanisms that shape users' trust, motivation, and behavioral intention remain insufficiently clarified in the literature. Hence, the aim of this study is to examine how perceived security and perceived privacy influence user trust in mobile banking, and how trust further affects motivation and behavioral intention. The study seeks to better understand how users' perceptions shape their intention to continue using mobile banking services. The proposed structural model was empirically examined using partial least squares structural equation modeling (PLS-SEM) based on survey data collected from a sample of mobile banking users in Serbia. The findings provide practical implications for financial institutions and enhance understanding of mobile banking usage behavior.

Keywords: mobile banking, behavioral intention, PLS-SEM approach

1 Introduction

The rapid digitalization of financial services has fundamentally transformed the way banking activities are delivered and consumed [1, 2]. Among these innovations, mobile banking (M-banking) has emerged as a prominent model of electronic banking, enabling customers to perform financial transactions through mobile devices in a flexible, real-time, and location-independent [3]. By integrating mobile technologies with digital financial infrastructures, mobile banking provides users with immediate access to account management, payments, transfers, and other banking services through dedicated applications [4]. As a result, mobile banking represents not merely a technological advancement, but a strategic shift in the banking sector toward customer-centric, technology-driven service delivery [3]. Its growing adoption reflects broader changes in consumer behavior, digital trust, and expectations regarding convenience, efficiency, and security in financial interactions [5, 6]. Many banks, both traditional and digital banks, apply mobile banking applications in their operations in order to reduce operating costs, while at the same time meeting the needs of clients and improving their services [7].

Despite the widespread adoption of mobile banking and its strategic importance for financial institutions, the determinants of users' continued engagement with these services remain insufficiently clarified. While prior research has extensively examined initial adoption of mobile banking, less attention has been devoted to understanding the underlying mechanisms that shape trust formation and post-adoption behavioral intention. In particular, the interplay between perceived security, perceived privacy, and trust continues to generate inconsistent findings, especially in emerging digital markets such as Serbia. Given that financial services inherently involve high levels of perceived risk, understanding how users interpret security and privacy issues is critical for explaining sustained usage behavior. In response to these gaps, this study seeks to investigate the structural relationships between perceived security, perceived privacy, user trust, motivation, and behavioral intention in the context of mobile banking. More specifically, the research aims to examine how users' risk-related perceptions influence the development of trust and how trust subsequently shapes motivational factors and the intention to continue using mobile banking services. By focusing on continuance rather than mere adoption, the study contributes to a deeper understanding of long-term user engagement in digital financial environments.

To empirically test the proposed conceptual framework, partial least squares structural equation modeling (PLS-SEM) was employed. The analysis is based on survey data collected from a sample of mobile banking users in Serbia. This methodological approach enables the simultaneous examination of multiple structural relationships and provides robust insights into the direct and indirect effects among the studied constructs.

2 Literature review

Mobile banking is defined as a channel through which the client communicates with the bank via a mobile device. This form of banking is considered a revolutionary advance which it combines mobile technological advances with financial and commercial services. Mobile banking is considered very important for banking institutions, as it allows them to expand their services, increases their competitive advantage, offers clients services with added value and enables a modern and interactive channel of communication with them [8].

In recent years, substantial research has examined the factors influencing user behaviour and satisfaction with mobile banking. Previous studies indicate that mobile banking adoption is affected by affective commitment, loyalty, satisfaction, trust, and service quality. Empirical research in Iran analysed how affective commitment, loyalty, intention to revisit, number of visits, profitability, and customer involvement influence user satisfaction. The results showed that most of these factors had a positive impact on satisfaction, while trust did not have a statistically significant effect. These findings highlight the importance of identifying determinants that shape the relationship between banks and their customers in the context of mobile banking [9].

A similar analysis of factors influencing mobile banking usage was conducted in Saudi Arabia using an integrated framework that combined the UTAUT2 model and the DeLone and McLean Information Systems Success Model. The results demonstrated that customer satisfaction and loyalty are strongly influenced by performance expectancy, facilitating conditions, habits, and system and service quality. Loyalty was identified as a key determinant of continued mobile banking usage [10].

Further research examining the impact of mobile banking on user performance and customer perceptions integrated the DeLone and McLean Information Systems Success Model, the Task-Technology Fit model, and Hofstede's cultural dimensions of individualism and uncertainty avoidance. The findings indicated that system, information, and service quality positively influence mobile banking adoption, while cultural factors moderate the relationship between technology use and individual performance [11].

