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« Management Marketing »

Determinants of Behavioral Intention to Use Mobile Banking Applications

A Case Study of Public Banks Based on PE, EE, and FC from UTAUT2

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Abstract

The present dissertation seeks to identify and analyze the key factors shaping the willingness of Algerian public bank clients to adopt and utilize mobile banking platforms. Drawing upon the extended theoretical model UTAUT2 as its conceptual foundation, this work centers on three fundamental dimensions: Performance Expectancy, Effort Expectancy, and Facilitating Conditions and their effects on Behavioral Intention.

Adopting a quantitative, data were collected from 168 valid respondents through both online and field-based channels between March and May 2026. Multiple linear regression analysis conducted using SPSS 27 confirmed that all three variables exert a statistically significant positive effect on customers' behavioral intention to adopt mobile banking applications, with PE ($\beta = 0.378$) emerging as the strongest predictor, followed by EE ($\beta = 0.356$) and FC ($\beta = 0.206$).

Furthermore, the proposed model explained 73.1% of the variance in Behavioral Intention ($R^2 = 0.731$). The findings contribute to the growing body of literature on digital technology acceptance, particularly within developing and transitional economies, and provide practical recommendations for Algerian public banks seeking to increase the adoption and effective use of mobile banking applications.

Keywords: Mobile banking, UTAUT2, Performance Expectancy, Effort Expectancy, Facilitating Conditions, Behavioral Intention.

Résumé

Cette étude examine les déterminants de l'intention comportementale d'utiliser les applications de mobile banking chez les clients des banques publiques en Algérie. S'appuyant sur la théorie UTAUT2, la recherche analyse trois construits principaux la performance attendue, l'effort attendu et les conditions facilitatrices ainsi que leurs effets sur l'intention comportementale.

Adoptant une approche quantitative, les données ont été collectées auprès de 168 répondants valides via des canaux en ligne et sur le terrain entre mars et mai 2026. L'analyse de régression linéaire multiple réalisée à l'aide de SPSS 27 a confirmé que les trois construits exercent un effet positif et significatif sur l'intention comportementale, avec la performance attendue (β = 0,378) comme principal facteur prédictif, suivie de l'effort attendu (β = 0,356) et des conditions facilitatrices (β = 0,206).

Globalement, le modèle explique 73,1 % de la variance de l'intention comportementale (R^2 = 0,731). Ces résultats contribuent à la littérature sur l'adoption des technologies dans les économies émergentes et offrent des recommandations stratégiques aux banques publiques algériennes afin de renforcer l'adoption du mobile Banking applications.

Mots-clés: Mobile Banking, UTAUT2, Performance attendue, Effort attendu, Conditions facilitatrices, Intention comportementale.

الملخص

تبحث هذه الدراسة في محددات النية السلوكية لاستخدام تطبيقات الخدمات المصرفية عبر الهاتف المحمول لدى عملاء البنوك العمومية في الجزائر واستنادًا إلى "نظرية قبول واستخدام التكنولوجيا الموحدة" تتناول الدراسة ثلاث متغيرات أساسية هي: توقع الأداء، وتوقع الجهد، والظروف الميسّرة، إضافة إلى تأثيرها على النية السلوكية

اعتمدت الدراسة على منهج كمي، حيث تم جمع البيانات من قبل 168 مشاركًا عبر قنوات إلكترونية وميدانية خلال الفترة الممتدة من مارس إلى ماي 2026.

وقد أكّد تحليل الانحدار الخطي المتعدد أن المتغيرات الثلاثة تؤثر بشكل إيجابي وذو دلالة إحصائية على النية السلوكية. وبشكل عام، يفسر النموذج 73.1% من التباين في النية السلوكية وتساهم هذه النتائج في إثراء الأدبيات المتعلقة بتبني التكنولوجيا في الاقتصادات الناشئة، كما تقدم توصيات استراتيجية للبنوك العمومية الجزائرية بهدف تعزيز اعتماد تطبيقات البنكية عبر الهاتف المحمول.

الكلمات المفتاحية: توقع الأداء، توقع الجهد، الظروف الميسّرة، النية السلوكية، الخدمات المصرفية عبر الهاتف المحمول،نظرية قبول واستخدام التكنولوجيا الموحدة

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List of abbreviations and acronyms

APPS: Applications

BI: Behavioral Intention

EE: Effort Expectancy

FC: Facilitating Conditions

MLR: Multiple Linear Regression

PCA: Principal Component Analysis

PE: Performance Expectancy

SEM: Structural Equation Modeling

SPSS: Statistical Package for the Social Sciences

TAM: Technology Acceptance Model

UTAUT: Unified Theory of Acceptance and Use of Technology

UTAUT2: Unified Theory of Acceptance and Use of Technology 2

VIF: Variance Inflation Factor

General Introduction

1. Context

Fintech in Algeria has experienced significant growth in recent years, driven by increasing requirements for financial services that are both accessible and secure, as well as government efforts to modernize the financial system, tools for example, mobile banking payments, Digital financial tools such as online banking and digital wallets have transformed financial interactions for both individuals and businesses. This transformation is particularly important as it reduces reliance on cash and Traditional Bank branches, as a result (Bougouffa, 2025)

In this context ,among the most prominent expressions of this digital shift is the rise of mobile banking, a trend that has been greatly amplified by the mass proliferation of smartphones across all segments of society (Amrane & Damene, 2023) .
However, despite the availability of these applications, their adoption remains relatively low among Algerian user studies show that fewer than 26% of banking clients actively use mobile banking applications (Aboubaker et al., 2025).

Given this situation, it becomes necessary to investigate the factors that affect users' intention to utilize mobile banking applications by bank customers. At the global level, numerous research has investigated the key variables affecting mobile banking adoption. In this regard, Jiang et al. (2024) demonstrated that users' readiness to adopt mobile banking is meaningfully driven by their perception of the system's usefulness, their assessment of how easy it is to operate, and the degree of support they receive from their environment. In contrast, Nopiani and Putra (2021) found that performance expectancy significantly influences to use, while effort expectancy has no significant effect, whereas facilitating conditions are a key determinant in explaining actual usage behavior.

Moreover, At the local level, Reguig Khelifa and Chenni (2024) found the willingness of Algerian users to engage with mobile banking is shaped by their evaluation of the service's practical advantages, its operational simplicity, their level of confidence in the system, and their perception of associated risks. with perceived benefit being the strongest predictor. Taken as a whole, the accumulated evidence underscores the pivotal role played by these constructs in shaping digital service adoption in understanding the adoption and use of digital services.

Therefore, understanding the psychological and contextual factors that gaining a thorough understanding of the factors that drive users toward mobile banking adoption has become a research priority. To address this issue, researchers frequently rely on the UTAUT2 model as a robust analytical lens for examining technology acceptance behaviors in consumer contexts. provides a robust theoretical framework for examining technology adoption behavior. The present study is based on three main constructs of the model: Performance Expectancy, Effort Expectancy, and Facilitating Conditions, which are used to explain users' behavioral intention. given its potential role in shaping public perceptions and increasing awareness, particularly in emerging markets such as Algeria.

1. Research Problem

Despite the development of Fintech services and increasing availability of Mobile Banking applications in Algeria, their actual adoption by users remains relatively Limited. This reveals a significant gap between technological availability user engagement with digital banking services.

Accordingly, this study is fundamentally concerned with uncovering and analyzing the main drivers behind Algerian banking clients' decision to adopt mobile banking, by placing special emphasis on three UTAUT2 constructs: perceived utility, ease of use, and contextual support conditions.

In light of this research problem, the following research questions are formulated:

1. To what extent does performance expectancy influence users' intention to use mobile banking apps in Algeria?
2. What is the effect of effort expectancy on users' intention to adopt mobile banking apps?
3. Do facilitating conditions significantly contribute to strengthening the intention to use mobile banking apps.
4. To what extent do the UTAUT2 factors jointly explain behavioral intention to use mobile banking, and which determinants significantly influence consumers' adoption intention within the Algerian banking context?

2. Hypotheses Development and Contextualization

This research explores how selected constructs influence users' behavioral intention toward mobile banking adoption in the Algerian banking sector. Based on insights from prior studies and the contextual characteristics of Algeria, In this study, the following hypotheses

Performance Expectancy is identified as one of the primary determinants of technology adoption in mobile banking systems. In the Algerian banking environment, customers often face several challenges related to traditional banking services, including long waiting times in bank branches, limited working hours, and overcrowding during salary payment periods or official occasions. Mobile banking applications provide fast and flexible, services like transferring money and paying bills and account monitoring at any time and place, which enhances customers' perception of their practical usefulness. Furthermore, the ongoing digital transformation within Algerian public banks has increased customers' awareness of the benefits associated with digital banking services Therefore, Performance Expectancy is expected to have a positive influence on customers' intention to adopt mobile banking apps.

H1: Performance Expectancy has a positive effect on users' behavioral intention to use mobile banking apps

Effort Expectancy plays an important role in the adoption of mobile banking applications. A simple user interface and ease of completing banking transactions are key factors that encourage customers to use these services. In the Algerian context, where levels of digital literacy vary among users, applications that are easy to understand and require minimal technical skills can help reduce resistance to digital banking technologies. In contrast, technical complexity and difficulties in navigating the application may discourage adoption. Therefore, users who perceive mobile banking apps as easy to use are more likely to develop a positive intention toward their adoption.

H2: Effort Expectancy has a positive effect on users' behavioral intention to use mobile banking apps.

Facilitating Conditions are also expected to influence the adoption of mobile banking applications. When users have reliable access to digital tools such as connected devices, stable internet, and responsive technical assistance, their capacity and willingness to engage with mobile banking services is significantly strengthened. In Algeria, the growing penetration of smartphones and internet connectivity has improved access to mobile banking applications. Moreover, the availability of bank support and user guidance can strengthen customers' confidence in using these services. Accordingly, Facilitating Conditions are expected to positively influence users' intention to use mobile banking apps.

H3: Facilitating Conditions have a positive effect on users' behavioral intention to use mobile banking apps.

3. Research Objectives

This research aims to analyze the determinants influencing users' intention to use mobile banking applications.

It also seeks to understand Algerian consumers' behavior toward digital banking services.

Finally, it aims to provide strategic recommendations for Algerian banks to enhance mobile banking adoption.

4. Research Importance

This research is important because the determinants of customers' intention to use mobile banking applications in Algeria remain underexplored. By applying the Unified Theory of Acceptance and Use of Technology 2 framework, it contributes to the literature on technology adoption in emerging economies.

From a managerial perspective, the findings help Algerian banks better understand factors influencing adoption, allowing improvements in service design, support, and communication strategies.

Overall, the study supports the digital transformation of the Algerian banking sector and contributes to the field of electronic services.

5. Methodology Overview

The research employs a quantitative, cross-sectional approach based on the positivist paradigm. The data collection process relied on a structured survey distributed among customers of Algerian public banks who had installed or using a mobile banking application, using both online and field-based distribution channels. The questionnaire was developed in Arabic and based on validated scales from the UTAUT2 model. Statistical analysis was carried out using SPSS 27, employing descriptive statistics, reliability analysis, and multiple linear regression to test the proposed hypotheses.

6. Structure of the Thesis

This thesis is structured in three chapters, structured with an introduction at the beginning and a conclusion at the end. Chapter 1 presents the literature review, encompassing theoretical framework and the key models underpinning the study. Chapter 2 details the research methodology and describes the field of study, including the Algerian banking context and sample characteristics. Chapter 3 presents and discusses the empirical results, testing the proposed hypotheses and interpreting the findings in light of the existing literature.

Chapter 1:

Introduction

This chapter provides the theoretical foundation upon which the present study is built. It begins with a thorough review of prior empirical research on mobile banking adoption at both the international and Algerian levels, followed by a critical analysis identifying the main gaps in current knowledge.

The chapter then presents the key theoretical models namely the TAM, UTAUT, and UTAUT2 and justifies the selection of the three core constructs examined in this study. It concludes with the conceptual framework and research hypotheses.

Section 1: Literature Review

1. Importance of Mobile Banking Applications

Mobile banking has become a fundamental element of modern financial systems worldwide, particularly in developing countries, driving both digital transformation and financial inclusion. Its importance is multifaceted, stemming from its ability to reduce costs, enhance speed, security, and transparency of financial services, thereby making them accessible to a broader segment of society, especially those traditionally underserved by conventional banking systems (Abada et al., 2024).

The behavioral aspects of consumers are central to the adoption and successful implementation of mobile banking technologies. Understanding these behaviors involves analyzing a wide range of determinants that shape both the initial adoption and the sustained use of mobile banking by individuals. Key theoretical frameworks often employed in this analysis include well-established theoretical models such as TAM and UTAUT, which have been extensively validated across diverse technological and cultural settings (Abdennebi, 2023).

2. International Empirical Studies

The review of international literature reveals a rich body of empirical evidence examining the determinants of mobile banking adoption across diverse geographic and cultural contexts. The studies presented below draw primarily on the UTAUT2 framework, each contributing unique insights into the factors that influence users' behavioral intention and actual usage behavior.

First**,** the study by Jiang et al. (2024) examined users' adoption of the China Construction Bank mobile banking application during the rapid digital transformation of the financial sector following the COVID-19 pandemic. Using an extended UTAUT2 model that incorporated perceived risk, the researchers collected data from 403 mobile banking users in China through a structured questionnaire and analyzed the data using structural equation modeling (SEM). The findings revealed that performance expectancy, effort expectancy, and facilitating conditions significantly and positively influenced users' intention to adopt mobile banking applications, whereas perceived risk had a negative effect on behavioral intention. The study emphasized the importance of usefulness, ease of use, and technical support in encouraging adoption and recommended improving application usability, strengthening security measures, and enhancing functional performance.

Then**,** Nopiani and Putra (2021) investigated the factors affecting users' intention and usage behavior toward mobile banking in Indonesia using the UTAUT2 model. Adopting a quantitative approach, the researchers collected data through questionnaires and analyzed them using multiple linear regression with SPSS software. The results indicated that performance expectancy significantly influenced users' intention to adopt mobile banking, highlighting the importance of perceived usefulness. However, effort expectancy did not have a significant effect on behavioral intention. In addition, facilitating conditions positively influenced actual usage behavior. The study recommended improving service features, strengthening infrastructure support, and increasing user awareness to promote mobile banking adoption and continued use.

