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Determinants of mobile banking adoption and its contribution to the financial innovation process: A literature review in the Moroccan context

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Abstract

Digital banking in developing countries is increasingly reliant on mobile banking. Nevertheless, research into the factors that influence its uptake and its role in enabling financial innovation is still fragmented among many areas of study, often associated with online banking or mobile payment systems. The principal objectives of this paper's structured literature review are (i) to determine what variables are most important for mobile banking to gain traction and stay popular, and (ii) to explain how mobile banking encourages innovation in Morocco's banking industry. Integrative in nature, the review incorporates TAM, UTAUT, DOI, and TPB, four popular models for technology adoption and diffusion, along with trust, perceived security, perceived risk, enabling conditions, digital literacy, and other elements particularly relevant to the financial services sector. Trust, security perceptions, and perceived risk are crucial in deciding user confidence and continuous use, but perceived simplicity of use and perceived utility often seem to be major drivers of adoption. Especially in a market where mobile-first channels are becoming more competitive, mobile banking supports financial innovation by digitizing processes, changing customer-bank interactions, and speeding up service enhancements.

Keywords: Mobile banking; Financial innovation; Digital transformation; Technology adoption; Emerging economies; Morocco

1. Introduction

The current digitization of financial services is forcing banks to make substantial changes to their strategy, operations, and customer service. This change is being driven in large part by the rise of mobile technology in poor countries, which eliminates physical, temporal, and branch-based obstacles to access. The convenience and flexibility brought forth by mobile technologies have revolutionized the way individuals use financial services. Within this framework, banks' use of mobile banking has grown into a significant channel. Some potential benefits involve diminished operating expenses, improved service quality, expedited development of new services, and increased client satisfaction. Banks are finding that mobile banking is assisting them with their digital transformation initiatives, rather than merely being another delivery channel. In Morocco, the literature indicates that acceptance of mobile

banking services is influenced by traditional technological adoption factors (perceived usefulness, perceived ease of use), but remains strongly conditioned by sensitive variables such as trust, security, and perceived risk. More recently, studies on the digital transformation of financial services in Morocco indicate that innovation adoption also depends on organizational and institutional dimensions that can influence the diffusion and appropriation of digital solutions (Bouaddi & Mohamed, 2024; Mohamed, 2023).

Despite increased interest in mobile banking, findings remain fragmented: some research focus on the factors of usage intention, while others cover related phenomena (mobile payments, e-banking) without directly tying adoption to mobile banking's contribution to financial innovation. Mobile banking, on the other hand, is a modern example of financial innovation that can change the way services are offered (product innovation), the way they are processed and delivered (process innovation), and the way the market works (market innovation) (Schumpeter, 1934; Tufano, 2003; Thakor, 2020). From this point of view, this literature review pursues a dual objective: (1) to synthesize the robust determinants of mobile banking adoption through an integrative theoretical framework combining the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), the Diffusion of Innovations theory (DOI), and the Theory of Planned Behavior (TPB); and (2) to clarify the mechanisms through which mobile banking contributes to the financial innovation process in the Moroccan context.

2. Review approach and conceptual scope

Before we talk about why people use mobile banking and how it improves the process of financial innovation? We need to talk about the review approach utilized in this article and what the analysis can and can't do. Despite their connection, the terms "mobile banking," "online banking," and "mobile payments" used in the literature on banking digitalization still indicate distinct technical frameworks, institutional structures, and intended purposes. Adoption processes and results may vary to some extent due to these differences. This literature review aims to systematically integrate and synthesize existing research to identify: (i) the most prevalent and significant predictors of mobile banking adoption, and (ii) the processes by which mobile banking facilitates financial innovation. Instead of giving a complete list of studies, the review takes an integrative approach to the literature by using the main technology acceptance and diffusion frameworks—TAM, UTAUT, DOI, and TPB—and taking into account contextual factors that are especially important in financial services, like perceived security, trust, perceived risk, digital literacy, and facilitating conditions. In this context, Section 2.1 first gives an operational definition of financial innovation and lists its primary analytical characteristics. This makes mobile banking a modern example of financial innovation. Then, Section 2.2 makes the differences between mobile banking, online banking (e-banking), and mobile payments (mobile money) clearer. Not only can the underlying technologies of these services vary, but so do the governing bodies and institutions that provide them with support. These variations might greatly affect its utilization and overall impression.

