

## DURABILITY OF MOBILE BANKING ADOPTION: AN EXAMINATION OF PRACTICAL KEY COMPONENTS

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**Abstract-** Mobile banking is an essential component of Morocco's financial landscape since it allows the country's citizens to swiftly and easily access a wide range of banking services using mobile devices. Despite its widespread use, worries remain about its ongoing use. To address this issue, in order to tackle this problem, we carried out a comprehensive examination of the existing literature on the use of technology and developed a research model that integrates aspects of perceived innovation with variables affecting consumer behavior. These qualities include perceived usefulness, danger, privacy, customization, a feeling of use, and pleasure, according to ideas that have previously been proposed. Additionally, we conducted a preliminary qualitative study. By using our theoretical framework and doing exploratory research, we were able to determine that traits that have been documented in the literature have an influence on how simple it is for people to adopt technological solutions, particularly mobile banking. This study breaks new ground by developing a conceptual research model that examines the elements that drive mobile banking adoption, in contrast to earlier studies that just assess the willingness to use mobile banking. Our approach is distinct since, to the best of our knowledge, this model has never been tested before in the Moroccan context. It is supported by theoretical foundations.

**Keywords:** Mobile Banking, Technological Adoption, Perceived Usefulness.

### 1. INTRODUCTION

Mobile banking is quickly changing Morocco's financial landscape by offering a useful alternative to traditional banking services. The duration of this shift, however, worries academics, industry players, and regulators greatly. Understanding the elements that motivate users to continue using mobile banking is essential when making investments and regulatory choices. Moroccan finance is beginning to undergo a

revolution thanks to mobile banking, especially in light of our increasingly globalized culture. This study looks at what keeps Moroccan customers using mobile banking, with a focus on what drives certain users to use the technology often while others give it up or use it seldom.

In order to address this problem, we develop a comprehensive conceptual framework by analyzing current literature and recognized notions. Through comprehensive qualitative research, we have included more enhancements to our model. Numerous studies have examined the early acceptance of mobile banking, but fewer have delved into the factors that contribute to its continued use. We want to rectify this inequality by shedding light on this pivotal aspect within the particular framework of Morocco. We believe that by understanding these elements, we will be able to provide solutions that will improve the accessibility and long-term sustainability of mobile banking in Morocco's evolving financial landscape.

### 2. A REVIEW OF THEORY AND LITERATURE

#### 2.1. Major Theories

To investigate the persistence of mobile banking in the Moroccan context, a theoretical framework based on a quantity of concepts and simulations from the fields of technology, sociology, and psychology must be developed. These theoretical frameworks provide a comprehensive comprehension of the variables influencing people's behavior about their continued use of mobile banking.

##### 2.1.1. The Diffusion of Innovation Theory (DIT)

Rogers (1995) presented a model that elucidates the process by which an invention disseminates over time via specific channels among individuals within a societal organization [1]. The theory in issue may be seen as a transdisciplinary framework that has being extensively used to clarify studies on the uptake of computer technologies.

Based on this idea, the pace at which adoption occurs is determined by five main factors: competitive benefit, reliability, testing, visibility, and intricacy.

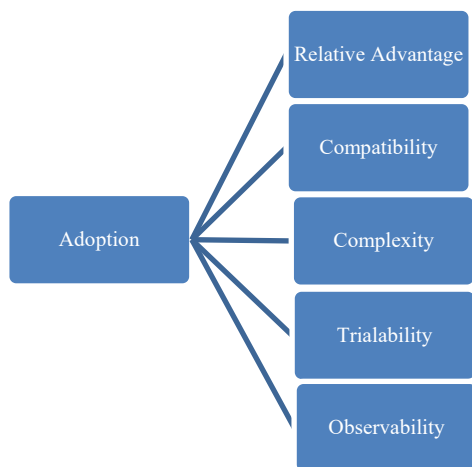


Figure 1. Depicts the Spread of Creativity Hypothesis

In the case of a mobile service, this means that successful implementation of the service will be more likely when the nature of the service is compatible with the characteristics of the technology; a higher level of task complexity in the application of the service would be an obstacle to the success of the implementation process.

