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Impact of Digital Culture and Technological Maturity on Fintech Adoption

A Case Study of CPA Bank

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Abstract

This study investigates the impact of digital culture and technological maturity on the adoption of FinTech services, with CPA Bank Algeria as the primary case study. Drawing on the UTAUT framework, a mixed-methods design was adopted, combining a quantitative questionnaire administered to 204 banking clients and two semi-structured interviews with bank employees, analyzed using SPSS, SmartPLS, and NVivo. The results confirm that user technological maturity and perceived platform technological maturity are significant direct drivers of FinTech adoption, while digital culture exerts its influence indirectly through full mediation via platform maturity perception. The study contributes an original ten-criteria grid, developed by the author, for assessing platform technological maturity and provides contextualised insights into FinTech adoption dynamics in the banking environment of North African countries.

Key words: Digital Culture, Technological Maturity, FinTech Adoption, Mobile Banking

Résumé

Cette étude examine l'impact de la culture numérique et de la maturité technologique sur l'adoption des services FinTech, en prenant la banque CPA Algérie comme cas d'étude principal. S'appuyant sur le cadre théorique UTAUT, une méthodologie mixte a été adoptée, combinant un questionnaire quantitatif administré à 204 clients bancaires et deux entretiens semi-directifs avec des employés de la banque, analysés à l'aide de SPSS, SmartPLS et NVivo. Les résultats confirment que la maturité technologique de l'utilisateur et la maturité technologique perçue de la plateforme constituent des déterminants directs significatifs de l'adoption, tandis que la culture numérique exerce son influence de manière indirecte, par médiation totale via la perception de la maturité de la plateforme. L'étude propose une grille originale de dix critères, développer par l'auteur, pour évaluer la maturité technologique des plateformes et offre des perspectives contextualisées sur les dynamiques d'adoption des FinTech dans un environnement bancaire des pays nord-africains.

Mots clés : Culture Numérique, Maturité Technologique, Adoption FinTech, Services Bancaires Mobile

المخلص

تهدف هذه الدراسة إلى تحليل أثر الثقافة الرقمية والنضج التكنولوجي على تبني خدمات التكنولوجيا المالية، مع التركيز على بنك القرض الشعبي الجزائري كحالة دراسية استناداً إلى الإطار النظري (UTAUT) ، اعتمد منهج بحثي مختلط يجمع بين استبيان كمي وُزِعَ على 204 زبون بنكي ، ومقابلتين شبه موجهتين مع موظفين في البنك، وذلك باستخدام برامج (SPSS) و (SmartPLS) و (NVivo) ، أظهرت النتائج أن النضج التكنولوجي للمستخدم والنضج التكنولوجي المدرك للمنصة يمثلان محددتين مباشرين وذوي دلالة إحصائية لتبني الخدمات المالية الرقمية، في حين تؤثر الثقافة الرقمية بصورة غير مباشرة من خلال وساطة تامة عبر إدراك نضج المنصة. تُقدّم الدراسة شبكة تقييم أصيلة من عشرة معايير، من تطوير الباحثة، لقياس النضج التكنولوجي للمنصات، وتوفر رؤى سياقية حول ديناميكيات تبني التكنولوجيا المالية في البيئة البنكية لدول شمال أفريقيا

الكلمات المفتاحية الثقافة الرقمية: النضج التكنولوجي، تبني الخدمات المالية الرقمية، الخدمات البنكية الرقمية، الثقافة الرقمية

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List of Abbreviations and Acronyms:

AVE : Average Variance Extracted

BIMM : Baromètre de l'Innovation et de la Maturité Mobile

CIB : Carte Interbancaire

CPA : Crédit Populaire d'Algérie

DA : Dinars Algériens

EDI : Échange de Données Informatisées

FinTech : Financial Technology

fsQCA : Fuzzy Set Qualitative Comparative Analysis

GIE :Groupement d'Intérêt Économique

HTMT : Heterotrait-Monotrait Ratio

ICT : Information and Communication Technology

MENA :Middle East and North Africa

NVivo : Numerical Vivo (Software for Qualitative Data Analysis)

OTP : One Time Password

PLS-SEM – Partial Least Squares Structural Equation Modeling

QR: Quick Response

RIB: Relevé d'Identité Bancaire

IBAN: International Bank Account Number

RTL: Right to Left

SME: Small and Medium Enterprise

SMS: Short Message Service

SPSS: Statistical Package for the Social Sciences

SRMR: Standardized Root Mean Square Residual

TRI: Technology Readiness Index

UTAUT: Unified Theory of Acceptance and Use of Technology

VIF : Variance Inflation Factor

Introduction

The rapid advancement of digital technologies has profoundly transformed the global financial landscape, giving rise to a new generation of financial services collectively referred to as Financial Technology, or FinTech. These innovations encompassing mobile banking, digital payments, and e-banking platforms, have fundamentally redefined the way individuals interact with financial institutions, shifting traditional banking practices toward more accessible, efficient, and user-centered digital experiences. In this context, financial institutions worldwide are increasingly investing in digital transformation strategies aimed at modernising their service offerings and meeting the evolving expectations of a digitally engaged clientele.

In Algeria, this transformation is still in its early stages. Despite growing smartphone penetration and increasing internet accessibility, the adoption of FinTech services remains relatively limited compared to more digitally mature economies. Public banking institutions, such as the *Crédit Populaire d'Algérie* (CPA Bank), have initiated digital offerings notably *Mobile CPA* and *Wimpay*, yet the pace of adoption among the population remains modest. Understanding the factors that drive or hinder this adoption is therefore of considerable academic and practical relevance.

Digital culture, defined as the set of values, attitudes, skills, habits, and autonomous learning dispositions shaped by immersion in digital environments, has been widely discussed in the literature as a potential driver of technology adoption. Alongside it, technological maturity has emerged as a critical determinant of individual's willingness and ability to engage with digital financial services. In this study, technological maturity is understood at two complementary levels: user technological maturity, which encompasses equipment, experience, and psychological readiness, and platform technological maturity, which refers to the reliability, security, and functional richness of the digital service itself.

Despite the growing body of research on FinTech adoption, a significant scientific gap persists in the existing literature. Three critical limitations can be identified. First, the vast majority of studies examine digital culture and technological maturity as separate constructs, without investigating their combined influence within a single empirical framework. Second, when platform-level maturity is assessed, it is typically reduced to basic usability and security criteria, overlooking more advanced dimensions such as interoperability, Scalability, traceability, and technical compatibility. Third, the existing literature reveals a marked scarcity of empirical research situated in North Africa, and Algeria in particular has been largely overlooked in the

FinTech adoption research landscape, despite its specific digital infrastructure, regulatory environment, and user habits. The present research directly addresses these three gaps by proposing an integrated model that simultaneously examines user digital culture, user technological maturity, and perceived platform technological maturity as joint determinants of FinTech adoption, operationalised through a ten-criteria grid, and tested in the Algerian banking context using a concurrent mixed-methods design.

This research seeks to bridge this gap by investigating the impact of digital culture and technological maturity on the adoption of FinTech services, with CPA Bank Algeria serving as the primary case study. By examining both user-side factors: digital culture and user technological maturity and platform-side factors, perceived platform technological maturity, this study aims to provide a comprehensive understanding of the adoption dynamics at play in the Algerian Banking context.

1. Objectives of the Research

This research aims to:

- Examine the influence of digital culture on the adoption of FinTech services among Algerian banking clients
- Assess the role of user technological maturity as a driver of FinTech adoption
- Evaluate the impact of perceived platform technological maturity on users' adoption behavior
- Investigate the indirect pathways through which digital culture and user technological maturity influence FinTech adoption
- Provide actionable insights for banking institutions and policymakers seeking to accelerate digital financial inclusion in Algeria

2. Research Problem

This part presents the main research questions and hypotheses developed based on the theoretical framework and the objectives of the study.

2.1 Research Questions

Based on the context outlined above, the central research question is formulated as follows:

- To what extent do digital culture and technological maturity influence the adoption of FinTech services among Algerian banking clients?

Derived from this primary question, the following secondary questions guide the investigation:

- To what degree does digital culture influence the adoption of FinTech services?
- How does user technological maturity affect individual's propensity to adopt FinTech services?
- In what ways does the perceived technological maturity of a platform shape user's adoption behavior?
- Does digital culture contribute to shaping user's perception of platform technological maturity?
- Does user technological maturity influence the perceived technological maturity of FinTech platforms?

2.2 Research Hypotheses

Drawing on the theoretical framework developed in the literature review and the conceptual model adopted for this study, the following hypotheses are formulated:

H1: Digital culture has a significant positive influence on the adoption of FinTech services

H2: User technological maturity has a significant positive influence on the adoption of FinTech services

H3: Perceived platform technological maturity has a significant positive influence on the adoption of FinTech services

H4: Digital culture has a significant positive influence on perceived platform technological maturity

H5: User technological maturity has a significant positive influence on perceived platform technological maturity

These hypotheses will be tested within a structural equation model (PLS-SEM).

3. Methodology

In order to address the established research problem, this study adopts a mixed-methods research design combining quantitative and qualitative approaches. The quantitative component is based on a structured questionnaire administered to a sample of 204 Algerian banking clients, analyzed using SPSS 26 for descriptive statistics and reliability testing, and SmartPLS for Partial Least Squares Structural Equation Modeling (PLS-SEM). The qualitative component consists of two semi-structured interviews conducted with employees of CPA Bank, analyzed using NVivo. This methodological triangulation enables a comprehensive and nuanced examination of the research questions from both a statistical and an interpretive perspective.

4. Structure of the Thesis

This thesis is organized as follows:

The Introduction presents the research context, problematic, research questions, objectives, hypotheses, and methodological approach. Chapter I reviews the relevant literature on digital culture, technological maturity, and FinTech adoption, and presents the conceptual model and theoretical foundations of the study, Chapter II describes the methodological framework adopted, including the research design, data collection instruments, sampling strategy, and an overview of the case study organization CPA Bank Algeria, Chapter III presents and discusses the results of both the quantitative and qualitative analyses, followed by a triangulation of findings and a discussion of their theoretical and managerial implications, and the Conclusion synthesizes the main findings of the study, highlights its contributions, acknowledges its limitations, and proposes avenues for future research

CHAPTER I: THEORITICAL FRAME

Section 1: Literature Review

The adoption of digital financial services has become a central topic in recent years, particularly with the rapid development of financial technologies (FinTech). A substantial number of studies have examined the factors influencing users' intention to adopt these technologies across different contexts. While this body of literature provides important insights into user behavior, it remains largely focused on traditional determinants such as perceived usefulness, ease of use, trust, and perceived risk. In contrast, deeper dimensions such as digital culture and technological maturity both at the individual and institutional levels remain insufficiently explored. In fact, a careful review of existing studies shows that very few works explicitly address digital culture as a structured concept, and even fewer examine technological maturity beyond basic technological characteristics. More importantly, no study has comprehensively analyzed the combined effect of these two dimensions on FinTech adoption, which highlights a significant gap in the literature.

1. Factors Influencing the FinTech Adoption

FinTech adoption has been widely studied across different contexts, with a large number of empirical studies aiming to identify the key factors influencing individuals' intention to use digital financial services. Research conducted in Asian countries such as Malaysia, Bangladesh, and Pakistan shows that perceived usefulness and perceived ease of use are among the most significant determinants of adoption. Using a quantitative survey of bank customers and applying regression analysis, a study in Pakistan found that behavioral biases such as risk aversion and overconfidence negatively affect adoption, while financial literacy helps mitigate these effects (Rehan Aftab, 2025). Users in these contexts tend to adopt FinTech services when they perceive them as efficient, practical, and capable of simplifying financial transactions. In addition, these studies highlight that individuals who are more familiar with digital tools, such as mobile applications and online platforms, are more likely to engage with FinTech services. A study in Bangladesh using structural equation modeling confirmed that perceived usefulness and perceived ease of use are strong predictors of adoption (Mahfuzur Rahman, 2024). Similarly, research in Malaysia using survey data from mobile banking users found that trust and perceived security also play significant roles (Mahmud Akhter Shareef, 2018) While these findings clearly reflect the role of digital culture, most of these studies limit their analysis to observable variables such as usage frequency, without fully exploring the broader behavioral and cultural dimensions of digital engagement. A common limitation across these Asian studies

is their cross-sectional design, which prevents causal conclusions, and their reliance on self-reported data, which may introduce social desirability bias.

In South Korea, studies focusing on different age groups, particularly older individuals, show that FinTech adoption is strongly influenced by prior experience with technology, ownership of digital devices, and frequency of internet usage. Using secondary panel data from the Korea Media Panel Survey (2019–2020) covering 3,465 elderly mobile phone owners, a study found that technology usage time, ICT experience, and number of digital devices owned are the strongest predictors of adoption (Yunwoo Choi, 2024). The analysis, based on regression methods, also showed that women and individuals living in multi-generation households are more likely to adopt FinTech services, while those aged 65 and above show lower adoption levels than those aged 50–64. Individuals who have developed a certain level of technological familiarity are more likely to adopt digital financial services, while those with limited exposure face greater difficulties. These findings suggest that age alone is not a determining factor; rather, it is the level of digital experience that shapes adoption behavior. However, many studies continue to treat age as a direct determinant, without linking it to the concept of digital culture, which limits the depth of analysis. A major limitation of this study is that it relied on secondary data that lacked psychological variables such as self-efficacy and peer influence, and it excluded older adults without mobile phones, limiting generalizability (Yunwoo Choi, 2024).

In developing regions, including several African countries such as Ghana, Nigeria, Kenya, South Africa, and across a sample of 36 Sub-Saharan African countries, studies emphasize the importance of access to technology and digital infrastructure in facilitating FinTech adoption. Using a quantitative survey of FinTech users in four Sub-Saharan African countries and applying PLS-SEM and fuzzy-set Qualitative Comparative Analysis (fsQCA), a study found that perceived benefits (economic benefit, convenience, performance expectancy) are the strongest drivers of adoption, while legal, security, and privacy risks act as barriers (Thomas Appiah, 2025). Trust was found to mediate the relationship between risk factors and adoption, reducing the negative impact of perceived risks. Another study using micro-level data from the World Bank Global Findex survey (2021) across 36 Sub-Saharan African countries and employing machine learning algorithms (XGBoost, Random Forest) found that formal account ownership and mobile phone ownership are the strongest predictors of FinTech adoption (Salim Saidy, 2025). Income, education, and age showed significant but varying effects, with ensemble machine learning models outperforming traditional econometric methods. Access to mobile phones, internet connectivity, and digital platforms significantly increases the likelihood of

adoption, particularly among unbanked populations. In these contexts, FinTech services often serve as alternatives to traditional banking systems. A meta-analysis covering Sub-Saharan Africa, which synthesized 67 quantitative studies using random-effects models, further confirms that perceived ease of use and perceived usefulness have the strongest effects (effect size 0.47), while financial literacy and mobile skills also play key roles (Lars Hornuf, 2025). However, research also shows that limited digital literacy and lack of familiarity with digital tools remain major barriers. While these studies highlight important structural challenges, they tend to focus primarily on access and availability, without examining how digital culture develops over time and influences user behavior. Limitations of the Sub-Saharan African studies include the cross-sectional design, the exclusion of grey literature, and a strong geographic concentration on only a few countries (Ghana, Nigeria, Kenya, South Africa), which limits generalizability to other African regions. (Thomas Appiah, 2025)

In European countries such as Italy and in other emerging economies, research on FinTech adoption highlights the role of trust, perceived risk, and security. Using a quantitative survey of 465 Italian FinTech users and applying structural equation modeling (SEM), a study found that perceived usefulness, perceived security, trust, and social influence significantly affect continuance intention, with perceived security being the strongest predictor (Luana Serino, 2025). Perceived ease of use had no significant effect, likely because the sample was dominated by digitally skilled students. Users are more likely to adopt digital financial services when they perceive them as secure and reliable, while concerns related to fraud and data privacy can hinder adoption. In addition, personal innovativeness is identified as a key factor, as individuals who are more open to new technologies tend to adopt FinTech services more quickly. A study in the tourism sector using an extended TAM model and survey data from 462 tourists found that perceived usefulness, perceived ease of use, perceived risk, and user innovativeness all significantly influence attitude toward FinTech, which in turn drives behavioral intention (Luong Thuy Tien, 2026). However, these studies often analyze trust and risk perception as independent variables, without considering how they are influenced by the user's level of digital exposure and technological familiarity. A study in Pakistan using regression analysis confirmed that behavioral biases negatively affect adoption, but financial literacy moderates this relationship (Muhammad Akhtar, 2024). Limitations of these European and emerging economy studies include the use of convenience samples (mostly students), which limits generalizability to older or less tech-savvy populations, and the cross-sectional design, which cannot capture dynamic adoption patterns.

