

Laradi, Sofiane et al.

Article

An Arab country's digital shift: A case study on factors influencing mobile banking adoption in the Arab World

Scientific Papers of the University of Pardubice, Series D: Faculty of Economics and Administration

Provided in Cooperation with:

Faculty of Economics and Administration, University of Pardubice

Suggested Citation: Laradi, Sofiane et al. (2023) : An Arab country's digital shift: A case study on factors influencing mobile banking adoption in the Arab World, Scientific Papers of the University of Pardubice, Series D: Faculty of Economics and Administration, ISSN 1804-8048, University of Pardubice, Pardubice, Vol. 31, Iss. 1, pp. 1-14, <https://doi.org/10.46585/sp31011735>

This Version is available at:

<https://hdl.handle.net/10419/334794>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

An Arab Country's Digital Shift: A Case Study on Factors Influencing Mobile Banking Adoption in the Arab World

Scientific Papers of the University
of Pardubice, Series D: Faculty of
Economics and Administration
2023, 31(1), 1735.

©The Author(s) 2023. This is
an open access article under
the CC-BY 4.0 license.

DOI: 10.46585/sp31011735
editorial.upce.cz/SciPap

Sofiane Laradi 

University of Blida 2 Lounici Ali, Department of Business Science, Algeria

Benziane Roucham 

Tahri Mohamed University, Bechar, Department of Management Science, Algeria

Abdelhak Lefilef 

Abdelhafid Boussouf University Center of Mila, Institute of Economic, Commercial and Management Sciences, Algeria

Salwa Essa K. Alghamdi 

King Abdulaziz University, Jeddah, Faculty of Arts and Humanities, Department of Information Science, Saudi Arabia

Ramzi Bouderdja 

Abdelhafid Boussouf University Center of Mila, Institute of Economic, Commercial and Management Sciences, Algeria

Youcef Souar 

Dr Tahar Moulay University, Saida, Department of Economics, Algeria

Abstract

This research investigates the factors influencing the adoption of mobile banking services in the Arab region, focusing mainly on a case study from Algeria. A conceptual model integrating the Technology Acceptance Model (TAM), Diffusion of Innovations (DOI), and Trust Theory is proposed to gain comprehensive insights. Empirical validation was conducted through a survey of 285 users of BaridiMob, a mobile banking application by Algeria Post, with data analysis conducted using structural equation modelling. The results revealed four pivotal factors—perceived usefulness, Ease of use, Trust, and attitude—essential in driving user intention to adopt mobile banking services. Notably, perceived usefulness exhibited the most substantial influence, indicating functional value's critical role in technology acceptance within this context. Trust, also a major determinant, plays a vital role in shaping user attitudes and intentions, thus emphasizing the necessity for service providers to establish robust trust-building mechanisms. These findings offer theoretical and practical insights for fostering mobile banking adoption in the Arab region and emerging economies. While the study provides significant contributions, it is confined by its cross-sectional design and convenience sampling approach, limiting the generalizability of the results.

Keywords

Mobile Banking Adoption, Arab Region, Technology Acceptance Model (TAM), Perceived Usefulness, Trust Theory, Structural Equation Modelling.

JEL Classification

O14, M13, G24

Introduction

Mobile banking, also known as M-banking, which denotes the utilization of a cellphone or different mobile appliances to execute monetary transactions linked to a consumer's record, epitomizes a modern conduit of dispensing financial offerings via information exchange technology (ICT) and has evolved as feasible due to the pervasive employment of mobile phones, even within economically impaired nations (Anderson, 2010).". In recent years, there has been a significant focus on academic research concerning adopting Internet banking from a behavioral standpoint (Hosein, 2011; Ly & Ly, 2022). Their primary objective is to comprehend the forces that drive bank customers to adopt innovative banking technologies, employing various theories and frameworks to elucidate this occurrence across different contexts and cultures. It is recognized that introducing innovative technologies in financial services to perform tasks traditionally reserved for banks will possibly improve the effectiveness and

Corresponding author:

Abdelhak Lefilef

Email: abdelhak.lefilef@centre-univ-mila.dz

performance of the banks since, eventually, these banks can reinstate the traditional tasks by providing less expensive and more efficient services to consumers like contactless, instant payment, financial services device (Phan et al., 2020). Digital technologies are increasingly embedded in products and services. The continuous prodigious innovation in Information Systems (IS) in the last two decades has proven almost essential for business success. Beyond the traditional view, companies' formulation and execution strategies are now directed at creating and capturing value by implementing digital resources and platforms (Bharadwaj et al., 2013; Coltman et al., 2015). According to the Universal Postal Union (UPU) report in 2021, the digital revolution of postal and financial services offers emerging markets an excellent opportunity to increase public access to digital services. In this context, Managers of financial institutions recognize recently that modern technologies and the increasing use of e-communications have profoundly impacted people's daily behavior and transactions.

Given that reason, many banks in Algeria recently developed a series of digital services, including mobile applications like BaridiMob, launched in 2018 by Algérie Post. With the mobile application of BaridiMob, users can take advantage of various financial services; it allows users to check their account balances, transfer funds, pay bills, and more. Subsequently, numerous mobile applications for banking services emerged in Algeria, including the Mysalam app (2020), Mobile CPA app (2021), and Mpay app (2021), among others.

Given the recent introduction of such technologies, implementing sophisticated digital services as alignment in business strategy does not necessarily guarantee its introduction's success. Many projects of digitalization fail for many reasons, for example, because they do not extend their perspective to the external stakeholders (Rajala & Aaltonen, 2020) or the customers lack the necessary technological skills to use the services or might be afraid the population of the security issue and the high perceived risk of the new technology service (Laforet & Li, 2005). Many studies are conducted to highlight the importance of understanding factors that lead to success (Dahlberg et al., 2015) or failure (Lim et al., 2007) of consumer adoption of new information system in the banking industry.

Although studies have made efforts to produce an optimal predictive model for mobile banking user adoption, the foundational works on technology acceptance continue to play a significant role in some way. The Technology Acceptance Model (TAM), Diffusion Of Innovation Theory (DOI), and Theory of Planned Behavior (TPB) are the frameworks used to understand why consumers use or do not use mobile banking. For a long time, these frameworks have assumed that the success of a new technology among the population depends on its features and satisfactory performance (Venkatesh et al., 2003). More specifically, the two features of mobile banking (i.e., Ease of use and perceived usefulness) of TAM are the most impactful factors that explain users' attitudes toward mobile banking (Kejela & Porath, 2022; Mutahar et al., 2022); these factors also are similar to many models and theories in the field of technology adoption frameworks (Ho et al., 2020; Venkatesh et al., 2003).

The innovation in banking services continues to grow in digital formats and allows users to access extensive banking services. However, the limited awareness and familiarity of these new technologies and the likelihood of scams and counterfeit mobile applications typify barriers to users' Intention. Because of its counteractive relationship with risk, Trust has been identified as a crucial determinant of Intention to adopt mobile banking (Hanafizadeh et al., 2014; Kumar et al., 2020; Nguyen et al., 2022; Tien et al., 2020; Tiwari et al., 2021). Previous studies focused on trust-building factors toward mobile banking are predominant and revolve around assessing security, privacy concerns, and service quality (Aboobucker & Bao, 2018; Alrawad et al., 2023; Chiu et al., 2016). However, little attention has been given to investigating how the system's features (such as Ease of use and usefulness) could foster Trust in mobile banking (Abdennebi, 2023; Afshan & Sharif, 2016).

Similar to many innovations introduced to the market, the growth of the adoption of new IS is difficult in the preliminary stage for companies, especially when it is related to financial and banking services. Many studies on adopting m-banking services have been conducted in different cultures (Khan et al., 2017; Merhi et al., 2019; Zhang et al., 2018). However, there have been few research carried out on factors affecting mobile banking adoption in Arabic nations like Saudi Arabia (Baabdullah et al., 2019), Jordan (Anouze & Alamro, 2020), Egypt (Awad & Dessouki, 2017), Palestine (Salem et al., 2019), and Tunisia (Nasri & Charfeddine, 2012). Many Arab countries exhibit similarities in their cultural dimensions, such as a tendency to avoid uncertainty and individualism (Alsswey et al., 2022). Likewise, they share similarities in the smartphone proliferation and perceived usefulness of technologies (Al-Azawei & Alowayr, 2020).