Additionally, studies conducted in Jordan investigated the factors influencing mobile banking adoption using an extended UTAUT2 model incorporating trust. The results showed that behavioural intention significantly affects performance expectancy, effort expectancy, satisfaction, monetary value, and trust. Trust was identified as a crucial factor for mobile banking adoption, particularly in regions where new technologies are not yet widely accepted [12].

These studies make it clear that trust and user satisfaction are the two most important factors in mobile banking, while system and service quality, information

quality, affective commitment, and loyalty further influence user behaviour and individual performance. These findings provide a basis for future research on how security and privacy contribute to the creation of trust and satisfaction among mobile banking users.

2.1 Research hypotheses

Security is a broad term that refers to various factors, techniques and technologies used to protect sensitive and private data. Security in terms of account security and security layers of the mobile banking platform can determine the intention of the user's behavior. Privacy and anonymity are very important for e-commerce users. Given that privacy refers to the protection of personal data of mobile banking users, it is closely related to the intention of their behavior when using mobile banking. Closely related to privacy is trust, which reflects the user's belief that the mobile banking system will securely handle their personal and financial information, and act reliably and transparently. Motivation can be defined as fun or enjoyment gained from using technology, which has been shown to be important in the acceptance and use of technology. When users find that the technology they are using brings them happiness, fun, entertainment, comfort and enjoyment, they do not want to trade their technology for another. Behavioral intention plays a major role in the acceptance of new systems. The adoption of mobile banking can be predicted based on the willingness of users to adopt such a system [13, 14].

Perceived security is widely recognized as a critical determinant of trust in digital financial services, as users must believe that transactions and personal data are adequately protected against potential threats [15, 16]. In mobile banking contexts, perceived security reduces uncertainty and perceived risk, both of which are central factors in trust formation [6]. When users feel that technological safeguards are robust and reliable, they are more likely to develop confidence in the service provider. Based on these theoretical arguments and prior empirical findings, the following hypothesis is proposed:

H1: Perceived security has a positive effect on user trust in mobile banking services.

Privacy concerns represent a significant issue in digital financial environments due to the sensitivity of personal and financial information involved [17]. Prior research suggests that users' perceptions regarding the protection and appropriate handling of their personal data significantly influence trust in online and mobile services [6, 16]. When users perceive that their privacy is safeguarded and data misuse is unlikely, their trust in the platform increases. Drawing on this stream of research, the following hypothesis is formulated:

H2: Perceived privacy has a positive effect on user trust in mobile banking services.

Trust functions as a fundamental relational mechanism that enhances users' psychological comfort and reduces perceived uncertainty in digital interactions

[18]. In technology-mediated environments, higher levels of trust not only increase acceptance but also strengthen users' intrinsic engagement and motivational orientation toward the service [15]. In the context of mobile banking, trust may foster a more positive user experience, thereby enhancing users' motivation to continue using the service. Accordingly, the following hypothesis is proposed:

H3: User trust has a positive effect on motivation to use mobile banking.

Motivation, particularly intrinsic or motivation, has been identified as a strong predictor of behavioral intention in technology acceptance research [14]. When users experience enjoyment, satisfaction, or personal value while using a digital service, their intention to continue using it significantly increases [5]. In mobile banking contexts, motivational factors may therefore serve as a direct driver of continued usage intention. Based on these theoretical considerations, the following hypothesis is developed:

H4: Motivation has a positive effect on behavioral intention to use mobile banking.

Based on the theoretical review of the literature and defined hypotheses, Figure 1 shows the research model.

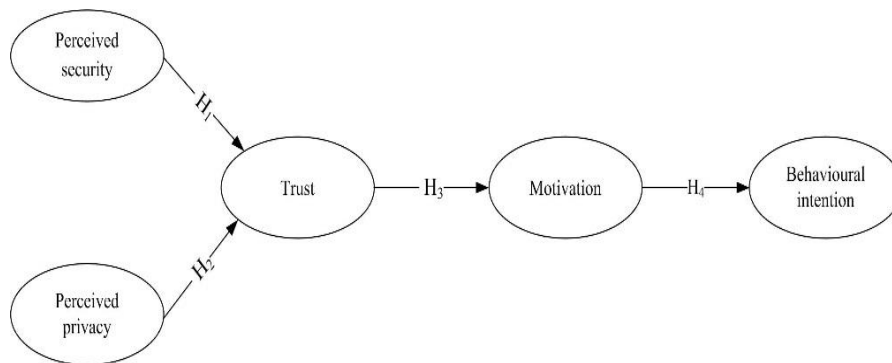


Figure 1
Research model (Authors)

3 Methodology

In the methodology section, the research model is presented and described, the data collection procedure is outlined, and the methodological framework used to validate the proposed research model is detailed.