Similarly**,** Gürbüz and Kaplan (2021) explored the determinants of mobile banking adoption in Türkiye by extending the UTAUT2 framework with trust as an additional explanatory variable. Using a quantitative approach, data were collected from 684 mobile banking users

through a web-based survey and analyzed using structural equation modeling. The findings confirmed that performance expectancy and facilitating conditions positively influenced users' intention to use mobile banking. Furthermore, trust and habit significantly affected both behavioral intention and actual usage behavior. The authors concluded that strengthening trust, improving service reliability, and enhancing support systems are essential for encouraging mobile banking adoption and continued use.

Later**,** Apau et al. (2025) examined the factors driving mobile banking adoption in the United Kingdom through an enriched UTAUT2 model that included security perceptions, risk assessment, and trust-related dimensions. Using a quantitative approach, the researchers gathered data from 315 mobile banking users and analyzed them through structural equation modeling. The results demonstrated that performance expectancy and effort expectancy were significant positive predictors of users' intention to adopt mobile banking. In addition, security and trust-related factors played a crucial role in promoting adoption, while perceived risk showed no significant effect. The study recommended that financial institutions reinforce security systems and strengthen users' trust to increase mobile banking adoption and usage.

Finally**,** Gharaibeh and Arshad (2018) investigated the factors influencing mobile banking adoption in Jordan by extending the UTAUT2 model with trust and mass media. Using a quantitative research design, data were collected through questionnaires and analyzed using structural equation modeling. The findings showed that performance expectancy, effort expectancy, and facilitating conditions significantly and positively influenced users' intention to adopt mobile banking. Moreover, trust emerged as a major determinant of adoption, while mass media played an important role in raising awareness and encouraging users to embrace mobile banking services. The authors recommended strengthening trust-building mechanisms and investing in effective media strategies to enhance mobile banking adoption.

The following table provides a comparative synthesis of the five international studies reviewed above, highlighting the research context, methodology, sample characteristics, key findings with respect to the variables of interest, and the limitations identified by each study.

Table 1: Summary of International Empirical Studies on Mobile Banking Adoption

Study	Method	Sample & Tools	Key Results (Focused Variables)	Limitations
1	Quantitative (Extended UTAUT2 + perceived risk)	n = 403, SEM (SPSS & AMOS), 5-point Likert	Performance expectancy positively influences intention; effort expectancy positively influences intention; facilitating conditions positively affect intention and usage	Single bank focus; geographically restricted; limited generalizability
2	Quantitative (UTAUT2)	Small sample, regression (SPSS), accidental sampling	Performance expectancy significantly affects intention; effort expectancy not significant; facilitating conditions significantly influence actual usage	Small sample; single geographic area; limited generalizability
3	Quantitative (Extended UTAUT2 + trust moderators)	n = 684, SEM & path analysis, 7-point Likert	Performance expectancy significantly influences intention; effort expectancy not clearly significant; facilitating conditions influence both intention and actual usage	Single-country focus; self-reported data; limited generalizability
4	Quantitative (Extended UTAUT2 + security, risk, trust)	n = 315, CFA & CB-SEM, online questionnaire	Performance expectancy significantly influences intention; effort expectancy significant; facilitating conditions not the main focus but indirectly support usage through system/trust factors	Convenience sampling; limited to UK; narrow cultural scope
5	Quantitative (Extended UTAUT2 + mass media & trust)	Structured questionnaire, SEM	Performance expectancy significantly affects intention; effort expectancy significant; facilitating conditions significantly influence intention and usage	Specific geographic region; cross-sectional design; single context

Source: *Own elaboration.*

While the international literature provides a broad and rich theoretical foundation, it is equally important to examine existing empirical work conducted within the Algerian context, which presents unique socioeconomic, regulatory, and cultural characteristics that may influence mobile banking adoption. The studies reviewed in the following section focus on e-banking and mobile banking adoption in Algeria and provide important insights into the national landscape.

3. Studies in the Algerian Context

First**,** Tiar et al. (2024) examined the factors influencing consumers' intention to use e-banking in East Algeria by extending the Technology Acceptance Model (TAM). Using a quantitative survey of 170 respondents and analyzing the data through PLS-SEM, the study found that perceived usefulness and perceived ease of use are the main drivers of adoption intention, with perceived usefulness emerging as the strongest predictor. Self-efficacy indirectly influenced intention through these variables, while resistance to change unexpectedly showed a positive effect. In contrast, perceived risk, awareness, and social influence were found to be insignificant. The authors recommended enhancing system usability and users' digital skills to encourage greater e-banking adoption.

Then**,** Mansour and Tahraoui (2024) explored the factors affecting consumers' use of e-banking platforms in Algeria through a modified TAM framework. Adopting a qualitative approach, the study provided exploratory insights into e-banking adoption within a developing banking environment. The findings confirmed that perceived usefulness and perceived ease of use remain the core determinants of adoption. Furthermore, perceived trust, perceived cost, and electronic word-of-mouth (eWOM) were identified as significant factors shaping users' intentions and behaviors. Trust and security issues were highlighted as particularly important, while social media communication played a key role in influencing consumers' perceptions. The authors recommended strengthening trust mechanisms, improving system usability, and leveraging digital communication strategies to promote e-banking services.

Similarly**,** Bellahcene and Latreche (2023) investigated the factors influencing the adoption and use of e-banking services among Algerian bank consumers through an integrated model combining TAM and UTAUT. Using a quantitative approach, the researchers collected data from 326 banking clients and analyzed them using structural equation modeling. The results revealed that perceived usefulness and perceived ease of use significantly influence users' attitudes toward e-banking. These attitudes subsequently affect behavioral intention, which, together with facilitating conditions, drives actual usage behavior. Interestingly, social influence did not significantly affect adoption intention. The study also found that facilitating conditions were particularly important for older users, who required greater technical and organizational

support. The authors recommended designing user-friendly systems, improving infrastructure, and developing communication strategies that emphasize the benefits of e-banking.

Later**,** Reguig Khelifa and Chenni (2024) examined the determinants of Algerian bank clients' behavioral intention to adopt the MobiBank mobile banking service. Using a quantitative approach and surveying 200 bank consumers, the study analyzed the data through principal components analysis (PCA). The findings indicated that perceived benefits, perceived ease of use, trust, and perceived risk all had significant positive effects on intention to use mobile banking. Among these variables, perceived benefit emerged as the strongest predictor, followed by perceived ease of use, perceived risk, and trust. These findings suggest that both functional utility and security perceptions are essential for encouraging digital banking adoption. The authors therefore recommended improving system usability and reinforcing security measures to support the digital transformation of banking services.

Finally**,** Mansour et al. (2022) investigated the determinants of e-banking usage among Algerian bank consumers using a quantitative approach. Based on a sample of 174 respondents and analyzed through SEM, the study examined the influence of perceived ease of use, perceived usefulness, perceived security, and perceived quality. The results demonstrated that perceived ease of use and perceived usefulness positively affect users' intention to adopt e-banking, which subsequently drives actual usage behavior. In addition, perceived security and service quality were identified as essential factors for building trust and encouraging continuous use of e-banking platforms. The authors recommended that Algerian banks invest in secure technological infrastructures and user-friendly interfaces to foster greater adoption of electronic banking services.

The following table provides a comparative overview of the five Algerian studies reviewed above, summarizing their methodological approaches, key findings in relation to the variables of interest, and their respective limitations.

Table 2: Summary of Studies on E-Banking and Mobile Banking Adoption in the Algerian Context

Study	Method Sample & Tools	Key Results	Limitations
1	Quantitative (Extended TAM) n=170, PLS-SEM	Performance expectancy (perceived usefulness) is the strongest predictor of intention; effort expectancy (ease of use) also significant; facilitating conditions not examined	Limited to one region; restricted generalizability
2	Small sample, exploratory interviews	Performance expectancy and effort expectancy remain key determinants; facilitating conditions not explicitly addressed	Small sample size; qualitative design limits generalizability; lacks quantitative validation
3	Quantitative (TAM + UTAUT) n=326, SEM	Performance expectancy and effort expectancy influence attitude and intention; facilitating conditions are the main driver of actual use, especially among older users	Convenience sampling; single region; limited generalizability
4	Quantitative (Custom model – MobiBank) n=200, PCA	Performance expectancy (perceived benefit) is the strongest predictor; effort expectancy (ease of use) significant; facilitating conditions indirectly reflected through institutional reliability	Focused on one mobile app; lacks sector-wide comparison
5	Quantitative (TAM-based) n=174, SEM	Performance expectancy and effort expectancy significantly influence intention and usage; facilitating conditions partially reflected via service quality and system support	Limited sample size; restricted geographic scope; narrow demographic range

Source: *Own elaboration.*

Having reviewed the empirical evidence from both international and Algerian contexts, it is now necessary to engage in a critical evaluation of the existing literature in order to identify its theoretical and methodological limitations and to situate the present study within the broader scholarly discourse.

4. Critical Analysis

Despite the richness of international studies in explaining the adoption of mobile banking services, several theoretical and methodological limitations can be identified. From a theoretical perspective, most studies rely on the UTAUT2 model, often extended with multiple modifications (trust, risk, security, etc.). While this enhances explanatory power, it leads to model inflation, making it difficult to determine the true effect of each variable.

In this context, it is noticeable that core variables such as performance expectancy, effort expectancy, and facilitating conditions are not analyzed in depth but are incorporated into complex models, which reduces clarity regarding their actual role in explaining behavioral intention.

On the other hand, results are unstable, as the significance of variables differs from one study to another. For example, effort expectancy sometimes appears as a significant variable, and sometimes not, which indicates that its impact is context-dependent rather than a universally fixed factor. Additionally, these studies were often conducted in environments that are digitally stable and characterized by high trust in banking systems, which makes them less suitable for explaining user behavior in developing countries.

Similarly, despite efforts to analyze the adoption of e-banking and mobile banking services in Algeria, the national literature shows several important limitations. First, at the theoretical level, most Algerian studies rely primarily on the TAM model. This choice leads to a simplified view of user behavior, as this model does not consider all determinants suggested by other models, especially contextual and behavioral factors.

Second, these studies are characterized by an excessive focus on certain variables, particularly perceived usefulness and ease of use. In contrast, other important variables are insufficiently

explored, such as facilitating conditions, which are essential in a context like Algeria where technical and regulatory constraints may hinder adoption.

Moreover, at the methodological level, several studies show limitations related to small sample sizes and a focus on specific geographic areas. This justifies the need to develop more comprehensive models that are better adapted to the Algerian context.

The limitations identified in both the international and Algerian literature converge toward a clearly identifiable theoretical gap, which the present study seeks to address.

5. Theoretical Gap and Research Positioning

Based on this critical analysis, a central theoretical gap can be identified: the absence of the UTAUT2 framework in explaining mobile banking apps adoption in Algeria. Addressing this gap is essential. In this context, it becomes necessary to propose a more comprehensive and adapted approach. Therefore, this research is part of this perspective by adopting the UTAUT2 model, with a particular focus on performance expectancy, effort expectancy, and facilitating conditions, in order to provide a theoretically grounded and context-specific explanation of mobile banking adoption in Algeria.

Section 2: Theoretical Framework

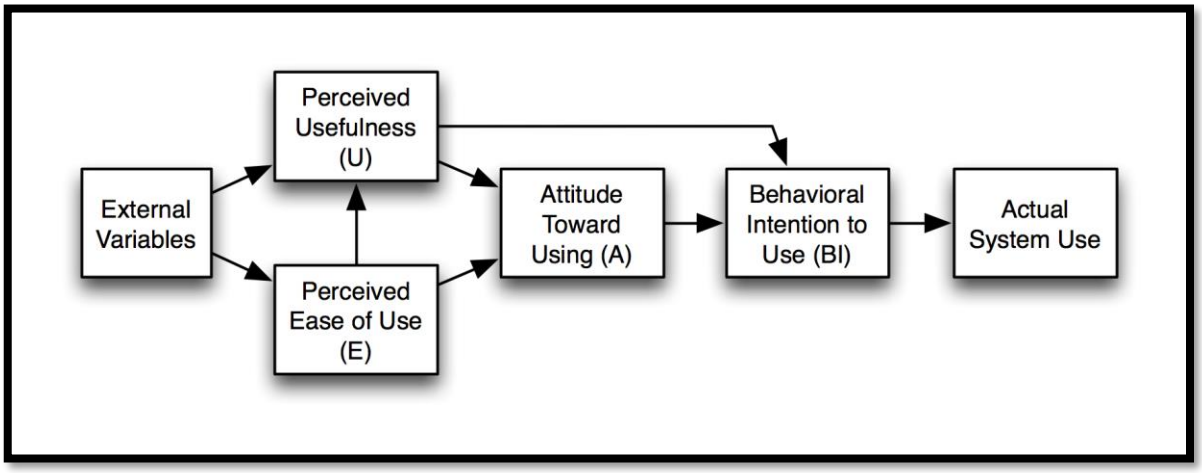
1. The Technology Acceptance Model (TAM)

Introduced by Davis in the late 1980s, the Technology Acceptance Model has established itself as one of the most frequently employed frameworks for understanding and anticipating how individuals respond to new information systems. Built upon foundations derived from the Theory of Reasoned Action, TAM posits that an individual's willingness to use a given technology is primarily determined by two cognitive evaluations: whether the system is seen as useful, and whether it is considered easy to use.

The first construct captures users' beliefs about the performance-enhancing potential of a system, while the second reflects their assessment of the cognitive and physical effort required to interact with it. These beliefs shape users' attitudes toward technology, which subsequently affect their intention to use the system as well as the actual patterns of technology use observed among individuals (Davis et al., 1989).

Although TAM provided a parsimonious and theoretically coherent framework for technology adoption research, subsequent scholars sought to expand its explanatory scope by integrating constructs from a broader range of behavioral and organizational theories. This led to the development of more comprehensive models, most notably the UTAUT, as discussed in the following section.