Additionally, several Arab countries showed similarities in the timing of mobile banking introduction to their markets (Hassan & Wood, 2020). Furthermore, the United Nations' report in 2022 clustered low-income Arab countries (Algeria, Egypt, Morocco, Lebanon, Tunisia, and Jordan) together with similarities in components of the Enabling Digitalization Index (EDI) (UNDP, 2022). Hence, the findings of this research could be allied with prior studies in Arab nations regarding how users perceive and interact with technology-driven consumer products and services. More specifically, there is an absence of understanding of the phenomena of mobile payment and e-banking service in the context of Algeria, and there has been no study conducted to understand the introduction of the innovative platform of mobile banking in Algeria since the integration of BaridiMob in April 2018 as it is the earliest introduced application and the most used among Algerian banked consumer in e-banking industry. Further research must be conducted to understand consumer attitudes and behaviors towards m-banking in different cultural contexts.

Moreover, additional studies are needed to understand better how different features and incentives of m-banking affect consumer trust and behavior. This survey-based study aims to fill this research gap by examining m-banking adoption among customers of Algérie Post. The central framework guiding our research model combines TAM and trust theory.

Understanding customer behavior is crucial for accelerating mobile banking adoption among users and decreasing traditionally practiced financial transactions. Furthermore, it is a considerable investment for the companies to integrate digital services and platforms into the existing business. The efficiencies in such investment depend primarily on the user's adoption of digital services.

Literature Review

The m-banking adoption in developing countries

The m-banking has been a rapidly evolving sector in many countries worldwide. Besides, whether they are developed, emerging, or developing countries, m-banking technologies are an effective channel to deliver banking services through a featured phone device application offered by banks to their customers (Muñoz-Leiva et al., 2017). As it serves as an essential component of electronic banking (e-banking) and an alternative platform for conducting diverse financial and non-financial transactions, researchers employ different terminology to describe mobile banking; these terms include m-banking, branchless banking, m-payments, m-transfers, m-finance, or pocket banking (Shaikh & Karjaluo, 2015). Recently, there has been increasing attention on banking technologies within developing and emerging countries compared to developed countries. For instance, using SMS technology, m-banking was first introduced in Kenya in 2007. However, it is worth noting that the use of mobile phones became more revolutionary in the late 1990s. With the subsequent rise in smartphone adoption and the expansion of ICT services, the United Kingdom introduced m-banking in the form of applications in 2011.

There is a noticeable shift towards using m-banking applications instead of traditional methods. On the other hand, Algeria experienced a delayed introduction of m-banking services, with limited offerings becoming available only in 2018. This development has sparked an increase in research efforts aiming to understand the various forces that influence the adoption of m-banking in different developing countries. Notable studies have focused on countries like Jordan (Abu-Taieh et al., 2022), Serbia (Šabotić et al., 2023), Saudi Arabia (Baabdullah et al., 2019) Egypt (Awad & Dessouki, 2017), Cambodia (Ly & Ly, 2022) Turkey (Chakiso, 2019) and Ethiopia (Kejela & Porath, 2022). Additionally, some studies have explored m-banking usage specifically among a particular group known as migrant workers from emerging markets (Purohit & Arora, 2023). Several studies provided valuable insights into the barriers that impede the acceptance of m-banking. A recurring discovery is the notable influence of consumer perception, specifically regarding the cost, risk, and perceived advantages and complexities associated with the service. Noteworthy studies, including Cruz et al.'s investigation in 2010, have emphasized these factors as the primary drivers behind the initial hesitance towards adopting m-banking (Cruz et al., 2010).

Underlying Theories Explaining m-banking Adoption

It is considered that understanding the underlying theories driving its acceptance can provide critical insights for implementation success and continued development. From a consumer perspective, several factors explain the propensity to use mobile financial services (Dahlberg et al., 2015). The factors explaining m-banking adoption were developed primarily in the models and theories of new information systems adoption (Venkatesh et al., 2003) and borrowed later by behavioral e-banking studies (Abu-Taieh et al., 2022; Ho et al., 2020). For instance, the TAM is the broadest framework used in m-banking to understand consumer acceptance and use of innovative e-banking services (Kelly & Palaniappan, 2022, 2023). The TAM, as proposed by Davis (1989), suggests that the perceived usefulness of a new information system and its perceived Ease of use are critical determinants of its adoption by users. This model can be instrumental in understanding how user perceptions about m-banking applications impact acceptance and usage (Kala Kamdjoug et al., 2021; Ly & Ly, 2022; Namahoot & Jantasri, 2023). Therefore, according to the model, the inclination of consumers to embrace m-banking is linked to the benefits offered by the new technology in improving their task performance compared to the previous methods. Another crucial factor is the Ease of use, as individuals who perceived m-banking as user-friendly were likelier to adopt it than those who did not.

The TAM incorporates some aspects of the Theory of Planned Behavior (TPB) and the Diffusion of Innovation (DOI). While the TAM mainly examines the connection between attitude, Intention, and actual usage, which is derived from the TPB (Bosnjak et al., 2020), the DOI emphasizes five factors, including relative advantage and complexity (Wisdom et al., 2014), which are conceptually similar to perceived usefulness and Ease of use (Ho et al., 2020). These two widely recognized factors positively impact users' attitudes towards innovative technology services in m-banking. Additional models and theories have been derived from TAM and DOI. One example is the Motivational Model, which shares similarities with TAM and DOI. The Motivational Model (MM) centers around perceived usefulness, Ease of use, and user motivation as crucial factors in comprehending user acceptance of new technologies (Davis, 1989; Nikou & Economides, 2017).

Comprehensively, Venkatesh, Morris, and Davis (2003) developed the Unified Theory of Acceptance and Use of Technology (UTAU), the model intended to clarify users' intentions to use an information system and succeeding

usage behavior. The UTAU model merged eight prominent models and found four factors explaining 69 % of usage intention. The factors are (1) performance expectancy, which is defined as “the degree to which an individual believes that using the system will help him or her to attain gains in job performance” (p.447), (2) effort expectancy, (3) social influence, (4) and facilitating conditions “objective factors in the environment that observers agree to make an act easy to accomplish” (Venkatesh et al., 2003, p.453). It is worth mentioning that performance expectancy is similar to perceived usefulness in TAM and extrinsic motivation in MM. Furthermore, Ease of use in TAM captures facilitating conditions and effort expectancy (Venkatesh et al., 2003).

Each of these models and theories has been widely investigated in various studies examining the adoption and use of m-banking. TAM, for instance, has been examined in multiple studies by researchers (Mulia et al., 2020; Ramezaninia et al., 2022; Tiwari et al., 2021); (Kala Kamdjoug et al., 2021; Ly & Ly, 2022; Namahoot & Jantasri, 2023). However, others have investigated UTAUT (Ramezaninia et al., 2022) and UTAUT2 in the specific context of m-banking (Parayil Iqbal et al., 2023; Kala Kamdjoug et al., 2021). Additionally, m-banking adoption studies have explored the DOI (Awad & Dessouki, 2017; Deb & Lomo-David, 2014; Gerrard & Barton Cunningham, 2003; Ho et al., 2020). More compressively, some studies have included many theories in their conceptualization (Namahoot & Jantasri, 2023; Ho et al., 2020).

Trust in m-banking

Besides the classical models of users' acceptance and adoption mentioned above, Trust has emerged as a predominant variable in new technologies such as e-commerce, e-payment, and m-banking. According to the social exchange theory, it has been a long since Trust has shown a crucial position in establishing a strong relationship between partners, such as consumers and brands in marketing (Morgan & Hunt, 1994). Trust is an essential factor in the banking sector; the lack of Trust negatively affects financial inclusion (Bekele, 2023). In e-banking, consumer trust plays a pivotal role in consumer adoption intention (PH, 2023; Tiwari et al., 2021) and continuance usage of e-banking services (Bergmann et al., 2023; Zhou et al., 2018). This can largely be attributed to mobile banking, which falls under e-banking. M-banking involves transmitting sensitive financial data and transactions through a relatively new channel. As a result, Trust appears to be a critical factor for users to place their Trust in this newest method of consuming banking services.