**2.1.2. Theory of Reasoned Action (TRA)**

Reasonable conduct (TRA) was first advanced by Bosnjak, et al. (2020); nevertheless, some research investigations take into account utilizing the updated 1980 version of the TRA. According to Fishbein and Bosnjak, et al. (2020), the concept of logical act posits that purposes are the primary antecedents of human activity, mediating the effect of dispositions and subjective standards on behavior.

The TRA is based on four main assumptions (Bosnjak, et al. 2020):

- I) Intentions are what ultimately influence and guide a person's actions;
- II) Humans are rational creatures that carefully consider all of their alternatives before acting;
- III) Humans are rational beings who consider all relevant information before acting;
- IV) Furthermore, a person's own views both influence and determine their social conduct.

The image that follows shows how attitudes are impacted by behavioral beliefs and outcome evaluations, which are the primary elements determining intentions (Bosnjak, et al. 2020). Bosnjak, et al. (2020) defines behavioral attitudes as opinions regarding the likelihood of certain outcomes, while outcome evaluations address the likelihood that these consequences would materialize. As to Bosnjak, et al. (2020), an individual's attitudes are determined by their behavioral beliefs about the positive or negative outcomes of their acts. This suggests that the effectiveness of the mobile service deployment process will be hampered by a higher degree of task complexity in the service's application. When a mobile service's

features complement new technology, there's a greater chance that it will be successfully deployed.

**2.1.3. Theory of Expectation Confirmation (ECT)**

Oliver (1980) developed Expectation Confirmation Theory (ECT), concentrating on business decision-making. Researchers have extensively used ECT to clarify the level of satisfaction and propensity to buy among shoppers in various situations related to post-purchase and service continuity. The cognitive dissonance theory is the basis of ECT. (Yang, et al., 2013) [2]. Other product repurchases and service continuity scenarios, such as professional business services (Patterson, et al., 1997) and official repurchases of photography goods (Dabolkar, et al., 2000), have shown the predictive effectiveness of this technique.



Figure 2. Mechanism of reinforcement of assumptions

Actually, the Anticipation Confirmation Theory (ECT) looks at how people's expectations from the past influence how content and efficient they use technology in the present. This illustrates how expectations affect attitudes and behavior.

**2.1.4. Theory of Planned Behavior (TPB)**

Planned Behavior (TPB) was developed as a result of the Paradigm of Reasoned Action and then evolved into a new theory via improvements and adjustments. A new component to the TPB is "perceived behavioral control," It determines the extent to which people think they have little control over what they do (Bosnjak, et al. 2020). The TPB is thought to be completer and more general than the TRA because of its capacity to predict all aspects of human behavior, including needed, planned, and voluntary behavior. According to Lin (2012), TPB is used to look at situations when individuals feel like they need to act in a specific way but don't have the resources or know-how to achieve so. The two main factors that now influence conduct are intention and perceived behavioral control, according to the hypothesis proposed by Hagger, et al. (2022) [3]. In turn, intention is influenced by subjective norms, attitudes towards conduct, and perceptions of behavioral control (Figure 3).

One other concept that is believed to be a direct predictor of conduct is perceived behavioral control. In situations when intentions cannot be the dominant predictor of conduct, perceived behavioral control acts as the key predictor of intentions and behavior (Hagger, et al., 2022).

The notion of deconstructed of Planned Behavior (DTPB), a new theory based on TPB, was developed (Taylor and Todd, 1995). DTPB incorporates the TRA, TPB, and other significant structures (Taylor and Todd, 1995). The three main constructs of the TPB decomposed into several smaller ones (Figure 4). Compatibility, this mentality was predicted by perceived utility and simplicity of usage. Subjective norms were predicted by two normative beliefs: the influence of superiors and peers. Finally, perceived behavioral control is predicted by three control beliefs: Situations that facilitate the use of technology, resources, and confidence in ourselves [4]. In summary, TPB, which expands upon TRA, considers perceived behavioral control.