From a technological perspective, studies conducted across different regions show that the quality of digital platforms, system reliability, and service performance are critical for FinTech adoption. Financial institutions that offer user-friendly, secure, and efficient platforms are more likely to attract users. In countries with more advanced digital infrastructures, adoption rates tend to be higher due to better accessibility and performance of FinTech services. These findings reflect the importance of technological maturity at the institutional level. A global index-based study using principal component analysis and log-log regression found that innovation and digital adoption are strongly interconnected, but FinTech development depends more on overall financial system development than on these two factors alone, with high-income countries leading in all dimensions (Syed Kumail Abbas Rizvi, 2024). Limitations of this study include the cross-sectional nature of the data and the reliance on aggregate indices, which may not capture country-specific nuances. While existing research often evaluates technological maturity using basic indicators such as usability and security, the present study adopts a broader multidimensional approach. Technological maturity is understood here as comprising ten criteria: reliability, stability, speed of execution, availability of advanced features, security, ergonomics, evolutivity (regular updates), interoperability, technical compatibility, and traceability. This conceptualization allows for a more detailed assessment of how platform-level technological maturity influences FinTech adoption, complementing the user-focused dimensions of digital culture and technology readiness.

Cross-country studies further indicate that FinTech adoption varies depending on economic development, regulatory frameworks, and cultural contexts. For instance, a configurational analysis of 30 countries (2020) and 28 countries (2021) using fuzzy-set Qualitative Comparative Analysis (fsQCA) shows that high FinTech adoption occurs only when innovation, technology, entrepreneurship, and economic development are all strong simultaneously (Kun-Huang Huanng, 2022). No single factor is sufficient; rather, combinations of conditions produce high adoption. Developed countries benefit from advanced digital ecosystems that facilitate adoption, while developing countries face challenges related to infrastructure and digital literacy. A global synthesis focusing on older adults, which combined a systematic literature review (PRISMA protocol), bibliometric analysis, and content analysis of 55 influential articles, found that digital literacy, trust, perceived usefulness, and social influence are key enablers, while anxiety, perceived risk, and limited technological skills are barriers (Molnar Mark-Denis, 2025). The review also revealed that research remains concentrated in developed countries such as the United States, China, and Australia, with

limited coverage of developing regions. A cross-country study in the Middle East using survey data and structural equation modeling confirmed that trust and perceived security are critical for FinTech adoption, but cultural factors moderate these relationships (Hawazen Alamoudi, 2024). Despite these differences, many studies remain context-specific and do not provide detailed comparisons between countries with similar characteristics. This limits the ability to generalize findings and to understand how digital culture and technological maturity interact across different environments. Common limitations across cross-country studies include the short time span of data (often one or two years), the lack of longitudinal designs, and the difficulty of disentangling cultural, institutional, and economic influences.

Overall, the literature reviewed demonstrates that FinTech adoption is influenced by a wide range of factors, including individual characteristics (perceived usefulness, ease of use, trust, innovativeness, financial literacy, digital experience), technological factors (platform reliability, security, performance, ergonomics, interoperability), and contextual conditions (digital infrastructure, regulatory frameworks, economic development). What emerges clearly from these studies is the importance of users' digital familiarity and technological readiness. Studies from Asia, Africa, and Europe consistently show that individuals who are more comfortable with digital tools, who own multiple devices, and who have prior experience with technology are significantly more likely to adopt FinTech services. Similarly, research focusing on institutional aspects reveals that the quality, security, reliability, and ease of use of digital platforms play a crucial role in building user trust and encouraging adoption. Several studies have also examined dimensions such as system stability, speed, compatibility, and traceability, which are close to the technological maturity criteria adopted in the present research. However, across all these studies, two important dimensions are almost always examined separately. Digital culture understood as the set of values, habits, and practices related to digital technology use, is often studied in isolation from the technological characteristics of the platforms themselves. Likewise, the technological maturity of financial institutions is rarely analyzed together with the digital culture of users. More importantly, very few studies have attempted to bring these two dimensions into a single empirical framework. Furthermore, the vast majority of existing research has been conducted in Asian, European, or Sub-Saharan African contexts, with little attention to North African countries such as Algeria, where digital infrastructure and user habits present specific characteristics. The present research aims to address this gap by examining how both user digital culture and perceived technological maturity influence

FinTech adoption, specifically in the context of an emerging market such as Algeria, where digital transformation is still in progress.

2. Factors influencing Mobile Banking Adoption

Mobile banking represents one of the most important applications of FinTech and is often considered a practical manifestation of digital financial services. As a result, many studies on FinTech adoption are closely linked to mobile banking usage, since it is the most accessible and widely used digital financial tool. However, despite this strong connection, the same limitations observed in the broader FinTech literature persist in mobile banking studies, particularly the lack of explicit consideration of digital culture and technological maturity as integrated factors.

In Asian countries such as Malaysia, Bangladesh, and India, studies on mobile banking adoption consistently show that perceived usefulness and perceived ease of use are among the most significant determinants (Mahfuzur Rahman, 2024) (Charles Jebarajakirthy, 2021) (Mahmud Akhter Shareef, 2018). In India, using a quantitative survey and covariance-based structural equation modeling on 446 banking customers, convenience dimensions such as access, transaction, benefit, and post-benefit convenience were found to positively affect adoption intention, with hedonic and utilitarian values mediating these relationships (Charles Jebarajakirthy, 2021). However, the study is limited by its cross-sectional design and exclusive focus on Indian users. In Malaysia, during the COVID-19 pandemic, a study using PLS-SEM on 270 millennials found that performance expectancy, effort expectancy, trust, and personal innovativeness positively influence mobile banking adoption, with performance expectancy being the strongest predictor, while social influence, facilitating conditions, and perceived risk had no significant effect; the model explained 61% of the variance (Mahfuzur Rahman, 2024). Limitations include convenience sampling and the pandemic-specific context, which may not reflect normal conditions. In Bangladesh, researchers using structural equation modeling on 201 mobile banking users examined adoption across three stages (static, interaction, transaction) based on the General Adoption Model (Mahmud Akhter Shareef, 2018). They found that at the static stage, perceived functional benefit is the main driver; at the interaction stage, perceived information quality dominates; and at the transaction stage, security becomes the most critical factor. The study is limited by its focus on a single developing country and the exclusion of demographic and cultural moderators. Users in these contexts tend to adopt mobile banking services when they perceive them as practical tools that simplify financial transactions and save time. Research in these regions also indicates that application design, clarity of

interface, and ease of navigation play a critical role in shaping user experience. However, while these studies provide detailed insights into usability factors, they largely focus on immediate user perceptions and do not fully explore how repeated interaction with digital applications contributes to the development of long-term digital habits, which is a central component of digital culture.

In South Korea, studies focusing on older populations reveal that mobile banking adoption is strongly influenced by prior experience with digital technologies, ownership of smart devices, and frequency of internet usage. Older individuals who have been previously exposed to digital environments are more likely to adopt mobile banking, while those with limited technological experience face significant barriers (Yunwoo Choi, 2024). These findings highlight that age alone is not a determining factor; rather, it is the level of technological familiarity that shapes adoption behavior. Despite this, many studies continue to treat age as a direct variable without sufficiently linking it to digital culture, thereby overlooking the role of accumulated digital experience over time.

In African countries, where access to traditional banking services is often limited, mobile banking adoption is frequently driven by necessity. Studies conducted in contexts such as Cameroon and Uganda show that mobile banking serves as an alternative to physical banking infrastructure, enabling financial inclusion for previously unbanked populations. In Cameroon, an econometric study using Probit models on 1,000 individuals from the 2017 Global Findex Survey found that socio-economic factors such as education, income, and mobile phone ownership significantly influence adoption, while age negatively affects it (Steve Douanla Meli, 2022). However, the study ignores psychological and service-specific factors such as perceived ease of use, cost, and security. In Uganda, a study using Process Macro regression on 480 agri-entrepreneurs found that institutional factors including awareness, training, and user protection are critical, with perceived usefulness mediating these effects (Jackson Abandu, 2025). The cross-sectional design and focus on a single agricultural region limit generalizability. Access to mobile phones and basic digital services is identified as a key enabler of adoption. However, these studies also point out that limited digital literacy and lack of familiarity with digital interfaces can restrict effective usage, even when access is available. While these findings implicitly relate to digital culture, the majority of research in these regions focuses primarily on infrastructure and accessibility, without deeply analyzing how users develop confidence, trust, and habitual use of mobile banking over time.

From a technological perspective, studies across multiple regions highlight the importance of system quality, service reliability, and application performance in mobile banking adoption. In the United States, a study using ordinal logistic regression and latent class analysis on 20,758 adults from the 2021 National Financial Capability Study found that subjective financial literacy (confidence) positively predicts mobile banking and payment services use, while objective financial literacy and positive financial behaviors are negatively associated (Gaurav R. Sinha, 2025). Three distinct user classes were identified, and the study emphasizes that subjective perceptions and digital engagement can be more influential than objective financial knowledge. Limitations include the U.S.-specific context and the cross-sectional design. Research shows that users are more likely to adopt mobile banking when applications are fast, stable, and easy to use. Features such as real time transactions, account management, and user friendly interfaces enhance perceived value and encourage continued usage (Gaurav R. Sinha, 2025). In rural China, a study using a binary probit model on 1,291 rural households found that mass communication (TV, radio, Internet) and interpersonal communication (friends, relatives) positively affect mobile banking adoption, with marginal effects of 10.6% and 7.1% respectively (Qianyu Zhu, 2022). Individual characteristics such as being female, younger, more educated, and proficient with electronic devices also increase adoption. A limitation is that the findings may not generalize to urban or non-Chinese contexts. In Ethiopia, a study using regression analysis on 361 customers of the Commercial Bank of Ethiopia found that ease of use, compatibility, accessibility, and perceived usefulness significantly influence e-banking adoption, while security concerns and attitude have no significant effect (Samuel Godadaw Ayinaddis, 2025). The model explained 55.6% of the variance. Limitations include focus on one bank and exclusion of cost due to multicollinearity.

However, similar to the broader FinTech literature, technological maturity in mobile banking is often evaluated using limited criteria. Most studies focus on basic aspects such as usability and security, while more advanced dimensions such as integration with other financial platforms, interoperability between services, and the use of innovative technologies are rarely examined. As a result, the concept of technological maturity remains underdeveloped, and its full impact on mobile banking adoption is not adequately captured.

Cross country comparisons further reveal that mobile banking adoption varies significantly depending on the level of economic development and digital readiness (Hawazen Alamoudi, 2024) (Lars Hornuf, 2025). In developed countries, where digital ecosystems are well established, users benefit from highly efficient and secure mobile banking services, leading to

higher adoption rates (Gaurav R. Sinha, 2025). In contrast, in developing countries such as Ethiopia, adoption is often constrained by infrastructural challenges and lower levels of digital literacy. However, despite these differences, many studies remain limited to single-country analyses and do not provide comprehensive comparisons between similar regions. This restricts the ability to understand how mobile banking adoption evolves across different environments, particularly in relation to digital culture and technological maturity.

The studies reviewed confirm that mobile banking adoption is influenced by convenience dimensions, performance and effort expectancy, trust, personal innovativeness, information quality, security, socio-economic factors, communication channels, and institutional support. Methodologically, most rely on cross-sectional survey data analyzed through structural equation modeling or regression techniques, which limits causal inference. Geographically, the literature covers Asia, Africa, and North America, but no study focuses on North African contexts such as Algeria. Furthermore, while individual-level factors and platform-level characteristics are examined separately, very few studies integrate both perspectives. Notably, digital culture is often treated indirectly through variables such as digital literacy and experience, and technological maturity is commonly measured using basic usability and security features. The interaction between users' digital readiness and the technological development of banking systems remains insufficiently explored.

In this context, analyzing mobile banking adoption through the combined lens of digital culture and technological maturity offers a more comprehensive understanding of user behavior. It allows for the examination of not only how individuals perceive and use mobile banking services, but also how the level of technological advancement of these services influences their adoption. This perspective is essential for understanding the dynamics of digital financial services, particularly in environments where both user capabilities and technological infrastructures are still evolving.

3. The Role of Digital Literacy and Digital Culture in Fintech Adoption:

Very few studies explicitly use the term "digital culture" as a structured concept. Most research instead employs related terms such as digital literacy, digital financial literacy, digital skills, digital experience, or cybersecurity awareness. The following review synthesizes studies that capture the essential dimensions of digital culture: the knowledge, skills, habits, and attitudes that enable individuals to effectively use digital financial services.

In India, a study using structural equation modeling complemented by an artificial neural network was conducted on 600 FinTech users from seven major regions of Rajasthan, targeting Millennials and Generation Z (Mohamed Cherif El Amri, 2026). The research employed a non-probability judgmental sampling method and examined the mediating role of digital literacy and cybersecurity awareness between financial literacy and FinTech adoption. The results confirmed that financial literacy has a strong direct effect on FinTech adoption. In addition, digital literacy and cybersecurity awareness act as sequential mediators, meaning that financial literacy influences adoption both directly and indirectly through these digital competencies. The model explained a substantial portion of the variance in adoption behavior. However, the study is limited by its geographic focus on Rajasthan, which restricts generalizability to other Indian regions or countries with different socio-economic conditions. The cross-sectional design also prevents causal conclusions, and the reliance on self-reported data may introduce response bias.

In Indonesia, a study focusing on young adults aged 18 to 35 in South Sulawesi examined the impact of digital financial literacy on financial decision-making, with FinTech adoption as a mediator and financial risk tolerance as a moderator (Salzakina Wa'dah. R, 2026). Using PLS-SEM on 250 valid responses, the research found that digital financial literacy positively influences both financial decision-making and FinTech adoption. FinTech adoption partially mediates the relationship between digital financial literacy and financial decision-making. Furthermore, financial risk tolerance moderates this relationship, with the effect being stronger among individuals with higher risk tolerance. The model explained a substantial proportion of the variance in financial decision-making. Limitations include the cross-sectional design, which does not capture changes over time, and the geographic restriction to South Sulawesi, which limits generalizability to other regions of Indonesia or Southeast Asia.

In the United States, a study using secondary data from a national survey of 2,211 adults examined the influence of digital financial literacy on mobile banking adoption (Syed Kumail Abbas Rizvi, 2024). The research also utilized data from the Capital One Insight Center based on an anonymous survey of 3,000 randomly selected consumers. The results showed that approximately 55% of Americans are considered digitally financially literate. Digital financial literacy influences not only the decision to adopt mobile banking but also the frequency and complexity of usage. Younger consumers were found to have higher digital literacy but lower financial literacy, while older consumers demonstrated stronger financial knowledge combined with increasing digital competence. The study is based on survey and secondary data, which

may introduce self-report bias, and the findings may not generalize to countries with different digital infrastructure or regulatory environments.

In Indonesia, specifically in the Jabodetabek region, a study using multiple linear regression on 210 bank customers examined the influence of financial literacy and digital literacy on mobile banking adoption (Varania Pambagyo Sabila, 2024). The research measured adoption through three dimensions: perceived ease of use, perceived usefulness, and relative advantage. The results showed that both financial literacy and digital literacy have significant positive effects on mobile banking adoption. Digital literacy demonstrated a stronger influence than financial literacy, particularly on relative advantage, followed by perceived ease of use and perceived usefulness. The sample was largely composed of young, educated individuals under 25 years old, which limits the generalizability of the findings to other age groups and income levels. The use of convenience sampling also restricts representativeness.

In Jordan, a study using PLS-SEM on 463 millennials investigated the role of financial literacy and digital literacy in FinTech usage, with gender as a moderating variable (Aljaafreh, 2025). The research employed a structured online questionnaire and convenience sampling. The results showed that both financial literacy and digital literacy have positive and significant effects on FinTech usage, with digital literacy having a stronger influence. The model explained a substantial portion of the variance in FinTech usage. Gender was not found to have a significant moderating effect, indicating that men and women adopt FinTech similarly within this millennial sample. Limitations include the geographic focus on Jordan, which reduces generalizability to other cultural contexts, and a sample dominated by women, which may affect response diversity. The cross-sectional design also limits the ability to observe behavioral changes over time.

In Türkiye, a study using structural equation modeling on 320 respondents examined the relationship between digital financial literacy and personal experience with digital payment adoption (Mohamed Cherif El Amri, 2026). The research measured four constructs: personal experience as the dependent variable, and access to digital financial services, beliefs about digital financial services, and safety measures as independent variables. The results showed that all three independent variables have positive and significant effects on personal experience. Access to digital financial services, positive beliefs about usefulness and efficiency, and strong safety practices all contribute to a favorable user experience. The model demonstrated strong explanatory power. However, the study relies on cross-sectional self-reported data, which may

introduce bias, and the findings are limited to the Turkish context, reducing generalizability to other countries with different financial systems or cultural environments.

