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# An exploratory examination of the willingness to adopt mobile banking services

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**Abstract:** The significance of digital marketing or mobile marketing is growing steadily as a potent strategy in service marketing. In this article, our focus is on unraveling the factors that shape an individual's inclination to engage with mobile banking. Drawing on the Technology Acceptance Model (TAM), we gathered 350 questionnaires from mobile banking service users in Tunisia. Our analysis reveals that perceived attitude, trust, and word-of-mouth play a constructive and notable role in influencing the intention to use mobile banking. Furthermore, perceived usefulness and ease of use exert an indirect impact on the intention to adopt mobile banking.

Keywords: Attitude, Digital marketing, Intention to use mobile banking services, Mobile banking, TAM.

# 1. Introduction

Today, in a competitive environment, only innovative companies withstand the challenges. They are compelled to adapt quickly to technological changes in order to ensure their survival. However, the failure rate of new product launches in the market remains high [1], and the product lifecycle is short, while the pace of new product launches and development remains restrained [2]. It is therefore crucial for any company to ensure that they have what is compatible with their available resources to maintain their competitive position in the market.

Currently, mobile technologies (smartphones, tablets) have created favorable conditions for both users and businesses in a highly competitive market  $\lceil 3 \rceil$ . The use of mobile communication services has experienced rapid growth, with 6.8 billion, or 93% of the global population, having mobile subscriptions worldwide in 2014 [4]. In light of this circumstance, banks have incorporated mobile banking as a marketing strategy based on an online platform in the form of an application to facilitate both financial and non-financial transactions using a mobile phone or tablet. In Tunisia, the internet penetration rate stands at 68%, and mobile usage is on the rise. In 2014, the number of smartphones sold significantly exceeded the number of laptops, with 1.807 billion units and 277 million units sold, respectively [5]. This suggests that internet access via mobile phones is poised to catch up with access via computers. As a result, "customers are increasingly interacting with their bank less through physical branches and more through mobile services" [3]. In this context, it is essential for banks to invest in technology to attract new customers and retain existing ones by developing a mobile application accessible to clients through their mobile devices. The objective of this study is precisely to gain a better understanding of what predicts and impacts clients' adoption and continued use of mobile banking. This study will be structured as follows: firstly, we will provide a literature review on mobile banking. Next, we will present the research methodology adopted for this study. Finally, we will discuss the main findings of our research.

# 2. Literature Review

# 2.1. Mobile Banking

Table 1.

The emergence of mobile banking represents a significant leap forward in financial technology, following advancements like ATMs, phone banking, and internet banking [6]. These established channels provide efficient access to traditional banking products. However, mobile banking, recently adopted by many banks in both developed and developing nations, has the potential to revolutionize the financial landscape [7]. With mobile phone penetration surpassing personal computers, the integration of mobile phones into banking offers undeniable advantages for both customers and banks, fostering a more connected banking experience [8].

# 2.2. BIATNET Mobile App: Banking at Your Fingertips

In Tunisia, BIAT has pioneered mobile banking with the introduction of the "BIATNET mobile app," accessible on smartphones and tablets. This app empowers users to securely manage their accounts on the go, including checking balances, initiating transfers, reloading prepaid cards, requesting checkbooks, and locating nearby BIAT branches and ATMs.

# 2.3. The Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) offers valuable insights into user behavior towards new technologies. Widely recognized within information systems research, TAM is a prominent framework for investigating the intention to adopt mobile banking [9]. The model centers on three key factors: perceived usefulness, perceived ease of use, and perceived attitude. These factors all contribute to an individual's decision to adopt mobile banking services.

TAM defines two key factors influencing technology adoption: perceived usefulness and perceived ease of use. Perceived usefulness refers to the extent to which an individual believes the system will enhance their tasks. In contrast, perceived ease of use reflects the effortlessness associated with learning and operating the system. These concepts are extensively applied by researchers across various fields, particularly in the context of mobile banking adoption [10, 11, 12, 13, 14, 15, 16, 17, 7].