Trust has been widely considered and frequently defined in previous research on m-banking adoption (Kumar et al., 2023). For instance, Trust in e-banking is defined by the seminal work as “a psychological state which leads to the willingness of the customer to perform banking transactions on the Internet, expecting that the bank will fulfill its obligations, irrespective of customer's ability to monitor or control bank's actions” (Yousafzai et al., 2003). While (Koo & Wati, 2010), defined trust mobile banking as “the belief that allows the individual to willingly become vulnerable either to the bank or e-banking technology after having taken the bank's characteristic embedded in its technology artifact” (p.1804). Since the m-banking provider enjoys reliability in their systems and service, consumer trust is the perception that banks with whom one engages will not exploit the individual dependence for personal gain. It involves a psychological state to rely on m-banking technologies and delegate financial information.

Many works conceptualized the notion of Trust as a multi-dimensional construct comprising dimensions such as disposition to trust, structural assurance, and trust belief (Luo et al., 2010), or benevolence, integrity, and competence (Yousafzai et al., 2003). Furthermore, several factors throw into the development of Trust in m-banking services. Both perceived security and perceived privacy are the most critical trust-building blocks. The study of Laforet and Li, 2004 which compared the factors affecting Chinese users' adoption of online and m-banking, indicated that security is the primary factor affecting e-banking adoption. Along the same line, studies highlighted the positive mechanism of reputation, credibility (Nguyen et al., 2022), system quality, information quality (Zhou et al., 2018), and user flow experience (Luo et al., 2021) of the service providers to establish Trust toward m-banking. Therefore, the users' high and positive perception of the Trust in m-banking is noticeably based on security and privacy (Muñoz-Leiva et al., 2017; Yousafzai et al., 2003) and suitably yields several positive outcomes such as consumer intention and engagement.

The above-motivated frameworks highlight the diverse theoretical foundations of m-banking and underline the wide-ranging perspectives that continue to shape our understanding of user behavior and technology adoption within the m-banking field. The diversity and richness of these theoretical underpinnings contribute significantly to the dynamism and depth of research in m-banking. To further delve into the context of m-banking in our research model, the theories and models borrowed for m-banking adoption often rely on key concepts such as Ease of use, perceived usefulness, Trust, and Intention to adopt. These factors symbolize the primary constructs of the current research model.

Research model and hypotheses development

Davis initially introduced perceived **Ease of use** in the Technology Acceptance Model (TAM) as a rudimentary determinant of user acceptance (Davis, 1989) and has since been validated in multiple studies as a significant antecedent to consumers' attitudes and usage of new technology (Venkatesh et al., 2012). In the context of m-banking, a study underscored the influence of perceived Ease of use on elderly users' Intention to adopt m-banking services in Spain (Liébana-Cabanillas et al., 2018). Their findings suggested that perceived Ease of use is a significant factor shaping the attitudes of elderly users toward mobile banking; however, (Ramezaninia et al., 2022)

have employed the TAM and found perceived Ease of use to be a significant influence on m-banking adoption in the Iranian context. This emphasizes the need for further investigation into this variable's role in the current study context. Hence, the following hypothesis is proposed:

H1: The Ease of use of m-banking has a positive influence on consumers' attitudes

In support of the relationship of **perceived usefulness** with consumer attitudes, various found that perceived usefulness significantly impacted the Intention to adopt m-banking services (Deb & Lomo-David, 2014; Tiwari et al., 2021). These studies suggest that perceived usefulness shapes attitudes toward m-banking services. In addition, Ramezani et al. (2022) and Foroughi, Iranmanesh, and Hyun (2019) found that perceived usefulness significantly impacts m-banking adoption and continuance usage intention. These studies reinforce the finding of Deb and Lomo-David's (2014) study, which backs the positive linking of perceived usefulness to a positive attitude towards m-banking. Hence, the following hypothesis assumption:

H2: The Perceived usefulness of m-banking has a positive influence on consumers' attitudes

For the relation of perceived **usefulness to trust** construct, (Karjaluoto et al., 2002) highlighted that perceived usefulness significantly influenced the formation of Trust among Finnish online banking users. This implies that perceived usefulness plays a significant role in establishing Trust in m-banking services. This earlier work, recently examined by (Abdennebi 2023; Ramos et al., 2018), identified perceived usefulness as a vital component in forming Trust for m-banking services. These studies underscore the significant role of perceived usefulness in establishing Trust. Therefore, the subsequent hypothesis assumes:

H3: Perceived usefulness of m-banking has a positive influence on consumers' Trust

As for the nexus between **Trust and attitude**, several studies supported that Trust had a substantial impact on attitudes to m-banking adoption, indicating a direct association between Trust and attitude (Deb & Lomo-David, 2014; Karjaluoto et al., 2002; Tiwari et al., 2021). Furthermore, a study established the crucial influence of Trust on attitudes toward adopting m-banking services, confirming the link between Trust and attitude (Ramos et al., 2018). In light of this, the hypothesis assumes the following:

H4: Consumers' Trust in m-banking has a positive effect on consumers' attitudes

In terms of the **trust-intention to-adopt relationship**, many researchers have shown the significant influence of the trust dimension on the Intention to adopt m-banking services (Deb & Lomo-David, 2014; Karjaluoto et al., 2002; Tiwari et al., 2021). These studies reveal the central role of Trust in shaping the Intention to adopt m-banking services. The exact relationship is corroborated by studies from (Parayil Iqbal et al., 2023; Ramos et al., 2018). These studies identified that consumers who trust banks for their m-banking services highly intend to adopt m-banking. This study also emphasizes the role of Trust in shaping adoption intentions. Thus, we suggest the following hypothesis:

H5: Consumers' Trust in m-banking has a positive influence on their Intention to adopt

Following the TBP, the final hypothesis of our research model assumes a positive nexus between consumers' attitudes and **Intention to adopt**. In the context of m-banking, this relationship is backed by (Foroughi et al., 2019), which found a positive correlation between attitudes and Intention to continue using m-banking services. Similarly, the (Deb & Lomo-David, 2014) study identified a positive association between attitude and the Intention to adopt m-banking, highlighting the crucial role of attitude in adoption intention. For the same purpose, studies such as those by (Liébana-Cabanillas et al., 2018; Tiwari et al., 2021) indicated a direct relationship between attitudes and Intention to adopt m-banking. These findings reinforce the role of attitude in shaping Intention to adopt m-banking services. For that reason, the current study postulates the following assumption:

H6: Consumers' attitudes toward m-banking have a positive influence on their Intention to adopt

Methods

Measurement

For this study, survey methodology has been used to empirically investigate the abovementioned associations of the conceptual model. Consequently, the study adopted a fifteen-item questionnaire that measured the model's five variables. All items were adapted from prior research. To assess perceived Ease of use (EOU), perceived usefulness (PEUS), attitudes (ATD), and Intention to adopt (INTENT), the items adopted from Chen et al. (2006) that have been widely employed in subsequent studies (Anouze & Alamro, 2020; Purohit & Arora, 2023). Additionally, the trust variable was evaluated by retaining three items derived from a previous study by Boateng, Adam, Okoe, and Anning-Dorson (2016). All scale items were measured on a five-point Likert scale ranging from (1) strongly disagree to (5) strongly agree. The demographic data of respondents was placed at the end of the paper, see Appendix A.

To assess our translated questionnaire's appropriateness and content validity, we sought the expertise of two marketing scholars specializing in information systems and behaviour. Their role was to evaluate the quality of

translations to Arabic and the suitability of items for their respective dimensions. The experts acknowledged the representativeness of the items and provided positive ratings.

Sampling

This study investigated the popular mobile application BaridiMob, which Algerian consumers widely utilize compared to consumers of both public and private banks in Algeria. The questionnaire was conducted online using Google Forms from the second semester of 2022 to the first semester of 2023. To reach the desired participants, we distributed the questionnaire link through two primary channels: social media platforms and email lists. The target population for this study encompassed individuals who possess an Algérie Post account, which was determined through a screening question at the beginning of the questionnaire. Over the collecting period, a number of 285 valid questionnaires were collected and analyzed.

The present study utilized a convenience sampling method, recruiting participants through an online questionnaire. It is worth mentioning that convenience sampling may introduce a potential limitation in terms of generalizability, but this approach was chosen due to its practicality and accessibility, allowing us to gather data from a diverse group of participants efficiently.

At the start of the questionnaire, participants were provided with complete information regarding the purpose of the research's purposes and the nature of their participation. A straightforward, informed consent process was implemented, outlining the voluntary nature of their involvement and the confidentiality handling of the responses. By adhering to these guidelines, ethical considerations were followed throughout our study.