In Ethiopia, a study using regression and mediation analysis on 289 mobile banking users in Addis Ababa examined the mediating role of digital literacy between perceived usability and mobile banking adoption (LEYKUN, 2026). Data were collected from five major commercial banks using a structured questionnaire. The results showed that usability significantly influences adoption, and digital literacy significantly mediates this relationship. In other words, usability affects adoption both directly and indirectly through users' digital literacy skills. The combined model explained a high proportion of the variance in adoption behavior. Limitations include the reliance on self-reported data, which may not reflect actual behavior, the geographic focus on Addis Ababa, which limits generalizability to other regions of Ethiopia, and the exclusion of external factors such as institutional policies and economic conditions.

The studies reviewed confirm that digital literacy, digital financial literacy, and related concepts significantly influence FinTech and mobile banking adoption. Individuals with higher digital skills, stronger financial knowledge are more likely to adopt and effectively use digital financial services. The evidence shows that digital literacy often has a stronger impact than financial literacy alone, and that it mediates the relationship between usability and adoption. Methodologically, most studies rely on cross-sectional survey data analyzed through structural equation modeling or regression techniques, which limits causal inference and may introduce self-report bias. Geographically, the literature covers Asia (India, Indonesia, Jordan, Türkiye), Africa (Ethiopia), and North America (the United States), but no study focuses on North African contexts such as Algeria. Furthermore, while these studies measure digital literacy as a set of skills and knowledge, none explicitly operationalise digital culture as a multidimensional construct that includes not only skills but also values, habits, attitudes, and confidence in using digital technologies.

4. The Influence of Technological Maturity and Technology Readiness on Fintech

Adoption:

Very few studies explicitly use the term "technological maturity" as a structured concept. Most research instead employs related terms such as technology readiness, organizational readiness, digital maturity, or technological compatibility. The following review synthesizes studies that capture two complementary dimensions: the technological maturity of banking institutions and the technology readiness of individual users.

4.1 Technological Maturity of Banking Institutions:

In Jordan, a study using structural equation modeling on survey data from 215 managers and department heads in commercial banks examined the impact of TOE factors (relative advantage, top management support, competitive pressure, and technological compatibility) on FinTech adoption and financial performance, with organizational readiness as a moderator (Ahmad Marei, 2023). Data were collected through an online questionnaire distributed between January and March 2023. The results showed that relative advantage, top management support, and competitive pressure have significant positive effects on FinTech adoption, while technological compatibility did not have a significant impact. FinTech adoption was found to have a strong positive effect on financial performance. The model explained a substantial proportion of the variance in both FinTech adoption and financial performance. Organizational readiness was found to strengthen the relationship between technological compatibility and competitive pressure with FinTech adoption, but it did not moderate the relationships involving relative advantage or top management support. The study is limited by its geographic focus on Jordanian commercial banks, which restricts generalizability to other countries or financial systems. The cross-sectional design and reliance on self-reported manager perceptions may also introduce bias.

In France, a doctoral thesis developed a comprehensive model for measuring the digital maturity of banking actors, called BIMM (Bank Internet Maturity Model) (Fayon, 2018). The model was constructed by adapting an existing generic model (DIMM) to the specificities of the banking sector. The methodology combined a qualitative expert survey (248 respondents), a quantitative user survey on expectations (301 respondents), and a proof of concept related to contactless mobile payment. The results showed that users prefer mobile applications while still valuing human contact, and that security expectations are high while data exploitation for commercial purposes generates strong reluctance. The study is limited by its focus on the French context, which may not generalize to other countries, and by the inherent arbitrariness in selecting axes and indicators. Comparability between different types of banking actors also remains challenging.

4.2 Technology Readiness of Users:

In the United States, a study using structural equation modeling on 258 mobile banking users examined the moderating role of technology readiness dimensions (optimism, innovativeness, discomfort, insecurity) on the relationship between customer satisfaction and loyalty (Hien Ho,

2025). Data were collected through an online questionnaire distributed to university business students. The results showed that customer satisfaction has a strong positive effect on loyalty, explaining a substantial proportion of the variance. Optimism and innovativeness were found to strengthen the relationship between satisfaction and loyalty, while discomfort and insecurity weakened it. The study is limited by its reliance on self-reported data, a sample mainly composed of American students which limits generalizability, and its cross-sectional design which prevents causal conclusions.

In Indonesia, a study using PLS-SEM on Generation Z respondents in the Greater Jakarta area examined the influence of technology readiness and financial literacy on FinTech utilization and financial planning, with financial planning as a mediator (Sonny Francisco Siboro, 2025). Data were collected through structured questionnaires from respondents who had already used FinTech services. The results showed that technology readiness has a strong positive influence on both FinTech utilization and financial planning, while financial literacy also has positive but weaker effects. Financial planning was found to partially mediate the relationship between technology readiness and FinTech utilization, but it did not mediate the relationship between financial literacy and FinTech utilization. The model demonstrated strong explanatory power. The study is limited by its focus on Generation Z in a single Indonesian region, its cross-sectional design, and the use of self-reported data.

In Sri Lanka, a study using multiple regression and the Sobel test on 172 commercial banking customers examined the influence of technology readiness on digital banking adoption, with behavioral intention as a mediator (Tennakoon, 2024). Data were collected through an online questionnaire focusing on the Western Province. The results showed that technology readiness among Sri Lankan banking customers is moderate. Optimism and innovativeness have a strong positive influence on actual usage, while discomfort and insecurity show only moderate influence. Behavioral intention was found to have a strong positive relationship with actual usage, but it did not significantly mediate the overall relationship between technology readiness and actual usage. However, behavioral intention did mediate the relationships between optimism and actual usage, and between innovativeness and actual usage. The study is limited by its geographic focus on the Western Province of Sri Lanka, the use of convenience sampling, and the exclusion of rural areas.

In Indonesia (East Kalimantan), a study using PLS-SEM on 600 mobile banking users examined the interplay between innovation resistance, technology readiness, adoption, satisfaction, and continuance intention (Darayani Annisa Nuramalina, 2025). Data were

collected through a structured questionnaire across urban, semi-urban, and rural areas. The results showed that innovation resistance has a significant negative effect on adoption, satisfaction, and continuance intention, while technology readiness has a significant positive effect on these variables. Adoption was found to positively influence satisfaction, and satisfaction strongly influences continuance intention. Adoption and satisfaction were identified as important mediators. Satisfaction emerged as the strongest predictor of continuance intention. The study is limited by its cross-sectional design, its geographic restriction to East Kalimantan, and the reliance on self-reported survey data. The model also did not include other potentially important variables such as trust, switching costs, or service quality.

The studies reviewed confirm that technological maturity, whether measured at the institutional level (organizational readiness, digital maturity models) or at the user level (technology readiness), plays a significant role in FinTech and mobile banking adoption. For banking institutions, factors such as relative advantage, top management support, competitive pressure, and organizational readiness influence adoption and financial performance. For users, technology readiness dimensions such as optimism and innovativeness facilitate adoption and loyalty, while discomfort and insecurity act as barriers. Methodologically, most studies rely on cross-sectional survey data analyzed through structural equation modeling, which limits causal inference and may introduce self-report bias. Geographically, the literature covers Asia (Jordan, Indonesia, Sri Lanka), Europe (France), and North America (the United States), but no study focuses on North African contexts such as Algeria. Furthermore, very few studies integrate both institutional technological maturity and user technology readiness within a single framework.

Across the body of research reviewed, several consistent findings emerge. Perceived usefulness, ease of use, trust, security, and social influence are repeatedly confirmed as significant drivers of FinTech and mobile banking adoption. Digital literacy and technology readiness particularly optimism and innovativeness positively influence adoption, while discomfort, insecurity, and limited digital skills act as barriers. Institutional factors such as organizational readiness, top management support, and platform quality also play important roles. These studies have collectively built a solid foundation for understanding what shapes users' willingness to adopt digital financial services.

However, despite the breadth and diversity of these investigations, several critical limitations persist across the majority of them. The first concerns methodology. Nearly all studies rely on cross-sectional survey data analysed through structural equation modelling or regression

techniques. While this approach is useful for identifying associations, it cannot establish causal relationships. The absence of longitudinal or experimental designs means that the dynamic evolution of digital culture, technological maturity, and adoption behavior over time remains largely unexplored. Furthermore, the heavy reliance on self-reported data introduces risks of social desirability bias, overestimation of digital skills, and common method variance.

The second limitation is geographic. The existing research covers Asia (India, Indonesia, Malaysia, Bangladesh, China, Jordan, Türkiye, Sri Lanka), Europe (France, Italy), North America (the United States), and parts of Sub-Saharan Africa (Ghana, Nigeria, Kenya, South Africa, Cameroon, Uganda, Ethiopia). However, North Africa, and Algeria in particular, is almost entirely absent. No study in this review was conducted in an Algerian context. This is a significant gap, given the region's distinct digital infrastructure, regulatory environment, and user habits. The present research directly addresses this gap by focusing on an Algerian bank and its clients.

The third limitation concerns the conceptualisation of digital culture. Although many studies use terms such as digital literacy, digital financial literacy, or digital skills, none explicitly operationalise digital culture as a multidimensional construct that includes not only skills but also values, habits, attitudes, and confidence towards digital technologies. Digital culture is often reduced to frequency of internet use or ownership of devices. This narrowness limits the explanatory power of existing models. The present research adopts a broader, more holistic definition of digital culture, measured through multiple items covering habits, problem-solving, curiosity, and attitudes.

The fourth limitation relates to technological maturity. The studies reviewed are split into two largely separate streams: institutional maturity (organisational readiness, digital maturity models, TOE factors) studied from the perspective of managers and banks, and user technology readiness (optimism, innovativeness, discomfort, insecurity) studied from the perspective of individual consumers. Very few studies bring these two streams together. Moreover, when platform-level maturity is assessed, it is typically limited to basic usability and security features. More advanced dimensions such as interoperability, evolutivity, traceability, and compatibility across devices are rarely examined. The present research addresses this by proposing a ten-criteria grid that captures a richer set of platform maturity dimensions and applies the same grid to both client perceptions and employee assessments, thereby bridging the institutional and user perspectives.

The fifth and most striking gap is that no study in this review simultaneously examines the combined influence of user digital culture and perceived platform technological maturity on FinTech adoption. These two dimensions are almost always studied in isolation. The present research is specifically designed to fill this gap by integrating both sets of variables within a single mixed-methods framework.

Finally, while most existing studies are purely quantitative, the present research adopts a concurrent mixed-methods design, combining a client questionnaire with semi-structured employee interviews. This allows triangulation of client perceptions and employee assessments, providing a more complete and nuanced understanding than either method alone.

In summary, the existing body of research provides a solid foundation but suffers from geographic concentration (absence of North Africa), conceptual fragmentation (digital culture reduced to skills, technological maturity split into two streams), methodological uniformity (cross-sectional, self-report surveys), and a persistent lack of integration between user and platform perspectives. The present research is positioned to address these gaps by focusing on the Algerian context, adopting a multidimensional view of digital culture and technological maturity, using a ten-criteria grid for platform assessment, and employing a mixed-methods design that integrates client and employee perspectives. (*Appendix 1: Literature Review synthetic table*)

Section 2: Theoretical Framework

presents the theoretical framework of the study. It reviews the main concepts and theories related to FinTech adoption, digital culture, and technological maturity. This section also highlights the relationships between the study variables and provides the theoretical foundations supporting the research model and hypotheses.

1. Financial Technology (FinTech)

Financial technologies have experienced significant growth in recent years and have become increasingly integrated into banking activities and financial services.

1.1 Definitions of FinTech

The term FinTech is a contraction of Financial Technology, has been defined from multiple perspectives across academic and institutional literature. Despite the absence of a single universally accepted definition, a convergence exists around the idea that FinTech refers to the

application of technology to innovate, improve, and transform the delivery of financial services. Table 1 below presents a synthesis of the most widely cited definitions.

Table 1: Definitions of Fintech

Authors	Year	Definition
(Arner, 2015)	2015	FinTech encompasses not only specific sectors but a whole range of financial services and products.
(Hussain, 2015)	2015	The creation and dissemination of new financial instruments describes financial innovation.
(McAuley, 2015)	2015	FinTech is an industry made up of companies that make financial systems more efficient.
(Kim, 2016)	2016	FinTech uses IT technology to improve the efficiency of the financial system.
(Investopedia, 2016)	2016	FinTech describes a financial services industry born in the 21st century.
(Young, 2016)	2016	FinTech combines different business models to make the financial system better.
(Leong, 2018)	2018	A cross-disciplinary subject combining finance, technology management, and innovation management.
(Lucian Belascu, 2023)	2023	Any innovative ideas that improve financial service processes by proposing technology solutions according to different business situations, potentially leading to new business models.
(Board, 2019)	2019	Technology that has contributed not only to innovation in the financial sector but also to the emergence of new business models.
(OECD, 2018)	2018	The innovative application of digital technology for financial services.
(BCBS, 2018)	2018	A company whose main task is to provide innovative services, such as the launch of new technologies in the financial sector.

Source: Compiled by the author from the literature.

Across these definitions, a common thread emerges: FinTech fundamentally disrupts traditional financial service models by leveraging digital technologies to create more accessible, efficient, and innovative solutions. As (Schueffel, 2016) argues, FinTech is best understood as a digitally enabled industry that simplifies financial transactions and broadens access to financial services. For the purposes of this study, FinTech is defined as the application of digital technology

including mobile platforms, artificial intelligence, and data analytics, to improve, automate, and expand access to financial services, particularly in the context of emerging banking markets such as Algeria.

1.2 Evolution of FinTech

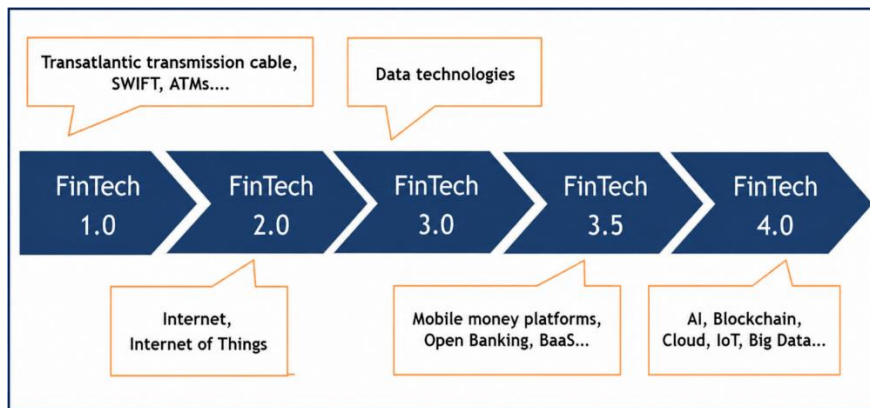
The evolution of FinTech is not a recent phenomenon; it traces its origins to the mid-nineteenth century, when financial globalization was first made possible by technological advances in communication. (Arner, 2015) identify a series of distinct phases, each characterized by a particular level of technological integration and market differentiation. Understanding this evolution is essential to situating contemporary FinTech services such as mobile banking and mobile payment applications within their broader historical and technological context.

Table 2: Historical Evolution of FinTech

Phase	Characteristics	Key Developments
FinTech 1.0 (1866–1967)	Analogue era	First transatlantic cable (1866), Fedwire (1918), first ATM by Barclays (1967). Financial services remained largely analogue despite technological interconnection. Infrastructure for globalized financial services was established. (Manasov, 2018)
FinTech 2.0 (1967–2008)	Digitalisation of Financial services	Shift from analogue to digital. Introduction of electronic payment systems, online banking (US 1980, UK 1983), SWIFT (1973), and the emergence of internet banking via the World Wide Web (Giglio, 2021)
FinTech 3.0 (2008–present)	Democratisation and disruption	Post-financial crisis era. New startups and tech giants deliver financial services directly to consumers. Bitcoin (2009), Open Banking, Banking-as-a-Service (BaaS), and neo-banks emerged. Loss of public trust in traditional banks accelerated the shift. (Manasov, 2018)
FinTech 3.5 (Emerging markets)	Developing world adaptation	FinTech development driven by economic development objectives in Asia and Africa. Advantage of late-entry adoption. Targets unbanked populations. Includes mobile money platforms (M-Pesa, Alipay). (Arner, 2015)
FinTech 4.0 (Emerging)	AI-driven integration	Integration of AI, blockchain, cloud computing, IoT, Robo-Advisors, and Big Data. Hyper-personalized and automated banking. Physical and virtual industrial machines increasingly connected. (Manasov, 2018)

Source: Compiled by the author based on (Arner, 2015), (Manasov, 2018), and (Giglio, 2021)

Figure 1 :The development of FinTech and key technologies in each stage



Source : Author, inspired by (Leong, 2018), (Arner, 2015), (Giglio, 2021)

1.3 Importance and Uses of FinTech

The importance of FinTech manifests across two complementary perspectives: a service industry perspective and a technological perspective. From the service industry perspective, FinTech reshapes the core domains of financial services, including payments, lending, investment management, and risk assessment. From a technological perspective, FinTech leverages advanced tools such as blockchain, cloud computing, big data analytics, the Internet of Things (IoT), and artificial intelligence to provide more resilient, transparent, and customer-centric financial products.