**2.1.5. The Technology Acceptance Concept**

Was first introduced by Davis in 1989. As per Davis's (1989) findings, this study methodology is highly recommended for predicting the extent to which consumers would accept technology [5]. Technology Acceptance Model (TAM), a theory of computer science, looks at how people embrace and use technology. According to theory, when a user encounters new technology for the first time, they weigh two important factors while deciding whether and how to use it.

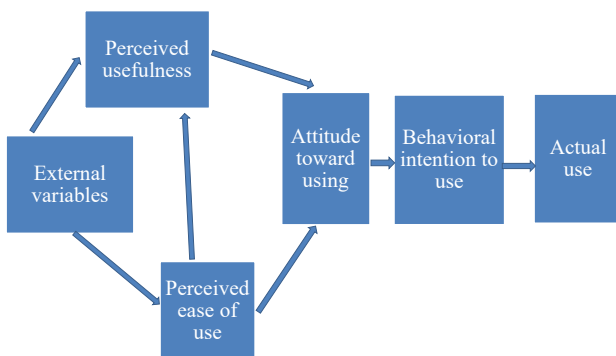


Figure 3. Technology Adoption Model (TAM) theory

Perceived utility and usability play a crucial part in decision-making throughout the adoption phase of a technology, as highlighted by the Technology Acceptance Model (TAM).

**2.1.6. An Implementation Framework for the Uptake of Mobile Services**

As per Kaasinen's (2005) findings, the adoption of cellular solutions is mostly contingent upon trust [6]. Moreover, he assembled the unique mobile service components of the TAM to create a new version just for mobile services. Kaasinen changed the perceived utility's value component in addition to adding perceived ease of adoption and trust. She also said that watching the use behavior should occur before "taking usage into account". The TAM in question is seen in the accompanying photo. Because of this, the Technology Acceptance Model provides a solid framework for analyzing how usability and perceived usefulness impact customers' choice to stick with mobile banking.

**2.1.7. Technological Continuity Theory**

The Anticipation Verification Tour (ECM), the Cognition Program (COG), with the Technology Acceptance Model (TAM) are the three models that the Software Acceptance Model (TCT) integrates aspects from to analyze intent to keep using technology (Liao et al., 2009) [7]. Comparably, TAM looks at how quickly customers embrace new technologies (Famiyeh, et al., 2018). Liao, et al. (2009) developed the Technology Conformance Test (TCT) to examine consumers' adoption of technology. This was done to resolve the complexities arising from the interaction between the Anticipation Conformance Model (ECM) and the Technology Acceptance Model (TAM).

The Technology Acceptance Model (TCT) comprises six fundamental factors: attitude, perceived ease of use, confirmation, pleasure, perceived benefit, and desire for user retention. Several researchers have investigated the components of TCT, as documented by various academics (Salim, et al., 2021; Lin, 2012) [8]. Lin, (2012) discovered that user satisfaction and perceived compatibility had a substantial influence on a user's propensity to persist in using an e-learning software. The study conducted by Hoehle, et al. (2012a) examined the significance of the ECM in preserving trust in online banking. The results revealed that many factors, including pleasure with online banking, perceived usefulness, and meeting expectations, had a substantial influence on customer satisfaction. A study done by Foroughi, et al. (2019) shown the substantial influence of technological continuity factors on customers' propensity to maintain loyalty to mobile banking services [9].