2.1. Defining financial innovation and its specificities

2.1.1. Conceptual evolution: From new products to systemic transformation

Schumpeter claims that the idea of financial innovation, which expanded the definition of innovation beyond its original focus on industrial invention, came into use as an analytical

tool in the 1970s. Introducing new monetary items and resources occupied the bulk of the first phases. The idea has grown to include the formation or restructuring of markets, technologies, and organizational structures as a result of technological advancements. From a practical standpoint, financial innovation is the introduction of new frameworks that strive to enhance the relevance and quality of financial services while concurrently decreasing risks and costs. A number of recent contributions, especially those pertaining to FinTech, have acknowledged the importance of digital technology in facilitating new business models, processes, and products that may considerably affect financial institutions and markets. In this larger sense, mobile banking can be seen as a modern example of financial innovation that combines changes in technology with changes in the way banks do business and offer services.

2.1.2. Types of financial innovation

A number of frameworks for studying financial innovation have been put forward. A popular model differentiates between three types of innovations in the financial sector: product innovation, which describes new services or instruments; process innovation, which describes new methods of making, distributing, and protecting financial services; and market innovation, which describes the rise of new channels, client segments, or types of intermediaries. Avoiding a product-centric obsession is much easier with this analytical viewpoint. Dematerialization, automation, and the elimination of transactional frictions are examples of process improvements that could have an impact on mobile banking just as much as new services do. Innovation scope is the subject of a second categorization. Innovations in the financial sector can be categorized according to their impact on infrastructure, standards, and interoperability agreements at the system level, and innovations in policy and regulation at the regulatory level. Whether efforts are motivated by growth goals or competitive pressures also determines the strategic consequences of financial innovation. Differentiating banks and capturing new market segments are two goals of digital innovations; in other circumstances, they serve as adaptive reactions to cost restrictions and growing competition. Banks' investments in mobile banking are part of larger strategic repositioning initiatives, and this difference helps put them in perspective. As part of their larger transformation strategy, banks are increasingly focusing on digital channels, particularly mobile banking products. This may be better understood via this strategic lens.

2.1.3. Specificities of innovation in the banking sector

A combination of technical and institutional considerations is needed because of the unique features of banking sector innovation. To start, there is a lot of regulation around banking. Legal standing of service providers, prudential obligations, and regulatory frameworks controlling consumer protection and data security are therefore further drivers of the dissemination of digital financial services, in addition to their perceived use and functional worth. The rate and breadth of digital innovation are heavily influenced by these institutional factors. Perceived security and risk have a major role in adoption decisions because, secondly, trust is vital to banking. Trust, perceived risk, and perceived security are regularly cited as significant factors of adoption in empirical studies on mobile banking in Morocco. However, people are less likely to embrace security measures when they are unclear about their purpose or when they believe there are security holes. Expanded studies on digital banking services in Morocco have shown similar results, lending credence to the idea that factors pertaining to trust are central, rather than ancillary, to the uptake of these kinds of financial technology. Thirdly, changes in the banking industry tend to be systemic. It influences market dynamics, organizational structures, operational procedures, and service offers all at once. According to

studies conducted on digital financial services, these innovations change the ways in which people may access and use these services, which has important implications for financial inclusion. The way that mobile banking is changing user interfaces, service delivery methods, compliance processes, and corporate governance is in line with this broad vision.

2.2. Mobile banking, online banking, and mobile payments: conceptual clarifications

Just so we're clear, there are other phrases used interchangeably in the literature that do not pertain to mobile banking. Thanks to mobile banking, you can do a lot of banking activity with only your phone. Web interfaces or smartphone apps are common places for this to happen. While some businesses may choose to use USSD or SMS, it is still an option. Online banking, or e-banking, is not the same as these items. While online banking often involves using web portals on computers or tablets, mobile payments—also called mobile money—mainly involve sending and receiving monies via electronic wallets.