Recent data underscore the sector's growing significance: approximately 50.2% of banking clients globally now use at least one FinTech service (Manasov, 2018), and 96% of consumers worldwide are aware of at least one alternative FinTech service for money transfers or payments (Young, 2019). These figures highlight not only the rapid diffusion of FinTech but also its transformation from a niche innovation to a mainstream component of the global financial system.

In the Algerian context, the adoption of FinTech remains limited compared to other regions, primarily due to regulatory constraints, limited digital infrastructure, and low levels of digital financial literacy (Rania, 2024). This gap motivates the present research, which seeks to identify the factors, particularly digital culture and perceived technological maturity that influence the adoption of FinTech services among Algerian banking clients.

1.4 Mobile Banking

Table 3: Definitions of Mobile Banking

Authors	Year	Definition
(Palamidovska-Sterjadovska, 2025)	2025	A type of electronic banking that allows customers to perform financial transactions and access banking services via mobile devices like smartphones and tablets.
(Venkatesh V. e., 2016)	2016	An alternative to branch counter usage, eliminating the time and efficiency losses during branch visits, enabling users to check balances, transfer funds, and manage loans.
(Aijaz A. Shaikh, 2015)	2015	A service that provides customers with a secure, faster, and more convenient means to perform financial transactions anywhere and anytime.
(Laukkanen, 2017)	2017	A tool promoting financial inclusion enabling individuals to access banking services without restriction in time and place, particularly in areas lacking physical banking infrastructure.

Source: Compiled by the author from the literature

Mobile banking has become a central component of contemporary financial services. It enables users to perform a wide range of banking operations including balance consultation, fund transfers, bill payments, and account management through a smartphone application or web interface. From a technical standpoint, mobile banking operates through a combination of client-side applications and server-side systems, connected via secure channels that ensure real-time processing and data protection (Elmaasrawy, 2025)

Key features of mobile banking include instant transaction alerts, biometric authentication (facial recognition, fingerprint), multi-factor verification, and encrypted communications all of which directly contribute to the perceived security and reliability of the platform (Richard Apau, 2025). These features are closely aligned with the technological maturity criteria adopted in this study, particularly reliability, security, ergonomics, and advanced features.

Research consistently identifies perceived usefulness and ease of use as the primary drivers of mobile banking adoption (Davis, 1989) (Venkatesh M. D., 2003). Security and trust are equally critical: while users recognize the convenience of mobile banking, concerns about data privacy, fraud, and system reliability continue to act as significant barriers, particularly in developing markets (Khan A. R., 2021)

1.5 Mobile Payment

Mobile payment refers to any payment transaction initiated via a smartphone, enabling users to pay for goods and services through technologies such as QR codes or Near-Field Communication (NFC). Unlike mobile banking, which primarily focuses on account management and banking operations, mobile payment is specifically oriented toward transaction execution at the point of sale. (Arner, 2015)

1.6 FinTech Landscape in Algeria

The development of electronic payments in Algeria is supported by several public institutions: the Ministry of Finance supervises revenues collected electronically, the Ministry of Commerce facilitates merchant integration, and the Ministry of Knowledge Economy and Startups provides expertise to micro-enterprises and FinTech startups. Legally, payment methods are governed by Ordinance No. 03-11 of 26 August 2003 and by Law No. 18-05 of 10 May 2018, which introduced the “electronic payment method” as a legally recognised instrument.

On the operational side, SATIM (Société d’Automatisation des Transactions Interbancaires et de Monétique) is the central interbank operator for electronic payments in Algeria. Founded in 1995 and jointly owned by several public banks and an insurance institution, SATIM manages the interbank card system (CIB), ensures interoperability between banks, and supports the deployment of ATMs and POS terminals across the country. Alongside SATIM, Algérie Poste plays a major role in financial inclusion through its extensive network and its EDAHABIA card, which has seen rapid adoption.

The ecosystem also includes traditional banks that are progressively integrating FinTech solutions, a growing number of agile FinTech startups (such as Kepler, Ubex-Pay, Slick-Pay, and Geodab), and global Big Tech companies that embed financial services into their platforms. Government and regulatory authorities shape the sector through cybersecurity rules, anti-money laundering requirements, licensing frameworks, and regulatory sandboxes. Neobanks and Buy-Now-Pay-Later services are expanding globally and serve as references for future developments in Algeria, where cash still dominates despite a steady increase in CIB and EDAHABIA cards, ATMs, and electronic payment terminals.

Overall, while FinTech in Algeria remains at an early stage, the combination of high mobile penetration, a young population, and gradual regulatory advances creates significant potential

for digital financial inclusion. The table below lists some of the main Algerian FinTech companies.

Table 4: List of Algerian FinTech Companies (non exhaustive)

Name	Main Activity
KEPLER Technologies	Automates digital communication (SMS, email) for financial institutions in compliance with Algerian regulations
UBEX-PAY Technologies	Online and in-store payments, transfers via CIB/Dahabia cards, e-commerce integration
GEODAB	Real-time management and geolocation of POS terminals and ATMs for SATIM and banks
SLICK-PAY	Money transfers and QR-code contactless payments using CIB/Dahabia cards

Source: Adapted from (Rania, 2024)

2. Digital Literacy and Digital Culture:

The increasing use of digital technologies has highlighted the importance of digital skills and digital culture in the adoption of technological and financial services. The following part presents the main concepts related to digital culture and digital literacy.

2.1 Digital Culture

Digital culture has become an important factor influencing individuals’ interactions with digital technologies and online services. The following part reviews the main definitions and dimensions of digital culture.

2.1.1 Definition of Digital Culture

The concept of digital culture does not yet benefit from a single, consensual definition in the academic literature. Most research on technology adoption instead employs related terms such as digital literacy, digital skills, digital financial literacy, or technology readiness to capture dimensions that are closely related to, but not equivalent to, digital culture as a broader construct. As your own supervisory guidance suggested, the absence of direct definitions necessitates a synthesis from adjacent concepts and synonymous terms. Table 1 below compiles

definitions and descriptions that most closely capture the essence of digital culture as used in this research.

Table 5: Definitions and Descriptions of Digital Culture

Authors	Year	Definition / Description
(Hayford Asare Obeng, 2026)	2026	Digital culture is a set of values, practices, and mindsets centered on agility, experimentation, and data-driven collaboration, emerging when individuals are technologically prepared and confident in using digital tools.
(Kane, 2017)	2017	Digital culture encompasses the organizational and individual behaviors that emerge from consistent engagement with digital technologies, including openness to innovation, data-driven decision-making, and collaborative digital practices.
(Ng, 2012)	2012	Digital culture reflects the mindset, capacity, and consciousness to use digital technology to appropriately access, identify, manage, analyze, develop new knowledge, and communicate with one another in digital environments.
(Mohammadyari, 2015)	2015	Digital culture requires individuals to alter their abilities, values, attitudes, and behaviors to function effectively in digital environments going beyond technical proficiency to encompass ethical awareness and continuous learning.

Source: Compiled by the author from the literature.

Drawing on these contributions, digital culture can be understood as the set of values, habits, skills, attitudes, and behavioral practices that characterize an individual's engagement with digital technologies in their daily personal, social, and professional life. It goes beyond the possession of technical skills to encompass the depth of digital integration into everyday routines, the confidence and autonomy with which individuals navigate digital environments, and the openness to continuous learning and adaptation in the face of evolving technologies. Digital culture is therefore a holistic, multidimensional concept that shapes not only what individuals can do with technology, but how they think about, relate to, and habitually use it.

In the context of digital financial services, individuals with a strong digital culture are more likely to perceive FinTech platforms as natural extensions of their existing digital practices, thereby reducing perceived barriers, and facilitating adoption. Digital culture thus functions as a contextual predisposition that shapes user’s behavioral intentions toward digital financial services, operating through dimensions that include habitual digital engagement, technical

competence, positive attitudes toward technology, and continuous self-directed learning (Hayford Asare Obeng, 2026) (Ng, 2012)

2.1.2 Dimensions of Digital Culture

Based on a synthesis of the existing literature on digital literacy, technology readiness, and digital engagement, four core dimensions of digital culture can be identified. These dimensions collectively capture the breadth of individual-level digital engagement that shapes the propensity to adopt digital financial services.

a) Digital Habits and Usage Frequency

Digital habits refer to the routinised, often automatic patterns of digital technology use that individuals develop over time through repeated engagement with digital devices, applications, and online services. Habit, as defined within the UTAUT framework (Venkatesh M. D., 2003), represents the extent to which people tend to use technology automatically as a result of prior learning. In the context of FinTech adoption, individuals who habitually use smartphones, online platforms, and digital applications on a daily basis are more likely to integrate digital financial services into their routine activities. Research consistently confirms that frequency of internet usage and daily engagement with digital devices are among the strongest predictors of FinTech and mobile banking adoption (Yunwoo Choi, 2024) (Salim Saïdy, 2025). Digital habits thus represent the behavioral foundation of digital culture and the accumulated, internalized patterns of digital engagement that lower cognitive barriers to adopting new digital financial tools.

b) Technical Skills and Problem-Solving Abilities

Technical skills encompass the practical competencies required to effectively use digital devices, navigate digital interfaces, execute online transactions, and resolve technical difficulties encountered in digital environments. These skills range from basic device operation and internet navigation to more advanced capabilities such as understanding digital security measures, performing multi-step online procedures, and independently troubleshooting application errors. As (Hague, 2010) emphasize, digital competence goes beyond the ability to operate a device; it requires the capacity to adapt to new interfaces, decode system prompts, and engage constructively with digital security features. In the domain of FinTech, technical skills directly reduce the perceived effort associated with using digital platforms, thereby strengthening effort expectancy as conceptualized in the UTAUT model. Individuals with

higher technical competence are better equipped to leverage the advanced features of banking applications including biometric authentication, instant transfers, and transaction notifications without experiencing the frustration or anxiety that often characterizes less digitally skilled users (van Dijk, 2020) (Aljaafreh, 2025).

c) Attitudes, Values, and Confidence Towards Digital Technologies

Attitudes and values constitute the evaluative and affective dimensions of digital culture, shaping how individuals feel about and interpret their interactions with digital technologies. A positive attitude toward technology characterized by openness to innovation, trust in digital systems, and comfort with change is a key predictor of technology adoption across multiple theoretical frameworks, including TAM (Davis, 1989) and UTAUT (Venkatesh M. D., 2003). Confidence, or digital self-efficacy, refers to an individual's belief in their ability to successfully use digital technologies to accomplish desired outcomes. Research demonstrates that individuals with higher digital confidence perceive FinTech platforms as less complex and more controllable, which reduces psychological barriers to adoption (Yao, 2024) (Islam, 2024). Conversely, technophobia, distrust of digital systems, and anxiety about data security act as significant inhibitors of adoption, particularly among older adults and less digitally experienced populations (Molnar Mark-Denis, 2025). The attitudinal and evaluative dimensions of digital culture thus mediate the relationship between technical capability and actual adoption behavior, determining whether individuals translate their digital skills into active engagement with digital financial services.

d) Autonomy and Continuous Learning

Autonomy in digital environments refers to the capacity and willingness of individuals to independently seek solutions, learn new digital tools, and adapt their digital practices without relying on external assistance. This dimension reflects the degree to which individuals take ownership of their digital experiences like exploring unfamiliar applications, consulting online tutorials and forums, and proactively updating their digital knowledge in response to technological change. (Tang, 2016) argue that a certain level of digital literacy is necessary to support effective digital learning, but autonomy extends beyond literacy to encompass a self-directed orientation toward continuous digital improvement. In the context of FinTech adoption, autonomous learners are more resilient in the face of technical difficulties, more likely to explore the full range of features offered by digital banking platforms, and more capable of independently managing issues such as forgotten passwords or application updates. This

dimension is particularly relevant in emerging markets, where formal digital education is limited and users must often rely on self-directed learning to develop the competencies required for effective FinTech engagement (Rania, 2024).

2.2 Digital Literacy

Digital literacy plays an important role in the use of digital technologies and online financial services. The following part presents the main definitions and dimensions related to digital literacy.

2.2.1 Definitions of Digital Literacy

Although this study focuses primarily on digital culture as a broader construct, digital literacy constitutes one of its core dimensions. The literature uses a variety of related terms such as digital literacy, digital financial literacy, digital skills, digital competence which collectively capture the knowledge, skills, and critical abilities required to engage effectively and safely with digital technologies. Table 5 presents the key definitions.

Table 6: Definitions of Digital Literacy

Authors	Year	Definition
(Ng, 2012)	2012	The mindset, capacity, and consciousness to use digital technology to appropriately access, identify, manage, analyze, develop new knowledge, and communicate with one another in digital environments.
(Techataweewan, 2018)	2018	The required skills an individual should have to utilize and be conscious of information and technology media to seek, assess, create, and communicate when needed.
(OECD, 2022)	2022	The ability to understand, evaluate, and utilize financial information and services through digital platforms in an effective, secure, and responsible manner (Digital Financial Literacy).
(Hague, 2010)	2010	Beyond operational abilities; digital literacy encompasses ethical awareness, critical thinking skills, and the understanding of digital risks, enabling responsible use of the Internet.
(Eshet, 2004)	2004	Includes various literacies: computer literacy, information literacy, communication literacy, critical literacy, and safety awareness enabling access, analysis, creation and communication of digital content.

Source: Compiled by the author from the literature.

Across these definitions, digital literacy emerges as a multidimensional concept that goes well beyond the ability to operate a device. It includes the capacity to critically evaluate digital content, manage online risks, understand privacy and security issues, and communicate effectively through digital channels. As (Ng, 2012) emphasizes, digital literacy requires an individual to modify not only their abilities but also their values, attitudes, and behaviors in order to function responsibly in digital environments.

2.2.2 Dimensions of Digital Financial Literacy

Digital Financial Literacy (DFL), a specialized form of digital literacy, is particularly relevant to FinTech adoption. The (OECD, 2022) defines it as the ability to understand, evaluate, and utilize financial information and services through digital platforms in an effective, secure, and responsible manner. It comprises three interrelated dimensions:

- **Cognitive Dimension:** The knowledge base required to understand digital financial products (e.g., e-money, digital wallets), their mechanisms, associated costs, risks including cybersecurity, and consumer rights (Marchewka-Bartkowiak, 2025)
- **Technical Dimension:** The practical skills needed to operate digital financial applications, execute secure transactions (e.g., using two-factor authentication), and perform basic troubleshooting (Adanigbo, 2023)
- **Behavioral Dimension:** The habitual and attitudinal aspects, such as the frequency and diversity of digital service usage, regular transaction monitoring, and the propensity to compare digital options before making decisions (Tavares, 2022)

This multidimensional perspective is crucial because knowledge alone does not guarantee competent action; it must be coupled with technical ability and consistent behavioral application. In the context of this study, digital culture is understood as an extension of digital financial literacy incorporating not only skills and knowledge but also values, habits, and confidence toward digital technologies.

2.3 Digital Culture versus Digital Literacy

Although digital culture and digital literacy are closely related and often used interchangeably in the literature, they represent conceptually distinct constructs that operate at different levels of abstraction. Digital literacy is a foundational component of digital culture a necessary but

not sufficient condition for its development. Table 6 below presents a structured comparison of the two concepts across key dimensions.