Studies investigating mobile banking adoption through the TAM lens consistently report a positive correlation between perceived usefulness, perceived ease of use, and a user's intention to adopt mobile banking services [10, 18]. This highlights TAM's effectiveness in predicting mobile banking adoption behavior.

Authors	Theory (ies) used	Sample	Results
Brown et al.	TPB	162	Relative advantage, trialability,
(2003)		questionnaires	number of banking services, and
		in South	perceived risk significantly influence
		Africa	the adoption of mobile banking
			services.
Luarn et Lin	MAT, trust, self-	180	Perceived self-efficacy, financial cost,
(2005)	efficacy, financial cost,	questionnaires	perceived credibility, ease of use, and
	perceived credibility.	collected in	perceived usefulness have positive
		Taiwan	effects on the intention to use mobile
			banking services.
Amin et al.	MAT, perceived	156 responses	Perceived usefulness, perceived ease of
(2008)	credibility, amount of	obtained in	use, perceived credibility, amount of
	information,	Malaysia	information, and normative Pressure
	normative pressure		influence the intention to use mobile
			banking services.
Crabbe et al.	MAT, perceived	271	Perceived credibility and facilitating
(2009)	elitism, perceived	questionnaires	conditions influence customers'

Literature review on the intention to use mobile banking.

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	credibility, facilitating	collected in	attitudes towards mobile banking
	conditions.	Ghana	adoption. Attitude has a significant
			effect on the intention to adopt.
Gu et al. (2009)	MAT, Trust	910	Perceived usefulness and perceived
		questionnaires	ease of use, along with trust, influence
		collected in	the intention to adopt and the user's
		Korea	propensity for trust.
Kim et al. (2009)	MAT, TCP	192	The adoption of mobile banking is
		questionnaires	influenced by initial trust, perceived
		collected in	relative advantage, structural
		Korea	assurance, and company reputation.

Source: Cheikho (2015, p. 60).

# 2.4. Theoretical Framework of the Research

# 2.4.1. Attitude and Intention

The TAM model emphasizes intention to use as a key factor influencing technology adoption. Intention reflects an individual's likelihood of using a particular technology. Within TAM, a user's attitude towards mobile banking is considered a significant driver of intention [19]. Attitude refers to a person's general feeling or disposition towards a specific behavior, positive or negative. Research consistently highlights the critical role of attitude in shaping the adoption of new technologies, including mobile banking [20]. Studies like the one by Cao and Mohhtarian [21] further emphasize the strong influence of attitude on intention.

Regarding the adoption of mobile banking services, several studies, such as those conducted by Wessels and Drennan [22], Hsu and Wang [23], Lin [24], Aboelmaged and Gebba [14], Shaikh and Karjaluoto [9], and Mehrad and Mohammadi [7], have shown that attitude has a positive influence on the intention to use mobile banking. As a result, our hypothesis can be constructed as follows:

H<sub>1</sub>: Perceived attitude positively influences the intention to use mobile banking services.

# 2.4.2. Trust and Intention

Trust, defined as a sense of confidence in something or someone, plays a crucial role in technology acceptance. In the context of mobile commerce, users with a positive feeling towards using the service are more likely to adopt it [25, 26]. This highlights the importance of building trust in mobile commerce platforms to encourage user adoption.

Regarding the adoption of mobile banking, several researchers such as Nor and Pearson [27], Kim, Shin and Lee [28], and El-Majali [29] have shown a strong association between trust and the intention to use mobile banking services.

 $H_2$ : Trust has a positive effect on the intention to use mobile banking services.

#### 2.4.3. Ease of use

Numerous studies on information systems have consistently found a connection between a system's ease of use and a user's attitude towards it [30, 31]. This relationship holds true in mobile banking adoption as well. Research, such as the one by Crabbe et al. [32] involving 271 participants in Ghana, demonstrates that users who find mobile banking easy to use develop a more positive attitude towards using it.