3.1 Sampling and data collection

The empirical data for this study were obtained through an online survey conducted among 174 mobile banking users in Serbia. Responses were recorded using a five-point Likert scale. The questionnaire used in this study was developed based on previously validated measurement scales reported in the relevant literature [14, 19, 20, 21, 22], ensuring the conceptual alignment and content validity of the constructs included in the research model. The questionnaire consisted of two parts. The first part included seven questions related to the demographic characteristics of the respondents. The second part of the questionnaire contained statements designed to measure the following constructs: Perceived Security (PS) with 2 items, Perceived Privacy (PP) with 4 items, Trust (TR) with 4 items, Motivation (M) with 3 items, and Behavioural Intention (BI) with 3 items.

Within the framework of descriptive statistics, data related to the demographic profile of the respondents were processed, such as: gender, age, experience in using M-banking, experience in using mobile phones, level of education, monthly income, frequency of using M-banking services. In the sample of 174 respondents, 54 were male (28.1%) and 120 were female (62.5%). The largest group of respondents were aged 18-25, representing 50% of the total. The next largest group were aged 26-35, accounting for 27.6%, followed by those aged 36-45 with 9.4%. The age groups 46-55 and 55 and older had the lowest participation, with 2.1% and 1.6% respectively, which may be attributed to lower information literacy in these age groups. Regarding experience with M-banking, 45 respondents had up to 1 year of experience (23.4%), 104 had 1-5 years (54.2%), and 25 had more than 5 years (13%). In contrast, experience with mobile phone use was significantly higher: 142 respondents, or 74%, reported a very high level of experience, 15.6% reported a medium level, and 1% reported a low level. In terms of education, the largest proportion of respondents had completed university (50.5%), followed by those with completed high school (24%), those with a master's degree (13%), and those with a doctorate. All analyses were conducted using IBM SPSS Statistics v.24.0 and SmartPLS v.4 software packages [23].

3.2 Partial least squares structural equation modeling (PLS-SEM)

Structural Equation Modeling (SEM) is a statistical technique used to analyze relationships between latent constructs and observed variables. One of the approaches within SEM is Partial Least Squares (PLS-SEM), which is variance-based and suitable for predictive research models. Over the past decade, it has become increasingly popular. The analysis is divided into two parts: the measurement model and the structural model. The measurement model assesses the reliability and validity of constructs. Reliability is evaluated using Cronbach's alpha, and Composite Reliability (CR), with values above 0.70 considered

acceptable. However, Cronbach's alpha values above 0.60 may also be acceptable in exploratory research, as suggested by [24]. Convergent validity is assessed with factor loadings and Average Variance Extracted (AVE), which should exceed 0.70 and 0.50, respectively. Discriminant validity ensures constructs are distinct and can be tested using the HTMT ratio, which should be below 0.90 [25]. The structural model examines relationships between constructs using path coefficients (β) and the coefficient of determination (R^2), which indicates how much variance in a dependent variable is explained by the model [26]. PLS is particularly useful for studies with small sample sizes, complex models, or non-normal data, and allows testing of both measurement and structural aspects [27]. The PLS-SEM approach has been used in numerous studies [4, 5, 6, 10, 11, 12].

4 Results and discussion

The analysis proceeds with the assessment of the measurement model to establish reliability and validity, followed by the evaluation of the structural model to test the proposed hypotheses. Table 1 shows the results of the measurement model (Factor Loadings, Cronbach's alpha ($C\alpha$), Composite reliability (ρ_a), Composite reliability (ρ_c) and AVE), while Table 2 presents the results of the Fornell–Larcker criterion and the HTMT matrix. Table 3 displays the results of the tested hypotheses.