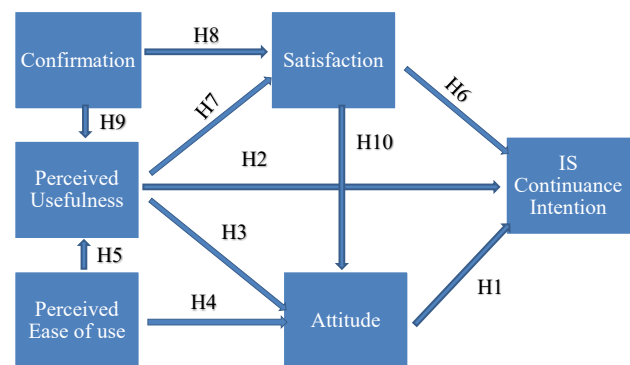


Figure 4. Technical Continuity theory

In summary, our paradigm emphasizes the significance of both environmental and human factors by integrating a variety of theories to provide a thorough view on the factors influencing continuous mobile banking usage. This approach enhances our understanding of consumers' commitment to mobile banking. In order to gain further knowledge on this topic, we also want to look at pertinent literature from a range of contexts.

**2.2. A Survey of the Literature**

To further our comprehension of the causes driving the ongoing use of mobile banking, we have compiled

many articles covering related subjects for this literature review. Because of this, we decided that presenting our literature review in tabular form, as it is done below, would be more methodical.

### **3. THE MODEL AND HYPOTHESIS OF THE CONCEPTUAL STUDY**

#### **3.1.1. Theories of Research**

This section explores the primary factors that have affected Morocco's adoption of mobile banking. Several characteristics that influence user perception include perceived benefit, perceived danger, perceived ease of use, trustworthiness, secrecy, personalization, and contentment. Understanding these elements is essential for understanding the trends in mobile banking use. Perceived ease of use, as defined by Davis (1989), pertains to the degree to which a person perceives that using a certain technology would need little exertion. The Technology Acceptance Model (TAM) posits that the inclination to participate in an activity is influenced by the impression of its utility, which in turn impacts the perception of its ease of use [10].

Bosnjak, et al. (2020) argues that FUP mainly relates to consumers' perception that a certain technological task demands cognitive effort from them. The phrase implies that the degree of confidence in the simplicity of using a certain technology without the need for cognitive exertion may be assessed (Davis, 1989; Zailani, et al., 2017). Over the course of two decades, a substantial amount of empirical evidence has been collected to show a robust association between the impression of usability and the tendency to adopt technology. This relationship has both direct and indirect effects, since it also influences the sense of usefulness (Chang, et al., 2011).

Mobile devices are constrained by notable constraints in comparison to personal computers, including inconvenient input methods and small screens. If m-banking service providers fail to build a user-friendly interface, consumers may have difficulties while trying to do m-banking transactions. Consequently, this will adversely affect their willingness to use mobile banking services in the future.

- Hypothesis 1: There is a clear correlation between how easy mobile banking is considered to be and its usefulness.
- Hypothesis 2: A direct and positive correlation exists between consumers' perception of the convenience of utilizing mobile banking and their inclination to maintain its use.

#### **3.1.2. Valuable Consideration**

Various research has shown that the perceived utility and ease of use have a substantial influence on user attitudes, which in turn have a relative effect on the adoption and satisfaction of users (Davis, 1989; Martins, et al., 2014). Assessing usability is becoming vital in the mobile phone sector, since it is widely acknowledged as an essential attribute. Perceived Usefulness, in contrast, pertains to the extent to which prospective customers

believe that IT will greatly improve their life (Bosnjak, et al., 2020). Perceived usefulness, as defined by Chen (2012) and Bosnjak, et al. (2020), is the user's perception in a system's capacity to improve their job performance, hence favorably impacting their intention to use that system [11]. Mobile devices are highly valued by people from many cultural backgrounds due to their extensive usage for activities such as studying, entertainment, and bill paying [12].

Moreover, research has shown that people's assessments of the usability of mobile banking services have a substantial impact on their attitudes and intentions to use them (Shaikh and Karjaluo, 2015). Hence, the attitudes and motives of users towards using mobile banking services are closely tied to their user perception (UP), hence enhancing the likelihood of their adoption.