Table 7: Comparison Between Digital Literacy and Digital Culture

Dimension	Digital Literacy	Digital Culture
Scope	A specific set of skills, knowledge, and competencies required to use digital tools effectively (Eshet, 2004)	A broader concept encompassing values, habits, attitudes, confidence, and behavioral practices related to the digital world (Hayford Asare Obeng, 2026)
Focus	Measurable cognitive and technical abilities: reading digital content, using applications, managing online security	Cultural and attitudinal dimensions: openness to innovation, habitual digital engagement, trust in technology, autonomy in digital environments
Relationship	Digital literacy is a core component and prerequisite of digital culture	Digital culture emerges from and extends beyond digital literacy, shaping how individuals relate to and integrate technology into their daily lives
Measurement	Assessed through skills tests, self-reported competence levels, and specific task performance (OECD, 2022)	Assessed through behavioral indicators such as frequency of digital use, problem-solving habits, learning attitudes, and confidence toward technology
Role in adoption	Acts as a direct enabler: higher literacy reduces effort expectancy and perceived complexity of FinTech platforms	Acts as a broader contextual factor: a stronger digital culture fosters trust, habitual engagement, and positive attitudes toward digital financial services

Source: Compiled by the author from the literature.

As this comparison illustrates, digital literacy and digital culture are related but not identical. Digital literacy provides the technical and cognitive foundation the skills and knowledge required to use digital technologies. Digital culture, by contrast, represents a broader, more deeply internalized set of values, habits, and orientations that shape the way individuals integrate digital technologies into their lives as a whole. A digitally literate individual may possess the technical skills to use a mobile banking application, but may lack the habitual engagement, positive attitudes, and autonomous learning orientation that characterize a high level of digital culture. Conversely, a strong digital culture reinforces digital literacy by creating a self-sustaining cycle of digital engagement, skill development, and growing confidence in digital environments (Hayford Asare Obeng, 2026)

For the purposes of this research, digital culture is treated as the broader, encompassing construct one that includes digital literacy as a component alongside habits, attitudes, autonomy, and values. This distinction is important because it allows the study to capture not

only what individuals can do with digital technologies, but how deeply these technologies are integrated into their daily lives and how positively they are oriented toward digital innovation.

3. Technological Maturity

Similarly, the term "technological maturity" does not appear as a structured concept in the FinTech adoption literature. Existing research addresses this dimension through related terms such as digital maturity, organizational readiness, electronic readiness, platform quality, system reliability, and technology readiness. These concepts capture from different angles the degree to which both institutions and individuals are equipped to adopt, deploy, and effectively use digital technologies. In this study, technological maturity serves as the integrating construct that encompasses digital maturity at the institutional level and technology readiness at the individual level. The following section synthesizes these streams of literature to build a comprehensive definition and framework for technological maturity as applied to FinTech adoption.

3.1 Definition of Technological Maturity

The concept of technological maturity draws on two complementary streams of literature. At the institutional level, technological maturity refers to an organization's readiness and capability to adopt, deploy, and optimize digital technologies to enhance service delivery and operational performance (Westerman, 2015). Studies conducted in banking contexts confirm that factors such as platform reliability, security infrastructure, and the availability of advanced digital features are central indicators of institutional technological maturity (Marei, 2023). Digital maturity, as described by (Kane, 2017), is how organizations systematically prepare to adapt consistently to ongoing digital change a learned ability to respond to the digital environment in an appropriate and sustained manner.

At the user level, technological maturity refers to the individual's equipment, experience, and psychological disposition toward digital technologies. This dimension is closely related to the concept of Technology Readiness, defined by (Parasuraman, 2000; Parasuraman, 2015) as the propensity to embrace and use new technologies, shaped by four dimensions: optimism, innovativeness, discomfort, and insecurity. Together, institutional and individual technological maturity define the dual context in which FinTech adoption decisions are made where the quality of the platform and the readiness of the user interact to determine adoption outcomes.

3.2 Digital Maturity: Institutional Level

Digital maturity at the institutional level reflects the ability of organizations to integrate and manage digital technologies within their activities and services. The following part presents the main dimensions and characteristics of institutional digital maturity.

3.2.1 Digital Maturity: Definitions

The concept of digital maturity has attracted growing academic attention since its first appearance in the literature around 2011–2012 (Teichert, 2019). Although early work was predominantly practitioner-driven, the academic community has increasingly contributed to its conceptualization. Table 8 presents the key definitions identified in the literature.

Table 8: Definitions of Digital Maturity

Authors	Year	Definition
(Westerman, 2014)	2014	Digital maturity is about integrating an organization's operations and human capital into digital processes, and vice versa.
(Kane, 2017)	2017	How organizations systematically prepare to adapt consistently to ongoing digital change. Based on a psychological definition of maturity as a learned ability to respond to the environment appropriately.
(Dominguez, 2017)	2017	The final stage of digital transformation. Organizations that have achieved digital maturity have witnessed important improvements in operations and increased customer satisfaction.
(Aslanova, 2020)	2020	A progressive process of integrating and implementing organizational, human, and other resources into digital processes, with the aim of achieving the maximum level of digital maturity.
(Kane, 2019)	2019	The level of digital transformation across every aspect of a company's strategy and processes, aimed at improving performance.
(Westerman, 2015)	2015	An organization's readiness and capability to adopt, manage, and optimize digital technologies to enhance operational efficiency, foster innovation, and achieve sustainable competitiveness.

Source: Compiled by the author from the literature.

Across these definitions, digital maturity is consistently described as a holistic and dynamic concept that goes beyond mere technological adoption. It encompasses the integration of digital tools into strategic operations, organizational culture, and human capabilities. Importantly, digital maturity is not a static state; organizations must continuously reassess their level of maturity as the digital landscape evolves (Westerman, 2015)

3.3 Technology Readiness: User Level

Technology readiness at the user level reflects individual’s ability and willingness to use digital technologies and technological services. The following part presents the main dimensions related to user technology readiness.

3.3.1 Technology Readiness: Definitions

Technology readiness, a concept closely related to digital maturity at the individual level, refers to user’s propensity to embrace and use new technologies. Table 9 presents the key definitions.

Table 9 :Definitions of Technology Readiness

Authors	Year	Definition
(Parasuraman, 2000; Parasuraman, 2015)	2000 / 2015	Technology Readiness is the propensity to adopt and embrace new technologies in home life or work. Measured through four dimensions: optimism, innovativeness, discomfort, and insecurity (TRI and TRI 2.0).
(Shah, 2024)	2024	The extent to which individuals are willing to adopt and utilize new technologies to accomplish their objectives, whether in personal or professional environments. Goes beyond technical skills to encompass overall attitudes toward technology.
(Khan A. &, 2025)	2025	A person's overall attitude towards technology, influenced by a mix of positive and negative perceptions.

Source: Compiled by the author from the literature.

3.3.2 Dimensions of Technology Readiness

(Parasuraman, 2000; Parasuraman, 2015) conceptualize technology readiness through four dimensions that collectively shape an individual's propensity to adopt new technologies. These dimensions are organized into two positive enablers and two negative barriers, as presented in Table 10.

Table 10: Dimensions of Technology Readiness

Dimension	Role	Description
Optimism	Positive enabler	A favorable perspective on technology, encompassing beliefs that it provides enhanced control, flexibility, and efficiency (Chang, 2021). Facilitates technology readiness.
Innovativeness	Positive enabler	The inclination to be a trailblazer or early adopter of emerging technologies. Strengthens the relationship between user satisfaction and technology adoption (Parasuraman, 2015)
Discomfort	Negative barrier	Feelings of being overwhelmed or lacking control while using technology. Weakens the adoption relationship and reduces technology readiness (Borodako, 2023)

Insecurity	Negative barrier	Mistrust or doubt regarding technology's reliability and effectiveness. Acts as a barrier to adoption and reduces the user's propensity to engage with new digital tools (Chen, 2023)
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Source: Compiled by the author based on (Parasuraman, 2000; Parasuraman, 2015)

A distinctive feature of technology readiness is that individuals can simultaneously hold both positive and negative beliefs about technology. A user may, for instance, be enthusiastic about the potential of digital banking tools (optimism) while also experiencing concerns about complexity or reliability (discomfort and insecurity). This dual nature makes technology readiness a nuanced predictor of actual adoption behavior (Kim J. J., 2020)

In the context of this study, technology readiness captures the user-level dimension of technological maturity, complementing the platform-level dimension assessed through the ten-criteria grid. Users with higher technology readiness particularly those scoring high on optimism and innovativeness are expected to demonstrate greater adoption of FinTech services, while those experiencing high discomfort or insecurity may resist adoption even when the platform is technically mature.

3.4 Technological Maturity of the User

User-level technological maturity describes the extent to which an individual is equipped both materially and psychologically to engage effectively with digital technologies. It is a multidimensional construct comprising four interrelated sub-dimensions.

- **Equipment: Access to Digital Devices:** Equipment refers to the physical and material dimension of technological maturity, the ownership and access to digital devices such as smartphones, computers, tablets, and reliable internet connections. Access to appropriate devices is a prerequisite for any form of digital technology adoption, as it determines whether individuals are even able to engage with digital platforms in the first instance. Research consistently demonstrates that ownership of multiple digital devices and access to high-quality internet connectivity are among the strongest predictors of FinTech adoption (Salim Saidy, 2025) (Yunwoo Choi, 2024). In developing and emerging market contexts, device access remains a significant structural barrier for users who lack access to compatible smartphones or stable internet connections are systematically excluded from digital financial services, regardless of their skills or motivations. Equipment therefore constitutes the foundational layer of user technological maturity, upon which all other dimensions are built.

- **Experience: Length and Frequency of Digital Use:** Experience refers to the accumulated history of digital technology use, the duration, frequency, and diversity of an individual's prior engagement with digital devices, applications, and online services. Experience is a critical determinant of digital competence and confidence, as repeated interaction with technology reduces cognitive load, builds familiarity with digital interfaces, and develops the problem-solving skills necessary for effective digital navigation. Empirical research confirms that ICT experience and technology usage time are among the strongest predictors of FinTech adoption, particularly among older populations for whom prior digital exposure may compensate for lower inherent technology readiness (Yunwoo Choi, 2024). Experience also shapes users' expectations of digital platforms: more experienced users tend to have higher standards for platform performance, reliability, and feature availability, making their adoption decisions more sensitive to the technological maturity of the platforms they encounter.
- **Self-Assessed Digital Competence:** Self-assessed digital competence refers to individual's own evaluations of their ability to use digital technologies effectively and independently. Unlike objective measures of skill, self-assessment captures the subjective confidence dimension of technological maturity the degree to which individuals believe themselves capable of navigating digital environments, resolving technical issues, and using advanced digital features. Research in the United States demonstrates that subjective financial literacy confidence in one's financial and digital abilities is a stronger predictor of mobile banking adoption than objective knowledge measures (Lo Prete, 2022). This finding underscores the importance of perceived competence as a driver of adoption behavior, independent of actual skill levels. Self-assessed competence operates through two mechanisms: it directly reduces perceived effort by increasing confidence in one's ability to use a platform, and it indirectly reduces perceived risk by increasing trust in one's capacity to detect and manage potential digital threats.
- **Psychological Disposition (Optimism, Innovativeness, Discomfort, Insecurity):**The psychological disposition dimension of user technological maturity draws directly on Parasuraman and Colby's Technology Readiness Index (Parasuraman, 2000; Parasuraman, 2015), which identifies four psychological dimensions that collectively shape an individual's propensity to adopt new technologies. Optimism reflects a favorable perspective on technology, characterized by beliefs that it provides enhanced control, flexibility, and efficiency (Chang, 2021). Innovativeness reflects the inclination to be an

early adopter of emerging technologies and a trailblazer in digital experimentation. Together, optimism and innovativeness function as positive facilitators that increase technology readiness and strengthen adoption intentions.

Conversely, discomfort refers to feelings of being overwhelmed or lacking control when using technology, while insecurity reflects mistrust or doubt regarding technology's reliability and effectiveness (Borodako, 2023) (Chen, 2023). Discomfort and insecurity function as psychological barriers that reduce technology readiness and inhibit adoption, even when individuals possess the technical skills and equipment necessary for engagement. A distinctive feature of this framework is that individuals can simultaneously hold positive and negative beliefs about technology; an optimistic user may also experience security-related anxieties, creating a complex and sometimes contradictory psychological profile that moderates adoption behavior (Sharma, 2024) (Kim J. J., 2020).

3.5 Technological Maturity of the Platform

Platform-level technological maturity refers to the degree to which a digital financial service application fulfills a set of technical and functional criteria that enable reliable, secure, and user-friendly service delivery. While institutional digital maturity models such as those developed by (Westerman, 2014), (Berghaus, 2016), or the TM Forum focus on organizational readiness and strategic transformation, platform maturity from the user's perspective is assessed through the quality of the digital experience itself: how reliably the platform functions, how securely it protects user data, how efficiently it processes transactions, and how intuitively its interface can be navigated.

Research in French banking contexts demonstrates that user expectations of platform maturity center on mobile accessibility, high security standards, and data privacy, while findings from Jordanian banking studies confirm that platform reliability and technical compatibility are significant determinants of FinTech adoption (Marei, 2023). These findings highlight that platform technological maturity is not merely a technical concept but is fundamentally shaped by user perceptions, making it an inherently subjective dimension that must be assessed from the user's standpoint rather than through objective technical audits alone.

3.6 Distinction Between User Maturity and Platform Maturity

The distinction between user-level and platform-level technological maturity is both conceptually and empirically important. User maturity describes what the individual brings to

the adoption context such as their equipment, experience, competence, and psychological orientation toward technology. Platform maturity describes what the institution offers such as the technical quality, functional richness, security, and usability of the digital service itself. These two dimensions operate at different levels of analysis and influence adoption through distinct pathways.

User maturity shapes the subjective experience of using a platform: a highly technologically mature user may find a moderately developed platform entirely adequate for their needs, while a less mature user may find the same platform overwhelming or inaccessible. Conversely, platform maturity shapes the objective conditions of use: even the most technically proficient user cannot compensate for a platform that is frequently unavailable, slow, or insecure. The interaction between user maturity and platform maturity therefore creates a dynamic adoption context in which the two dimensions must be considered jointly rather than in isolation.

This dual-level conceptualization represents a key contribution of the present research. Most existing studies examine either user-level characteristics or platform-level quality as determinants of FinTech adoption, but very few integrate both perspectives within a single analytical framework. By treating user maturity and platform maturity as complementary and potentially interacting dimensions, this research offers a more complete understanding of the conditions under which FinTech services are successfully adopted.

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4. FinTech Adoption

The adoption of FinTech services has become an important topic in digital banking and financial technology research. The following part presents the main concepts and factors related to FinTech adoption.

4.1 Definition of FinTech Adoption

FinTech adoption refers to the process through which individuals accept and integrate new financial technologies into their regular financial activities (Singh, 2020). It is a complex, multi-stage behavioral process that begins with awareness and initial interest, progresses through evaluation and trial, and culminates in habitual use and continued engagement. Table 11 below presents the key definitions of FinTech adoption identified in the literature.

Table 11: Definitions of FinTech Adoption

Authors	Year	Definition
(Singh, 2020)	2020	FinTech adoption refers to the process through which individuals accept and integrate new financial technologies into their regular financial activities.
(Davis, 1989)	1989	Technology adoption is driven by two core beliefs: perceived usefulness the degree to which a technology enhances performance and perceived ease of use ,the degree to which it is free from effort.
(Venkatesh M. D., 2003)	2003	Adoption is determined by behavioral intention to use, which is itself shaped by performance expectancy, effort expectancy, social influence, and facilitating conditions (UTAUT).
(Darayani Annisa Nuramalina, 2025)	2025	Mobile banking adoption refers to the utilization of mobile banking services for everyday banking activities, serving as an intermediary variable bridging technology readiness and satisfaction.
(Aisyah, 2023)	2023	FinTech adoption is grounded in TAM and extended by trust considerations, encompassing perceived usefulness, perceived ease of use, and confidence in the system's security and reliability.

Source: Compiled by the author from the literature.

Across these definitions, FinTech adoption is consistently understood as a behavioral process driven by cognitive evaluations (perceived usefulness and ease of use), social influences, and contextual factors (facilitating conditions, trust, security). The adoption process is not binary, it involves varying degrees of engagement, from initial registration and occasional use to full integration of digital financial services into daily financial management routines. In the context of this research, FinTech adoption is operationalized through three complementary dimensions: intention to adopt, actual usage, and continuance intention.