Figure 1: Technology Acceptance Model (Davis, 1989)



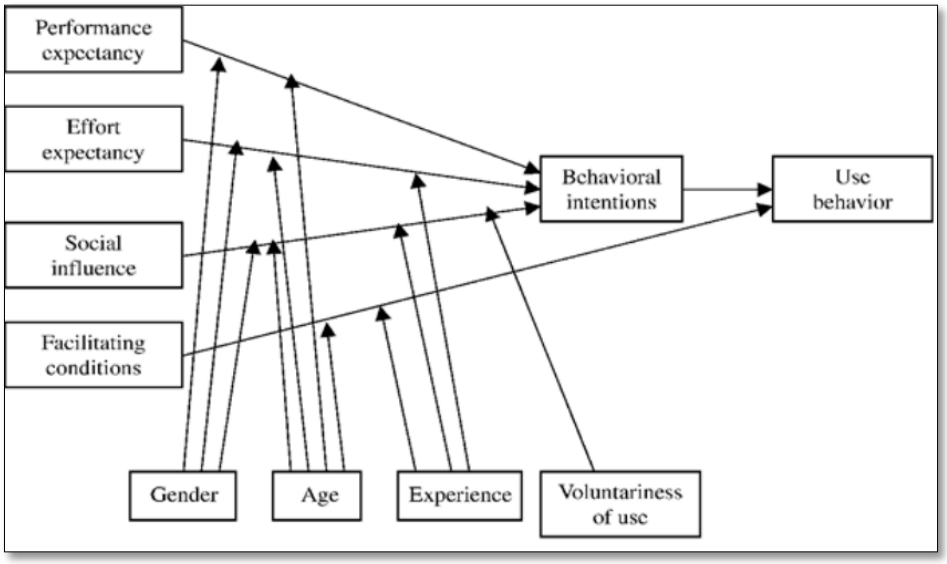
Source: *developed by (Abdullah et al., 2016)*

2. The Unified Theory of Acceptance and Use of Technology (UTAUT)

Building on the theoretical foundations of the Technology Acceptance Model (TAM) and other established technology acceptance theories, the Unified Theory of Acceptance and Use of Technology was introduced as a comprehensive framework for predicting technology acceptance and users' behavioral intention toward information systems (Obienu & Amadin, 2020). The model was developed through the integration of constructs derived from eight major technology acceptance theories and has been widely validated across different technological and organizational contexts (Venkatesh et al., 2003).

The primary purpose of UTAUT is to explain users' intention to adopt new technologies as well as their actual usage behavior (Obienu & Amadin, 2020). The original model proposes four main determinants of Behavioral Intention (BI): Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC) (Venkatesh et al., 2003). In addition, the relationships within the model are moderated by factors such as individual-level moderating variables including demographic characteristics, prior experience, and the voluntary or mandatory nature of the adoption context (Venkatesh et al., 2003).

Figure 2: The unified theory of acceptance and use of technology (UTAUT) model.



Source: *developed by (Venkatesh et al., 2003)*

Venkatesh and colleagues extended the model, resulting in the formulation of UTAUT2, as elaborated in the subsequent section.

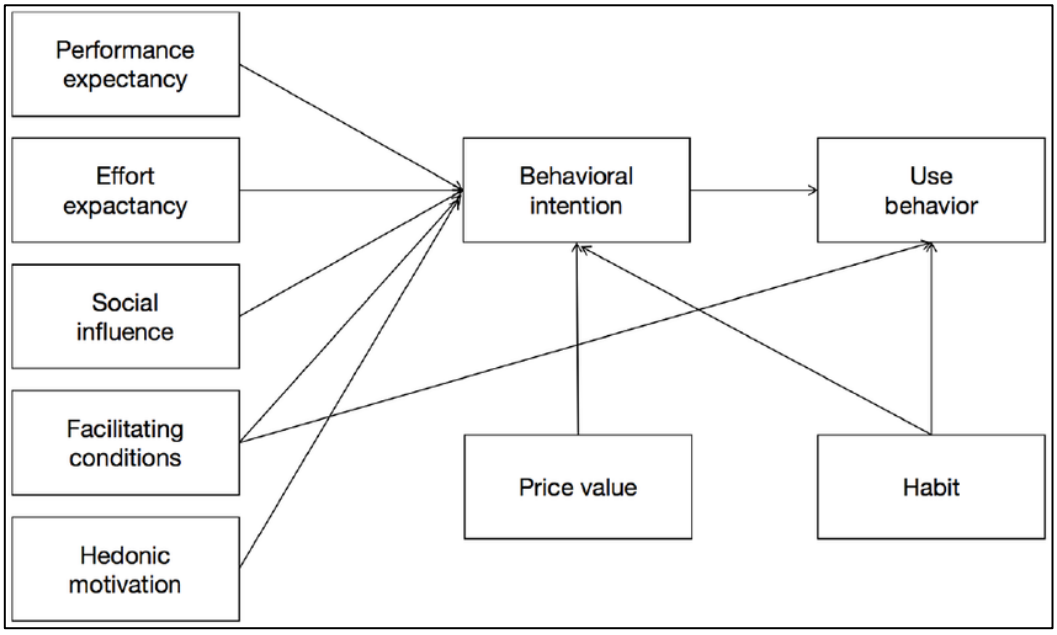
3. The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2)

UTAUT2 represents a refined and expanded version of its predecessor, tailored to better capture the motivations and behavioral patterns of voluntary technology users in consumer-oriented environments of information systems, particularly in consumer settings. The model was first presented by Viswanath Venkatesh, James Y. L. Thong, and Xin Xu in 2012 as an extension of the original UTAUT model, which Venkatesh and colleagues had previously published in 2003. UTAUT2 was specifically designed to address some of the shortcomings of its predecessor when applied to voluntary and consumer-oriented technology adoption settings, such as mobile banking, e-commerce, and digital financial services (Venkatesh et al., 2012).

When interacting with digital technologies, UTAUT2 incorporates additional elements that better capture the motivations and behavioral patterns of individual consumers. Unlike the original UTAUT model, which was largely validated in mandatory and organizational workplace settings, UTAUT2 enables a more accurate account of technology usage in regular

consumer contexts (Venkatesh et al., 2003; Venkatesh et al., 2012). The core architecture of UTAUT2 comprises seven key constructs that collectively predict both Behavioral Intention and actual use behavior: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, and Habit.

Figure 3: The Unified Theory of Acceptance and Use of Technology2 (UTAUT2)



Source: *developed by* Venkatesh et al. (2012)

4. Theoretical Rationale for the Selection of Study Constructs

The present study adopts three constructs from the UTAUT2 framework: (PE), (EE), and (FC). These variables were selected because they represent the core cognitive determinants in technology adoption models, focusing on the individual user's evaluation of the system regarding its usefulness, usability, and availability of resources and support required for its use.

From a theoretical perspective, these constructs are among the most stable predictors of behavioral intention, as they reflect the fundamental dimensions upon which individuals rely when making technology adoption decisions, particularly in the early stages. They also represent a direct extension of the core concepts of the Technology Acceptance Model (TAM), thereby enhancing the theoretical consistency of the proposed model. Moreover, focusing on these variables contributes to achieving theoretical parsimony, thus improving the clarity of the model and its ability to explain users' intention to adopt mobile banking applications.

4.1.Justification for Excluding Other UTAUT2 Constructs

While UTAUT2 encompasses seven constructs, four of them Habit, Hedonic Motivation, Price Value, and Social Influence were excluded from the present study based on theoretical considerations related to the stage of adoption and the nature of usage. The rationale for each exclusion is detailed below.

4.1.1. Habit

This construct was excluded because this research focuses on behavioral intention rather than long-term actual usage. Habit is more closely associated with repeated behavior that develops after prolonged use, rather than with the initial stages of adoption decision-making.

4.1.2. Hedonic Motivation

This construct was excluded because mobile banking is classified as a utilitarian system aimed at performing specific tasks such as fund transfers and bill payments, rather than providing entertainment or enjoyment. Therefore, its usage is more strongly associated with efficiency and utility than with hedonic drivers.

4.1.3. Price Value

This construct was excluded because the use of mobile banking applications generally involves little to no direct cost. As a result, perceived cost is less influential in the adoption decision compared to cognitive factors such as performance and ease of use.

4.1.4. Social Influence

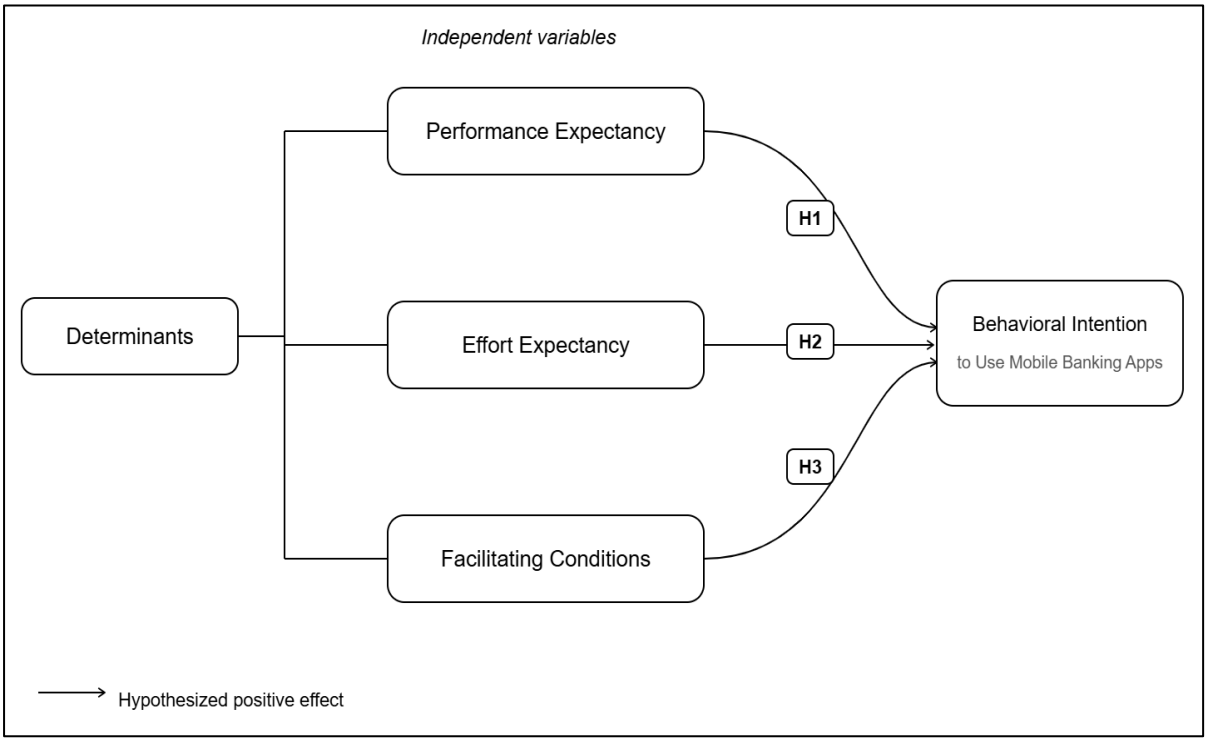
Social Influence was excluded based on the limited diffusion of mobile banking in Algeria, where penetration remains below. This construct requires a sufficient critical mass of users to generate meaningful social pressure; in its absence, individuals are expected to rely primarily on their own cognitive evaluations when forming adoption intentions. While Algerian society is characterized by strong collectivist tendencies, this cultural dynamic is more likely to emerge once mobile banking reaches wider adoption. At the current early stage of diffusion, the exclusion of Social Influence is therefore theoretically justified.

Section 3: Conceptual Framework and Development of Research Hypotheses

The conceptual framework of this study is based on (UTAUT2), focusing on three main constructs (PE), (EE), and (FC) which are examined for their effect on users' behavioral intention to adopt mobile banking applications.

1. Research model

Figure 4: the research model



Source: *own elaboration*

The model illustrates three direct hypothesized relationships: PE → BI (H1), EE → BI (H2), and FC → BI (H3). This parsimonious and theoretically coherent model is consistent with the study's focus on early-stage adoption determinants.

2. Definition of Variables

Table 3: Definition of variables

Constructs	Description	Papers
(PE)	This construct describes the extent to which an individual believes that using a system can enhance their performance and provide useful benefits in completing tasks.	(Venkatesh et al., 2003)
(EE)	Effort Expectancy refers to the perceived level of ease associated with using a technological system.	(Venkatesh et al., 2003)
(FC)	This concept reflects the degree to which individuals believe that adequate technical and organizational support exists to enable the use of a technology.	(Venkatesh et al., 2003)
(BI)	Behavioral Intention represents an individual's willingness and planned decision to perform a specific behavior in the future.	(Ajzen, 1991)

Source: *Own elaboration.*

In the rest of this part, the factors of the proposed model are presented in detail and the research hypotheses are formulated.

Mobile banking applications

Mobile banking applications are software solutions provided by banks and installed on mobile devices, enabling users to use banking services and conduct financial transactions remotely without visiting physical branches (Alalwan et al., 2020).

These applications are an important component of mobile financial services (m-finance), as they allow users to interact with banking systems through digital and mobile technologies (Shaikh & Karjaluoto, 2015).

From a technological perspective, mobile banking applications provide convenient, accessible, and efficient access to financial services through mobile devices, while supporting secure and reliable financial services and improving user experience (Oliveira et al., 2021; Baptista & Oliveira, 2015).

From a marketing perspective, mobile banking applications serve as key customer interaction channels that deliver value through convenience, accessibility, and service quality. Their adoption is commonly explained by users' perceptions of usefulness and ease of use, as proposed in the Technology Acceptance Model (Davis, 1989), which continues to be widely applied in mobile banking research (Alalwan et al., 2020).

3. Development of Research Hypotheses

3.1. Behavioral intention

In technology adoption research, behavioral intention is considered one of the most direct predictors of actual behavior. It refers to an individual's conscious willingness or readiness to engage in a particular behavior. This concept originates from the Theory of Planned Behavior developed by Icek Ajzen, which suggests that attitudes toward the behavior, subjective norms, and perceived behavioral control are the three main determinants of behavioral intention. In this context, behavioral intention reflects the degree to which an individual intends or is committed to performing a specific course of action (Ajzen, 1991).

In the field of digital financial services, behavioral intention is often defined as the user's readiness or propensity to use mobile banking applications to perform activities such as

checking account balances, transferring money, and paying bills. Previous studies indicate that behavioral intention plays a mediating role between users' perceptions and their actual system usage. For example, models such as the Unified Theory of Acceptance and Use of Technology and the Technology Acceptance Model emphasize behavioral intention as a key factor in technology adoption, influenced by variables such as perceived usefulness, perceived ease of use, and social influence (Davis, 1989; Venkatesh et al., 2003).

Therefore, behavioral intention is used in this study as the central dependent variable that reflects customers' willingness to adopt mobile banking applications. The following subsections will analyze the different determinants included in the research model.