Analysis methods

After gathering data, we recognized the importance of data quality for the analysis. Consequently, we ensured no missing values (due to required responses) and verified the absence of duplicate entries. Structural Equation Modeling (SEM) related statistical techniques were employed to explore the nexus of the conceptual framework. Descriptive statistics and data preparation were performed using SPSS 26, while Smart-PLS4 was used for the structural equation modelling (SEM). As the objective is to estimate the model prediction and not to develop the new validated model, we used Partial Least Square-SEM. The impact of the relevant variables was assessed based on path coefficients of β , t-value, and p-value significance.

Results

Sample profile

We collected 376 responses and deleted 91 responses since they were unfamiliar with the service of the BaridiMob app even though they are Algérie Post clients, see Table 1. Finally, we had 285 responses for data analysis, and the rate of net appropriate response was 76%. Of these 285 participants, 57% (N = 162) were male, and 39% were 18–30 years old (N = 162), whereas 45% were 31–45 years old, and 16% were older than 46 years. While most respondents (55%; N= 157) were permanent employees, 23% were students, 13% were temporary employees, and 9% were business owners. More than a third of the participants (30 %; N= 85) had a monthly income of less than USD 100, while the majority (58%) had an income ranging from \$100-500 USD. A lower proportion of participants (11%) earned more than \$500. Based on the familiarity scale, it came out that the vast majority of the participants are aware of the BaridiMob app (76%).

Table 1. Familiarity results.

	Strongly unfamiliar	Unfamiliar	Familiar	Strongly familiar
N	28	63	155	130
%	7	17	41	35

Construct validity and reliability

Table 2 summarizes items and constructs' reliability of constructs' model: Ease of use, perceived usefulness, Trust, attitudes, and Intention to adopt. To measure internal consistency, all constructs have high Cronbach's alpha values ranging from 0.807 to 0.927, indicating that the items within each construct are highly consistent and reliable (Churchill, 1979). A further measure of internal consistency is Composite Reliability (CR). The same table shows that all constructs have high CR values ranging from 0.912 to 0.954, indicating that the items of each construct are highly consistent and reliable since they are above 0.70 (Black & Babin, 2019). Furthermore, all constructs have high Average Variance Extracted (AVE) values, ranging from 0.793 to 0.873, indicating that the construct captures a significant amount of variance in the observed variables since the AVE values are higher than the rule of thumb 0.50 (Black & Babin, 2019). Additionally, the analysis showed that all items have high factor loadings, ranging from 0.859 to 0.944, indicating that they strongly interpret each item's role to their defining constructs (Black & Babin, 2019).

In summary, according to Table 2, the items in the study are deemed valid and reliable measures for their respective constructs within the specific context. This indicates that the researchers can confidently rely on these items to evaluate the model's predictive capability.

Table 2. Factor loading and constructs reliability.

	Items	Factor loading	Cronbach's alpha	CR	AVE
Ease of use (EOU)	EOU1	0.868	0.913	0.939	0.793
	EOU2	0.904			
	EOU3	0.859			
	EOU4	0.928			
Perceived usefulness (PEUS)	PEUS1	0.903	0.888	0.930	0.817
	PEUS2	0.919			
	PEUS3	0.889			
Trust (TRUST)	TRUST1	0.930	0.927	0.954	0.873
	TRUST2	0.933			
	TRUST3	0.940			
Attitude (ATD)	ATD1	0.914	0.900	0.937	0.833
	ATD2	0.944			
	ATD3	0.879			
Intention to adopt (INTENT)	INTENT1	0.915	0.807	0.912	0.838
	INTENT1	0.916			

Source: Primary data analysis output.

The diagonal of the matrix in Chart 3 reveals the construct's discriminant validity as the Fornell-Larcker criterion. Compliant with this standard, the square origin of the AVE for every construct is superior to the relation with other constructs in the paradigm. This implies that the gauges utilized in this investigation are distinct, and thus, the Fornell-Larcker Discriminant validity assessment is passed (Henseler et al., 2015). The Pearson correlation coefficient embodies the potency of the connection between each duo of constructs. In aspects of the specific constructs being gauged, we can observe that all of them possess robust correlations with each other, thus ranging from 0.438 to 0.817. For illustration, attitude correlates with intending to adopt ($r= 0.817$), trailed closely by the correlation between perceived Ease of use and attitude ($r= 0.778$). Given the existence of positive associations amid the variables of the research model, it is practical to evaluate the causal link to estimate factors swaying the Intention to adopt m-banking

Table 3. Discriminant validity, correlation matrix, mean, and Standard Deviation.

	ATD	EOU	INTENT	PEUS	TRUST	Mean	S. D.*
1. Attitude	0.913					4.030	0.838
2. Ease of use	0.702	0.890				4.067	0.827
3. Intention to adopt	0.817	0.700	0.915			4.024	0.864
4. Perceived usefulness	0.778	0.746	0.738	0.904		4.181	0.754
5. Trust	0.682	0.428	0.644	0.539	0.934	3.495	0.945

Note: * S. D. is Standard Deviation

Hypotheses testing

The current study investigates the factors driving the Intention to adopt m-banking services in Algeria, particularly the BaridiMob app. The report of PLS-SEM of various results is shown in Table 4. The Hypothesis testing results align with the conceptual model shown in Figure 1. SRMR and NFI are two values commonly used in structural equation modelling for Smart-PLS to assess the model fit. Based on the report of Model fit, the SRMR value of 0.051 points out that the estimated model is a good fit since it is below the recommended threshold of 0.080 (Hu & Bentler, 1998). Furthermore, the incremental fit measure of the NFI value of 0.924 is relatively high as it exceeds the recommended threshold of 0.90 (Bentler & Bonett, 1980). In general, the fit indices imply that the estimated model fits the data adequately.

The assessment of R^2 values in Figure 1 revealed that the perceived usefulness of the variable accounts for approximately 29% of the variation in Trust, indicating its explanatory capability within the structural model. Similarly, the structural model indicates that Trust, Ease of use, and perceived usefulness jointly explain approximately 73% of the variation in consumers' attitudes. Furthermore, consumers' attitudes report 68% of the variation in the Intention to adopt mobile banking.

The results showed that Ease of use of BaridiMob and attitudes has a positive relationship ($\beta = 0.24$, $t = 3.25$, $p \leq 0.050$). Given that the results are statistically significant at the 0.05 level, the results posterior to hypothesis H1 assumed that perceived Ease of use is more likely to impact the level of consumer attitude toward BaridiMob.

In particular, the path coefficient between perceived usefulness and attitudes was found to be positive and highly statistically significant ($\beta = 0.40$, $t = 4.94$, $p \leq 0.050$), suggesting that more substantial levels of perceived benefits of m-banking are linked to higher levels of consumers attitude toward the services. Likewise, the path coefficient between perceived usefulness and Trust was also positive and highly statistically significant ($\beta = 0.53$, $t = 10.95$, $p \leq 0.050$); this indicates that when the perceived usefulness of the m-banking app is more potent, there is a tendency for the consumer to trust the app in question. These outcomes indicate sufficient evidence to back both hypotheses H2 and H3.

Furthermore, the causal relationship between Trust and attitudes was positive and highly statistically significant ($\beta = 0.35$, $t = 6.64$, $p \leq 0.050$), suggesting that more vital consumer trust in BaridiMob is linked to higher levels of consumer attitude. Similarly, the causal relationship between Trust and Intention to adopt was also positive and significant ($\beta = 0.16$, $t = 3.17$, $p \leq 0.050$); this indicates that when the consumer trust in m-banking service is more vigorous, there is a predisposition for the consumer to use the services. The results sufficiently support both hypotheses, H4 and H5.

Additionally, the causal relationship between attitude and Intention to adopt was also positive and statistically significant ($\beta = 0.70$, $t = 15.21$, $p \leq 0.050$); this indicates that attitude toward the m-banking app of BaridiMob could predict the consumer tendency to use the services. The findings corroborate hypothesis H6, suggesting that attitudes have more potential to impact consumers' Intention to adopt m-banking.

Table 4. PLS-SEM results for the proposed model.

	β	t value	p-value	VIF	f^2	Effect size	Result
H1. Ease of use -> Attitude	0.244	3.256	0.001	2.266	0.097	Small	Supported
H2. Perceived usefulness -> Attitude	0.404	4.941	0.000	2.582	0.233	Medium	Supported
H3. Perceived usefulness -> Trust	0.539	10.957	0.000	1.000	0.410	Large	Supported
H4. Trust -> Attitude	0.357	6.465	0.000	1.416	0.332	Medium	Supported
H5. Trust -> intention to adopt	0.163	3.172	0.002	1.868	0.045	Small	Supported
H6. Attitude -> Intention to adopt	0.706	15.218	0.000	1.868	0.840	Large	Supported

Source: Primary data analysis output.