4.2 Dimensions of FinTech Adoption

- **Intention to Adopt:** Behavioral intention to adopt refers to an individual's conscious plan or willingness to use a FinTech service in the near future. It is one of the most widely studied constructs in technology adoption research and serves as the primary mediator between attitudinal evaluations and actual usage behavior (Venkatesh M. D., 2003). Intention is shaped by a combination of cognitive factors including perceived usefulness, effort expectancy, and trust, and contextual factors such as social influence and the availability of supportive infrastructure. In the UTAUT framework, behavioral intention is the direct antecedent of use behavior, with performance expectancy and effort expectancy identified as its strongest predictors across cultural contexts (Jadil, 2021). Intention to adopt is particularly relevant in the early stages of FinTech diffusion, when many potential users are aware of digital financial services but have not yet taken the step of registering or using them it became a situation that characterizes a significant portion of the banking population in emerging markets such as Algeria (Rania, 2024).
- **Actual Usage: Frequency and Types of Operations:** Actual usage refers to the observable behavioral outcome of the adoption process, the extent to which individuals actively and regularly use FinTech services to conduct financial transactions. It encompasses both the frequency of use (how often users engage with the platform) and the diversity of operations performed (the range of features and functionalities utilized). Quality of e-service enhances customer satisfaction and consequently customer loyalty, and the number of mobile banking features used correlates positively with satisfaction and continued engagement (Darayani Annisa Nuramalina, 2025). Actual usage is influenced not only by users' prior intentions but also by their experiences during use including the reliability, speed, and security of the platform, as well as the availability of support in case of technical difficulties. Users who encounter barriers during actual usage such as application crashes, transaction failures, or

poor interface design are likely to reduce their frequency of use or abandon the platform altogether, regardless of their initial adoption intention.

- **Continuance Intention:** Continuance intention refers to an individual's intention to continue using a FinTech service after initial adoption. It distinguishes between first-time adoption and sustained, habitual use, a distinction that is increasingly recognized as critical for understanding the long-term success of digital financial services. Research confirms that continuance intention is strongly driven by user satisfaction, which itself depends on the extent to which the platform meets or exceeds users' expectations of performance, reliability, and ease of use (Darayani Annisa Nuramalina, 2025) (Luana Serino, 2025). Trust in the platform's security and data protection practices is also identified as a critical antecedent of continuance intention, particularly in contexts where users have experienced or are aware of digital fraud and cybersecurity risks (Sarwar, 2025). Continuance intention is therefore a more demanding and meaningful indicator of FinTech adoption success than initial registration or trial use, as it captures the depth of integration of digital financial services into user's ongoing financial management practices.

5. Relationships Between the Concepts

Several studies have highlighted the existence of relationships between the main concepts. The following part presents the main relationships examined in this study.

5.1 Influence of Digital Culture on FinTech Adoption

The relationship between digital culture and FinTech adoption is grounded in a well-established body of evidence demonstrating that individuals with stronger digital engagement, higher digital competence, and more positive attitudes toward technology are significantly more likely to adopt digital financial services. Research conducted across Asia, Africa, and Europe consistently confirms that users who habitually engage with digital platforms, possess strong problem-solving skills, and demonstrate high digital self-efficacy perceive FinTech services as less complex and more beneficial, thereby forming stronger adoption intentions (Aljaafreh, 2025) (Yunwoo Choi, 2024) (Molnar Mark-Denis, 2025)

Within the UTAUT framework, digital culture influences FinTech adoption through its effects on both performance expectancy and effort expectancy. Individuals with a strong digital culture are more capable of recognizing the practical benefits of digital financial services faster transactions, remote account management, real-time notifications, which strengthens

performance expectancy. Simultaneously, their accumulated digital experience and autonomous problem-solving orientation reduces the perceived effort associated with learning and using new FinTech platforms, thereby lowering effort expectancy barriers. Digital culture also reinforces facilitating conditions by equipping users with the knowledge and confidence to seek help, navigate support systems, and independently resolve technical issues encountered during platform use.

5.2 Influence of User Technological Maturity on FinTech Adoption

User technological maturity exerts a direct and multidimensional influence on FinTech adoption. Equipment access determines whether users can physically engage with digital platforms; experience shapes their competence and expectations; self-assessed competence influences their confidence and willingness to attempt new features; and psychological disposition particularly optimism and innovativeness fosters proactive engagement with digital innovation. Research demonstrates that ownership of digital devices, frequency of internet usage, and self-reported digital competence are among the strongest individual-level predictors of FinTech adoption across diverse geographic and demographic contexts (Salim Saidy, 2025) (Lars Hornuf, 2025)

The psychological dimensions of technology readiness are: optimism, innovativeness, discomfort, and insecurity they further moderate the adoption process by shaping user's emotional and cognitive responses to new digital platforms. Users with high optimism and innovativeness are more likely to explore new FinTech services, tolerate initial learning curves, and persist through technical difficulties. Conversely, users with high discomfort or insecurity may avoid FinTech platforms even when they possess the technical skills to use them, as their psychological resistance to digital uncertainty overrides their practical capabilities (Darayani Annisa Nuramalina, 2025) (Hien Ho, 2025)

5.3 Influence of Platform Technological Maturity on FinTech Adoption

Platform technological maturity represents the supply-side determinant of FinTech adoption, the extent to which the digital service itself is capable of meeting users' expectations of performance, security, reliability, and ease of use. Research across multiple regions consistently demonstrates that platform quality is a critical driver of adoption: users are more likely to adopt and continue using digital financial services when they perceive the platform as reliable, fast, secure, and user-friendly (Luana Serino, 2025) (Gaurav R. Sinha, 2025) (Thomas Appiah, 2025) Platform maturity influences adoption through its effects on performance expectancy a

technologically mature platform that processes transactions quickly, offers advanced features, and functions without errors directly enhances user's perceptions of the platform's usefulness. It also influences effort expectancy: an intuitive, ergonomically designed interface reduces the cognitive effort required to navigate the platform and perform financial operations. Furthermore, platform maturity shapes trust and perceived security; platforms with robust security features, clear transaction notifications, and comprehensive traceability of operations build user confidence and reduce the perceived risks of digital financial engagement.

5.4 Influence of Digital Culture on Perceived Platform Maturity

Beyond its direct effect on adoption, digital culture also shapes how users perceive and evaluate the technological maturity of digital platforms. Users with a stronger digital culture bring higher digital competence, more nuanced expectations of platform performance, and a greater capacity to engage with advanced features, all of which influence their assessments of platform quality. Research suggests that digitally experienced users are more sensitive to platform reliability, responsiveness, and feature richness than less digitally engaged users, who may focus primarily on basic accessibility and interface simplicity (van Dijk, 2020) (Hague, 2010).

This relationship implies that the perception of platform maturity is not an objective assessment but a subjective evaluation mediated by the user's digital background. A platform that is perceived as highly mature by an experienced, digitally confident user may be perceived as complex or overwhelming by a user with limited digital culture. Conversely, users with strong digital culture are better equipped to critically assess platform weaknesses identifying reliability issues, security gaps, or ergonomic deficiencies, which may lead to more demanding evaluations of platform quality and higher expectations for digital innovation.

5.5 Influence of User Technological Maturity on Perceived Platform Maturity

User technological maturity also directly influences perceived platform maturity through several complementary mechanisms. First, users with higher equipment access and greater digital experience are more likely to engage with the full range of platform features including advanced functionalities such as biometric authentication, instant transfers, and multi-account aggregation and are therefore better positioned to evaluate the completeness and sophistication of the platform's technological offering. Second, users with higher self-assessed competence are more confident in their ability to navigate complex platform features, which may lead them to perceive the platform as more capable and mature than users who struggle with basic navigation.

Third, the psychological dimensions of technology readiness particularly optimism and innovativeness shape user's interpretive frameworks for evaluating platform quality. Optimistic users tend to focus on the positive capabilities of the platform and are more tolerant of minor technical imperfections, potentially leading to more favorable assessments of platform maturity. Insecure users, by contrast, may over-weight security concerns and reliability issues in their evaluations, leading to more critical assessments of platform maturity even when the technical quality of the platform is objectively high (Parasuraman, 2015) (Chen, 2023)

6. Main Hypothesis

H0: Digital culture and technological maturity (both at the user level and the platform level) have a significant positive influence on the adoption of FinTech services.

6.1 Sub-Hypotheses

The main hypothesis **H0** is broken down into five sub-hypotheses, each corresponding to a direct relational pathway specified in the conceptual model. Every sub-hypothesis is grounded in prior empirical or theoretical work identified in the literature review.

H1: Digital culture has a significant positive influence on the adoption of FinTech services.

This hypothesis draws on studies that position digital literacy and digital habits as direct predictors of FinTech usage. For example, the Jordanian study reviewed in (Aljaafreh, 2025) found that digital literacy exerts a positive and significant influence on FinTech usage among millennials, suggesting that individuals with stronger digital competencies are more likely to adopt digital financial services.

H2: User technological maturity has a significant positive influence on the adoption of FinTech services.

The technology readiness literature consistently identifies prior experience, optimism, and comfort with technology as key drivers of adoption. The South Korean study by (Yunwoo Choi, 2024) demonstrated that technology usage time, ICT experience, and the number of digital devices owned are the strongest predictors of FinTech adoption among older adults, highlighting the central role of user-side technological maturity.

H3: Perceived platform technological maturity has a significant positive influence on the adoption of FinTech services.

Institutional and platform-related factors are increasingly recognised as critical determinants of user behaviour. The French BIMM study (Bertoni, 2022) showed that users' expectations

regarding security, performance, and overall digital maturity of banking platforms strongly shape their willingness to adopt mobile payment services, justifying the expectation that perceived platform maturity directly affects adoption.

H4: Digital culture has a significant positive influence on the perceived technological maturity of FinTech platforms.

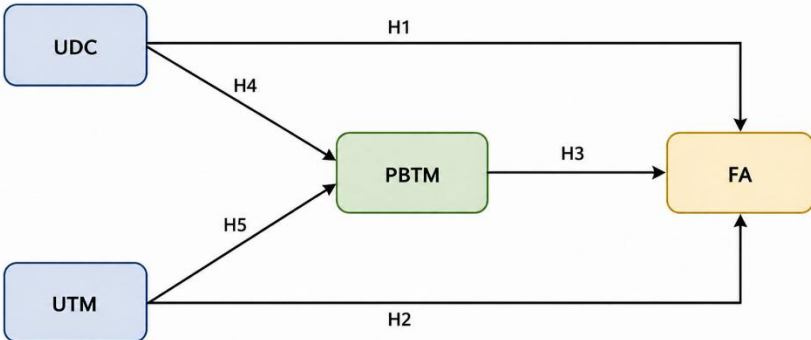
Digitally cultured individuals are likely to evaluate the technological quality of a platform differently. The Ethiopian study (LEYKUN, 2026) found that digital literacy significantly mediates the relationship between perceived usability and mobile banking adoption, indicating that user’s digital habits and skills influence how they perceive the maturity of the platform they interact with.

H5: User technological maturity has a significant positive influence on the perceived technological maturity of FinTech platforms.

Technologically mature users, equipped with better devices and greater experience, tend to appraise platforms more favorably. Research on technology readiness in Indonesia (Darayani Annisa Nuramalina, 2025) showed that technology readiness has a strong positive effect on FinTech utilization, implying that users who are more technologically comfortable perceive the platform as more mature and are consequently more engaged.

Together, these five hypotheses operationalize the main hypothesis H0 and cover the full set of direct effects posited by the research model. Each hypothesis is tested empirically through the quantitative survey and further illuminated by the qualitative employee interviews.

Figure 2: Conceptual framework



Source: Elaborated by the author.

7.Theoretical Relevance of the Research

This section presents the main theoretical contributions of the study, particularly regarding the Algerian context, the integration of the main study concepts within a unified framework, and the extension of existing FinTech adoption research.

7.1 Addressing the Geographic Gap: North Africa and Algeria

The existing body of research on FinTech adoption is geographically concentrated in a small number of regions, primarily Asia (India, Indonesia, Malaysia, Bangladesh, China, Jordan, Türkiye, Sri Lanka), Europe (France, Italy), and North America (the United States), with some coverage of Sub-Saharan Africa (Ghana, Nigeria, Kenya, South Africa, Cameroon, Uganda, Ethiopia). North Africa, and Algeria in particular is almost entirely absent from the empirical literature. This geographic gap is particularly significant given the region's distinct characteristics: an emerging digital infrastructure, a young and rapidly growing internet-using population, a regulatory environment still adapting to digital financial innovation, and cultural and behavioral patterns that differ substantially from the Asian and European contexts that dominate the existing literature (Rania, 2024) (Dimitrios Reppas, 2024)

By focusing on the Algerian banking context, this research makes a direct empirical contribution to the understanding of FinTech adoption in a North African emerging market. The findings generated by this study concerning the role of digital culture and technological maturity in shaping adoption behavior can inform both academic theory and practical policy in a context that has been systematically underrepresented in the global FinTech adoption literature. Furthermore, the Algerian case provides a useful comparative reference for other North African and MENA countries facing similar challenges of digital transition, regulatory adaptation, and digital literacy development.

7.2 Integrating Digital Culture and Technological Maturity in One Framework

Perhaps the most significant theoretical contribution of this research is its integration of two dimensions that have almost always been studied in isolation in the existing literature. Digital culture understood through its dimensions of digital habits, technical skills, attitudes, and autonomous learning and technological maturity assessed at both the user level and the platform level have each been examined as determinants of FinTech adoption in separate streams of research. However, no existing study has proposed a unified empirical framework that

simultaneously examines the combined influence of these two dimensions on adoption behavior.

This integration is theoretically important for several reasons. First, it acknowledges that adoption outcomes are shaped by both supply-side factors (the quality of the platform) and demand-side factors (the digital readiness of the user), and that these two sets of factors interact in ways that cannot be captured by studying either in isolation. Second, it addresses a persistent limitation of the UTAUT framework, its focus on individual perceptions without explicit consideration of the broader cultural and maturity contexts in which these perceptions are formed. By incorporating digital culture and technological maturity as contextual variables that shape UTAUT's core constructs, this research extends the explanatory power of the framework in ways that are particularly relevant for emerging market contexts.

7.3 Extending FinTech Adoption Research Through User and Contextual Factors

Existing FinTech adoption models, including the widely applied UTAUT framework, tend to concentrate on a limited set of individual perceptions, primarily performance expectancy and effort expectancy, without sufficiently accounting for the broader user-side and contextual factors that shape these perceptions. This research extends the explanatory scope of existing adoption frameworks by simultaneously integrating three dimensions that have rarely been combined in a single empirical model: digital culture, user technological maturity, and perceived platform technological maturity.

Digital culture, encompassing digital habits, attitudes, skills, and autonomous learning dispositions, represents a contextual factor that conditions how individuals approach and engage with digital financial services. User technological maturity, reflecting prior experience with technology, device ownership, and psychological readiness, constitutes a user-side factor that determines individual's actual capacity to adopt and use FinTech platforms. Together, these two dimensions capture both the attitudinal and experiential aspects of digital readiness that classical adoption models tend to overlook.

By positioning these constructs as complementary determinants of FinTech adoption while also exploring the pathways through which they interact, this research proposes a more comprehensive and contextually sensitive model of adoption behavior, particularly relevant for emerging banking and digital environments where digital readiness varies significantly across user segments.

7.4 Proposing a Multidimensional View of Platform Technological Maturity

A third theoretical contribution of this research is its proposal of a multidimensional approach to the assessment of platform-level technological maturity. Most existing studies that examine platform quality as a determinant of FinTech adoption rely on a limited set of indicators, primarily usability, perceived security, and basic system reliability. More advanced dimensions of platform maturity, including interoperability with other financial systems, evolutivity through regular updates, technical compatibility across diverse devices and operating systems, and traceability of transactions, are rarely examined in the existing empirical literature.

By developing an original multi-criteria framework for assessing platform technological maturity from the user's perspective, this research proposes a richer and more comprehensive conceptualization of platform quality that goes beyond basic usability and security to capture the full spectrum of technical and functional dimensions that shape users' perceptions of digital platform capability. This framework can be adapted and applied in future research across different FinTech contexts, contributing to the development of more nuanced and context-sensitive measures of platform maturity in the digital financial services literature.

CHAPTER II: METHODOLOGICAL FRAMEWORK AND ORGANISATIONAL CONTEXT

Section 1: Methodological Framework and Research Context

This chapter outlines the research methodology adopted to investigate the influence of digital culture and technological maturity on the adoption of FinTech services among banking clients in Algeria. It also presents the institutional context of the case study, which anchors the qualitative part of the empirical investigation.

Consistent with the dual perspective introduced earlier (user-centred and platform-centred), the chapter is divided into two main sections. The first section details the methodological framework, including the research philosophy, approach, strategy, data collection tools, sampling procedures, and analytical techniques. Given the complexity of FinTech adoption in the Algerian banking sector, where user perceptions, technological readiness, and platform characteristics interact, a mixed-methods design was adopted. This design combines quantitative data collected through a structured questionnaire distributed to a broad sample of Algerian banking clients with qualitative insights gathered from semi-structured interviews with employees of the CPA bank, the institution that serves as the case study. This combination allows for a comprehensive understanding of how digital culture and technological maturity affect adoption from both the user's and the institution's perspective.