3.2.Performance Expectancy

Performance Expectancy, defined as the degree to which an individual believes that using mobile banking will enhance their job or personal performance, has emerged as one of the most powerful and consistent predictors of adoption intention across diverse contexts. In Jordan, (Alalwan et al., 2017) found that PE had a significant positive impact on BI among bank customers. This finding was echoed in Indonesia by (Amany & Indrayani, 2024), who reported PE as a key driver of BI for users of LQ45-listed banks. Similarly, research in Tunisia by (Nasri, 2021) confirmed that PE significantly and positively influences users' BI to adopt internet banking services. The importance of perceived utility extends to specific demographic groups;(Safitri et al., 2024) demonstrated that PE significantly affects BI among Indonesian mobile banking users, while (Permatasari et al., 2025) found the same for Generation Z users of myBCA in Indonesia.

Furthermore, studies in China by (Mensah & Khan, 2024) and in Malaysia by (Al Tarawneh et al., 2023) reinforced that when users believe mobile banking is useful for saving time, managing finances, or accessing services conveniently, their intention to use it increases substantially. Building on the previous findings and applying them to the context of this study, performance expectancy is anticipated to play an important role in shaping customers' intention to use mobile banking app. Therefore, the following hypothesis is proposed:

H1: Performance expectancy has a positive effect on the behavioral intention to use mobile banking apps.

3.3.Effort Expectancy

Effort Expectancy which refers to the degree of ease associated with using the mobile banking application, is another critical factor. A system perceived as simple and intuitive lowers the cognitive barrier to entry, thereby fostering adoption. In Indonesia, (Amany & Indrayani, 2024) established that EE has a significant positive effect on BI. This was corroborated by (Fitri & Widodo, 2020) in their study of Bank Mandiri customers, where EE was a significant predictor of adoption. Research focusing on younger demographics also supports this; (Permatasari et al., 2025) found that for Generation Z, a system that is easy to learn and operate directly strengthens their intention to use it. The significance of usability was further highlighted in a study of students in the Jabodetabek area of Indonesia by (Arief & Usman, 2025) which showed that EE positively influences the decision-making regarding the use of mobile banking payment systems. Even in a broader digital context, such as AI adoption in HR in Thailand, (Tanantong & Wongras, 2024) confirmed that EE is a key determinant of behavioral intention, underscoring its universal relevance in technology acceptance. Based on prior research and extending these findings to the present study, effort expectancy is expected to positively influence customers' intention toward mobile banking usage. In other words, when customers perceive mobile banking applications as easy to use, their intention to adopt and use these services increases. Therefore, drawing on the strong theoretical rationale and empirical evidence supporting the effect of effort expectancy on behavioral intention, the following hypothesis is proposed:

H2: Effort expectancy has a positive effect on the behavioral intention to use mobile banking apps.

3.4.Facilitating Conditions

Facilitating Conditions encompassing the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of mobile banking, plays a crucial role in enabling the transition from intention to action. Adequate support, reliable infrastructure, and clear guidance are essential for sustained use. In Indonesia, (Amany & Indrayani, 2024) found that FC significantly impacts BI. This was also a key finding in the Tunisian study by (Nasri, 2021), where FC showed a significant positive impact on users' BI. The necessity of a supportive environment was further emphasized by (Tsai, 2021) in a study on mobile payments in Taiwan, where FC was a significant determinant of adoption intention. Moreover, research on mobile wallet adoption in emerging markets by (Priandito et al., 2024) concluded that FC is a critical factor influencing adoption, highlighting that even if a the technology is perceived as useful and easy to use, its adoption will be hampered without the necessary supporting infrastructure and resources. Based on the previous arguments and by extending earlier findings to the context of this study, facilitating conditions are expected to have a significant and positive influence on customers' intention to use mobile banking apps. In other words, when customers perceive that adequate resources, support, and technical infrastructure are available, their intention to use mobile banking app is likely to increase. Therefore, relying on the theoretical rationale and empirical evidence supporting the relationship between facilitating conditions and behavioral intention, the following hypothesis is proposed.

H3: facilitating conditions have a positive effect on the behavioral intention to use mobile banking apps

Conclusion

This chapter has provided a structured review of the empirical literature and the theoretical models that inform the present study. The international literature reveals consistent support for the roles of Performance Expectancy, Effort Expectancy, and Facilitating Conditions in shaping behavioral intention toward mobile banking, albeit with some variability depending on context. The Algerian literature, while growing, remains primarily anchored in the TAM framework and focuses on a limited set of variables. The critical analysis highlighted a central theoretical gap the absence of the UTAUT2 framework in the Algerian mobile banking context which this research seeks to address. The theoretical framework, comprising TAM, UTAUT, and UTAUT2, was presented, and the three core constructs were defined and hypothesized as predictors of behavioral intention.

Having established the theoretical foundation and research hypotheses, the following chapter presents the methodology employed to empirically test these hypotheses, as well as a description of the study's field context.

Chapter 2:

Methodology and Field of Study

Introduction

The present chapter provides a comprehensive account of the scientific approach and methodological choices that underpin this investigation. It adopts a positivist paradigm, justified by the need to quantitatively examine the relationships between the constructs (PE, EE, FC, and BI), the deductive logic derived from the UTAUT2 model, and the use of standardized measurement instruments. The research design is both descriptive and explanatory, employing a quantitative cross-sectional survey approach, which is widely used in technology adoption research.

1. Research paradigm

Any scientific research is grounded in a set of philosophical assumptions about the nature of knowledge and reality. These assumptions define what is commonly referred to as the research paradigm, a foundational framework that guides the researcher's ontological, epistemological, and methodological choices. Identifying the research paradigm is therefore not a mere formality; it is a necessary step that ensures the internal coherence between the study's philosophical positioning and its empirical strategy.

The present study is positioned within the positivist paradigm. Positivism, as a philosophical tradition rooted in the works of Auguste Comte and further developed in the social sciences by researchers such as Bryman (2016), holds that social phenomena, including human behavior toward technology, can be studied objectively and systematically. Under this view, reality exists independently of the observer, and scientific knowledge is best produced through the measurement of observable variables, the testing of theoretically derived hypotheses, and the use of statistical inference to identify relationships between phenomena.

This epistemological positioning is fully consistent with the objectives of the present study for three principal reasons. First, the study seeks to measure and quantify the relationships between precisely defined theoretical constructs (PE), (EE), and (FC) and a dependent variable, namely behavioral intention to use mobile banking applications. Such measurement is inherently positivist in its logic. Second, the study follows a strictly deductive approach; it departs from the established theoretical framework UTAUT2 (Venkatesh et al., 2012) and

derives specific, testable hypotheses prior to data collection, following the classical hypothetico-deductive model of scientific inquiry. Third, the use of structured questionnaires with standardized items and a uniform response scale ensures that the data collected are comparable, replicable, and amenable to statistical analysis.

Furthermore, the choice of the positivist paradigm is also justified by the explanatory purpose of the present research. Rather than seeking to explore the subjective meanings or personal experiences associated with mobile banking applications, this study aims to explain and predict behavioral intention through the examination of theoretically established determinants. In this regard, the research focuses on testing whether Performance Expectancy, Effort Expectancy, and Facilitating Conditions significantly influence customers' intention to use mobile banking applications within the Algerian public banking context. Such an objective is fully aligned with the positivist view that social phenomena can be investigated through observable and measurable variables and that knowledge can be generated through the empirical testing of theoretical propositions (Creswell & Creswell, 2018).

Moreover, the UTAUT2 model adopted in this study was originally developed and validated within a positivist research tradition based on the measurement of latent constructs and the statistical verification of causal relationships between variables (Venkatesh et al., 2003; Venkatesh et al., 2012). Therefore, maintaining the same epistemological stance ensures consistency between the theoretical framework, the research objectives, and the methodological procedures employed. As argued by Saunders et al. (2019), positivism is particularly appropriate when the objective is to test existing theories, verify hypotheses, and produce findings that are reliable, replicable, and potentially generalizable beyond the immediate study context.

Consistent with the positivist paradigm, this study adopts a quantitative research approach and a cross-sectional survey design. This combination is the dominant methodological choice in the technology adoption literature, as confirmed by all quantitative studies reviewed in Chapter 1, and is well-suited to testing the directional and relative effects of multiple independent variables on a single dependent variable within a defined population.

2. Research design

The present study adopts a quantitative descriptive and explanatory research design aimed at examining the determinants of behavioral intention to use mobile banking applications among customers of public banks in Algeria.

First, the study is descriptive in that it seeks to characterize individuals' behavioral intentions and perceptions regarding a set of key constructs derived from the UTAUT2 model, namely (PE), (EE), and (FC). This allows for a systematic understanding of how respondents perceive and evaluate mobile banking applications within the context of public banks.

Second, the study is explanatory as it aims to test the hypothesized relationships between the independent variables (PE, EE, FC) and the dependent variable (behavioral intention). The objective is to explain the variance in behavioral intention and to determine the relative importance of each variable in influencing it within the specific context of public banks in Algeria.

The choice of a quantitative approach is consistent with the positivist paradigm adopted in this study, as it enables the measurement of variables using standardized instruments and the application of statistical techniques to test theoretical relationships. A structured questionnaire was used to collect the data composed of closed-ended questions based on a Likert scale, ensuring consistency, comparability, and suitability for statistical analysis.

The study also follows a deductive approach**,** as it is grounded in an established theoretical framework the UTAUT2 model from which testable hypotheses were derived prior to data collection. This approach is appropriate because the aim is not to explore a new phenomenon, but rather to empirically test existing theoretical relationships within a defined context.

Finally, the study adopts a cross-sectional survey design**,** in which data were collected at a single point in time from a defined population. This type of design is widely used in technology adoption research and is particularly suitable for analyzing relationships between multiple variables within a specific population in this case, customers of public banks in Algeria.

3. Study Context and Rationale for Focusing on Public Banks

3.1.The Algerian Banking Sector: Structural Dominance of Public Banks

The Algerian banking sector is structurally characterized by the clear dominance of public financial institutions. According to the most recent available data, the six major public banks (BNA), (CPA), (BADR), (BDL), (CNEP), and (BEA) collectively account for the overwhelming majority of banking customers, deposits, and branch networks across the country. In contrast, private and foreign banks maintain a relatively limited presence, particularly in the retail banking segment.

This structural configuration has direct implications for research on mobile banking adoption in Algeria. Any study aiming to understand the behavioral intentions of bank customers toward mobile banking applications should primarily reflect the experiences of public bank customers, as they represent the largest segment of the banking population.

Accordingly, this research focus reflects a clear methodological alignment between the study design and the actual structural characteristics of the Algerian banking market.

3.2.Justification of the Choice of Public Banks

The focus on public banks in this study is based on three main reasons. First, public banks are the primary actors in the Algerian banking sector, and they are among the institutions that have developed mobile banking applications, making them a suitable context for studying behavioral intention toward these applications.

Second, public banks offer greater accessibility and representativeness due to their extensive branch networks, large customer base, and more active digital communication channels, which facilitates access to a diverse sample.

Third, the findings of this study can contribute to providing useful recommendations for public banks and for the Algerian banking sector as a whole.

4. Study Population and Sampling Strategy

4.1.Target Population

The target population of this study consists of customers of public banks in Algeria who hold a bank account and have installed a mobile banking application on their smartphones. This definition reflects a deliberate methodological choice that aligns with the nature of the research, particularly with respect to the study of behavioral intention.

Most previous studies on mobile banking adoption focus on active and regular users, which allows for the analysis of actual usage behavior. However, this approach excludes an important category of individuals who have installed the application but have not yet transitioned to regular use. This exclusion represents a methodological limitation, especially when the objective is to study behavioral intention rather than actual usage.

Within this context, the installation of a mobile banking application was adopted as a key inclusion criterion for the target population, as it indicates a minimum level of interaction with or exposure to the technology under study. This criterion allows for the exclusion of individuals who have never engaged with mobile banking applications and may lack a clear understanding of them, which could affect the reliability of their responses.

At the same time, installation does not necessarily imply actual or regular usage; rather, it represents an intermediate stage between awareness and use. Accordingly, this definition of the target population enables the study to focus on individuals who possess initial familiarity with the application while remaining at a stage where behavioral intention plays a decisive role in the transition toward actual use.

This approach allows for the examination of the determinants of behavioral intention at the pre-adoption stage, which is particularly relevant in the Algerian context, where the level of actual usage of mobile banking applications remains relatively low (Aboubaker et al., 2025) .

4.2.Sampling Strategy

The absence of a complete and accessible sampling frame for the defined target population as no comprehensive registry exists for Algerian public bank customers who use mobile banking applications made the application of probability-based random sampling technically unfeasible in this study. In response, a non-probability purposive sampling approach was adopted, combined with elements of convenience sampling linked to the geographic and institutional access available to the researcher.

Purposive sampling also known as judgmental sampling is a systematic, criterion-based selection technique in which participants are selected based on specific characteristics relevant to the research objectives (Bryman, 2016). In this study, this approach was operationalized through two screening filter questions placed at the beginning of the questionnaire, ensuring that only individuals meeting the two essential criteria holding a bank account and having installed or used a mobile banking application were included in the analytical sample.

This strategy is widely used and academically accepted in technology adoption research, particularly when the target population cannot be identified through a pre-existing registry and when researchers must rely on accessible channels to reach eligible participants (Sarstedt et al., 2019) .It is also consistent with the sampling approaches used in similar Algerian studies, including (Bellahcene & Latreche, 2023), (Reguig Khelifa & Chenni, 2024), and (Mansour et al., 2022), all of which adopted non-probability sampling due to the same structural constraint.

5. **Data Collection Procedure**

Data were collected through two complementary channels over the period from 15 March 2026 to 4 May 2026, using both digital and field-based approaches:

Regarding the use of both paper-based and electronic questionnaires, this was a methodological choice aimed at reaching the largest possible number of bank customers and improving the representation of different segments of society. This balance also contributed to increasing the response rate and facilitating data collection within a limited period of time. To ensure methodological consistency, the same questions and the same measurement scale were used in both formats, which allowed the data to be merged and analyzed uniformly without significant differences resulting from the method of distribution.

- **Online distribution via social media:** The questionnaire was shared through official and unofficial pages and groups of Algerian public banks on social media platforms, as well as through comment sections, digital communities related to the banking sector, and private accounts. This channel was selected to reach a geographically diverse sample of public bank customers beyond the immediate local area.
- **Self-administered questionnaire in bank branches (Khemis Miliana):** In addition to the online channel, the questionnaire was administered in person at several public bank branches in the city of Khemis Miliana, Wilaya of Aïn Defla. Respondents completed the questionnaire on-site and in real time in the presence of the researcher. This method provides two main advantages: it ensures higher data quality by allowing the researcher to clarify any ambiguities, and it captures respondents in a relevant context of direct interaction with their banking institution.