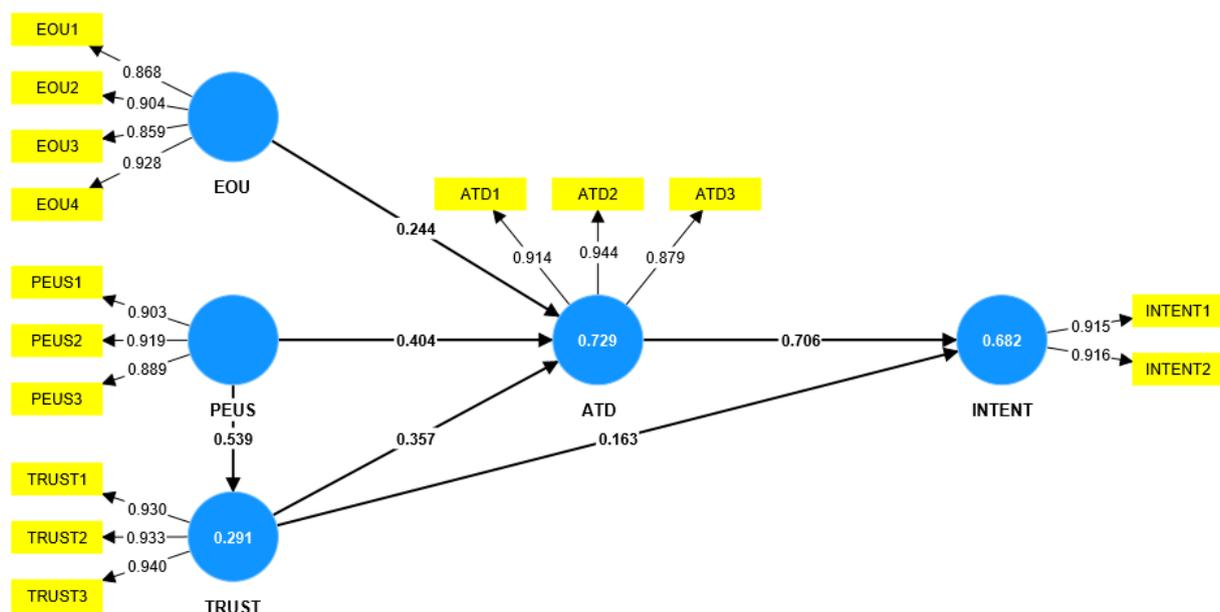


Fig. 1. Hypothesis testing results.

Based on Cohen's f^2 suggestion (Cohen, 2013), while the size effect of H1 and H5 was considered small (≥ 0.15), the size effect of H2 and H4 was considered medium (≥ 0.35). The size effect for H3 and H6 is considered significant (≥ 0.35). Hence, the study indicates strong positive associations between perceived usefulness, Trust, and attitude and their relationship to the Intention to adopt. However, Ease of use and Trust exhibit relatively weaker associations than the other variables.

Partial Mediation Analysis

Researchers can better understand the processes that lead to particular outcomes by discerning the mediating pathways. According to the results in Table 5, we explored the mechanisms and indirect relationships (M1 and M2) in the proposed model and their respective path coefficients, t-values, and significance levels. M1 states that perceived usefulness indirectly affects attitudes through the mediator of Trust; the mediation is positive and significant ($\beta = 0.193$, $t = 3.30$, $p \leq 0.050$). The M2 results also suggest that Trust has a positive and significantly indirect influence on the Intention to adopt through the attitude as a mediator ($\beta = 0.252$, $t = 4.93$, $p \leq 0.050$). Following the (Zhao et al., 2010) tree decision, and given the positive significance of all associations among the variables, the two mediations are complementary mediation.

Table 5. Mediation analysis.

Mediation	β	t value	Sig
M1. Perceived usefulness -> trust -> attitudes	0.193	3.307	0.000
M2. trust -> attitudes -> intention to adopt	0.252	4.398	0.000

Source: Primary data analysis output.

Discussion

The present study offers substantial theoretical and practical contributions concerning mobile banking adoption in the broader context of the Arab region, with an in-depth focus on a specific case study from Algeria. Our synthesized framework provides a comprehensive analysis, incorporating variables from various acceptance theories to offer a multifaceted view of consumer behavior.

Aligning with prior literature, our findings indicate that perceived usefulness significantly influences consumers' attitudes and Trust toward mobile banking (Deb & Lomo-David, 2014; Karjaluoto et al., 2002; Tiwari et al., 2021). This strengthens the understanding that consumers who perceive mobile banking to enhance their banking performance are likelier to cultivate positive attitudes and heightened Trust. From both theoretical and practical standpoints, this result enriches our comprehension of technology acceptance models by validating the significant role of perceived usefulness within the specific cultural and economic context of the Arab region.

As hypothesized, perceived Ease of use also had a notable influence on attitude, corroborating findings from previous technology adoption research (Davis, 1989; Venkatesh et al., 2012). This finding suggests that the user-friendly nature of mobile banking interfaces and processes can foster positive consumer attitudes. Hence, service providers should emphasize improving user experience and facilitating seamless navigation when designing mobile banking platforms. However, the relatively limited effect size indicates that Ease of use, though important, may not be the most consequential factor from the users' perspective.

In the Algerian context, the assumption that the Ease of Use of m-banking positively influences consumers' attitudes necessitates a more nuanced understanding given various context-specific challenges. On the one hand, Algeria's potentially lower level of financial literacy, intermittent technological infrastructure, and less robust regulatory environment for online financial transactions may confound the presumed direct relationship between Ease of use and positive consumer attitudes. On the other hand, unique cultural nuances—such as technology apprehension and trust issues—may further moderate this relationship, complicating how Ease of use is perceived and how it impacts attitudes toward m-banking in the country.

When we look at studies that challenge this hypothesis, we find several compelling arguments highlighting the need for a reevaluation in the Algerian context. Notably, research like "Consumer Trust in Financial Institutions: Implications for Mobile Banking Adoption" places Trust as a more critical factor than Ease of use. Similarly, studies focusing on perceived risk argue that Ease of use becomes secondary when users evaluate potential risks involved in m-banking. Further complicating the narrative, cross-cultural and behavioural economics research suggests that cultural factors and psychological biases may attenuate or even nullify the positive impact of Ease of use on consumer attitudes. Consequently, these context-specific and research-based considerations underscore the importance of conducting empirical studies tailored to the Algerian setting to provide a more refined understanding of this subject matter.

Trust emerged as an essential determinant of attitude and Intention to adopt mobile banking. This aligns with earlier studies highlighting the crucial role of Trust in adopting e-banking (Gerrard & Cunningham, 2003; Yousafzai et al., 2003). This facet is exciting as it suggests that trust-building measures are complementary and integral to adoption strategies. It adds a nuanced understanding to existing technology acceptance theories, highlighting the importance of cultural and socio-economic factors in shaping trust and adoption behaviours.

Additionally, our study found that attitude holds the most potent influence on adoption intention, indicating the importance of fostering positive user attitudes by addressing the above-discussed factors. Given that perceived usefulness and Trust strongly affect attitude, strategic interventions targeting these factors can indirectly stimulate

higher adoption intention.

While these findings offer significant insights into customer behavior concerning mobile banking adoption in the Arab region, we acknowledge certain limitations. Convenience sampling restricts the generalizability of the results to the entire population, and the cross-sectional design does not capture potential changes over time. Incorporating qualitative data could have further enriched the understanding of user perspectives.

Future research should consider additional influential factors such as social influence, self-efficacy, and demographic variables. Also, comparative studies encompassing multiple emerging economies within the Arab world could provide valuable insights and contribute to a more comprehensive understanding of the factors influencing mobile banking adoption across different socio-cultural settings in the region.

Conclusion

This research represents a significant addition to the literature concerning mobile banking adoption within emerging economies of the Arab region, with a particular case study focus on Algeria. The research model integrates widely accepted theories such as TAM, DOI, and Trust Theory, offering a robust framework for understanding and predicting consumers' Intention to adopt mobile banking services.