Table 1. Conceptual distinctions between mobile banking, online banking, and mobile money

Criteria	Mobile Banking	Online Banking (E-banking)	Mobile Money
Definition / Description	Banking distribution channel that enables access to financial services via mobile devices.	Channel providing access to banking services through a web interface (computer or tablet).	Electronic wallet system linked to a mobile number or identifier, enabling payments and transfers.
Institutional anchoring	Service offered by a bank (or an affiliated entity) and embedded in the formal banking relationship.	Service offered by a bank and directly linked to the banking relationship.	Service provided by an electronic money issuer or payment service provider, depending on the regulatory framework.
Requirement of a bank account	Generally required, as access is tied to an existing bank account.	Required, since access is linked to a bank account.	Often not required; the wallet may substitute for a traditional bank account in many models.
Primary purpose	Remote banking management and execution of transactions via mobile devices.	Remote banking management and execution of transactions via web-based platforms.	Payments and money transfers, with possibilities for cash-in and cash-out through agent networks.
Technological support	Mobile applications; in some cases, USSD or SMS; dependent on device capabilities and connectivity.	Secure web portal; dependent on internet quality and authentication mechanisms.	Mobile wallet accessed via application and/or USSD/SMS; dependent on acceptance networks and agent availability.
Regulatory framework (general trend)	Banking regulations and prudential requirements applicable to licensed banks.	Banking regulations and prudential requirements applicable to licensed banks.	Regulations governing electronic money and payment services, varying across jurisdictions.

Source: Author's elaboration based on Shaikh and Karjaluoto (2015)

Analyzing the factors that influence adoption requires attention to these differences. Mobile and online banking, which are services that are intrinsic to the banking relationship, need a great deal of confidence in the bank, a high degree of safety, and an easy-to-navigate interface to ensure frequent usage. However, the structure of the determinants might change for mobile money-type services due to their reliance on the payment ecosystem (agent networks, merchant acceptance, interoperability) and the status of service providers. To arrange the synthesis of elements influencing mobile banking acceptance and to connect adoption with financial innovation, the theoretical foundations deployed (TAM, UTAUT, DOI, TPB) are presented in the following section.

2.3. Theoretical Foundations

The literature utilizes many extra theoretical frameworks to elucidate the acceptance of mobile banking, including technological considerations, diffusion dynamics, and behavioral characteristics. When it comes to mobile banking services, combining these models best shows how complicated it is to make judgments about how to use them, particularly when trust, security, and perceived risk are structural issues. (Shaikh & Karjaluoto, 2015). This review retains four approaches—the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), the Diffusion of Innovations theory (DOI), and the Theory of Planned Behavior (TPB)—due to their empirical robustness and their ability to elucidate various facets of the adoption process. According to the Technology Acceptance Model developed by Davis in 1989, the acceptance of a new technology depends on how useful they perceive it and how easy it will be to use it. Perceived usefulness of a new technology means believing it will help them do their work better. To assess the ease of use of a new technology, we can examine how easy the new technology is for people to use. One of the advantages of mobile banking applications is they provide clients with round-the-clock service; therefore, banking clients can complete transactions faster, have less need to visit branches in person, and generally have more convenience. The ease of using a mobile banking application will depend heavily on its visual appeal, the ease of navigation within the application, and the simplicity of completing transactions. Research has shown that perceived usefulness and ease of use will be two of the most important factors that determine an individual's decision to use mobile banking, regardless of type of transaction being conducted. Therefore, these will be the primary reasons for individuals to adopt mobile banking.

The Unified Theory of Acceptance and Use of Technology is based on past models of acceptance by adding four main factors that affect adoption: performance expectancy, effort expectancy, social impact, and facilitating conditions. The premise behind performance expectancy is that using technology will be helpful, while the idea behind effort expectancy is that it will be hard or complicated. People feel social pressure or support from important people in their lives. Things like resources, infrastructure, and assistance are examples of facilitating situations. Using UTAUT as an example of mobile banking, we may systematically link personal opinions with societal and organizational impacts. How practical and worthwhile anything appears is directly related to the performance and effort expectations people have of it. When things first begin to spread or in areas where digital resources are not equally accessible, individuals utilize them differently. This may be explained by considering social effect and other factors. The Diffusion of Innovation hypothesis says that how people see important features of an innovation affects whether or not they will use it. Relative advantage is how much better an innovation is thought to be than other options, compatibility is how well it fits with users' values, habits, and practices, and complexity is how hard it is to grasp or use. In certain formulations, observability and trialability elucidate diffusion

dynamics by emphasizing the visibility and testability of innovation outcomes. DOI helps explain why mobile banking may not be widely used even when it has useful features. For example, if people really want to use cash or meet in person to do their banking, they may think that the two are not compatible. On the other hand, if people can't see the benefits of using social networks, they may take longer to spread. On the other hand, mobile banking is more likely to catch on when it fits into people's daily lives and they can see its benefits.