- Hypothesis 3: The degree to which customers see M-banking as beneficial has a favorable impact on their tendency to continue using it.
- Hypothesis 4: The amount of pleasure experienced by consumers is significantly influenced by the perceived usefulness of a product or service.

#### **3.1.3. Perception of Risk**

Gerrard and Cunningham (2003) define this as the degree of uncertainty around the outcomes of mobile banking services [13]. The risk arises from a discrepancy between the user's anticipations and the real functionality of mobile banking technology, which fails to meet the anticipated benchmark (Chen, 2013). Studies on the behavior of electronic mobile banking users have shown that perceived risk comprises the dangers linked to social, psychological, functional, and financial aspects of life. Using mobile devices for banking comes with much more risk because of how portable they are. Because financial fraud is a concern for mobile banking users, their personal information is being fabricated. PIN loss is another significant security concern that users of mobile banking have to cope with. Roy, et al. (2016) asserts that perceived risk (PR) in mobile banking has to be reduced.

Customers will feel more at ease and have less anxiety about losing money while using mobile banking as a result. Chen (2012) discovered that the quality of the link between mobile banking and its consumers did not have any discernible influence [14]. Similarly, Kang, et al. (2012) demonstrated that the perceived risk did not have a significant effect on the perceived value of mobile banking. Prior talks indicate that the way people perceive risk negatively affects their willingness to continue using mobile banking, which is impacted by their pleasure with the service.

- Hypothesis 5: There is an inverse relationship between perceived risk and user happiness with mobile banking.
- Hypothesis 6: Perceived risk is negatively connected with m-banking customers' willingness to continue.

#### **3.1.4. Credence**

Trust is particularly important in internet commerce since there is little to no personal connection (Chen, 2012). As a result, we assume the following.

- Hypothesis 7: A direct relationship exists between confidence and contentment.
- Hypothesis 8: posits that there exists a positive link between confidence and the willingness to continue using M-banking.

### **3.1.5. Protection**

Privacy, as defined by Hong and Thong (2013), is "the individual's ability to control when, how, and to what extent their personal information is shared with others" [15]. Privacy might be a significant factor determining how individuals use information technology. Sutanto, et al. (2013) state that as mobile customers often express privacy concerns while interacting with online products and services, privacy may be seen as an essential element of user satisfaction for mobile users. Similar to mobile banking, the correlation between enjoyment and privacy may be seen in a variety of contexts, including online gaming and shopping (Chang, et al., 2011; Dharmesti and Nugroho, 2013). Users resolve stay extra probable to continue using portable investment if they associate it with privacy-conscious activities that promote trust and satisfaction (Zhou, 2012). Therefore, we believe that privacy may both predict and regulate how happy users are with mobile banking.

- Hypothesis 9: Confidentiality and customer satisfaction are positively correlated.

### **3.1.6. Customization**

Personalization, as defined by Xu, et al. (2011), is the process of providing email service users with personalized email services based on their preferences and behavior [16]. Because each smartphone is tightly linked to a particular customer, marketers are able to recognize, distinguish, engage with, and deliver customized advertising to individual smartphone users (Stewart and Pavlou, 2002). "Personalized advertising" is the term used to describe this procedure, which includes utilizing the person's information to provide advertising messages that are specially tailored to them (Peppers and Rogers 1997) [17]. Therefore, we propose that personalization has the capacity to predict and restrict customer satisfaction in the realm of mobile banking.

- Hypothesis 10: There is a clear correlation between personalization and customer satisfaction.

### **3.1.7. Enjoyment**

"A person's feelings or attitudes toward a variety of factors affecting that situation constitute their level of satisfaction in a given situation", assert Bailey and Pearson (1983) [18-20]. Bhattacharjee (2001) asserts that continuing the usage of IS influenced by customer satisfaction. This concept may be used in mobile and internet banking settings. According to marketing research, customers' satisfaction with a product may have a significant impact on whether or not they decide to buy it again. This idea is analogous to the desire of consumers to persist in using information technology (IT).