The empirical results corroborate the proposed model and hypothesized relationships among the variables. As evidenced by the data, perceived usefulness, Ease of use, Trust, and attitude emerge as fundamental drivers of adoption intention, a finding consistent with previous studies. However, the research also uncovers context-specific insights. Notably, perceived usefulness profoundly influences attitudes and Trust, underlining that functional benefits are crucial for consumers in the Arab region. Meanwhile, Ease of use demonstrates a minor effect, indicating that it may not be the most influential factor from the users' perspective.

Trust is crucial in forming attitudes and intentions to adopt mobile banking in the region. This underscores the need for service providers to prioritize establishing consumer trust, mainly when introducing new platforms, by bolstering privacy, security, enhancing their reputation, and promoting transparency. Moreover, the results affirm the robust predictive capability of attitude within the technology acceptance context, including mobile banking.

The findings present valuable insights for accelerating mobile banking adoption in the Arab region and other emerging economies. The research makes three crucial contributions. Firstly, it enriches understanding of a relatively under-studied phenomenon; secondly, it provides empirical validation and extends the reach of prominent technology acceptance theories within a novel cultural context; and thirdly, it provides practical guidelines for practitioners.

However, it is essential to acknowledge the study's limitations. The use of convenience sampling prevents the findings from being generalized to the entire population of the Arab region. The cross-sectional design does not capture temporal changes. Additionally, incorporating qualitative insights could further enrich our understanding of user perceptions and experiences.

Future research could address these limitations by employing probability sampling methods for better representation, conducting longitudinal studies to capture changes over time, and integrating qualitative data collection methods such as interviews or focus groups. Further exploration of variables not included in this model, making cross-cultural comparisons among countries, and testing the model in other emerging economy settings are other potential directions for future research.

In advancing scientific rigor and fostering a culture of replicability, it is crucial to underscore the importance of model replication within this study. The utility of our computational model not only resides in its present capabilities to explain users' adoption of mobile banking and its potential to serve as a foundational framework for subsequent investigations. Replication of this model by independent researchers will serve dual objectives: Firstly, it can act as a robust measure of the model's reliability and generalizability across varied conditions and datasets. Secondly, replication fosters iterative improvement by uncovering limitations or anomalies that may not be apparent in isolated studies. Therefore, due to the precise steps for the methodology pursued, we strongly advocate for replicating our model, as this not only validates the integrity of our results but also acts as a catalyst for the progressive development of knowledge in the mobile banking adoption domain.

Despite the acknowledged limitations and the need for further investigation, this study represents a substantial contribution by advancing knowledge on a relatively under-researched phenomenon, providing empirical validation of notable technology adoption theories within a fresh context, and delivering practical implications for promoting mobile banking adoption in emerging economies of the Arab region. The findings pave the way for future research to extend upon this foundation through further theoretical and empirical inquiry.

References

- Abdennebi, H. Ben. (2023). M-banking adoption from the developing countries perspective: A mediated model. *Digital Business*, 3(2), 100065. <https://doi.org/https://doi.org/10.1016/j.digbus.2023.100065>

- Aboobucker, I., & Bao, Y. (2018). What obstruct customer acceptance of internet banking? Security and privacy, risk, Trust and website usability and the role of moderators. *The Journal of High Technology Management Research*, 29(1), 109–123. <https://doi.org/https://doi.org/10.1016/j.hitech.2018.04.010>
- Abu-Taieh, E. M., AlHadid, I., Abu-Tayeh, S., Masa'deh, R., Alkhaldeh, R. S., Khwaldeh, S., & Alrowwad, A. (2022). Continued Intention to use M-Banking in Jordan by Integrating UTAUT, TPB, TAM, and Service Quality with ML. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(3), 120. <https://doi.org/10.3390/joitmc8030120>
- Afshan, S., & Sharif, A. (2016). Acceptance of mobile banking framework in Pakistan. *Telematics and Informatics*, 33(2), 370–387. <https://doi.org/https://doi.org/10.1016/j.tele.2015.09.005>
- Al-Azawei, A., & Allowayr, A. (2020). Predicting the Intention to use and hedonic motivation for mobile learning: A comparative study in two Middle Eastern countries. *Technology in Society*, 62, 101325. <https://doi.org/https://doi.org/10.1016/j.techsoc.2020.101325>
- Ali, A., Hameed, A., Moin, M. F., & Khan, N. A. (2023). Exploring factors affecting mobile-banking app adoption: a perspective from adaptive structuration theory. *Aslib Journal of Information Management*, 75(4), 773–795. <https://doi.org/10.1108/AJIM-08-2021-0216>
- Alrawad, M., Lutfi, A., Almaiah, M. A., & Elshaer, I. A. (2023). Examining the influence of Trust and perceived risk on customers intention to use NFC mobile payment system. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(2), 100070. <https://doi.org/https://doi.org/10.1016/j.joitmc.2023.100070>
- Allswey, A., Al-Samarraie, H., & Yousef, R. (2022). Hofstede's dimensions of culture and gender differences in UI satisfaction. *Journal of Reliable Intelligent Environments*, 8(2), 183–191. <https://doi.org/10.1007/s40860-021-00143-4>
- Andalib Touchaei, S., & Hazarina Hashim, N. (2023). The Antecedents of Mobile Banking Adoption among Senior Citizens in Malaysia. *International Journal of Human-Computer Interaction*, 1–18. <https://doi.org/10.1080/10447318.2022.2161236>
- Anderson, J. (2010). M-banking in developing markets: competitive and regulatory implications. *Info*, 12(1), 18–25. <https://doi.org/10.1108/14636691011015358>
- Anouze, A. L. M., & Alamro, A. S. (2020). Factors affecting Intention to use e-banking in Jordan. *International Journal of Bank Marketing*, 38(1), 86–112. <https://doi.org/10.1108/IJBM-10-2018-0271>
- Awad, T. A., & Dessouki, Y. S. A. (2017). Mobile banking roll-out in Egypt: Antecedences of mobile banking adoption. *International Journal of E-Services and Mobile Applications*, 9(2), 1–22. <https://doi.org/10.4018/IJESMA.2017040101>
- Baabdullah, A. M., Alalwan, A. A., Rana, N. P., Patil, P., & Dwivedi, Y. K. (2019). An integrated model for m-banking adoption in Saudi Arabia. *International Journal of Bank Marketing*, 37(2), 452–478. <https://doi.org/10.1108/IJBM-07-2018-0183>
- Bekele, W. D. (2023). Determinants of Financial Inclusion: A Comparative Study of Kenya and Ethiopia. *Journal of African Business*, 24(2), 301–319. <https://doi.org/10.1080/15228916.2022.2078938>
- Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88(3), 588–606. <https://doi.org/10.1037/0033-2909.88.3.588>
- Bergmann, M., Maçada, A. C. G., de Oliveira Santini, F., & Rasul, T. (2023). Continuance intention in financial technology: a framework and meta-analysis. *International Journal of Bank Marketing*, 41(4), 749–786. <https://doi.org/10.1108/IJBM-04-2022-0168>
- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2013). Digital Business Strategy: Toward a Next Generation of Insights. *MIS Quarterly*, 37(2), 471–482. <https://doi.org/10.25300/MISQ/2013/37:2.3>
- Black, W., & Babin, B. J. (2019). Multivariate Data Analysis: Its Approach, Evolution, and Impact. In *The Great Facilitator* (pp. 121–130). Springer International Publishing. https://doi.org/10.1007/978-3-030-06031-2_16
- Bosnjak, M., Ajzen, I., & Schmidt, P. (2020). The theory of planned behavior: Selected recent advances and applications. *Europe's Journal of Psychology*, 16(3), 352.
- Chakiso, C. B. (2019). Factors affecting Attitudes towards Adoption of Mobile Banking: Users and Non-Users Perspectives. *EMAJ: Emerging Markets Journal*, 9(1), 54–62. <https://doi.org/10.5195/emaj.2019.167>
- Chiu, C. L., Chiu, J. L., & Mansumitchai, S. (2016). Privacy, security, infrastructure and cost issues in internet banking in the Philippines: initial trust formation. *International Journal of Financial Services Management*, 8(3), 240–271.
- Churchill, G. A. (1979). A Paradigm for Developing Better Measures of Marketing Constructs. *Journal of Marketing Research*, 16(1), 64. <https://doi.org/10.2307/3150876>
- Cohen, J. (2013). *Statistical Power Analysis for the Behavioral Sciences*. Routledge. <https://doi.org/10.4324/9780203771587>
- Coltman, T., Tallon, P., Sharma, R., & Queiroz, M. (2015). Strategic IT alignment: twenty-five years on. In *Journal of Information Technology* (Vol. 30, pp. 91–100). Springer.
- Cruz, P., Barretto Filgueiras Neto, L., Muñoz-Gallego, P., & Laukkanen, T. (2010). Mobile banking rollout in emerging markets: evidence from Brazil. *International Journal of Bank Marketing*, 28(5), 342–371. <https://doi.org/10.1108/02652321011064881>
- Dahlberg, T., Guo, J., & Ondrus, J. (2015). A critical review of mobile payment research. *Electronic Commerce Research and Applications*, 14(5), 265–284. <https://doi.org/10.1016/j.elerap.2015.07.006>
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319. <https://doi.org/10.2307/249008>
- Deb, M., & Lomo-David, E. (2014). An empirical examination of customers' adoption of m-banking in India. *Marketing Intelligence and Planning*, 32(4), 475–494. <https://doi.org/10.1108/MIP-07-2013-0119>
- Foroughi, B., Iranmanesh, M., & Hyun, S. S. (2019). Understanding the determinants of mobile banking continuance usage intention. *Journal of Enterprise Information Management*, 32(6), 1015–1033. <https://doi.org/10.1108/JEIM-10-2018-0237>
- Gerrard, P., & Barton Cunningham, J. (2003). The diffusion of Internet banking among Singapore consumers. *International Journal of Bank Marketing*, 21(1), 16–28. <https://doi.org/10.1108/02652320310457776>
- Hanafizadeh, P., Behboudi, M., Abedini Koshksaray, A., & Jalilvand Shirkhani Tabar, M. (2014). Mobile-banking adoption by Iranian bank clients. *Telematics and Informatics*, 31(1), 62–78. <https://doi.org/10.1016/j.tele.2012.11.001>
- Hassan, H. E., & Wood, V. R. (2020). Does country culture influence consumers' perceptions toward mobile banking? A