Table 2. Synthesis of the Theoretical Frameworks Mobilized

Theoretical framework	Key concepts	Level of analysis	Contribution to the article
Diffusion of Innovation (DOI)	Relative advantage, compatibility, complexity, observability	Individual / Social	Explains diffusion dynamics and differences in adoption across users and contexts
Technology Acceptance Model (TAM)	Perceived usefulness, perceived ease of use	Individual	Explains intention to adopt mobile banking services
Theory of Planned Behavior (TPB)	Attitude, subjective norms, perceived behavioral control	Individual / Social	Integrates social norms and perceived user capability into adoption decisions
Unified Theory of Acceptance and Use of Technology (UTAUT)	Performance expectancy, effort expectancy, social influence, facilitating conditions	Individual / Organizational	Structures adoption determinants and explains the transition from intention to actual use
Contextual extensions	Trust, perceived risk, perceived security, digital literacy	Contextual / Sector-specific	Adapts adoption models to the specific characteristics of financial services and the Moroccan context
Financial innovation theory	Product, process, organizational, and market innovation	Organizational / Sectoral	Links mobile banking adoption to financial innovation outcomes
Digital transformation perspective	Digitalization, business models, organizational reconfiguration	Organizational	Situates mobile banking within broader digital transformation processes

Source: Author's elaboration based on Rogers (2003), Davis (1989), Ajzen (1991), Venkatesh et al. (2003), Schumpeter (1934), Tufano (2003), and Bharadwaj et al. (2013).

The Theory of Planned Behavior posits that behavioral intention is determined by three elements: attitude towards the behavior, subjective norms, and perceived behavioral control. Attitude denotes an individual's favorable or unfavorable assessment of technology usage; subjective norms encapsulate perceived societal expectations; and perceived behavioral control signifies the perceived capacity to execute a behavior in light of available resources and limits. Perceived behavioral control is especially important for mobile banking because it includes things like digital abilities, confidence in using mobile technology, and access to

help. TPB improves models of acceptability and dissemination by taking into account users' perceived abilities to learn and utilize the technology. This is especially important in settings where people's level of digital literacy is uneven.

Instead of seeing these points of view as competing explanations, try seeing them as ways to understand the adoption process. While TAM and UTAUT center on the perceived worth and effort put into something, DOI examines its dissemination and compatibility with current habits, and TPB focuses on the perceived ability to regulate one's own behavior and planned activities. But studies conducted on the banking industry repeatedly find that sector-specific variables, such as trust, perceived security, and perceived risk, enhance the explanatory power of these frameworks when paired with them. These things are very crucial for mobile financial services since they involve money and private information. Consequently, it is crucial to consider trust and risk assessment while choosing to use them (Shaikh & Karjaluoto, 2015). Table 2 shows the main theoretical frameworks utilized in this research, along with the main concepts that go with each one. It also illustrates how these frameworks helped us understand the elements that affect the usage of mobile banking and its connection to financial innovation in Morocco.

2.4. Determinants of mobile banking adoption

Researchers have found a set of criteria that are often used in research on mobile banking adoption. The value of these criteria changes depending on the kind of institution, the level of digital maturity, and the characteristics of the user. Both TAM and UTAUT successfully elucidate usage intention via value- and effort-related evaluations of technology. Since financial transactions are so delicate, digital financial services research has to take into account more than just the money. These factors include trust, perceived security, and perceived danger. The findings are organized into eight primary categories, each representing a significant dimension of mobile banking adoption. This structured synthesis clarifies the relationships identified in the literature and reflects the previously established integrative theoretical framework by proving off the interaction between technological, behavioral, and environmental factors.

Two of the most dependable criteria influencing the choice to use mobile banking are perceived usefulness (TAM) and user-rated anticipated utility (UTAUT) (Davis, 1989; Venkatesh et al., 2003). Their detailed explanations show how the service improves customers' life on a regular basis by making things like information always available, transactions completed faster, travel reduced, and financial processes controlled better. Researchers have shown that these benefits are a big part of what makes mobile banking so appealing. (Shaikh & Karjaluoto, 2015; Rogers, 2003) emphasizes the importance of this when compared to classical channels. On the other hand, these features cannot explain adoption patterns in isolation. Thus, technological efficacy cannot be the only explanation for adoption.