A study by Gu, Lee, and Suh [18] involving Korean mobile banking users suggests that trust acts as a mediator between perceived ease of use and intention to adopt mobile banking. Their findings align with research by Gefen et al. [33] which highlights the importance of user-perceived ease of use in building trust. In simpler terms, users who find mobile banking easy to use are more likely to develop trust in the system, ultimately leading to a stronger intention to adopt it. This positive influence of trust on mobile banking adoption is further supported by research from Kim, Shin, and Lee [28].

As a result, our hypotheses can be constructed as follows:

H<sub>s</sub>: Ease of use has a positive impact on an individual's perceived attitude.

#### H<sub>4</sub>: Ease of use positively influences an individual's trust.

#### 2.4.4. Perceived Usefulness

Perceived usefulness, which refers to an individual's belief that a system improves their tasks, plays a significant role in shaping attitudes towards digital activities like mobile banking [34]. Customers who recognize the benefits of mobile banking, such as convenient access and improved financial management, are more likely to develop a positive attitude towards using it [7]. This connection between perceived usefulness and positive user attitude is well-supported by research in the field [35,14]. Studies like the one by Riquelme and Rios [36] involving Singaporean participants further solidify this link, demonstrating a direct influence of perceived usefulness on the intention to adopt mobile banking services. Similarly, Tan et al. [37], Wessels and Drennan [22], and Dasgupta, Paul and Futoria [13] have all found that perceived usefulness has a direct positive effect on the intention to adopt mobile banking. In this regard, our hypothesis can be constructed as follows:

H<sub>5</sub>: Perceived usefulness has a positive impact on perceived attitude.

#### 2.4.5. Word of Mouth

Word-of-mouth communication, defined as informal conversations between people about products, brands, or services, is a powerful marketing tool [7]. Consumers often seek advice from others, particularly before purchasing unfamiliar services, to minimize risk [38, 39]. Unlike traditional advertising, word-of-mouth comes from independent sources, perceived as more credible and authentic [7]. This can significantly influence consumer behavior, often outweighing the impact of promotions or marketing campaigns.

Based on this, your hypotheses can be constructed as follows:

*H*<sub>6</sub>: *Word of mouth has a positive effect on perceived usefulness.* 

 $H_7$ : Word of mouth has a positive effect on ease of use of mobile banking.

*H<sub>s</sub>: Word of mouth has a positive effect on the intention to adopt mobile banking.* 



#### Figure 1.

Conceptual model of the research.

#### 3. Research Design and Data Collection

This study employed a hypothetico-deductive approach, testing hypotheses through an online survey. We utilized structural equation modeling (SEM) to analyze the collected data.

#### 3.1. Target Population and Sampling

The target population for this research consisted of mobile banking users in Tunisia. To reach this audience, an online questionnaire was distributed through various social media platforms like Facebook, LinkedIn, etc.

3.2. Data Collection and Response Rate

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Participation in the survey was voluntary, and we received a total of 350 completed responses from mobile banking users. It's important to note that online surveys may be susceptible to non-response bias, so the results may not perfectly generalize to the entire population of mobile banking users in Tunisia.

The data for the present study were collected from June to November 2023. The number of responses collected is comparable to other studies on mobile banking usage, such as Browen et al. [40] (162 questionnaires), Luarn and Lin [10] (180 questionnaires), and Crabbe, Standing and Karjaluato [32] (271 questionnaires).

The validation of measurement scales is a crucial aspect of any study, particularly in our research. It is an indicator of the study's rigor and sincerity. We used the Principal Component Analysis (PCA) method with the SPSS software for this validation test. All measurement scales adopted in this study have been operationalized and validated in the literature through previous research.