- comparison between Egypt and the United States. *Telematics and Informatics*, 46, 101312. <https://doi.org/https://doi.org/10.1016/j.tele.2019.101312>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Ho, J. C., Wu, C.-G., Lee, C.-S., & Pham, T.-T. T. (2020). Factors affecting the behavioral Intention to adopt mobile banking: An international comparison. *Technology in Society*, 63, 101360. <https://doi.org/https://doi.org/10.1016/j.techsoc.2020.101360>
- Hosein, N. Z. (2011). Internet Banking: An Empirical Study Of Adoption Rates Among Midwest Community Banks. *Journal of Business & Economics Research*, 7(11). <https://doi.org/10.19030/jber.v7i11.2355>
- Hu, L., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, 3(4), 424–453. <https://doi.org/10.1037/1082-989X.3.4.424>
- Jahan, N., & Shahria, G. (2022). Factors effecting customer satisfaction of mobile banking in Bangladesh: a study on young users' perspective. *South Asian Journal of Marketing*, 3(1), 60–76. <https://doi.org/10.1108/SAJM-02-2021-0018>
- Kala Kamdjoug, J. R., Wamba-Taguimdje, S.-L., Wamba, S. F., & Kake, I. B. (2021). Determining factors and impacts of the Intention to adopt mobile banking app in Cameroon: Case of SARA by afriland First Bank. *Journal of Retailing and Consumer Services*, 61, 102509. <https://doi.org/https://doi.org/10.1016/j.jretconser.2021.102509>
- Karjaluoto, H., Mattila, M., & Pentto, T. (2002). Electronic banking in Finland: consumer beliefs and reactions to a new delivery channel. *Journal of Financial Services Marketing*, 6, 346–361.
- Kejela, A. B., & Porath, D. (2022). Influence of attitude on mobile banking acceptance and factors determining attitude of end-users in Ethiopia. *Journal of Internet and Digital Economics*, 2(1), 68–88. <https://doi.org/10.1108/JIDE-08-2021-0007>
- Kelly, A. E., & Palaniappan, S. (2022). A Conceptual Model to Determine Factors Influencing Mobile Money Banking Adoption in Ghana. *Asian Journal of Economics, Business and Accounting*, 22(22), 187–206. <https://doi.org/10.9734/ajeba/2022/v22i2230722>
- Kelly, A. E., & Palaniappan, S. (2023). Using a technology acceptance model to determine factors influencing continued usage of mobile money service transactions in Ghana. *Journal of Innovation and Entrepreneurship*, 12(1), 34. <https://doi.org/10.1186/s13731-023-00301-3>
- Khan, J., Pelet, J.-É., Rivers, G. J., & Zuo, N. (2017). The Effect of Cultural Values in Mobile Payment Preference. In *Mobile Platforms, Design, and Apps for Social Commerce* (pp. 248–263). IGI Global. <https://doi.org/10.4018/978-1-5225-2469-4.ch014>
- Koo, C., & Wati, Y. (2010). Toward an Understanding of the Mediating Role of "Trust" in Mobile Banking Service: An Empirical Test of Indonesia Case. *J. Univers. Comput. Sci.*, 16(13), 1801–1824. <https://doi.org/https://doi.org/10.3217/jucs-016-13-1801>
- Kumar, A., Dhingra, S., Batra, V., & Purohit, H. (2020). A Framework of Mobile Banking Adoption in India. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(2), 40. <https://doi.org/https://doi.org/10.3390/joitmc6020040>
- Kumar, P., Chauhan, S., Gupta, P., & Jaiswal, M. P. (2023). A meta-analysis of Trust in mobile banking: the moderating role of cultural dimensions. *International Journal of Bank Marketing*, ahead-of-print. <https://doi.org/10.1108/IJBM-02-2022-0075>
- Laforet, S., & Li, X. (2005). Consumers' attitudes towards online and mobile banking in China. *International Journal of Bank Marketing*, 23(5), 362–380. <https://doi.org/10.1108/02652320510629250>
- Liébana-Cabanillas, F., Marinkovic, V., de Luna, I. R., & Kalinic, Z. (2018). Predicting the determinants of mobile payment acceptance: A hybrid SEM-neural network approach. *Technological Forecasting and Social Change*, 129, 117–130.
- Lim, B., Lee, H., & Kurnia, S. (2007). Exploring the reasons for a failure of electronic payment systems: A case study of an Australian company. *Journal of Research and Practice in Information Technology*, 39(4), 231–243.
- Luo, S., Sun, Y., Yang, F., & Zhou, G. (2021). Does fintech innovation promote enterprise transformation? Evidence from China. *Technology in Society*, 101821. <https://doi.org/https://doi.org/10.1016/j.techsoc.2021.101821>
- Luo, X., Li, H., Zhang, J., & Shim, J. P. (2010). Examining multi-dimensional Trust and multifaceted risk in initial acceptance of emerging technologies: An empirical study of mobile banking services. *Decision Support Systems*, 49(2), 222–234. <https://doi.org/10.1016/j.dss.2010.02.008>
- Ly, B., & Ly, R. (2022). Internet banking adoption under Technology Acceptance Model—Evidence from Cambodian users. *Computers in Human Behavior Reports*, 7, 100224. <https://doi.org/https://doi.org/10.1016/j.chbr.2022.100224>
- Merhi, M., Hone, K., & Tarhini, A. (2019). A cross-cultural study of the Intention to use mobile banking between Lebanese and British consumers: Extending UTAUT2 with security, privacy and Trust. *Technology in Society*, 59, 101151. <https://doi.org/10.1016/j.techsoc.2019.101151>
- Morgan, R. M., & Hunt, S. D. (1994). The Commitment-Trust Theory of Relationship Marketing. *Journal of Marketing*, 58(3), 20–38. <https://doi.org/10.1177/002224299405800302>
- Mulia, D., Usman, H., & Parwanto, N. B. (2020). The role of customer intimacy in increasing Islamic bank customer loyalty in using e-banking and m-banking. *Journal of Islamic Marketing*, 12(6), 1097–1123. <https://doi.org/10.1108/JIMA-09-2019-0190>
- Muñoz-Leiva, F., Climent-Climent, S., & Liébana-Cabanillas, F. (2017). Determinants of Intention to use the mobile banking apps: An extension of the classic TAM model. *Spanish Journal of Marketing - ESIC*, 21(1), 25–38. <https://doi.org/10.1016/j.sjme.2016.12.001>
- Mutahar, A. M., Aldholay, A., Isaac, O., Jalal, A. N., & Kamaruddin, F. E. B. (2022). *The Moderating Role of Perceived Risk in the Technology Acceptance Model (TAM): The Context of Mobile Banking in Developing Countries* (M. Al-Emran, M. A. Al-Sharafi, M. N. Al-Kabi, & K. Shaalan (eds.); pp. 389–403). Springer International Publishing. https://doi.org/10.1007/978-3-030-82616-1_34
- Namahoot, K. S., & Jantasri, V. (2023). Integration of UTAUT model in Thailand cashless payment system adoption: the mediating role of perceived risk and Trust. *Journal of Science and Technology Policy Management*, 14(4), 634–658. <https://doi.org/10.1108/JSTPM-07-2020-0102>