All TAM and UTAUT try to understand how people evaluate the practicality and user-friendliness of various technologies. If people find a piece of technology straightforward to use and comprehend, they are more inclined to continue using it. This is due to the fact that they need less mental effort and study time. When it comes to mobile banking, elements like user interface design, transaction channel clarity, system reliability, and support accessibility influence how much effort users perceive it to be required to use the service. When people have a positive impression of a service's usability, they are more likely to think highly of it benefits are more easily understood and seen right away. When an invention is seen as

difficult to understand or implement, this element frequently acts as a barrier, which is in line with the idea of complexity in DOI theory.

Trust constitutes a fundamental condition for the adoption of digital financial services. Because mobile banking involves the transmission of sensitive financial and personal information, concerns related to security and privacy inevitably shape user perceptions. Confidence may be directed toward the banking institution, the technological platform, or the broader transactional environment. When authentication procedures, data protection mechanisms, and fraud prevention systems are perceived as reliable, users are more inclined to engage with mobile banking services. Conversely, uncertainty regarding security safeguards or fear of financial loss can discourage both initial adoption and continued use. Empirical studies consistently highlight the structuring role of trust, perceived security, and perceived risk in shaping behavioral intention and usage decisions (Shaikh & Karjaluoto, 2015; Lafraxo et al., 2018). Moreover, trust-related factors may directly influence adoption and indirectly moderate the effects of perceived usefulness and ease of use, as suggested by technology acceptance models (Davis, 1989; Venkatesh et al., 2003).

One of the main barriers to the widespread adoption of mobile banking services is users' fear of potential threats. While users may experience many benefits from being able to complete financial transactions electronically, they also perceive risks associated with their faceless interaction, such as fraud, system failures, and data breaches. Risk judgments about a mobile banking system typically are based on subjective assessments of uncertainty, rather than on actual technical conditions. In a study conducted by Shaikh and Karjaluoto (2015), it was reported that users would be less likely to use a system when they were very concerned about possible risks, particularly in cases where the security features of the system are not well known, or when cyber-related coverage by the media is very high. Therefore, understanding how users evaluate and rank their perceptions of risk is essential to understanding the variations in adoption trends in fast-changing digital environments.

The UTAUT model looks at how several types of social connections, including friendships, family ties, and professional environments, affect adoption choices. The TPB model examines the influence of subjective norms on adoption decisions. If their friends or family members recommend or promote mobile banking, people may be more likely to use it. This is the most crucial thing at the beginning of the spread, when people are unsure and need social support. According to DOI theory, observability could make this mechanism work better: when the benefits are clear in social networks, it is easier and safer to embrace them. To make good use of mobile banking, you need the requisite abilities and resources, which include facilitating conditions (UTAUT) and perceived behavioral control (TPB). Among them, you'll need a smartphone, reliable internet access, access to technical support, and sufficient digital literacy. How individuals conceptualize and feel comfortable with technology has a direct correlation to their level of digital literacy. People are less inclined to embrace technology when they are unsure of how to use it properly; this is because they attribute more effort and a loss of agency to its use. However, with well-established support systems like tutorials, help services, and user-friendly interfaces, individuals might feel empowered and motivated to continue using the product.

An important concept in design-led innovation (DOI) theory is "compatibility," which means that the innovation should fit in with the customers' current beliefs, practices, and routines. Traditional practices, such as paying with cash or favoring face-to-face communication, could provide the impression of incompatibility in the financial realm. Even when people are aware

that change might benefit them, they may still be resistant to it. of it. More people will use mobile banking if it's easy to do things like transfer money and pay bills. Following the crowd is a significant deal when it comes to spreading. Two of the most reliable factors that impact the choice to utilize mobile banking are UTAUT and perceived usefulness (TAM), according to Davis (1989) and Venkatesh et al. (2003). Users are able to have more control over their financial operations, travel less, conduct transactions quicker, and have continual access to information—all of which are beneficial impacts that the service has on users' daily lives. Reviews of relevant research (Shaikh & Karjaluoto, 2015; Rogers, 2003) indicate that these advantages, especially when mobile banking is clearly superior to more conventional methods, provide a strong foundation for the desire to utilize mobile banking.

3. A contextualized reading: The Moroccan case

Taking into account existing literature on mobile banking adoption in a specific socioeconomic and regulatory environment allows for an alternative interpretation of the listed determinants of mobile banking adoption provided by previous research. In Morocco, the digital transformation of financial services is taking place at a slower rate than that of other countries and still incorporates some of the traditional banking services. This has resulted in a hybrid financial system that is part of the overall digital ecosystem. In this hybrid financial system, there are a variety of structural elements affecting the adoption/use of mobile banking services, such as trust in institutions, user’s technological literacy, access to good-quality digital infrastructure, and regulations governing digital financial services. Within this hybrid financial system, the classical determinants of technology acceptance theory (i.e., perceived usefulness & perceived ease-of-use) remain highly applicable, yet their effect on the diffusion and usage of mobile banking will often be moderated by institutional, organizational or structural barriers related to the overall digital ecosystem.