Multiple studies conducted in the mobile industry have shown a direct correlation between user satisfaction

and the desire to continue using the product or service. The investigations include mobile banking, mobile social networking services, and mobile retail. Expectations that align with experience are reflected in user satisfaction with m-banking services. Thus, we proposed the following theories:

- Hypothesis 11: The pleasure of m-banking users and their intention to remain with the service are positively correlated.

## **3.2. Conceptual Research Model**

We have attempted to include all of the variables that have been identified in the literature so far as potentially influencing the uptake of mobile banking. To assess our hypothesis, we conducted a qualitative exploratory study.

## **4. VERIFICATION BY OBSERVATION: PRELIMINARY QUALITATIVE INVESTIGATION**

### **4.1. Data Collection Methodology**

To provide a comprehensive approach, we personally interviewed twelve Moroccan bank customers in July 2023. The saturation principle, a cornerstone of qualitative research, was used to determine the right sample size. This concept governs when sufficient data are obtained to provide a firm understanding of the study's subject. In qualitative research, when purposeful (non-probability) samples are often used, saturation is especially crucial. Saturation is a vital indicator of the data's validity and is often included into the criteria used to assess the caliber of qualitative research. First proposed in the grounded theory method, saturation is mostly used to evaluate the quality of data required to develop hypotheses. It is also often used, nonetheless, to justify sample sizes in a range of qualitative studies.

- Our main questions throughout the interview were:
- Do you have a bank account?
- If you use mobile banking at all, how often do you use it?
- Which features of mobile banking are most likely to stick with you?

### **4.2. Research Reporting**

Despite Morocco's continuous problems with telecom network coverage, the majority of individuals, regardless of socioeconomic status, own a phone. This might provide an opportunity to increase financial inclusion, particularly in relation to mobile banking; nevertheless, success depends on continued use (Ramdani and Zenasni, 2023). The aim of our qualitative study is to identify the factors that influence users continued use of mobile banking and to get their viewpoints on their experiences, especially after their first usage. Moreover, our research aims to improve and strengthen already documented topics. Given the study's importance and approach, we only included input from persons with prior involvement in mobile banking. The selection method ensured that the participants had sufficient proficiency in mobile banking and were actively using the platform throughout the post-adoption period, as opposed to the pre-adoption phase.

### 4.3.1. Results of Searches

While we were gathering responses, each responder mainly identified one thing that would motivate them to continue using mobile banking.

Table 1. Responses to the questions on the main drivers of continued use of mobile banking

Interviewee	Verbatim
Interviewee 1	"Mobile finance allows me to carry out operations without need to go by means of the financial branch and waste time"
Interviewee 2	"With the provision of security measures in place, I shall persist in utilizing the bank"
Interviewee 3	"Mobile phone."In the event that there is a change in the cost of mobile banking, it is plausible that an equivalent transformation will occur in the pricing framework for mobile banking"
Interviewee 4	"I may potentially terminate my consumption of the service forever"
Interviewee 5	"The ease of use of the the financial institution's program satisfies my criteria"
Interviewee 6	"In the unlikely scenario of an attack on security affecting my bank account, I'm going to cease using of cellphone banking and internet banking"
Interviewee 7	"Mobile banking enables me to verify the balance of my consideration with a few simple strokes and with no leaving my house"
Interviewee 8	"I also think mobile banking is essential since it allows me to send and receive money fast, pay for things online, and do other activities"
Interviewee 9	"My primary motivation for using mobile banking is the lack of face-to-face interaction"
Interviewee 10	"Based on the use of smartphone banking I can quickly enable and disable my online shopping investment only in just a few taps in addition to check what's left on my profile"
Interviewee 11	With mobile banking, I can see all of the operations and transactions that have been done on my account, along with the reasons behind any deductions from my account (fees and charges), thanks to the application's history of transactions display"
Interviewee 12	"Mobile shopping provides me with the convenience of instantly sending and receiving funds through the smartphone app, without having to wait for branch business hours"