The combination of these two channels one digital with wide geographic reach and the other field-based and locally grounded enhances the representativeness of the sample by covering both urban and semi-urban public bank customers, as well as individuals physically present at bank branches.

Unlike experimental or probability-based designs, survey research relying on purposive sampling does not require probabilistic sample size determination based on statistical power calculations or a known population size. Given the absence of official and precise data regarding the total number of customers of public banks who have access to mobile banking applications, this population is considered to be of unknown size. Therefore, it is neither technically possible nor methodologically

required to determine the sample size in advance using probabilistic formulas (Cochran, 1977; Sarstedt et al., 2019).

Instead, sample adequacy in this study is assessed ***a posteriori,*** after data collection, based on two complementary criteria**.** First, the rule of thumb proposed by Hair et al. (2019) for multiple linear regression suggests a minimum of ten to twenty observations per independent variable; since the study includes three independent variables, the minimum required sample size ranges between 30 and 60 valid responses.

Second, the adequacy of the sample is further supported by its consistency with sample sizes in similar studies in the field of mobile banking adoption, ensuring sufficient statistical used power to detect significant relationships between variables (Hair et al., 2019; Cohen, 1992) A total of 202 responses were collected through the two distribution channels. After applying the screening questions and removing incomplete or internally inconsistent responses, 168 valid responses were retained for statistical analysis. This sample size is well above the minimum required threshold for regression analysis (60 observations) and is consistent with similar Algerian studies in the field of mobile banking adoption, such as (Tiar et al., 2024) with 170 participants, (Mansour et al., 2022) with 174 participants, and (Reguig Khelifa & Chenni, 2024) with 200 participants, confirming the statistical adequacy of the sample.

6. Measurement Instrument

6.1.Questionnaire Design and Language

Data were collected using a self-administered structured questionnaire, which is the most commonly used and methodologically appropriate instrument in quantitative research on technology adoption. The questionnaire was designed in Arabic, the primary language of the Algerian population, in order to ensure a high level of comprehension and accurate responses across all respondent categories, regardless of their educational level. This choice helps eliminate linguistic barriers associated with French or English and ensures that respondents engage with the constructs in a manner consistent with the study's theoretical framework.

Section 1: Screening Questions (Eligibility Check):

Two screening questions were included at the beginning of the questionnaire: (1) "Do you have a bank account with one of the public banks?" and (2) "Have you ever dealt with mobile banking applications (downloaded or used)?". These questions were used to identify eligible participants for the study. All responses were initially collected, and data were subsequently cleaned during the data analysis stage in accordance with the study's criteria, retaining only those responses that met the eligibility requirements.

Section 2: Measurement Items:

This section measures the three independent variables (PE, EE, and FC), as well as the dependent variable (BI). Each construct was operationalized using three measurement items.

Section 3: Socio-Demographic Information:

This section includes questions related to age, gender, educational level.

6.2.Measurement Items, Scale, and Validation

Each construct was measured using three items adapted and modified from the validated scales of the UTAUT2 model (Venkatesh et al., 2012) , as well as from items derived from previous studies in the of mobile banking adoption, such as (Gharaibeh & Arshad, 2018) and (Jiang et al., 2024). These sources were combined in order to enhance content validity and ensure the relevance of the measurement items to the Algerian context, with all items translated into Arabic.

All responses were recorded responses were recorded on a five-level ordinal scale, anchored at one end by strong disagreement and at the other by strong agreement, which is the most commonly used scale in technology adoption research and provides reliable ordinal data suitable for regression-based statistical analysis.

Prior to distribution, the questionnaire was reviewed by three academic experts specializing in management sciences and quantitative research methods. Their feedback contributed to improving item wording, enhancing linguistic clarity, and refining the overall structure of the questionnaire, ensuring that the final instrument accurately reflects the theoretical constructs and is well adapted to the Algerian context.

Table 4 : Survey measurement

Variable	Items	Response Scale	Source
(PE)	3 items	5-point Likert (1 = Strongly Disagree → 5 = Strongly Agree)	Venkatesh et al. (2012) (Gharaibeh & Arshad, 2018) (Jiang et al., 2024)
(EE)	3 items	5-point Likert (1 = Strongly Disagree → 5 = Strongly Agree)	Venkatesh et al. (2012) (Gharaibeh & Arshad, 2018) (Jiang et al., 2024)
(FC)	3 items	5-point Likert (1 = Strongly Disagree → 5 = Strongly Agree)	Venkatesh et al. (2012) (Gharaibeh & Arshad, 2018) (Jiang et al., 2024)
(BI)	3 items	5-point Likert (1 = Strongly Disagree → 5 = Strongly Agree)	Venkatesh et al. (2012) (Gharaibeh & Arshad, 2018) (Jiang et al., 2024)

Source: *Own elaboration.*

7. Data Analysis Methods

The analysis of the collected data was performed using a sequential statistical procedure, progressing from preliminary data quality tests to the main inferential analysis. The analytical strategy comprises two phases:

7.1.Descriptive Statistics

Means and standard deviations were computed to provide an overview of respondents' perceptions and demographic characteristics (Pallant, 2020).

7.2.Preliminary and Diagnostic Tests

Prior to hypothesis testing, several preliminary and diagnostic tests were conducted to ensure data quality and the suitability of the regression model.

Reliability Analysis:

Scale reliability was evaluated through Cronbach's alpha coefficient, a widely accepted measure of internal consistency in social science research. A threshold of $\alpha \geq 0.70$ was considered acceptable, indicating reliable constructs (Nunnally, 1978; Hair et al., 2019).

7.3.Assessment of Regression Assumptions

In order to validate the use of multiple linear regression, key assumptions were examined:

7.3.1. Normality of Residuals

The normality assumption was assessed using the Kolmogorov–Smirnov test and supported by graphical methods. Given the relatively large sample size (N = 168), the test results indicated that the residuals were approximately normally distributed, satisfying the normality assumption (Field, 2018; Tabachnick & Fidell, 2013).

7.3.2. Homoscedasticity

The assumption of homoscedasticity was assessed using a scatterplot of standardized residuals (ZRESID) against standardized predicted values (ZPRED). The random distribution of the points indicated that the assumption of homoscedasticity was satisfied (Field, 2018).

7.3.3. Multicollinearity

To test for multicollinearity, the Variance Inflation Factor (VIF) was applied to the independent variables, and tolerance values. All VIF values were below the recommended threshold of 5, and tolerance values exceeded 0.20, indicating no multicollinearity issues (Hair et al., 2019; Pallant, 2020).

7.3.4. Outliers Detection

A small number of outliers were identified in the dataset; however, they were retained in the analysis as diagnostic tests, including standardized residuals, leverage values, and Cook's distance, indicated that they did not exert a significant influence on the regression model. This suggests that the identified cases did not distort parameter estimates or affect the overall model fit. This approach is consistent with (Field, 2018) and (Tabachnick & Fidell, 2013) who recommend retaining valid outliers when they do not have a substantial impact on regression results.

7.4.Main Analysis: Multiple Linear Regression

The primary technique is Multiple Linear Regression (MLR), which estimates the individual and collective effects of the independent variables (PE, EE, FC) on Behavioral Intention. This method is appropriate for the explanatory nature of this study. Key outputs include:

- **Standardized Coefficients (β):** To determine the relative strength of each predictor.
- **t-statistics and p-values:** To test the significance of individual hypotheses (α = 0.05).
- **Coefficient of Determination (R^2):** To measure the overall explanatory power of the model.
- **F-statistic:** To evaluate the overall significance of the regression.

This approach is consistent with prior Algerian banking studies (Bellahcene & Latreche, 2023; Mansour et al., 2022) and with the UTAUT2 research tradition internationally, and is the most suitable method for achieving the explanatory objectives of the study.

Conclusion

In conclusion, this chapter has presented the methodological framework adopted in this study, encompassing the research paradigm, research design, data collection procedures, and analytical techniques. The adoption of a quantitative cross-sectional approach, coupled with rigorous statistical methods such as reliability analysis and multiple linear regression, enhances the validity and robustness of the findings.

Furthermore, this methodological approach is consistent with prior research conducted in the Algerian banking context and aligns with the UTAUT2 research framework, thereby ensuring its suitability for achieving the study's objectives.

Chapter 3:

Results, Analysis, and Discussion

Introduction

This chapter presents the empirical findings of the study in a structured and sequential manner, progressing from data quality assessment to hypothesis testing, interpretation, and discussion. It begins with the presentation of descriptive statistics, followed by an examination of reliability and validity, then the testing of regression assumptions, and finally the results of the multiple linear regression analysis. The chapter concludes with a comprehensive discussion of the findings compared to previous studies and the theoretical framework of the UTAUT2 model.

Section 1: Results, Analysis

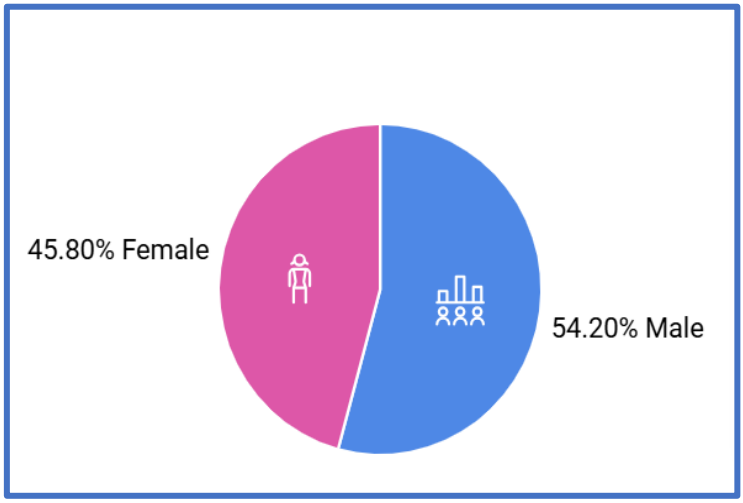
1. Descriptive Statistics

Table 5: Gender Distribution of the Study Respondents

Gender	*Frequency*	*Percentage (%)*
Male	***91***	***54.2%***
Female	***77***	***45.8%***
Total	***168***	***100%***

Source: *Prepared using SPSS 27*

Figure 5: Gender Distribution



Source: *Own elaboration.*

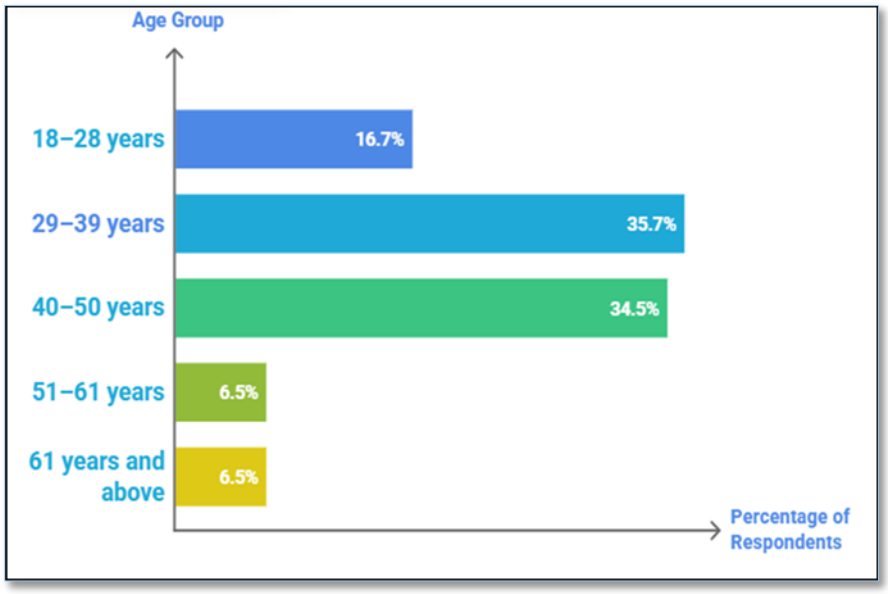
As observed, the sample demonstrates a relatively balanced gender distribution, with a slight male predominance. This near-equal representation is considered acceptable in quantitative social science research, as it reduces the risk of gender-related response bias and enhances the representativeness of the findings.

Table 6: Age Distribution of the Study Respondents

Age Group	***Frequency***	***Percentage (%)***
18–28 years	*28*	*16.7%*
29–39 years	*60*	*35.7%*
40–50 years	*58*	*34.5%*
51–61 years	*11*	*6.5%*
61 years and above	*11*	*6.5%*
Total	*168*	*100%*

Source: *Prepared using SPSS 27*

Figure 6: Age Distribution



Source: *Own elaboration*.

We observe the distribution of respondents across different age groups. The largest proportion of the sample falls within the 29–39 age group (35.7%), followed closely by those aged
40–50 (34.5%). Participants aged 18–28 represent 16.7% of the sample, while the older age groups,
51–61 and 61 years and above, each account for 6.5%.

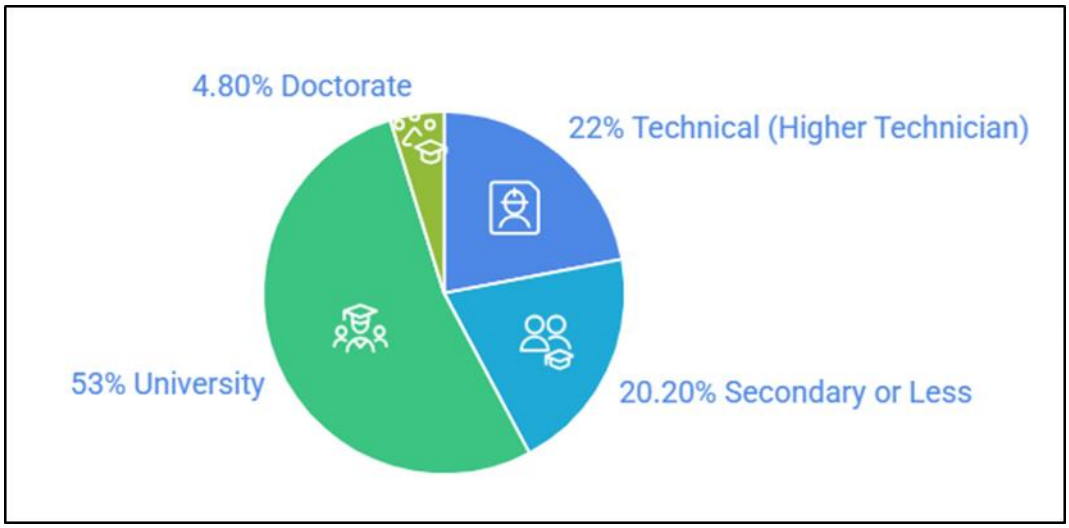
These results indicate that the sample is predominantly composed of middle-aged individuals, suggesting a stronger representation of respondents in their economically active years. This distribution is appropriate for studies related to technology usage or banking services, as these age
groups are typically more engaged with such applications.