3.1. The role of “classical” determinants: perceived value and usability

Mobile banking in Morocco appears to be based mainly on the utility and performance constructs of models (TAM and UTAUT). Users often talk about the benefits associated with using mobile banking, such as the time saved, easy accessibility, less need to go into a physical bank, and the ability to access services 24/7. For persons living in rural areas, those without mobility, and those with other difficulties when accessing traditional banking services, these advantages offer great value. The distribution of these advantages relies heavily on the perceived ease of use of the digital interface (i.e., mobile banking app). The apps available for mobile banking need to be reliable, user-friendly, and provide a secure and transparent method for completing transactions in order for them to become part of the daily lives of the people who use them. If users perceive the digital interfaces to be complex or not reliable, the anticipated advantages of mobile banking will lose their appeal. The effectiveness of these technologies in Morocco, therefore, is also based on the reliability of digital services, as well as their functional attributes.

3.2. Trust, security, and perceived risk as critical variables

Trust plays a particularly central role in the Moroccan financial environment. Because financial transactions involve sensitive personal and economic information, users place strong emphasis on security and reliability. Studies focusing on online and mobile banking in Morocco have shown that individuals’ trust in banking institutions, their perceptions of data protection, and the visibility of anti-fraud mechanisms significantly influence the frequency

with which they use digital financial services. Even when mobile banking offers clear functional advantages, users may remain reluctant to adopt it if they perceive significant risks related to privacy, financial loss, or technological malfunction. In contexts where informal economic practices remain common and where cybersecurity awareness is still developing, misconceptions or fears regarding digital transactions may slow down adoption. Consequently, the decision to use mobile banking is not determined solely by perceived usefulness; it also depends on users' confidence in the regulatory environment, institutional safeguards, and the overall reliability of the financial system.

3.3. Facilitating conditions and digital literacy constraints

Equal access to digital resources and varying degrees of digital skills are two factors that affect Morocco's acceptance of mobile banking. The availability of technical support, the cost of using mobile internet, the reliability of mobile data connections, and the prevalence of smartphones are all enabling conditions for the effective use of mobile banking services. These enabling conditions also contribute significantly to the transformation of intent to adopt mobile banking to actual ongoing usage. A major structural factor influencing a user's willingness to use mobile banking technology is their level of digital literacy. Users with no prior experience in using digital application-based interfaces may be hesitant to engage with mobile banking and as a result, may be reluctant to adopt it. Conversely, individuals with experience in using digital tools will find it easier to integrate mobile banking into their day-to-day financial transactions. Thus, assistance in onboarding, training materials and customer service will be required to bridge any capability gap. In the context of large disparities in digital skill levels, these enabling conditions are vital in converting adoption to extended use, as opposed to merely trial use of mobile banking.

3.4. Institutional and organizational dimensions: diffusion and appropriation

Regulatory frameworks, consumer protection and established security standards built trust in digital financial services, along with the role banks play in creating users' view of digital banking through its own digital strategies. Banks integrate security, provide user education, communicate about services, and monitor reliability of services. The interaction of regulation, institutional recognition, technical support and organizational initiatives by banks creates the ecosystem for adoption of mobile banking in Morocco to develop, with the driver for adoption being multiple factors: perceived benefits, usability, trust/security and access issues. Successful diffusion of mobile banking is a function of balancing the trust of the institutional environment where digital services are delivered with the value of what these services promise to their users.

4. An integrated conceptual framework

An integrated conceptual framework can be proposed to link, on the one hand, the factors that influence the adoption and use of mobile banking and, on the other hand, the ways in which such usage contributes to financial innovation. This framework draws on the main theoretical foundations mobilized in the literature—namely the TAM, the UTAUT, the DOI, and the TPB—as well as on the combined empirical findings reported in prior studies. In this perspective, the full realization of financial innovation depends on the widespread and regular use of mobile banking services. In other words, actual usage acts as a mediating mechanism

between adoption expectations and concrete innovation outcomes (Frame & White, 2004; FSB, 2019). To structure this framework, the determinants identified in the literature can be grouped into six analytically coherent blocks. The first block concerns Perceived Value (Benefit-Based Drivers). This dimension includes perceived usefulness, expected performance, and relative advantage. It reflects the extent to which mobile banking is perceived as superior to traditional banking channels in terms of convenience, speed, and service quality. When users evaluate these benefits positively, their willingness to adopt mobile banking tends to increase significantly.