Regarding perceived usefulness and ease of use, they were measured using the measurement battery proposed by Davis [20] and revised in the context of mobile banking usage by Luarn and Lin [10]. Perceived attitude was measured using items proposed by Ajzen [41]. Trust was estimated using the measurement scale revised in the context of mobile banking adoption by Allagui and Temessek [42] and Lee and Chung  $\lceil 43 \rceil$ . For the word-of-mouth measurement scale, it was measured by Mehrad and Mohammadi [7] during the identification of factors influencing the use of mobile banking services. Finally, the intention to use mobile banking was measured using the scale developed by Venkatesh [44] and revised by Venkatesh and Zhang [45]. You adopted psychometric Likert-type scales with five points (ranging from 1 "strongly disagree" to 5 "strongly agree").

# 4. Results and Discussion

Table 3.

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In this study, we opted for structural equation modeling and relied on SmartPLS 2.0 software to analyze our data. Structural equation modeling comprises two distinct models: the measurement model and the structural model. We employed the Partial Least Squares (PLS) algorithm on our entire sample to verify internal validity, convergent validity, and discriminant validity. We used indices such as CR (Composite Reliability), Cronbach's Alpha, and AVE (Average Variance Extracted) to assess the measurement model. The table below provides the accepted thresholds for these measures.

Acceptance thresholds for model measurement criteria.					
<b>Composite reliability</b>	>0.7	Nunnaly et Bernstein (1994)			
Average variance extracted	>0.5	Fornell et Larker (1981)			
Cronbach's alpha	>0.7	Nunnaly et Bernstein (199)			

In the following table, we have presented the convergent validity criteria.

Convergent validity criteria.					
Constructs	CR	AVE	Cronbach's alpha		
Ease of use	0.931	0.952	0.885		
Perceived usefulness	0.896	0.812	0.965		
Trust	0.0911	0.877	0.746		
Word of mouth	0.733	0.712	0.936		
Attitude	0.921	0.911	0.812		
Intention to adopt mobile banking services	0.889	0.801	0.981		

Regarding convergent validity, we observe that the AVE indices range from 0.712 to 0.952, and the CR values vary between 0.733 and 0.931. We notice that these indices exceed the respective thresholds of 0.5 [46] and 0.7 [47]. This allows us to confirm the convergent validity of our model. According to Sosik, Kahai and Piovoso [48] and Lacrous [49], discriminant validity is deemed adequate if, for each construct, the factor loadings are higher than the cross-loadings between each item and the other constructs.

Variables	Ease of use	Perceived usefulness	Trust	Word of mouth	Attitude	Intention of adopt
Ease of use	0.975					
Perceived	0.6321	0.901				
usefulness						
Trust	0.3125	0.5212	0.936			
Word of mouth	-0.3216	0.8512	0.1256	0.843		
Attitude	0.6532	0.4124	-0.5124	0.7251	0.955	
Intention of adopt	0.2132	0.7621	0.1286	-0.3264	0.6251	0.894

 Table 4.

 Correlations between constructs and discriminant validity.

According to Larcker [46], discriminant validity is assessed by a simple comparison between the correlations of constructs and the square roots of the AVE (Average Variance Extracted). The table indicates that the square root of the AVE values is higher than the correlations of the construct with other constructs. Based on this, discriminant validity is established.

Based on correlation coefficients and t-values, we focus on testing our hypotheses and estimating the structural relationships between constructs. To do so, a Bootstrap analysis (n=350, 500 iterations), following Chin's recommendations [50], was conducted. A correlation relationship is considered significant if the t-value exceeds the threshold of 1.96. Positive correlation coefficients close to 1 suggest a strong correlation between constructs. Table 7 and Figure 2 present the results (\*\*p<.05; \*\*\*p<.01, n.s: not significant).

#### Table 5.

Results of our research model: Hypothesis validation.