Construct	Items	Loadings	Cronbach's alpha ($C\alpha$) ^a	Composite reliability (ρ_{oa}) ^b	Composite reliability (ρ_{oc}) ^c	(AVE) ^d
Perceived Security (PS)	PS_1 PS_2	0.791 0.919	0.654	0.739	0.847	0.735
Perceived Privacy (PP)	PP_1 PP_2 PP_3 PP_4	0.788 0.900 0.874 0.769	0.853	0.864	0.901	0.696
Trust (TR)	TR_1 TR_2 TR_3 TR_4	0.863 0.805 0.890 0.841	0.872	0.879	0.912	0.723
Motivation (M)	M_1 M_2 M_3	0.839 0.922 0.833	0.833	0.844	0.899	0.749
Behavioural Intention (BI)	BI_1 BI_2 BI_3	0.861 0.875 0.908	0.856	0.856	0.913	0.777

Notes: ^a $C\alpha \geq 0.70$; ^b $\rho_{oa} \geq 0.70$; ^c $\rho_{oc} \geq 0.70$; ^d $AVE \geq 0.50$;

Table 1
Construct reliability and validity (Authors)

In Table 1 the Cronbach's alpha coefficient for the Perceived Security indicator (0.654) is slightly below the recommended threshold of 0.70. However, the other reliability indicators ($\rho_{oa} = 0.739$ and $\rho_{oc} = 0.847$) and the convergent validity indicator ($AVE = 0.735$) exceed the recommended thresholds. For all other constructs in the model the values of Cronbach's alpha ($C\alpha$), Composite reliability, (ρ_{oa}), Composite reliability (ρ_{oc}) and AVE are within acceptable limits, confirming the adequate reliability and validity of the measurement model.

Fornell-Larcker criterion					
	(1)	(2)	(3)	(4)	(5)
Behavioural Intention (1)	0.881				
Motivation (2)	0.583	0.856			
Perceived Privacy (3)	-0.138	-0.188	0.834		
Perceived Security (4)	-0.261	-0.190	0.644	0.857	
Trust (5)	0.413	0.475	-0.561	-0.421	0.850
HTMT matrix					
Behavioural Intention (1)	-				
Motivation (2)	0.677				
Perceived Privacy (3)	0.162	0.214			
Perceived Security (4)	0.364	0.264	0.867		
Trust (5)	0.470	0.550	0.645	0.527	-

Table 2
Discriminant validity (Authors)

The results of the Fornell-Larcker criterion and HTMT analysis indicate that discriminant validity is satisfied for all constructs. In the Fornell-Larcker table, the square roots of the AVE are higher than the correlations between constructs, while all HTMT values are below the 0.90 threshold, confirming that each construct is distinct and measures a separate theoretical concept.

Table 3 and Figure 2 illustrate the estimated structural model and the results of hypothesis testing obtained through a bootstrapping procedure with 5000 resamples. The presented path coefficients indicate both the strength and direction of the relationships among the constructs, whereas the associated *p*-values provide evidence of their statistical significance.

Construct		Path coefficient (β)	t-statistics	p-value (p) *	VIF	R ²	Remark
H ₁	PS → TR	-0.097	0.919	0.358 ^{n.s}	1.710	0.321	Rejected
H ₂	PP → TR	-0.497	4.839	0.000	1.710	0.321	Rejected
H ₃	TR → M	0.477	5.684	0.000	1.000	0.226	Accepted
H ₄	M → BI	0.583	9.893	0.000	1.000	0.340	Accepted

* significant at level ≤ 0.001 ; ^{n.s} non-significance

Table 3
Hypotheses Testing Results (Authors)

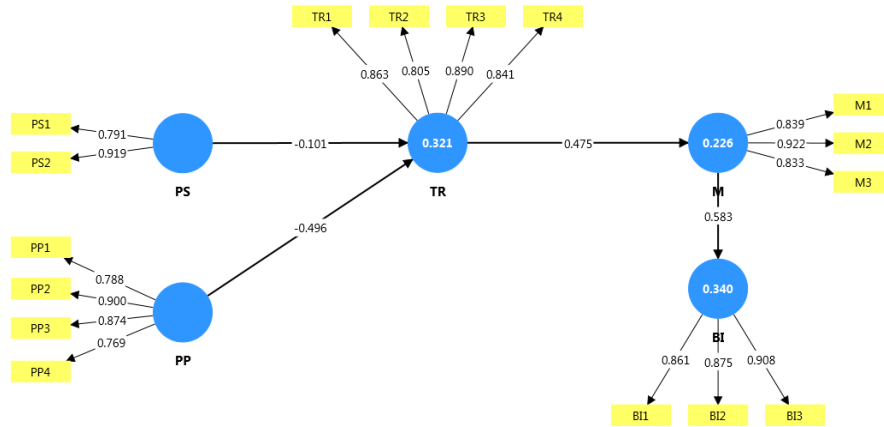


Figure 2

Results of structural model analysis (Authors)