Effort and Usability make up the second component of the mobile banking service framework. This component consists of perceived ease of using an application, the complexity of the application, and the effort one would typically exert to learn and utilize the application. Overall, Effort and Usability provide a measure of the amount of cognitive and physical effort associated with learning and using an application. Lower perceived difficulty and higher usability will positively impact both initial adoption and ongoing use of mobile banking services. Social Influence and Normative Pressures is the third component of the mobile banking service model. The visibility of mobile banking use to others in one's social network will enhance the subjective norms and expectations within one's social network. In this regard, social norms, as well as social conditions, may be enhanced by recommendations or experiences provided by friends, family members, and colleagues that may help to alleviate the uncertainty related to making an adoption decision. As such, the endorsement from others in one's social network can help to enhance the likelihood that an individual will try or adopt a mobile banking service. Control and Resource Availability is the fourth component of the mobile banking service adoption model. Control and Resource Availability is the combination of the facilitating conditions in a person's life and their perception of their degree of behavioral control. The Control and Resource Availability component is a reflection of how much a person has access to the requisite digital skills, technological infrastructure, institutional support, and assistance in using mobile banking. These resources are key in providing an individual with the ability to turn their intentions of using mobile banking into actual behavior.

The fifth building block is focused on Compatibility and Habitual Alignment. This dimension examines how compatible mobile banking is with individuals' financial habits, routines, and practices as determined by the diffusion of innovation theory. When there is a match between technology and users' regular methods of managing their finances, resistance to change decreases and therefore accelerates the process of diffusion. The sixth building block deals with Sector-Specific Trust and Risk Factors that influence both intention and actual use. Trust in financial institutions, trust in digital platforms, and trust in the security of transactions all have a significant impact on both intention and actual use of mobile banking services; however, perceived risks (e.g., privacy risks, fraud risks, technology uncertainty) can also prevent individuals from adopting mobile banking services when the perceived benefits of using mobile banking services are very high. Thus, trust moderates the extent to which perceived value and usability will lead to actual adoption/use of mobile banking services. Overall, the dynamic interactions between all six building blocks create an integrative, multi-faceted explanatory framework that combines technology perceptions, behavioral intentions, social dynamics, and environmental constraints.

4.1. Adoption as a mediating mechanism

This conceptual framework posits that the relationship between the acceptance determinants and the outcomes of financial innovation is productively mediated by both the initial introduction to mobile banking and the ongoing usage of mobile banking services. Simply registering for a mobile banking service or using it only once in while will not create sufficient innovation impacts. Rather, integrated and routine inclusion of mobile banking into users' banking behavior is necessary. As users increase the frequency and intensity of mobile banking services, the phenomenon of mobile banking acting as a catalyst for financial innovation becomes more easily identified. Some indicators of this relationship include the variety of features used, the frequency at which mobile banking transactions are performed, or how much users rely on digital banks to service their financial needs. Therefore, researchers should keep clear distinctions in their empirical investigations among (1) behavioral intentions to adopt mobile banking, (2) the initial decision to adopt mobile banking services, and (3) continuing usage of mobile banking services. Recognizing this mediating function emphasizes the necessity for researchers to not only evaluate decisions to adopt but also continuing patterns of use.

4.2. Innovation outcomes across four dimensions

Mobile banking supports innovation in finance across four dimensions. Initially, product innovation may occur as customers are able to adopt and subsequently utilize new online features of mobile banking to diversify the financial products they use. The process side also sees innovation where mobile banking dematerializes and automates financial transactions, increasing efficiency, reducing transaction friction, and enhancing tracking capabilities. In terms of organization, digital banking may create new requirements for financial institutions, thereby promoting innovative governance frameworks to support digital banking, as well as developing capabilities in areas of cybersecurity and data-based decision-making processes. Lastly, there is market innovation driven by mobile banking as it enables financial institutions to serve new customer segments and may create increased competition among financial service providers, thus increasing financial access for customers. All four innovation dimensions are interrelated and have implications for each other. Often, product innovation necessitates internal process adjustments; and organizational innovation can stimulate product development. As organizational innovation continues, it will promote additional market-level innovation in terms of increasing financial access (through broader distribution channels) that can, in turn, reinforce continued adoption rates through network externalities or provide enhanced familiarity with mobile banking technologies by users.