Table 7: Education Level Distribution of the Study Respondents

Education Level	***Frequency***	***Percentage***
Technical (Higher Technician)	*37*	*22.0%*
Secondary or less	*34*	*20.2%*
University	*89*	*53.0%*
Doctorate	*8*	*4.8%*
Total	***168***	***100.0%***

Source: *Prepared using SPSS 27*

Figure 7: Education Level Distribution



Source: *Own elaboration.*

The table shows that most respondents are university graduates, representing 53.0% of the sample, indicating a generally well-educated population. Participants with technical education account for 22.0%, while those with secondary education or less represent 20.2%. Doctorate holders form the smallest group at 4.8%. Overall, the sample is mainly composed of individuals with higher education qualifications.

Table 8: Descriptive Statistics of the Variables

Variable	*N*	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
PE	*168*	*1.33*	*5.00*	*2.9048*	*1.00375*
EE	*168*	*1.00*	*4.67*	*2.9306*	*0.99824*
FC	*168*	*1.00*	*5.00*	*2.9087*	*1.03415*
BI	*168*	*1.33*	*4.67*	*2.9147*	*0.96925*

Source: *Prepared using SPSS 27*

The results presented in Table 8 show that all four variables record mean values approximating the midpoint of the measurement scale (around 2.9 out of 5), reflecting moderate perceptions among respondents regarding mobile banking applications. This indicates a neutral stance, which is consistent with the limited adoption of mobile banking in Algeria, where the penetration rate remains below 26% of bank customers.

The standard deviation values, all approximating 1, indicate moderate variability in responses, reflecting a diversity of opinions among respondents rather than a clear consensus. This is expected given the differences in digital experience and access to technology among the sample members.

Notably, the "Facilitating Conditions" variable recorded the highest level of dispersion, reflecting significant disparities in access to technological infrastructure and institutional support, which is consistent with the uneven distribution of internet connectivity and digital resources across different regions of Algeria. In contrast, the "Behavioral Intention" variable shows the lowest dispersion, indicating a convergence in respondents' intentions to adopt mobile banking services.

Overall, these descriptive results provide an important foundation for the subsequent regression analysis and reflect the early stage of mobile banking diffusion in the Algerian banking sector, where users have not yet developed strong or clearly defined attitudes toward digital banking technologies.

Table 9: Mean Values of Variables (PE, EE, FC) by Age Group

Age Group	*N*	*PE (Mean)*	*EE (Mean)*	*FC (Mean)*
18–28 years	*28*	*2.9167*	*2.8929*	*2.9286*
29–39 years	*60*	*3.0111*	*2.9667*	*2.9667*
40–50 years	*58*	*2.9598*	*3.0345*	*2.9023*
51–61 years	*11*	*2.5152*	*2.6061*	*2.7576*
61 years and above	*11*	*2.3939*	*2.6061*	*2.7273*
Total	***168***	***2.9048***	***2.9306***	***2.9087***

Source: *Prepared using SPSS 27*

The table presents the descriptive statistics of the main variables across different age groups. Overall, As observed, mean values across the three variables remain relatively consistent among younger and middle-aged respondents, reflecting broadly similar perceptions of mobile banking usefulness, ease of use, and supporting conditions within these groups.

Respondents in the 29–39 and 40–50 age groups demonstrate the most favorable perceptions across all three constructs, suggesting that economically active middle-aged individuals are better positioned both cognitively and technically to appreciate the benefits of mobile banking applications.

In contrast, respondents aged 51 years and above show a notable decline in mean values across all variables, indicating weaker perceptions of usefulness, ease of use, and facilitating conditions. This pattern is consistent with the broader technology acceptance literature, which consistently identifies age as an inverse determinant of digital technology adoption.

Overall, these results suggest that age plays a meaningful role in shaping perceptions of mobile banking, with younger and middle-aged respondents demonstrating systematically more favorable attitudes than their older counterparts.

Table 10: Mean Values of Variables (PE, EE, FC) by Age Educational Level

Educational Level	*PE (Mean)*	*EE (Mean)*	*FC (Mean)*
Advanced Technician	*2.8919*	*2.8829*	*3.0090*
Secondary or less	*2.7255*	*2.9706*	*2.7549*
University	*2.9551*	*2.8876*	*2.9064*
Doctorate	*3.1667*	*3.4583*	*3.1250*
Total	*2.9048*	*2.9306*	*2.9087*

Source: *Prepared using SPSS 27*

As observed, educational level appears to be positively associated with perceptions of mobile banking across all three constructs. Respondents holding doctoral degrees consistently report the most favorable perceptions, particularly regarding Effort Expectancy, suggesting that higher academic qualifications are associated with greater confidence in using digital banking technologies.

University-educated respondents also demonstrate relatively favorable perceptions, making them an important target segment for mobile banking adoption initiatives. In contrast, respondents with secondary education or below report comparatively weaker perceptions of usefulness and facilitating conditions.

Respondents with an advanced technician qualification occupy an intermediate position across all constructs, reflecting a moderate level of familiarity with digital services.

Overall, these results suggest that educational attainment plays a meaningful role in shaping perceptions of mobile banking, with higher education associated with greater cognitive readiness for digital financial services. This finding carries important practical implications for banks seeking to design targeted awareness and onboarding programs for less-educated customer segments.

Table 11: Descriptive Statistics of Behavioral Intention across Age Groups

Age Group	*BI (Mean)*	*N*	*Std. Deviation*
18–28 years	*2.8214*	*28*	*1.07145*
29–39 years	*2.9889*	*60*	*0.87434*
40–50 years	*2.9828*	*58*	*1.00180*
51–61 years	*2.7576*	*11*	*1.12636*
61 years and above	*2.5455*	*11*	*0.91010*
Total	***2.9147***	***168***	***0.96925***

Source: *Prepared using SPSS 27*

It is observed that behavioral intention varies moderately across age groups, with middle-aged respondents demonstrating the strongest adoption intentions. This pattern suggests that individuals in their economically active years are more likely to adopt mobile banking services, probably because of increased exposure to digital technologies and higher banking activity.

The gradual decline in behavioral intention among older age groups is consistent with the broader technology acceptance literature, which identifies age as an inverse predictor of digital adoption intentions. This finding highlights the importance of designing age-appropriate onboarding strategies and simplified user interfaces to encourage adoption among older banking customers.

In contrast, the relatively moderate behavioral intention observed among the youngest age group (18–28 years) may reflect limited financial independence or lower engagement with formal banking services at this stage of life, rather than a lack of technological familiarity.

Overall, these results confirm that age is a meaningful contextual factor in shaping behavioral intention toward mobile banking, with important implications for how Algerian public banks segment their customers and design their digital communication strategies.

Table 12: Descriptive Statistics of Behavioral Intention across Educational Level

Higher Technician	***2.8829***	***37***	***0.93365***
Secondary or less	*2.9314*	*34*	*1.05339*
University	*2.8951*	*89*	*0.95293*
Doctorate	*3.2083*	*8*	*1.08288*
Total	*2.9147*	*168*	*0.96925*

Source: *Prepared using SPSS 27*

The table presents the descriptive statistics of Behavioral Intention (BI) across different educational levels. Overall, the mean values of behavioral intention show slight variation among the groups, indicating limited differences in individuals' intention to utilize mobile banking systems banking applications based on their educational background.

Respondents with a doctoral degree report the highest mean (3.2083), suggesting that individuals with the highest level of education exhibit the strongest intention to use mobile banking applications. Participants with secondary education or below shows a relatively high mean (2.9314), followed by those with a university-level education (2.8951) and advanced technician level (2.8829), all indicating moderate and relatively similar levels of behavioral intention. Overall, the results suggest that while behavioral intention is fairly consistent across most educational levels, it tends to be slightly higher among individuals with advanced academic qualifications, particularly those holding doctoral degrees.

2. Reliability and validity Analysis

Table 13: Reliability Analysis Summary

Variable	*Dimension*	*Number of Items*	*Cronbach's Alpha*
PE	*Performance Expectancy*	*3*	*0.723*
EE	*Effort Expectancy*	*3*	*0.744*
FC	*Facilitating Conditions*	*3*	*0.783*
BI	*Behavioral Intention*	*3*	*0.679*
Total	*Overall Scale*	*12*	*0.852**

Source: *Prepared using SPSS 27*

Overall Reliability: The total scale alpha of **0.852** reflects a high degree of internal consistency for the instrument as a whole. This suggests that the 12 items collectively measure the underlying construct effectively.

Individual Dimensions:

- **PE, EE, and FC** all exceed the generally accepted threshold of **0.70**, confirming that these sub-scales are reliable for academic research.
- **BI** at **0.679** is slightly below the preferred 0.70 mark. In many social science contexts, a value between 0.60 and 0.70 is considered "acceptable" or "marginally reliable," especially for scales with a small number of items (3 items in this case).

In addition to reliability, the validity of the measurement instrument was assessed at two levels. First, content validity was ensured through expert review by three academic specialists in management sciences and quantitative methods, who confirmed that all items accurately reflect the theoretical constructs of the UTAUT2 model (Venkatesh et al., 2012). Second, construct validity is supported by the direct adaptation of scales from previously validated instruments (Gharaibeh & Arshad, 2018; Jiang et al., 2024), which have been empirically tested across multiple mobile banking contexts.

3. Regression Assumptions

3.1.Normality of Residuals

Table 14: Tests of Normality for Standardized Residuals

Test	*Statistic*	*df*	*Sig. (p-value)*
Kolmogorov-Smirnov	*0.063*	*168*	*0.200**
Shapiro-Wilk	*0.979*	*168*	*0.013*

Source: *Prepared using SPSS 27*

The normality of standardized residuals was assessed using the Kolmogorov–Smirnov test, which is appropriate for large samples (N = 168). The results were non-significant ($p = 0.200 > 0.05$), indicating that the null hypothesis of normality cannot be rejected. Therefore, the residuals are considered normally distributed, and the assumption of normality is satisfied.

Although the Shapiro–Wilk test indicated statistical significance ($p = 0.013 < 0.05$), this result is interpreted with caution due to its sensitivity to large sample sizes, where minor deviations from normality may appear significant without practical relevance (Field, 2018). Given the confirmation from the Kolmogorov–Smirnov test and the robustness ensured by the Central Limit Theorem for samples above 100 observations (Hair et al., 2019), the normality assumption is deemed adequately satisfied for regression analysis.

3.2.Multicollinearity Diagnostics

Table 15: Multicollinearity Diagnostics (VIF and Tolerance Values)

Variable	*Tolerance*	*VIF*
PE	*0.332*	*3.015*
EE	*0.421*	*2.376*
FC	*0.373*	*2.679*

Source: *Prepared using SPSS 27*

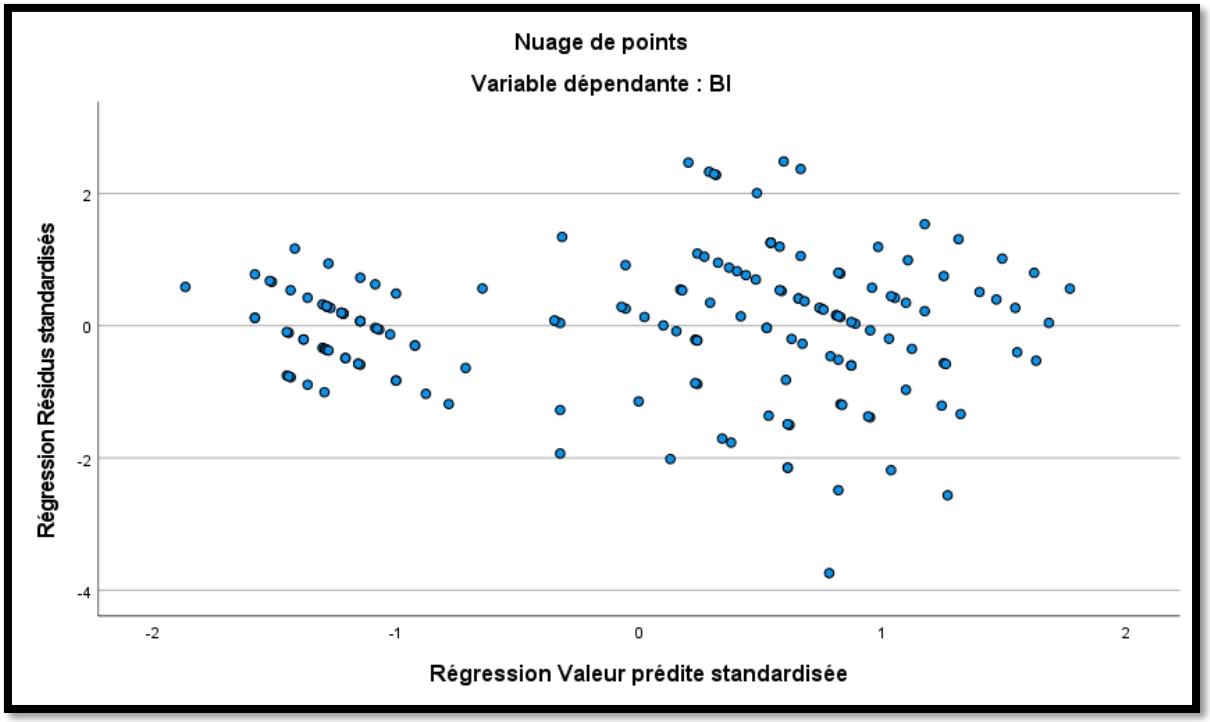
Multicollinearity among the independent variables (PE, EE, and FC) was assessed using the Variance Inflation Factor (VIF) and tolerance values. As presented in Table 15, all VIF values ranged between 2.376 and 3.015, which are well below the commonly accepted threshold of 5. In addition, tolerance values ranged from 0.332 to 0.421, exceeding the minimum acceptable level of 0.20.