Hypotheses	Correlation relationship	Correlation	T -values	Result	R <sup>2</sup>
		coefficient			
$H_1$	Ease of use Attitude	$0.693^{***}$	8.213	Confirmed	
$H_2$	Perceived us — Attitude	$0.524^{***}$	8.689	Confirmed	0.596
$H_3$	Attitude — Int of Adopt	$0.712^{***}$	9.869	Confirmed	
$H_4$	Trust Int of Adopt	$0.314^{***}$	6.895	Confirmed	
$H_5$	Ease of use $\longrightarrow$ Trust	$0.217^{***}$	5.415	Confirmed	
$H_6$	Word of mouth → Perceived us	$0.160^{**}$	3.216	Confirmed	0.612
$H_7$	Word of mouth → Ease of use	0.068	1.020 ( <b>n.s</b> )	Rejeted	
$H_8$	Word of mouth int of adopt	$0.198^{**}$	2.989	Confirmed	



**Figure 2.** Empirical research results.

Edelweiss Applied Science and Technology ISSN: 2576-8484 Vol. 8, No. 6: 5780-5788, 2024 DOI: 10.55214/25768484.v8i6.3248 © 2024 by the authors; licensee Learning Gate Tunisia. In this regard, we conducted an online questionnaire survey. The study aims to examine the role of the variable 'word of mouth' in predicting individual behavioral intention toward mobile banking as a variable tested for the first time in the Iranian context. Our results clearly indicate that the intention to use is strongly influenced by perceived attitude and trust in mobile banking (H3 and H4). Additionally, attitude is determined by both ease of use and perceived usefulness (H1, H2). Word of mouth was clearly identifiable and reflects a positive perception regarding the utility of the mobile application for performing banking tasks. However, word of mouth is found to be not significant in influencing individual behavior regarding the ease of use of mobile banking services (H7). The use of mobile banking services is easy, requiring no rare knowledge or skills. Therefore, oral communication between individuals has no effect on the ease of using mobile banking. Existing studies suggest that ease of use is a significant attribute of online banking applications [51]. Our study offers a comprehensive approach to understanding the adoption of mobile banking by incorporating the Theory of Planned Behavior and adding two additional variables: word of mouth and trust. This is demonstrated by the high explanatory power of our research model, explaining 61.2% of the behavioral intention to adopt mobile banking compared to 31% by Kim, Shin, and Lee [28] and 53% by Oliveira et al. [16].

#### **5. General Conclusion**

We collaborated with users of mobile banking to gain access to a high-quality field, enabling us to control a maximum number of parameters. Between June and August 2023, we collected 350 responses on the basis of which we conducted our analyses. These analyses demonstrated that the intention to use mobile banking services is influenced by the perceived attitude toward the mobile application, and trust significantly and positively influences this intention of use. Ease of use and perceived usefulness are two determining factors of an individual's attitude. We also showed that word of mouth plays an important role in positively influencing the perceived usefulness of mobile banking applications and has a direct impact on the intention to use online banking, while it does not affect ease of use. Mobile banking is considered an effective marketing strategy based on the internet to retain existing customers and attract new ones. Digital-based remote banking technology has now become an extremely innovative and up-to-date mobile banking [17].

Unfortunately, this new practice remains inadequately adopted by Tunisian banks to this day. We have tried to provide a clear picture of the factors influencing an individual's intention to adopt mobile banking services so that banks can adapt to the changing behavior of their customers. It is important to foster a collective vigilance about the ever-evolving environment to capture new trends. The study's findings will help banks and financial institutions enhance the growth of mobile banking and provide decision-makers with new insights to design appropriate marketing strategies to improve the adoption of mobile banking services. In the current economic context, both globally and specifically in Tunisia, it is essential to assist all businesses in enhancing their potential by implementing strategies that ensure their sustainability. Desiring innovation and knowing how to innovate are the two essential components that will enable every company, regardless of its profile, to reap the benefits of this innovative approach.

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