- Nasri, W., & Charfeddine, L. (2012). Factors affecting the adoption of Internet banking in Tunisia: An integration theory of acceptance model and theory of planned behavior. *The Journal of High Technology Management Research*, 23(1), 1–14. <https://doi.org/https://doi.org/10.1016/j.hitech.2012.03.001>
- Nguyen, Y. T. H., Tapanainen, T., & Nguyen, H. T. T. (2022). Reputation and its consequences in Fintech services: the case of mobile banking. *International Journal of Bank Marketing*, 40(7), 1364–1397. <https://doi.org/10.1108/IJBM-08-2021-0371>
- Nikou, S. A., & Economides, A. A. (2017). Mobile-Based Assessment: Integrating acceptance and motivational factors into a combined model of Self-Determination Theory and Technology Acceptance. *Computers in Human Behavior*, 68, 83–95. <https://doi.org/10.1016/j.chb.2016.11.020>
- Parayil Iqbal, U., Jose, S. M., & Tahir, M. (2023). Integrating Trust with extended UTAUT model: a study on Islamic banking customers' m-banking adoption in the Maldives. *Journal of Islamic Marketing*, 14(7), 1836–1858. <https://doi.org/10.1108/JIMA-01-2022-0030>
- PH, H. (2023). Mobile payment service adoption: understanding customers for an application of emerging financial technology. *Information & Computer Security*, 31(2), 145–171. <https://doi.org/10.1108/ICS-04-2022-0058>
- Phan, D. H. B., Narayan, P. K., Rahman, R. E., & Hutabarat, A. R. (2020). Do financial technology firms influence bank performance? *Pacific-Basin Finance Journal*, 62, 101210. <https://doi.org/10.1016/j.pacfin.2019.101210>
- Purohit, S., & Arora, R. (2023). Adoption of mobile banking at the bottom of the pyramid: an emerging market perspective. *International Journal of Emerging Markets*, 18(1), 200–222. <https://doi.org/10.1108/IJOEM-07-2020-0821>
- Rajala, T., & Aaltonen, H. (2020). Reasons for the Failure of Information Technology Projects in the Public Sector. In *The Palgrave Handbook of the Public Servant* (pp. 1–19). Springer International Publishing. https://doi.org/10.1007/978-3-030-03008-7_78-1
- Ramezaninia, M., Panahifar, F., & Sarhangi, N. H. (2022). Significant factors affecting m-banking adoption case study: higher education institutions in Tehran. *International Journal of Electronic Business*, 17(1), 61–86. <https://doi.org/10.1504/IJEB.2022.120014>
- Ramos, F. L., Ferreira, J. B., De Freitas, A. S., & Rodrigues, J. W. (2018). The effect of Trust in the Intention to use m-banking. *Brazilian Business Review*, 15(2), 175–191. <https://doi.org/10.15728/bbr.2018.15.2.5>
- Šabotić, Z., Vehapić, S., & Lekpek, A. (2023). *Customers' Intention in Terms of Using Mobile Banking Services in Serbia* (S. Benković, A. Labus, & M. Milosavljević (eds.), pp. 151–169. Springer International Publishing. https://doi.org/10.1007/978-3-031-23269-5_9
- Salem, M. Z., Baidoun, S., & Walsh, G. (2019). Factors affecting Palestinian customers' use of online banking services. *International Journal of Bank Marketing*, 37(2), 426–451. <https://doi.org/10.1108/IJBM-08-2018-0210>
- Shaikh, A. A., & Karjaluoto, H. (2015). Mobile banking adoption: A literature review. *Telematics and Informatics*, 32(1), 129–142. <https://doi.org/10.1016/j.tele.2014.05.003>
- Shankar, A., Datta, B., Jebarajakirthy, C., & Mukherjee, S. (2020). Exploring Mobile Banking Service Quality: A Qualitative Approach. *Services Marketing Quarterly*, 41(2), 182–204. <https://doi.org/10.1080/15332969.2020.1742982>
- Soleimani, M. (2022). Buyers' Trust and mistrust in e-commerce platforms: a synthesizing literature review. *Information Systems and E-Business Management*, 20(1), 57–78. <https://doi.org/10.1007/s10257-021-00545-0>
- Tien, N. N., Thuy, N. T. T., & Binh, L. T. T. (2020). Impact of fdi on economic growth from the sustainable development perspective: A case study from the assessment in the middle of Vietnam. *Kasetsart Journal of Social Sciences*, 41(3), 647–652. <https://doi.org/10.34044/j.kjss.2020.41.3.30>
- Tiwari, P., Tiwari, S. K., & Gupta, A. (2021). Examining the impact of customers' awareness, risk and Trust in m-banking adoption. *FIIB Business Review*, 10(4), 413–423.
- Tobbin, P. (2012). The Adoption of Transformational Mobile Banking by the Unbanked: An Exploratory Field Study. *Communications & Strategies*, 86, 103–120.
- UNDP. (2022). South-South Ideas - Cooperation, Technology and Digital Transformation: The Case of Arab Countries. <https://www.ssc-globalthinkers.org/topic/south-south-ideas-cooperation-technology-and-digital-transformation-case-arab-countries>.
- Venkatesh, Morris, Davis, & Davis. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425. <https://doi.org/10.2307/30036540>
- Venkatesh, Thong, & Xu. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly*, 36(1), 157. <https://doi.org/10.2307/41410412>
- Wisdom, J. P., Chor, K. H. B., Hoagwood, K. E., & Horwitz, S. M. (2014). Innovation Adoption: A Review of Theories and Constructs. *Administration and Policy in Mental Health and Mental Health Services Research*, 41(4), 480–502. <https://doi.org/10.1007/s10488-013-0486-4>
- Yousafzai, S. Y., Pallister, J. G., & Foxall, G. R. (2003). A proposed model of e-trust for electronic banking. *Technovation*, 23(11), 847–860.
- Zhang, Y., Sun, J., Yang, Z., & Wang, Y. (2018). What Makes People Actually Embrace or Shun Mobile Payment: A Cross-Culture Study. *Mobile Information Systems*, 2018, 1–13. <https://doi.org/10.1155/2018/7497545>
- Zhao, X., Lynch, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and Truths about Mediation Analysis. *Journal of Consumer Research*, 37(2), 197–206. <https://doi.org/10.1086/651257>
- Zhou, W., Tsiga, Z., Li, B., Zheng, S., & Jiang, S. (2018). What influence users' e-finance continuance intention? The moderating role of Trust. *Industrial Management & Data Systems*, 118(8), 1647–1670. <https://doi.org/10.1108/IMDS-12-2017-0602>

Appendix A.

Questionnaire

Ease of Use	Chen et al. (2006)
1. Using the X banking app is easy for me.	
2. I find my interaction with using the X banking app clear and understandable.	
3. I can quickly become skillful at using the X banking app.	
4. Overall, I find the use of the X banking app easy.	
Perceived Usefulness	Chen et al. (2006)
1. Using the X banking app would enable me to accomplish my tasks more quickly.	
2. Using the X banking app would make it easier for me to carry out my tasks	
3. I would find the X banking app useful	
Trust	Boateng, Adam, Okoe, and Anning-Dorson (2016).
1. Using the X banking app would not divulge my personal information	
2. I would find the X banking app secure in conducting my transactions	
3. I would find the X banking app secure in requiring and receiving other information	
Attitude	Chen et al. (2006)
1. Using the X banking app is a good idea	
2. I would feel that using the X banking app is pleasant	
3. In my view, using the X banking app is a wise idea	
Intention to adopt	Chen et al. (2006)
1. Using the X banking app for handling my banking transactions is something I would do	
2. I would see myself using the X banking app to handle my banking transactions.	