These results indicate that there is no significant multicollinearity among the independent variables, suggesting that each predictor contributes uniquely to the model. Therefore, the assumption of no multicollinearity required for multiple linear regression is satisfied.

3.3. Homoscedasticity

The homoscedasticity assumption was assessed using a scatterplot of standardized residuals against standardized predicted values, was examined to ensure that the distribution of points appears random, with no clear pattern or systematic structure.

Figure 8: scatterplot of standardized residuals versus standardized predicted



Source: *Prepared using SPSS 27*

Figure 8 presents a scatterplot of standardized residuals against standardized predicted values. The distribution of the residuals appears random, with no discernible pattern or systematic structure, suggesting that the variance of the residuals remains constant across all levels of the predicted values. Therefore, the assumption of homoscedasticity is considered satisfied.

Following the verification of the key assumptions underlying multiple linear regression, including the normality of residuals, the absence of multicollinearity, and homoscedasticity, the dataset was deemed appropriate for further statistical analysis. Consequently, multiple linear regression analysis.

3.4.Outliers Detection

Although several outliers were detected in the dataset, they were not removed from the analysis because influence diagnostics indicated that these observations were not excessively influential. Specifically, the examination of standardized residuals, leverage statistics, and Cook's distance revealed no evidence that the identified cases biased the regression coefficients or compromised the goodness-of-fit of the model. According to methodological guidelines, outliers that represent legitimate observations and do not substantially affect model estimation may be retained in the analysis (Field, 2018; Tabachnick & Fidell, 2013).

4. Analysis Hypothesis

4.1.Regression Model Equation

Based on the theoretical framework and the empirical design of this study, the multiple linear regression model examining the determinants of Behavioral Intention (BI) is formally specified as follows:

$$BI = \beta_0 + \beta_1 PE + \beta_2 EE + \beta_3 FC + \varepsilon$$

4.2.Model Fit Analysis (Model Summary)

Table 16 shows how well the model explains the dependent variable and the strength of the relationship between the independent and dependent variables.

Table 16: Model Summary

Model	*R*	*R-Square (R2)*	*Adjusted R-Square*	*Std. Error of the Estimate*
1	*0.855*	*0.731*	*0.727*	*0.50682*

Source: *Prepared using SPSS 27*

Analysis: The table indicates that the correlation coefficient (R) reached **0.855**, signifying a very strong positive relationship between the independent variables and Behavioral Intention. Furthermore, the R-Square (R^2) value is **0.731**, which means that the independent variables (PE, EE, FC) collectively explain **73.1%** of the variance in the Behavioral Intention to use mobile

banking applications. The remaining percentage (26.9%) is attributed to other factors not included in the current model.

4.3. Analysis of Variance (ANOVA)

This analysis is used to confirm the overall statistical significance of the model.

Table 17: ANOVA Results

Model	*Sum of Squares*	*df (ddl)*	*Mean Square*	*F*	*Significance (Sig)*
Regression	*114.762*	*3*	*38.254*	*148.924*	*<.001*
Residual	*42.127*	*164*	*0.257*		
Total	*156.888*	*167*			

Source: *Prepared using SPSS 27*

Analysis: The calculated **F-value** is **148.924** with a significance level of less than **0.001**. Since this is below the standard significance threshold (0.05), the model is statistically significant and valid for hypothesis testing. This indicates that the independent variables collectively have a statistically significant effect on the dependent variable.

4.4.Analysis Hypothesis

Table 18: Regression Coefficients

Variable	*Unstandardized B*	*Standardized Beta (β)*	*t-value*	*Sig.*	*VIF*
Constant	***0.279***		***2.129***	***0.035***	
PE	***0.365***	***0.378***	***5.384***	***<.001***	***3.015***
EE	***0.346***	***0.356***	***5.705***	***<.001***	***2.376***
FC	***0.193***	***0.206***	***3.114***	***0.002***	***2.679***

Source: *Prepared using SPSS 27*

Based on the statistical results in the coefficients table, the hypotheses are discussed as follows:

1. **Testing Hypothesis One (H1):**
   - **Hypothesis Statement:** Performance Expectancy has a positive effect on the behavioral intention to use mobile banking apps.
   - **Analysis:** The standardized coefficient (β) for this variable is **0.378**, with a t-value of **5.384**, which is statistically significant at the 0.001 level ($p < 0.001$)
   - **Decision: Accept Hypothesis (H1)**. This confirms that users believe using banking applications enhances their efficiency and speed in conducting financial transactions.
2. **Testing Hypothesis Two (H2):**
   - **Hypothesis Statement:** Effort Expectancy has a positive effect on the behavioral intention to use mobile banking apps.
   - **Analysis:** The standardized coefficient (β) for this variable is **0.356**, with a t-value of **5.705**, which is statistically significant at the 0.001 level ($p < 0.001$)
   - **Decision: Accept Hypothesis (H2)**. This indicates that ease of use and interface clarity significantly motivate individuals to adopt and use the applications.

3. **Testing Hypothesis Three (H3):**

- **Hypothesis Statement:** Facilitating Conditions have a positive effect on the behavioral intention to use mobile banking apps.
- **Analysis:** The standardized coefficient (β) for this variable is **0.206**, with a t-value of **3.114**, and is statistically significant at the 0.05 level ($p = 0.002 < 0.05$).
- **Decision: Accept Hypothesis (H3)**. This means that the availability of technical resources (such as smartphones and internet) and necessary technical support strengthens the users' intention to engage with these applications.

Substituting the estimated coefficients from Table 18, the empirical regression equation is:

$$BI=0.279+0.365(PE)+0.346(EE)+0.193(FC)$$

The study confirmed the significant impact of all studied UTAUT2 constructs. **(PE)** was found to be the most influential variable on behavioral intention (highest Beta value), followed by **(EE)**, and then **(FC)**. Additionally, the Variance Inflation Factor (VIF) values, ranging between **2.376** and **3.015**, confirm the absence of "multicollinearity" issues, as they are well below the threshold of 5 or 10.

Section 2: Discussion of Results

1. Main Findings

The empirical analysis reveals that all three independent variables PE, EE, and FC exert a statistically significant and positive influence on behavioral intention to use mobile banking applications among customers of public banks in Algeria. The model demonstrates strong explanatory power ($R^2 = 0.731$), indicating that the selected UTAUT2 constructs are well-suited to the Algerian mobile banking context. Performance Expectancy is the dominant predictor, followed closely by Effort Expectancy, while Facilitating Conditions, though significant, contribute to a lesser degree.

2. Comparison with International Literature

The identification of Performance Expectancy as the strongest predictor of behavioral intention is strongly aligned with the international literature. Jiang et al. (2024), in their study of the China Construction Bank mobile application, demonstrated that Performance Expectancy significantly influences users' intention to adopt mobile banking, which supports the findings of the present study. Similarly, Gharaibeh and Arshad (2018), in the context of mobile banking adoption in Jordan, confirmed Performance Expectancy as a significant determinant of behavioral intention. In addition, Apau et al. (2025) highlighted its importance in the UK context, where it explained 79% of the variance in behavioral intention within an extended UTAUT2 model.

Within the Algerian context, Reguig Khelifa and Chenni (2024) also found that perceived benefit the TAM equivalent of Performance Expectancy was the strongest predictor of intention to use the MobiBank service. Likewise, Bellahcene and Latreche (2023) emphasized the central role of perceived usefulness in shaping adoption attitudes.

The acceptance of Hypothesis H2, confirming the significant positive effect of Effort Expectancy on behavioral intention, is consistent with the findings of Jiang et al. (2024), Gharaibeh and Arshad (2018), and Apau et al. (2025), all of whom identified Effort Expectancy

as a significant predictor in UTAUT2-based studies. However, this result contrasts with Nopiani and Putra (2021) and Gürbüz and Kaplan (2021), who reported

Effort Expectancy as non-significant or inconsistent across contexts, suggesting that its influence may depend on the technological maturity of the market and the specific digital service under study.

The significant positive effect of Facilitating Conditions on behavioral intention is also consistent with previous studies such as Jiang et al. (2024), Gharaibeh and Arshad (2018), and Bellahcene and Latreche (2023). This finding is particularly relevant in the Algerian context, where infrastructural constraints, including uneven internet connectivity, limited digital literacy, and insufficient technical support, continue to hinder adoption. The importance of Facilitating Conditions highlights the critical role of a supportive technological and institutional environment in promoting users' intention to adopt mobile banking services.

Explanation of Findings

The study findings indicate that Performance Expectancy was the most significant factor influencing the intention to use mobile banking services, as Algerian users mainly focus on practical benefits such as saving time and facilitating financial transactions. The findings also indicate that the ease of use of the application significantly influences adoption intention, highlighting the importance of designing simple and user-friendly applications. In addition, Facilitating Conditions such as internet availability, smartphones, and technical support play a positive role in encouraging users to adopt digital banking services, although their effect was the weakest compared to the other variables.

3. Critical Analysis of Results

3.1.Justification of the High Explanatory Power ($R^2 = 0.731$)

The model's explanatory power of 73.1% is considered notably high in behavioral studies within the social sciences, where R^2 values typically range between 30% and 60%. This high value can be explained by several factors. First, the three selected variables (PE), (EE), and (FC) represent the theoretically strongest and empirically most consistent determinants within the UTAUT2 framework, as confirmed by several international studies (Jiang et al., 2024; Gharaibeh & Arshad, 2018; Apau et al., 2025). Second, the study's focus on a specific and relatively homogeneous population customers of Algerian public banks who had already interacted with mobile banking applications may have reduced the influence of extraneous variability, thereby strengthening the model's explanatory power. Third, it should be acknowledged that the cross-sectional design based on a single data source may have contributed to inflating the relationships among variables, since respondents answered all items at the same point in time, potentially introducing common method bias (Podsakoff et al., 2003). This limitation is explicitly acknowledged and does not invalidate the findings; however, it calls for a cautious interpretation of the R^2 value.

3.2.The Near-Equal Effect of PE and EE: A Contextual Interpretation

A particularly noteworthy finding is the near-identical standardized coefficients of Performance Expectancy ($\beta = 0.378$) and Effort Expectancy ($\beta = 0.356$), suggesting that in the Algerian mobile banking context, perceived usefulness and perceived ease of use are almost equally influential in shaping adoption intention. This stands in contrast to findings from more technologically mature markets, where PE typically dominates EE by a wider margin.

This convergence can be interpreted as a reflection of Algeria's early-stage digital banking environment: users are simultaneously asking 'Is this useful?' and 'Can I actually use it?' two questions that are inseparable at this stage of adoption. For Algerian bank customers, many of whom are navigating digital financial services for the first time, a highly useful but complex application is as unlikely to be adopted as a simple but functionless one. This finding therefore carries an important practical message: interface design and functional performance must be developed in tandem.

3.3.The Relative Weakness of Facilitating Conditions: A Paradox Worth Examining

The weakest variable in the model Facilitating Conditions ($\beta = 0.206$) represents an apparent paradox in light of the substantial public investments in digital infrastructure in Algeria, including the expansion of 4G networks, the increasing spread of smartphones, and government-led digital transformation initiatives. If the infrastructure is improving, why do facilitating conditions remain the weakest determinant of adoption intention?

Three complementary explanations are proposed. First, the participants in this study were users who had already interacted with mobile banking applications, meaning they represent a self-selected group that already possesses the minimum required access to devices and internet connectivity. Within this subgroup, variability in facilitating conditions is naturally compressed, thereby reducing its explanatory power. Second, the weakness of this variable may not reflect deficiencies in infrastructure itself, but rather shortcomings in institutional support particularly limited in-app guidance, weak user interface design, and insufficient technical assistance from bank employees. In other words, the issue may not lie in the availability of resources, but in the quality of the enabling environment provided by the banks themselves. Third, this finding aligns with a well-established pattern in the literature, whereby facilitating conditions tend to exert a stronger influence on actual usage behavior than on behavioral intention a distinction that falls outside the scope of the present study but deserves further attention in future research (Venkatesh et al., 2012).

3.4.Consistency Between Descriptive and Inferential Results

A potential inconsistency between the descriptive and regression results warrants explicit discussion. The descriptive analysis reveals that mean scores across all constructs hover around the midpoint of the scale (approximately 2.9 out of 5), indicating moderate-to-low perceptions among respondents. This might appear contradictory to the strong explanatory power of the regression model ($R^2 = 0.731$).

However, this apparent contradiction may be explained by upon closer examination. Regression analysis does not measure the absolute level of attitudes; it measures the strength of the relationship between variables. A high R^2 indicates that individuals with relatively higher PE, EE, and FC scores consistently demonstrate higher BI regardless of whether the overall level of these perceptions is high or low. The moderate mean values therefore reflect the early-stage adoption reality of Algerian mobile banking, while the strong regression results confirm that the UTAUT2 constructs are valid and reliable predictors of intention even within a context of generally moderate perceptions.

Taken together, these two sets of findings are not contradictory but complementary: the descriptive results tell us where Algerian users currently stand, while the regression results tell us what moves them.

3.5.Limitations of Applying a Western Model Without Contextual Adaptation

A legitimate theoretical concern raised by this study is the application of UTAUT2 a model developed and validated predominantly in Western and East Asian contexts to the Algerian banking environment without incorporating context-specific variables. Constructs such as perceived trust, perceived risk, and Digital financial literacy is particularly important in a market where mobile banking is still in its early stages and where consumer trust in digital financial transactions remains limited.

The exclusion of these variables was a deliberate methodological choice aimed at achieving theoretical parsimony and maintaining focus on the core UTAUT2 constructs.

However, the 26.9% of unexplained variance in behavioral intention suggests that additional context-specific factors are at play. Future research should consider integrating trust and perceived risk variables identified as significant in the Algerian context by Reguig Khelifa and Chenni (2024) into an extended UTAUT2 framework tailored to the specificities of the Algerian financial environment.

4. Recommendations Directed to Bank Managers

4.1.Building Digital Trust

The model applied in this study leaves **26.9%** of behavioral intention unexplained, which most likely reflects persistent concerns related to trust and perceived risk, especially in a digital financial environment that has not yet reached a mature stage in Algeria. Therefore, public banks should consider digital trust a genuine strategic priority.