4.3. Analytical implications for research in Morocco

This conceptual framework raises several important implications for research in the Moroccan context. First, financial innovation depends not only on users’ intentions but also on the depth, intensity, and regularity of mobile banking usage. Therefore, studies should pay particular attention to actual usage patterns rather than focusing solely on adoption intentions. Second, contextual factors specific to Morocco—such as digital literacy, access to digital infrastructure, enabling institutional conditions, and perceived security—should be incorporated into empirical models as direct determinants or moderating variables. These factors influence the extent to which perceived benefits are transformed into actual adoption and sustained usage. Third, the framework highlights the need for measurable indicators to

operationalize financial innovation outcomes. Such indicators may include the diversification of digital services, improvements in organizational capabilities such as digital governance, the development of dematerialized processes, and the expansion of financial services to previously underserved market segments. Together, these indicators provide a practical basis for assessing the contribution of mobile banking to financial innovation in Morocco.

5. Conclusion

This study reviewed academic articles written on the mobile banking as a means to assess the impact of technology on financial innovation in Morocco based on previous research. A systematic review was conducted using an integrative analytical framework that included four theories; Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), Diffusion of Innovations, and Theory of Planned Behaviour & then looked at the different factors that contribute to long-term acceptance and use of Mobile Banking. This study considered historical economic factors as main drivers in decision making to adopt mobile banking including; Perceived Usefulness, Perceived Ease of Use, Compatibility with Users Daily Lives, Social Influence, and Facilitating Conditions - All provide strong rationale for mobile banking acceptance. Whereas when looking specifically to mobile banking within the Financial Services Industry, trust factors such as; Perceived Security and Perceived Risk are also very important influencing mobile banking adoption. Positive feelings about the usability and convenience of the digital service(s) as well as a sense of confidence in the systems responsible for providing the digital service(s), are required by the user.

The case of Morocco demonstrates that while there are advantages to adopting technology, they are not necessarily enough to guarantee that people will continue using it long after they have begun to adopt it. The use of technology for financial transactions relies on broader institutional as well as contextual factors in addition to the component of technology itself. Some of these factors that affect usage patterns are the digital literacy of the population, the access that members of the population will have to technological resources, the price and reliability of internet connections, and the overall level of trust amongst users in digital channels. The Moroccan example is significant because there has been an increase in the number of options for digitally accessing financial services, but that this increase remains within a hybrid institutional context where traditional banking models still exist alongside digital options. Therefore, the presence of the various elements noted as variables in this context will limit the development of mobile banking services, even though there are clear functional advantages to using mobile banking technology in this context. With the introduction of mobile banking services, the results of this study suggest that mobile banking services can serve as catalysts for the introduction of new forms of financial innovation. For example, by using mobile banking services, banks and consumers have been able to develop new types of interactions with each other, which has resulted in increased levels of innovation across the multiple interrelated dimensions of the financial service sector. Examples include the development of new digital products and functionalities, improvements to operational processes through the use of automation and dematerialization, changes in the capabilities of organizations through digital governance and management of data, and changes in market structure through the expansion of financial services to new customer segments.

Mobile banking's contribution to financial innovation is ultimately a function of (1) how frequently and consistently people access it. The fact that someone accesses mobile banking for the first time or expresses an intent to adopt it does not guarantee that they will create significant innovations. Mobile banking creates innovations when it becomes an integrated part of the user's normal financial practices and when the financial institution has incorporated mobile banking into its institutional strategy and service models. Furthermore, the study summarizes several important gaps in the literature already available regarding mobile banking. A large number of the mobile banking studies currently available focus on people's intention to use mobile banking rather than how people actually use mobile banking. In addition, little empirical research has been conducted documenting how mobile banking is being used in various configurations, especially in developing and emerging markets, such as Morocco. Potentially, future research will be able to supplement the current literature by creating empirical models that quantitatively demonstrate how mobile banking contributes to financial innovation, including product and service creation, efficiency of processes, transformation of institutions, and financial inclusion/fairness. By addressing the gaps noted above, future studies can provide a more thorough understanding of how electronic/online financial technologies are changing the overall structure of financial systems and how they will be used to innovate within the banking industry.

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