Perceived Security does not have a statistically significant impact on Trust ($\beta = -0.097$, $t = 0.919$, $p > 0.005$). The weak negative path coefficient is not statistically significant, indicating that the hypothesis H1, which posits that perceived security positively influences trust, is not supported. Likewise, although the effect of perceived privacy on trust is statistically significant, the relationship is negative ($\beta = -0.497$, $t = 4.839$, $p < 0.001$), indicating that higher privacy concerns reduce user trust in mobile banking services. Therefore, H2 is not supported. The result indicates that privacy perceptions play a crucial role in trust formation, but primarily through risk and concern mechanisms rather than perceived protection. This finding is not entirely aligned with previous research, which highlights security and privacy as important determinants of trust in digital financial services [6, 15, 18]. Earlier studies indicate that when users perceive strong data protection and secure transactions, their trust in the service increases. However, the current findings may imply that users see security and privacy as standard features of mobile banking services, which diminishes their direct impact on trust development.

The results of the structural model reveal that trust exerts a positive and statistically significant effect on motivation ($\beta = 0.477$, $t = 5.684$, $p < 0.001$), thereby supporting the proposed hypothesis H3. This finding indicates that higher levels of user trust in mobile banking services contribute to increased motivation to use such services. Furthermore, motivation demonstrates a strong, positive influence on behavioural intention ($\beta = 0.583$, $t = 9.893$, $p < 0.001$), representing the strongest relationship in the model. This result suggests that motivated users are substantially more likely to continue using mobile banking services. The hypothesis H4 proposing a positive effect of motivation on behavioural intention is therefore strongly supported, highlighting motivation as a central predictor of continuance intention. These findings are consistent with the technology acceptance literature, particularly

UTAUT2 [14], which highlights the role of motivational factors in shaping behavioural intention. Furthermore, previous studies in mobile banking contexts emphasise the importance of trust in strengthening user engagement and continued usage [5, 12, 16]. The results, therefore, support the view that psychological and motivational mechanisms play a central role in explaining behavioural intention.

Conclusion

Mobile banking has become an integral component of contemporary financial systems, fundamentally transforming the way individuals access and manage financial services. In this context, the aim of this study was to examine how perceived security and perceived privacy influence user trust in mobile banking and how trust subsequently affects motivation and behavioral intention. The study sought to provide a deeper understanding of the mechanisms through which users' perceptions shape their intention to continue using mobile banking services. The empirical findings indicate that trust represents a central construct within the proposed model, exerting a positive and statistically significant effect on user motivation, which in turn emerges as the strongest predictor of behavioral intention. These results confirm that trust operates as a key psychological driver that enhances motivational engagement and strengthens continuance intention. In contrast, perceived security and perceived privacy did not demonstrate a significant direct positive influence on trust, suggesting that technical attributes alone may not be sufficient to reinforce users' confidence in mobile banking services. The findings imply that the overall user experience, encompassing confidence, perceived reliability, and motivational engagement, plays a more decisive role in shaping behavioral outcomes than isolated security or privacy measures. From a theoretical perspective, this study contributes to the literature by empirically validating the mediating role of motivation in the relationship between trust and behavioral intention, thereby advancing existing models of digital service adoption and continuance behavior. By examining these relationships within the context of Serbia, the study enriches the understanding of mobile banking adoption in transition economies that remain underrepresented in prior research. From a practical standpoint, the results suggest that banks should prioritize the development of trustworthy and engaging mobile platforms that enhance users' confidence and motivation rather than relying exclusively on communicating technical security features. Despite its contributions, the study is limited by its sample size and by the fact that the empirical analysis was conducted within a single national context, which may constrain the broader generalizability of the findings. Future research should therefore consider larger and more diverse cross-national samples and incorporate additional determinants such as usability, system performance, service quality, price value, and social influence in order to provide a more comprehensive understanding of the factors shaping trust and behavioral intention in mobile banking environments.

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