The second section presents the research context, including the Algerian FinTech landscape and a detailed presentation of the CPA bank, its digital services (Mobile CPA and Wimpay), and the researcher's position as an intern within the bank. By clearly defining the methodological choices and the institutional setting, this chapter ensures the scientific rigour, transparency, and credibility of the research process.

1.1 Mixed Methods Research Design and Approach

This study adopts a concurrent mixed methods design that integrates quantitative and qualitative strands to examine the influence of digital culture and technological maturity on the adoption of FinTech services in Algeria. The design is guided by a dual reasoning logic, combining deductive and inductive approaches in a complementary manner, as recommended in the mixed methods literature (Creswell, 2018) (Maxwell, 2014).

The quantitative component follows a deductive logic. Drawing on the theoretical framework adapted from the Unified Theory of Acceptance and Use of Technology (UTAUT), a structured questionnaire was administered to a sample of Algerian banking clients. The instrument measures four core constructs: User Digital Culture (UDC), User Technological Maturity (UTM), Perceived Platform Technological Maturity (PBTM), and FinTech Adoption (FA).

each operationalised through multiple items. The statistical testing of the hypothesised relationships between these constructs allows for the empirical validation of the conceptual model.

The qualitative component adopts an inductive approach and is centred on a case study of the CPA bank. Semi-structured interviews were conducted with two bank employees a Customer Relationship Officer and a Monetics Department Employee, who are directly involved in the deployment and day-to-day management of the two platforms, Mobile CPA and Wimpay. The interviews explored the perceived technological maturity of the platforms using a ten-criteria grid developed for this research. Inductive thematic analysis of the interview data allowed context-rich, emergent insights to surface, particularly concerning adoption barriers and the institutional perspective on platform maturity.

The combination of these two strands serves two complementary purposes: the quantitative data test the hypothesised structural relationships, while the qualitative data contextualise, explain, and enrich the statistical results. The mixing of methods occurs primarily at the interpretation stage, through a triangulation of quantitative path coefficients and qualitative employee narratives.

1.2 Epistemological Positioning

In academic research, the epistemological positioning provides the foundational lens through which knowledge is approached, interpreted, and constructed. It informs the selection of methods, the nature of data collected, and the way results are analyzed and understood. In the context of this thesis, which investigates both the perceptions of bank clients (quantitative) and the professional assessments of bank employees (qualitative) regarding FinTech adoption, an appropriate epistemological stance must allow for both empirical measurement and contextual depth.

This research adopts the pragmatic paradigm, an epistemological stance that emphasizes practical outcomes and the use of multiple methods to best address the research problem. Rather than aligning strictly with positivism (which focuses on measurable, objective reality) or interpretivism (which emphasizes subjective, context-based understanding), pragmatism seeks a middle ground. It values methodological flexibility and places the research question at the core of the inquiry process (Kaushik, 2019).

Given the complex nature of FinTech adoption in Algeria, where user digital culture, platform technological maturity, and institutional factors intersect, a singular epistemological approach

would limit the ability to provide comprehensive insights. Pragmatism allows the integration of structured survey data with rich, qualitative insights drawn from field-based interviews with bank employees, enhancing the overall robustness and real-world applicability of the findings.

The decision to adopt a pragmatic approach is based on the study's two main objectives: examining the influence of digital culture and technological maturity on FinTech adoption from the client's perspective, and understanding how bank employees perceive the technological maturity of the platforms (Mobile CPA and Wimpay). A mixed-methods approach is used to achieve these goals, where surveys offer generalizable data and interviews provide context-specific insights. Pragmatism supports the integration of these methods, offering flexibility to explore both user behavior and institutional dynamics in a comprehensive manner.

1.3 Operationalisation of the Mixed-Methods Design

Given the complexity of FinTech adoption in emerging economies like Algeria, where digital infrastructure is still developing and user digital culture varies widely, a mixed-methods design was deemed the most appropriate. This design allows for the integration of quantitative data with qualitative depth, capturing measurable trends as well as contextual insights.

Scholars have consistently emphasized that the combination of qualitative and quantitative approaches enhances the validity and interpretative power of research in technology adoption and digital finance (Creswell, 2018) (Viswanath Venkatesh, 2013). In the Algerian context, the scarcity of empirical work that integrates both the user's and the institution's perspectives further supports this choice.

In this study, the quantitative and qualitative data were collected concurrently (during the same period). The quantitative data from the client questionnaire were analyzed using descriptive and inferential statistics (SPSS). The qualitative data from the employee interviews were transcribed and analyzed using thematic analysis, coding responses according to the ten criteria of the technological maturity grid. The findings from both datasets were then compared to identify convergence, divergence, or complementarity between client perceptions and employee assessments. This triangulation strengthens the validity of the conclusions and provides a holistic understanding of the phenomenon.

1.4. Application of the Mixed Methods: Data Collection and Analytical Tools

This section presents the operationalization of the mixed-methods approach adopted in this research. It outlines the data collection strategies and analytical tools employed to investigate

the influence of digital culture and technological maturity on the adoption of e-banking and Wimpay among Algerian banking clients. By integrating both quantitative and qualitative data, the study aims to capture a comprehensive understanding of user behavior and platform maturity. The section first details the design and administration of the questionnaire targeting banking clients, followed by the structure and execution of semi-structured interviews conducted with bank employees. Finally, it introduces the analytical techniques used to interpret and triangulate the collected data, ensuring the robustness and validity of the research findings.

1.5 Quantitative Approach and Data Collection

We present the methodological instrument adopted to assess digital culture, technological maturity, and FinTech adoption among Algerian banking clients. This section emphasizes the theoretical and practical foundations on which the research tool was constructed, ensuring that its structure aligns with the nature of the phenomenon under investigation. It also outlines the key stages followed to guarantee the tool's relevance to the research objectives, the precision of the results, and its consistency with the research problem and field analysis framework.

1.5.1 Study Instrument

As part of the fieldwork, a structured questionnaire was employed as the primary data collection tool to examine digital culture, technological maturity (user and platform), and adoption of banking applications among Algerian banking clients. This instrument was selected due to its flexibility in reaching a considerable number of clients, and its capacity to convert responses into statistically analyzable indicators while preserving participant anonymity.

To reach the target population, a non-probabilistic convenience sampling method was adopted. This approach was chosen primarily due to absence of a complete and accessible sampling frame of all banking clients in Algeria, as well as time and logistical constraints. Although it does not allow for statistical generalization to the entire population, this method is widely used in exploratory research aiming to gather diverse perceptions from targeted respondents (Creswell, 2018)

1.5.2 UTAUT and Questionnaire Design

The questionnaire was designed based on the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by (Venkatesh M. D., 2003). UTAUT synthesises eight

earlier models of technology acceptance and identifies four core determinants of behavioral intention and actual use: performance expectancy, effort expectancy, social influence, and facilitating conditions. These constructs were operationalized as follows:

- **Performance expectancy:** the degree to which a client believes that using a banking application will provide benefits such as saving time or managing money more efficiently, captured through items in the FinTech Adoption and Perceived Platform Technological Maturity dimensions.
- **Effort expectancy:** the perceived ease of using the platforms, reflected through items assessing interface simplicity, ease of use, and the knowledge required to operate the applications.
- **Social influence:** the extent to which the client perceives that important others (family, friends) think they should use these services, partially captured through the adoption and recommendation items.
- **Facilitating conditions:** the client's perception that they have the necessary resources including smartphone ownership, internet connection quality, and institutional support to use the services, reflected through items in the User Technological Maturity dimension.

In addition to UTAUT, the questionnaire integrates two original constructs developed for this study: **digital culture** (UDC) and **technological maturity** (UTM and PBTM). The full questionnaire comprises 6 sections (*Appendix 2: Questionnaire Structure*)

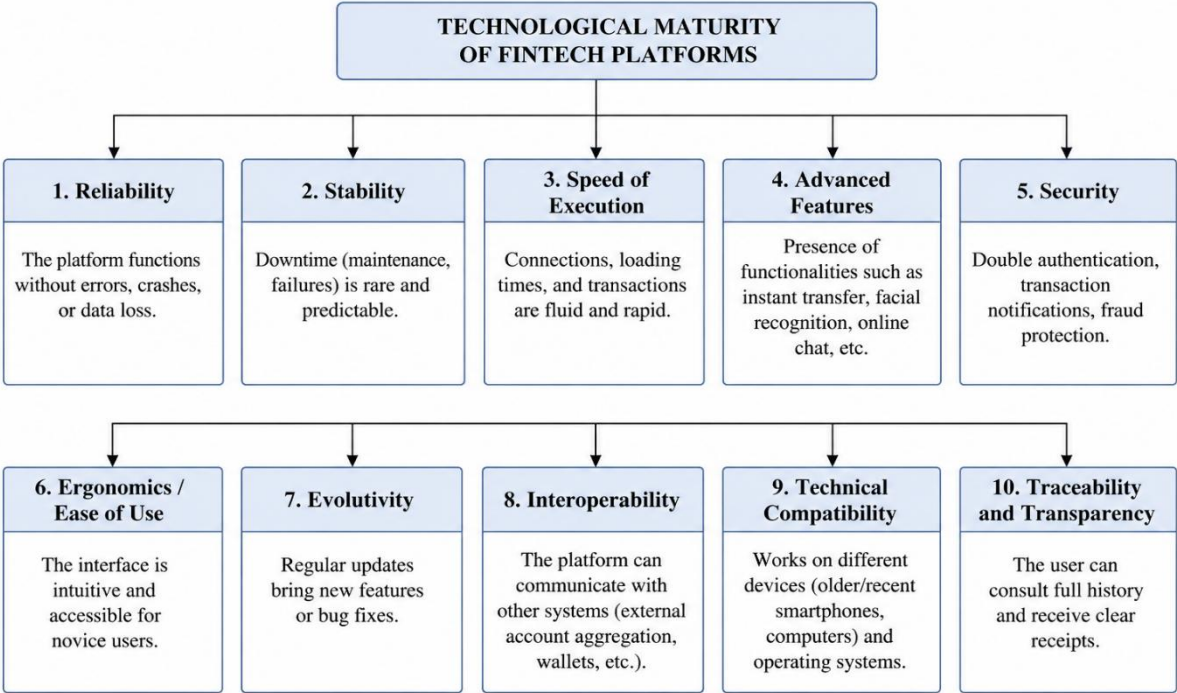
All thematic items use a five-point Likert scale with anchors ranging from 1 "Strongly disagree" to 5 "Strongly agree". For items measuring frequency of use such as banking application usage and experience with digital features the scale ranges from 1 "Never" to 5 "Very often". Items assessing quality or self-evaluation use contextually appropriate anchors, such as 1 "Very poor" to 5 "Very good" for internet connection quality, and 1 "Very low" to 5 "Very good" for digital skill self-assessment. The possible barriers question uses a multiple-response format, allowing respondents to select all applicable options simultaneously, reflecting the possibility that clients may face several simultaneous obstacles to FinTech adoption. (Saunders M. L., 2023)

1.5.3 The Ten-Criteria Grid for Technological Maturity

The measurement grid used in this study was developed through a synthesis of the theoretical and empirical literature reviewed in the preceding chapters. Rather than relying on a single framework, the grid draws on multiple academic sources collected during the literature review,

including works addressing digital maturity, technology adoption, and FinTech service quality. Among these, the framework proposed by (Fayon, 2018) for assessing the digital maturity of banking actors served as a key reference point. Adapting and consolidating insights from this body of literature to the specific context of FinTech adoption in Algeria, a grid comprising ten criteria was developed to evaluate the perceived technological maturity of of FinTech platforms.

Figure 3: Technological Maturity Grid



Source: Elaborated by the author

The same grid was used to guide both quantitative and qualitative data collection. In the client questionnaire (perceived technological maturity), the ten criteria were translated into Likert-scale items (PBTM section). In the employee interview guide (Question 3), the ten criteria were presented explicitly, and employees were asked to evaluate each platform against them. This consistency ensures that the same conceptual dimensions are measured across both sources, enabling meaningful comparison and triangulation.

1.5.4 Statistical Methods Used

Following the collection of responses from the study sample, in addition to descriptive statistics, inferential analysis will be conducted using *SPSS* (Version 26) and *SmartPLS* software. Partial Least Squares Structural Equation Modeling (PLS-SEM) will be employed to test the hypothesized relationships between digital culture, technological maturity, UTAUT constructs,

and FinTech adoption. PLS-SEM is particularly suitable for complex predictive models and does not require normally distributed data (Hair, 2019). The statistical methods used in the analysis include:

- **Frequency distributions and percentages:** to analyse the demographic characteristics of the respondents and the distribution of responses across all items.
- **Arithmetic mean and standard deviation:** to assess the central tendency and dispersion of responses across the four thematic dimensions, providing a general overview of respondent's perceptions.
- **Cronbach's Alpha coefficient:** to evaluate the internal consistency and reliability of the measurement instrument, both overall and by dimension.
- **Spearman's rank correlation coefficient:** to examine the bivariate relationships between the four study dimensions prior to structural model testing.

If the sample size permits, multiple regression analysis will also be conducted to identify the most influential predictors of FinTech adoption.

1.5.5 Sampling and Questionnaire Implementation

This part presents the sampling process and the implementation of the questionnaire used for data collection in the quantitative phase of the study.

1.5.5.1 Study Population

The study population comprises Algerian banking clients who have actively used or have the potential to use digital banking services, including mobile banking applications, e-banking platforms, and mobile payment solutions. These individuals have direct or potential experience with financial technology services, providing relevant insights into their digital culture, technological maturity, and FinTech adoption behavior.

Participants in the study population must meet the following criteria:

- Have an active bank account
- Be at least 18 years old
- Have access to a smartphone or computer with internet connection

These criteria ensure that the sample represents individuals who are eligible and positioned to use digital banking and FinTech services, enabling a focused analysis of the factors influencing adoption within the Algerian banking context.

1.5.5.2 Sampling Method

A convenience sampling method was employed to select the study sample. This is a non-probabilistic approach, chosen due to practical constraints such as limited time, accessibility, and the absence of a complete sampling frame covering all banking clients in Algeria. Convenience sampling allows for efficient data collection from participants who are readily available and willing to participate.

The questionnaire was distributed through one channel:

Online: via Google Forms, shared through social media (Facebook, WhatsApp, Telegram) and QR codes

A total of 204 valid responses were collected via Google Forms. All questionnaire items were set as mandatory, preventing incomplete submissions. The raw data were exported to Microsoft Excel, where they were inspected, cleaned, and organised before analysis. This cleaning process confirmed that all 204 responses were complete and consistent; consequently, no response was eliminated, and the entire dataset was deemed valid and usable for analysis.

For the qualitative component, purposive sampling was used. Two bank employees (customer relationship officer and monetics department employee) were selected intentionally because of their direct, daily experience with Mobile CPA and Wimpay.

1.5.5.3 Sample Size

Determining an appropriate sample size is a critical step in quantitative research, as it directly affects the reliability, precision, and generalizability of the findings. When the target population is large or its exact size is unknown as the case in this study, where the population consists of Algerian banking clients across the country. Cochran's formula is widely recommended as a systematic and statistically grounded method for sample size calculation.

Cochran's formula is expressed as follows:

Cochran's Formula

$$n_0 = \frac{Z^2 p (1-p)}{e^2}$$

Where:

n_0 = minimum required sample size

$z = 1.96$ (z-score for a 95% confidence level)

$p = 0.5$ (most conservative proportion estimate)

$e = 0.05$ (margin of error of 5%)

Substituting these values:

$$n_0 = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2} = 384.16 \approx 385$$

1.5.5.4 Practical Modalities of the Survey

The questionnaire was administered exclusively online via Google Forms. It was distributed through social media platforms (Facebook, WhatsApp, and Telegram) as well as via QR codes, allowing for wide reach across the target population of Algerian banking clients.

A pilot test was conducted with 15-20 respondents (friends, family) to identify any ambiguities, unclear wording, or technical issues. Feedback from the pilot test was used to refine the final version of the questionnaire. The pilot test also helped estimate the average completion time (approximately 5 minutes).

Data collection took place from **April 20, 2026** to **April 26, 2026**. Participation was voluntary, and all responses were anonymous.

1.6 Qualitative Approach and Data Collection Tools

The qualitative phase aimed to gain an in-depth professional assessment of the technological maturity of e-banking and Wimpay from the perspective of bank employees.

1.6.1 Data Collection Tools: Semi-Structured Interviews

Due to the researcher's internship being located in a bank agency (not the headquarters), access to internal technical documents or IT department staff was not possible. Therefore, the primary qualitative data collection method was **semi-structured interviews** with two bank employees:

- One employee from **customer service**, One employee from **monetics**
- Both employees were selected purposively because of their direct, daily experience with Mobile CPA and Wimpay, and their role in assisting clients with these platforms.