Table 2. Attributes and factors influencing the sample

Gender	Age	Rate of use	determining factor	socio-professional category
Male	32	High	Perceived usefulness	Employee
Male	55	Low	Safety	Civil servant
Male	24	High	The costs	Student
Male	51	Medium	Perceived ease of use	Liberal profession
Female	27	Low	Perceived risk	Liberal profession
Male	25	High	Perceived usefulness	Liberal profession
Male	43	Low	Perceived usefulness	Civil servant
Female	28	High	Perceived usefulness	Liberal profession
Male	24	Medium	Perceived usefulness	Student
Male	27	High	Perceived usefulness	Student
Male	29	High	Perceived usefulness	Liberal profession
Female	22	Medium	Perceived usefulness	Student

Tables 1 and 2 illustrate the variety in features and responses among the sample of 12 people. Through the analysis of many factors, we can determine the essential criteria that need to be considered in instruction to ensure the loyalty of mobile investment users and develop a long-term commitment with them.

### 4.4. Examination of Results

Our study findings suggest that the primary determinant of continued use of mobile banking in Morocco is the apparent practicality, aligning with the Technology Acceptance Model (TAM). Consumers in Morocco highly value mobile banking due to its tangible benefits. The convenience of avoiding physical travel is a significant advantage, since it allows customers to do transactions deprived of the necessity to appointment a series division. This is especially crucial given constraints on movement. Access to account information and transaction history enhances the perceived usefulness of a business, enabling users to easily monitor their finances.

Using mobile banking for bill payments and purchases simplifies daily financial management and promotes ongoing use. Real-time money transfers provide immediate and reliable solutions, with a focus on swiftness and reliability. Users prioritize security since they highly value protecting their personal and financial information and preventing fraudulent actions. Cost is a pivotal consideration since clients are very sensitive to prices, and excessively high charges discourage use. The perceived degree of usability of a product or service is crucial, since its user-friendliness and intuitiveness promote continued engagement. Users' decisions are impacted by their perception of risk, particularly about the security of transactions and the reliability of the system. In summary, our study highlights the significance of perceived usefulness, security, cost, simplicity of use, and risk as essential aspects in the continued approval of portable finance in Morocco. This paper offers guidance to financial institutions and decision-makers who are striving to further the use of portable investment in the current dynamic landscape.

### 5. CONCLUSION

Mobile banking has become an essential component of Morocco's financial landscape, offering Moroccans convenient and rapid access to a wide range of banking services via their mobile devices. Despite its widespread adoption, there are still residual uncertainties over its continued use. To comprehensively address this issue, we performed a thorough examination of existing literature on the adoption of technology and created a strong research framework that combines factors influencing consumer behavior with perceived characteristics of innovation. These characteristics include the assessment of usability, utility, risk, trustworthiness, privacy, customization capability, and satisfaction level. Current theories provide descriptions of these features. In addition, we bolstered our research by doing an exploratory qualitative study.

The findings of our study, grounded in a theoretical framework and initial research, validate the significance of elements discovered in other studies in impacting the degree of adoption of technological solutions, with a special emphasis on mobile banking. This study introduces a novel conceptual research technique that examines the elements that impact the acceptance of mobile banking.

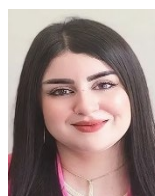


This is a departure from the prevailing body of research, which mostly focuses on assessing the propensity to use mobile banking. The uniqueness of our approach is in the development of a model that is firmly rooted in theoretical concepts. As far as we know, this method is novel and has not been investigated in the Moroccan context.

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