Accordingly, bank managers are recommended to:

- Create a dedicated **Security and Transparency** section within banking applications, explaining data protection and privacy mechanisms in simple language and in Arabic.
- Publish periodic reports containing concrete figures on the number of completed transactions, any security incidents that may occur, and how they were addressed.
- Regularly measure customers' digital trust levels through short in-app surveys and treat the results as a strategic indicator that is no less important than usage metrics.

4.2.Concerning the Sample and Generalizing the Results with Caution

The study explicitly acknowledged that the sample of **168 respondents** cannot represent the millions among clients of Algerian public banks. In addition, the use of non-probability sampling limits the generalizability of the findings. Furthermore, combining paper-based field questionnaires in Khemis Miliana with online questionnaires was a deliberate methodological choice to reach different customer segments, but it may also have introduced variation in respondents' characteristics.

In this regard, bank managers are advised to:

- Avoid building strategic decisions solely on the basis of a single study; instead, combine academic research findings with actual application usage data, such as login frequency, transaction abandonment rates, and the most frequently used services.
- Conduct regular internal surveys at least quarterly directly through the banking application, using only two or three concise questions in order to collect more representative customer data.
- Differentiate between customer segments, particularly middle-aged and university-educated users (the dominant profile in this study) and older or less educated customers, since each group requires different intervention strategies.

4.3. Performance Expectancy and Building on the Strongest Influencing Factor

The findings revealed that **performance expectancy** was the strongest predictor of mobile banking adoption intention. Algerian customers adopt banking applications when they perceive clear and tangible benefits in their daily lives, not simply because the application is available.

Therefore, bank managers are encouraged to:

- Launch practical and targeted awareness campaigns rather than general promotional campaigns. For example, short videos can demonstrate how the application helps users avoid waiting in queues during salary payment periods or enables them to pay Sonelgaz bills from home within minutes.
- Display such content inside bank branches and on the bank's official social media platforms.
- Link every new application feature to a clear explanation of the direct benefit it provides to customers, instead of merely announcing the addition of the feature.

4.4.**Effort Expectancy Ease of Use Is a Fundamental Condition for Adoption**

Effort expectancy showed a level of influence very close to that of performance expectancy, indicating that customers may avoid using the application if they perceive it as complicated, even when they recognize its usefulness.

In light of this, banks should:

- Conduct regular usability tests involving customers with different levels of digital literacy, including individuals with limited technological experience.
- Prioritize simplifying the initial registration process, as it represents one of the most common sources of user frustration.
- Ensure that the application interface is fully available in multiple languages and that the five most frequently used operations require no more than three steps.
- Assign a dedicated “digital guide” employee in every branch whose primary role is to assist customers in activating and using the application for the first time.

4.5.Targeting Less Digitally Integrated Groups

The sample characteristics, which were dominated by middle-aged and university-educated individuals, suggest that older and less educated groups remain insufficiently targeted despite their significant potential for future adoption.

Accordingly, banks are recommended to:

- Develop simplified versions of banking applications or specialized interfaces designed for users with limited digital experience.
- Design awareness campaigns specifically targeting these groups through community channels and local branches in order to improve outreach effectiveness.

4.6.Strengthening National Cooperation in Digital Banking Literacy

National-level coordination between public banks, telecommunications companies, and regulatory authorities, including Bank of Algeria, is needed to create a unified framework for digital banking literacy.

This framework should not focus solely on digital infrastructure development, but should also include:

- strengthening digital trust,
- enhancing data protection and security,
- and promoting digital financial literacy among citizens.

Conclusion

This chapter outlines the empirical results of the study in a clear and systematic way. The reliability analysis demonstrated strong internal consistency across the measurement scales. The diagnostic tests confirmed that the assumptions required for multiple linear regression were satisfied. Model fit indicators revealed a high level of explanatory power for the proposed framework. The hypothesis testing results indicated that all three selected dimensions of the UTAUT2 framework were confirmed as significant positive predictors of users' mobile banking adoption inclination, with Performance Expectancy identified as the most influential predictor. Finally, the discussion contextualized these findings within the existing body of literature, pointing out both convergences and discrepancies, and offering a critical interpretation of the results.

Finally, a set of practical recommendations was presented for the banking sector, aimed at enhancing the adoption of mobile banking applications through improving user experience, strengthening supporting infrastructure, and expanding digital awareness efforts among different categories of customers.

The following section presents the general conclusion of the thesis, summarizing the main findings, limitations, and directions for future research.

General Conclusion

1. Reminder of Objectives and Research Problem

This thesis aimed to examine the factors shaping Algerian public bank clients' readiness to adopt and utilize mobile banking apps. Grounded in the (UTAUT2), the study focused on three core constructs (PE), (EE), and (FC) and analyzed their effects on Behavioral Intention (BI). This focus was driven by the persistent gap between the availability of mobile banking services in Algeria and their actual adoption by users, a gap that prior studies based solely on the (TAM) have not fully explained.

2. Summary of Main Findings

The empirical analysis, based on data collected from 168 valid respondents and analyzed using multiple linear regression via SPSS 27, yielded the following main findings:

1. Performance Expectancy (PE) is the strongest predictor of behavioral intention ($\beta = 0.378$, $p < 0.001$). Users who believe that mobile banking applications enhance their efficiency and simplify financial management are significantly more likely to intend to use these services.

2. Effort Expectancy (EE) is the second strongest predictor ($\beta = 0.356$, $p < 0.001$). The ease of use perceived in mobile banking applications plays a critical role in influencing users' intention to adopt them, reinforcing the importance of intuitive interface design.

3. Facilitating Conditions (FC) exert a significant positive effect on behavioral intention ($\beta = 0.206$, $p = 0.002$), confirming that the availability of technical infrastructure, compatible devices, and institutional support meaningfully contributes to adoption intent.

4. The overall model is able to explain 73.1% of the variability in behavioral intention ($R^2 = 0.731$), demonstrating strong explanatory power and confirming the relevance and applicability of the UTAUT2 framework in the Algerian mobile banking context.

3. Theoretical Implications

This study makes several contributions to the theoretical literature on technology adoption. First, it provides empirical evidence supporting the degree of applicability of the UTAUT2 framework in the Algerian context mobile banking context an underexplored area in the existing literature, which has been predominantly anchored in the TAM model. The strong explanatory capacity of the model ($R^2 = 0.731$) demonstrates the relevance and robustness of the UTAUT2 framework when applied to emerging economies. Second, the study confirms that PE, EE, and FC are stable and theoretically coherent predictors of behavioral intention across diverse geographic and cultural contexts, reinforcing their centrality within the technology adoption literature.

4. Managerial Implications

From a managerial perspective, the study recommends that Algerian public banks focus on promoting the benefits associated with mobile banking, including, such as time savings, convenience, and ease of use, through digital awareness campaigns and in-branch programs. It also emphasizes the importance of improving user experience by designing simple and user-friendly interfaces suitable for all levels of digital literacy, as well as strengthening technical support through 24/7 helplines, in-app tutorials, and guidance within bank branches. At the national level, it stresses the need to develop digital infrastructure and expand access to the internet and smartphones, particularly in rural and semi-urban areas, in order to broaden the base of potential digital banking users.

Limitations of the Study

5.1.Sample and Scope Limitations

A substantial proportion of the sample consisted of highly educated respondents and professional employees. Consequently, the findings primarily reflect the perceptions of individuals who are more educated and digitally literate, which calls for caution when generalizing the conclusions to the broader Algerian population, particularly older adults and less educated groups.

In addition, the study focuses exclusively on customers of public banks, thereby excluding users of private banks as well as customers of digital-only banking services. As a result, the findings may not fully capture the diversity of banking behaviors and experiences within the Algerian financial sector. Therefore, the results should be interpreted as reflecting the characteristics of the studied sample rather than those of all Algerian banking customers.

Finally, the study relies on only three constructs from the UTAUT2 model, representing a partial application of the original theoretical framework. Although this choice was made deliberately to achieve theoretical parsimony and maintain a focus on the core determinants of technology adoption, it may limit the explanatory power of the model by excluding other factors that could be relevant in explaining behavioral intention.

5.2. Methodological Limitations

The study relies on a single questionnaire administered to the same respondents at one point in time. This cross-sectional and single-source design may introduce Common Method Bias (CMB), which could contribute to inflating the observed relationships between variables.

In addition, the use of purposive and convenience sampling limits the generalizability of the findings to the broader population of Algerian bank customers. Since participants were selected based on accessibility and specific eligibility criteria rather than through random selection, the representativeness of the sample may be limited.

5.3. Potential Biases :Social Desirability Bias

Some respondents may have been influenced by social desirability tendencies, leading them to provide answers that are perceived as more acceptable or favorable rather than fully accurate reflections of their actual behaviors. For instance, participants may overreport their use of mobile banking applications or exaggerate their level of digital literacy.

6. Future Research Perspectives

Based on the limitations identified above, several directions for future research can be proposed. Future studies should adopt probability sampling strategies, particularly Stratified Random Sampling, as it provides a more accurate representation of the different categories of bank customers in Algeria according to their demographic and geographical characteristics. Such an approach would enhance the reliability of the findings and increase their generalizability to the target population. Longitudinal research Approach would also be valuable for tracking the evolution of adoption intentions and actual usage behavior over time.

Future studies could also expand the UTAUT2 model by reintegrating the excluded constructs or by incorporating additional context-related variables such as perceived trust, perceived risk, and digital literacy. Moreover, comparative studies between public and private banks in Algeria could provide deeper insights into the differences in mobile banking adoption dynamics across the two sectors.

Finally, adopting mixed-methods approaches that combine quantitative surveys with qualitative interviews would contribute to a more comprehensive and nuanced understanding of the factors that hinder or facilitate mobile banking adoption in Algeria.

In conclusion, this thesis adds to the growing body of scholarly knowledge on the dynamics of mobile financial service adoption within developing economic contexts and provides actionable recommendations for Algerian banks seeking to bridge the gap between the supply of digital banking services and their effective adoption by users. The findings affirm the relevance of the UTAUT2 framework as a theoretical lens for studying technology acceptance in developing country contexts and highlight the importance of both functional performance and ease of use in driving digital banking adoption.

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ANNEXE

ANNEXE A

الاستبيان

عنوان: تحليل العوامل المؤثرة على نية استخدام تطبيقات الخدمات المصرفية عبر الهاتف المحمول

مقدمة

حضرة المشارك/ة المحترم/ة،

يهدف هذا الاستبيان إلى دراسة العوامل المؤثرة على نية استخدام تطبيقات الخدمات المصرفية عبر الهاتف المحمول، وذلك من خلال التعرف على آراء وتصورات الأفراد حول هذه الخدمات الرقمية.

تكتسي هذه الدراسة أهمية كبيرة في ظل التوجه المتزايد نحو التحول الرقمي في القطاع البنكي، حيث تساعد نتائجها في فهم احتياجات المستخدمين وتطوير خدمات مصرفية أكثر كفاءة وسهولة.

نؤكد أن:

- جميع إجاباتكم ستبقى سرية تمامًا
- ستُستخدم البيانات لأغراض بحث علمي فقط
- لا توجد إجابات صحيحة أو خاطئة، المهم هو رأيكم الشخصي

نشكركم مسبقًا على وقتكم ومساهمتكم القيّمة.

1. **أسئلة التصفية (Filtering Questions)**

1.1.هل لديك حساب بنكي لدى إحدى البنوك العمومية؟

☐ نعم

☐ لا

1.2.هل سبق لك استخدام تطبيقات بنكية عبر الهاتف المحمول (تحميل أو استخدام)؟

☐ نعم

☐ لا

2. القسم الثاني: توقع الأداء(Performance Expectancy - PE)

يرجى اختيار درجة موافقتك:

(1)لا أوافق بشدة | (2) لا أوافق | (3) محايد | (4) أوافق | (5) أوافق بشدة

العبارات	1	2	3	4	5
أعتقد أن تطبيقات البنوك عبر الهاتف ستساعدني في إتمام معاملاتي المصرفية بسرعة أكبر.					
أعتقد أن التطبيقات البنكية ستتيح لي إجراء معاملاتي في أي وقت وفي أي مكان					
أعتقد أن استخدام تطبيقات البنوك سيمكنني من مراقبة وتسيير حسابي البنكي وحركاته المالية بشكل أفضل					

3. القسم الثالث: توقع الجهد(Effort Expectancy - EE)

العبارات	1	2	3	4	5
أعتقد أن تعلم كيفية استخدام التطبيقات البنكية أمرًا سهلًا وبسيطًا					
أعتقد أن إجراء العمليات عبر التطبيق لن يتطلب جهدًا ذهنيًا كبيرًا أو وقتًا طويلًا					
أعتقد أنه من السهل تذكر كيفية استخدام الخدمات المصرفية عبر الهاتف المحمول					

4. لقسم الرابع: الظروف الميسّرة(Facilitating Conditions - FC)

العبارات	1	2	3	4	5
أعتقد أنني أتوفر على الإمكانيات التقنية اللازمة (هاتف ذكي، اتصال جيد بالإنترنت) لاستخدام التطبيقات البنكية عبر هاتف المحمول.					
أعتقد أنني أملك المعرفة الكافية التي تمكنني من التعامل مع الخدمات البنكية عبر هاتف المحمول.					
أعتقد أنه يمكنني الحصول على المساعدة الفنية أو من موظفي البنك في حال واجهت أي صعوبة تقنية عند استخدام التطبيق.					

5. القسم الخامس: النية السلوكية(Behavioral Intention - BI)

العبارات	1	2	3	4	5
أعتقد أنني سأحرص على استخدام التطبيقات البنكية لتلبية أغلب احتياجاتي المصرفية بدلًا من التنقل إلى الوكالة					
أعتقد أنني سأستخدم تطبيقات البنكية عبر الهاتف المحمول لأنها تمثل ابتكارًا جديدً					
أعتقد أنه سيتم تقديم المزيد من الخدمات عبر تطبيقات المصرفية في المستقبل، مما سيشجعني على استخدامها.					

6. القسم السادس: المعلومات الديموغرافية

الجنس:

☐ذكر

☐ أنثى

العمر:

☐ من 18 إلى 28 سنة

☐ من 29 إلى 39 سنة

☐ من 40 إلى 50 سنة

☐ من 51 إلى 61 سنة

☐ 61 سنة فأكثر

المستوى التعليمي:

☐ ثانوي أو أقل

☐ تقني / تكوين مهني

☐جامعي (ليسانس/ماستر)

☐ دكتوراه

شكرا على مشاركتكم