The interview guide was structured around the **ten criteria** of the technological maturity grid. The main themes covered during the interviews included:

- General overview of Mobile CPA and Wimpay platforms (functions, target users, registration process)
- Assessment of each platform against the ten criteria (reliability, stability, speed, advanced features, security, ergonomics, evolutivity, interoperability, compatibility, traceability)
- Observed difficulties and barriers faced by clients when using the platforms
- Suggestions for improving the platforms

Interviews were conducted face-to-face, recorded with the participants' consent, and transcribed verbatim.

1.6.2 Data Analysis: Thematic Analysis

The qualitative data were analysed using thematic analysis, a flexible and rigorous method well suited to identifying patterns in organisational and user contexts (Braun, 2006). The analysis was supported by NVivo software and proceeded in four main steps.

First, both interviews were transcribed verbatim to ensure accuracy and completeness. The transcripts were read several times to achieve familiarisation with the data. Second, the material was coded thematically using NVivo. Codes were initially derived from the ten criteria of the technological maturity grid (reliability, stability, speed, advanced features, security, ergonomics, evolutivity, interoperability, compatibility, and traceability) and were subsequently refined through iterative reading. Third, visual tools available in NVivo word frequency queries, word trees, and cluster analysis were employed to identify the most prominent terms and to explore conceptual associations within each theme. Fourth, the responses of the two interviewees were systematically compared for each theme, bringing points of convergence and divergence to light.

This structured yet flexible approach made it possible to transform rich qualitative material into a well-organised thematic structure, while preserving the contextual depth needed to assess the perceived technological maturity of Mobile CPA and Wimpay from an employee perspective.

1.7 Triangulation of Quantitative and Qualitative Findings

The final step of the mixed-methods analysis consists of triangulation: comparing the quantitative results (client perceptions from the questionnaire) with the qualitative findings (employee assessments from the interviews). The goal is to identify:

- **Convergence:** where both clients and employees agree on a given aspect of technological maturity
- **Divergence:** where perceptions differ (e.g., employees rate a platform highly while clients rate it poorly)
- **Complementarity:** where each dataset provides unique insights that together form a fuller picture

This triangulation strengthens the validity of the conclusions and provides a holistic understanding of the phenomenon.

Section 2: Organisational Context

This section presents the organisational and digital banking context in which the study was conducted, with a particular focus on the Algerian banking sector and CPA Bank.

1. The Digital Banking Landscape in Algeria

The Algerian banking sector has undergone a significant digital transformation over the last few years, driven by a national strategy to improve financial inclusion and reduce the circulation of cash. This evolution is supported by robust digital infrastructure and an increasingly connected population.

1.1. Digital Connectivity and User Readiness

According to the latest data from (DataReportal, 2024) and the Autorité de Régulation de la Poste et des Communications Électroniques (ARPCE, 2024), Algeria has reached a significant milestone in digital penetration. As of early 2024, there are approximately 33.5 million internet users in Algeria, representing a penetration rate of 72.9%. Furthermore, mobile connectivity remains exceptionally high, with a penetration rate exceeding 116% (more than 50 million active connections). This widespread access to mobile technology provides fertile ground for the development of FinTech services across the country.

1.2. Growth of Electronic and Mobile Payments

Data from the (Monétique, 2024), the national body regulating electronic payments, highlights a major shift in consumer behavior. At the end of 2023, the number of interbank cards (CIB and Dahabia) exceeded 16 million. More importantly, the use of mobile payment systems such as Wimpay CPA has seen exponential growth. In 2023, mobile payment transactions reached 58.4 million operations, a 49% increase compared to the previous year. Person-to-person (P2P) transfers jumped by 109%, signalling growing trust in mobile-based financial solutions. (Monétique, 2026) , At the branch level, internal statistics provided by CPA Bank for the current trimester recorded 168 Mobile CPA subscriptions and 15 Wimpay registrations, reflecting a growing interest in digital banking platforms among customers.

1.3. Regulatory Framework and Financial Inclusion

The modernisation of the sector is further accelerated by the Monetary and Banking Law of 2023, which encourages the digitalisation of banking services and provides a clear framework for FinTech innovation. For public institutions like CPA Bank, this digital shift is not only a technological upgrade but a strategic necessity to meet the expectations of an increasingly tech-savvy clientele. This national context reinforces the relevance of studying the factors that influence FA, as the country moves toward a more integrated digital financial ecosystem.

2.Presentation of CPA Bank (Source : CPA Bank , internal Documentation)

This part presents CPA Bank, the host branch where the internship was conducted, and the main digital banking platforms and services offered by the bank.

2.1 Establishment of the Bank

The Crédit Populaire d'Algérie (CPA) was established on December 29, 1966, under Ordinance N°66-366, with a capital of 15 million Algerian dinars. Its basic statutes were defined by Ordinance No° 67-78 issued on March 11, 1967.

The Crédit Populaire d'Algérie (CPA) has the status of a deposit bank in accordance with Articles 07 and 18 of Ordinance N°67-78 issued in May 1967. According to the general provisions of its statutes, CPA is considered a general and comprehensive bank and is regarded as a trader in its relations with third parties. It also integrated the structures of certain banking institutions that existed during the colonial period, namely:

- The Commercial and Industrial Popular Bank in Algiers, Oran, Constantine, and Annaba.
- The Regional Bank.
- The Bank of Marseille for Credit.
- The French Credit and Banking Company.

In 1989, following the issuance of the law on the autonomy of enterprises, CPA was transformed into a Public Economic Enterprise (EPE), which is a legal organization in the form of a joint-stock company registered in the Algerian commercial register under number 803848, with its capital owned by the state.

It has a wide commercial network consisting of 161 branches, and one of these is El Arbaa Agency 107, which is considered one of the most important branches of the bank. It is a key unit where customers are received and provided with necessary banking services. It operates under the supervision of the agency director and is hierarchically linked to the regional director according to the bank's organizational structure. El Arbaa Agency 107 was established and opened to customers on January 2, 2007, under the supervision of a technical staff composed of 30 employees. Its missions include:

- Managing and organizing the commercial relationship with clients in a dynamic way.
- Conducting detailed studies of loan files for economic operators.
- Ensuring the profitability of the agency's treasury and combating any non-productive activity.
- Monitoring the financing of investments.
- Settling banking relationships.
- Handling administrative aspects of all commercial operations for economic operators, whether in dinars or foreign currencies.
- Organizing, managing, and controlling commercial transactions.

2.2 Definition of the CPA Bank Branch

El Arbaa Agency 107 is one of the agencies to the General Directorate of Crédit Populaire d'Algérie located in Algiers. It aims to provide various banking services to individuals and institutions in the region by facilitating customer's daily financial transactions, such as opening

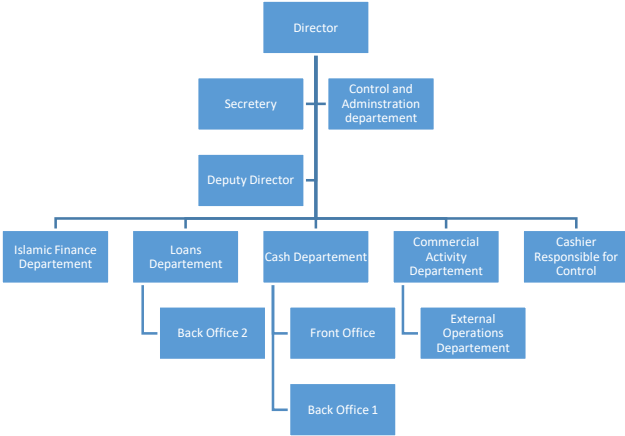
bank accounts, receiving deposits, withdrawals, transfers, as well as granting loans and other financial services.

The agency also plays an important role in bringing banking services closer to citizens and meeting their financial needs within a framework of trust and transparency. It seeks to implement the bank’s policies and procedures approved by the central administration, while striving to provide efficient and high-quality services.

It also plays a role in supporting clients and financing certain economic activities, thus contributing to the support of local economic movement and serving the community.

2.3 Organizational Structure of the Branch

Figure 4: CPA Bank Branch Organizational Structure



Source: Intern document of the Bank

The organizational structure of El Arbaa CPA Branch consists of:

- **Agency Director:** The primary person responsible for managing the banking agency. They supervise all departments and employees, monitor daily operations, ensure the proper delivery of banking services to customers, make important decisions, and work towards achieving the bank’s objectives and developing the agency’s commercial activity.
- **Secretary:** Responsible for organizing administrative work within the agency. She receives correspondence, schedules appointments, prepares administrative documents and letters, and assists the director in monitoring administrative files and organizing archives.
- **Deputy Director:** Assists the agency director in managing operations and can sign certain documents and banking transactions on behalf of the director. Also contributes to

organizing work between different departments and ensures compliance with banking laws and procedures.

- **Control and Administration Department:** Responsible for monitoring banking operations to ensure they are carried out correctly and in accordance with applicable regulations. It also manages administrative matters related to employees and ensures the smooth functioning of operations.
- **Cash Department:** Handles daily financial transactions such as withdrawals, deposits, and money transfers. Employees in this department deal directly with customers and ensure accuracy and security in operations.
- **Loans Department:** Studies loan applications submitted by customers by analyzing files and verifying the customer's ability to repay before approval. It is considered one of the most important departments in the bank.
- **Islamic Finance Department:** Provides financial services compliant with Islamic Sharia principles, offering financing solutions to customers who prefer this type of banking transaction.
- **Commercial Activity Department:** Plays an important role in developing the agency's activity by promoting banking services, attracting new customers, and strengthening relationships with existing clients.
- **Cashier Responsible for Control:** Executes various financial operations such as withdrawals and cash disbursements, while ensuring accurate recording and compliance with banking procedures.
- **Front Office:** One of the most important sections in the banking agency, representing the direct point of contact between the bank and customers. Employees receive clients, answer their inquiries, provide banking services, and direct them to the appropriate departments based on their needs.
- **Back Office:** Handles the administrative and organizational processing of banking operations. Employees do not deal directly with customers but focus on analyzing files and verifying the accuracy of documents and transactions.
- **External Operations Department:** One of the key departments within the agency, responsible for banking operations related to international transactions, including sending

and receiving money transfers abroad, as well as monitoring operations related to foreign trade.

2.4 CPA's Platforms presentation

CPA Bank offers several types of deposit accounts to individuals and businesses. The most common current account for personal use is the “*Compte Chèque Particulier*” (code 410), which serves everyday banking needs. The bank also provides Islamic current accounts, namely the “*Compte Chèque Islamique*” (code 402) for individuals and the “*Compte Courant Islamique*” (code 403) for professionals. Savings accounts “*Livret Épargne Banque*” (code 430) and commercial current accounts (code 400) complete the core offering. Access to the digital platforms Mobile CPA and Wimpay is linked to holding a current account in Algerian dinars for service billing. Mobile CPA can additionally be used to consult a foreign currency account, provided that a dinar account is already held for billing purposes.

2.4.1. Wimpay:

Wimpay is a multifaceted FinTech application that integrates both Mobile Banking and Mobile Payment functionalities

2.4.1.1. Definition of the “Wimpay CPA” Service for Individuals

The “Wimpay CPA individual service” is a mobile payment method based on scanning a QR Code. It allows CPA customers to make remote and proximity payments as well as instant money transfers from person to person and History consultation. By subscribing to this service, the client accepts the general conditions set out in this agreement, which govern the use of the mobile payment application “Wimpay CPA individual”.

- **The subscribed client:** A natural person using the “Wimpay CPA individual” service, holding accounts with CPA Bank, as well as their designated representatives.
- **Wimpay Features:**
 - QR Code: An easy-to-use technology that allows payments by scanning a unique code via the Wimpay Client application.
 - High-level security: All transactions are protected by strong encryption to ensure the confidentiality of personal and financial data.

- **Digital wallet:** A secure space where you can store your payment information and track your expense history.
- **Budget management:** Real-time tracking of expenses and access to a detailed transaction history to better manage your budget.
- **Pricing:** The application is free. No commission is charged on payments made via the Wimpay Client service for the year 2025.
- **User:** A natural person of legal age and capacity who is the holder, co-holder, and/or authorized representative of the designated account opened with the bank, in order to use all or part of this service. The parties acknowledge that they have the means and technical knowledge required to sign this agreement. Within this framework, the client may sign an agreement for accounts held in their name or for which they have a mandate or authorization to operate. By signing the form of this agreement, the client also acknowledges having read and accepted these general conditions without reservation.
- **Mobile Device:** The user must have a mobile device such as a smartphone or tablet connected to a WiFi network or a 3G/4G network or higher, on which the “Wimpay CPA individual” application will be installed.
- **Application “Wimpay CPA individual»:** The bank’s mobile application, called “WIMPAY CPA individual”, which the user can download and install on their smartphone or tablet via the “Play Store” for Android systems and the “App Store” for iOS systems.
- **Client Identifier:** The client user logs into the “Wimpay CPA individual” application by entering their email address.
- **Password:** A personal numeric code (secret code) sent by email by the platform managing the “Wimpay CPA individual” application to its clients to authenticate themselves on the application and access the services to which they are subscribed. The user must change their password upon first login via the “Wimpay CPA individual” application. The password change is carried out via the user session within the “Wimpay CPA individual” application.
- **Payment:** it includes all payment transactions and money transfers carried out from a mobile phone or tablet.
- **Alias:** A pseudonym chosen by the client, used to identify the user in mobile payment solutions and to search for subscribed clients within this service in the context of money transfers between individuals.

2.4.1.2 Operating Conditions

- **Available Services:** Within the framework of the “Wimpay CPA individual” mobile payment service, the bank offers the following services:
 - Payment for services or goods remotely with merchants, professionals, and government institutions that accept payments via “Wimpay CPA individual”.
 - Consultation of the Wimpay CPA individual account balance as well as the history of all operations carried out.
 - Instant money transfers from person to person.
- **Conditions for subscribing to the service “Wimpay CPA individual”:** Access to “Wimpay CPA individual” is reserved exclusively for individuals over 19 years of age who meet the following criteria:
 - Possess one or more checking and/or savings accounts opened with the bank;
 - Designate one of the above accounts for activating the service;
 - Have a smartphone or tablet with an internet connection; Have an active email address;
 - Sign the subscription agreement for the “Wimpay CPA individual” service.
- **Technical Means:** Access to the service is via a smartphone or tablet meeting the required compatibility and security standards and connected to the internet. The subscribing client is responsible for:
 - Their internet access, including the choice of the service provider; The compatibility of the device (smartphone or tablet) necessary for using the service;
 - The client must download and install the application on their smartphone or tablet.
 - Only the account opened in their personal name can be linked to the “Wimpay CPA individual” services.
- **Service Activation for “Wimpay CPA individual” Clients:** The bank activates this service for clients at the branch via the subscription management system after the client signs the “Individual” subscription agreement for the mobile payment service “Wimpay CPA individual». The password to access this application is sent to clients by email.
- **Client Responsibility:** The client subscribing to the “Wimpay CPA individual” services assume full responsibility for the storage and use of their identifier (email address) and

password. It is strongly recommended not to write it down. In case of doubt regarding the confidentiality of the password by a third party, the client must change it immediately.

- The use of the identifier and password to access the “Wimpay CPA individual” service allows the client to benefit from the services offered, with all operations legally recognized as being carried out by the client.
 - For security reasons, access to the service may be temporarily denied after three (03) unsuccessful password attempts. It is strongly recommended that the client frequently change their password.
 - The client agrees to update their registered information in case of any changes.
 - They must also exercise discretion when entering their identifier and password to access the application. The password must be carefully chosen, avoiding obvious combinations (such as date of birth), and must not be saved on the device.
 - The smartphone or tablet must also be protected by a password or fingerprint, and internet, infrared, or Bluetooth connections should only be activated when necessary.
 - The client must immediately inform the bank in case of abnormal functioning of the “Wimpay CPA individual” application or any other anomaly. The possession of identifiers and passwords is the sole responsibility of the client regarding their storage and use.
 - The client undertakes to maintain sufficient funds in their account to execute operations carried out via the “Wimpay CPA individual” application.
 - The use of the “Wimpay CPA individual” services implies acceptance of the provisions of this agreement as well as the general conditions.
- **Protection of Personal Data in Accordance with Law No. 18-07:** The client declares that they have authorized the Bank to process personal data related to this agreement in accordance with the applicable regulations. They expressly grant the Bank permission to share their personal information with service providers of the solution who carry out, on behalf of the Bank, certain material and technical tasks essential to the operation of “Wimpay CPA individual”.

Wimpay, one of the two platforms examined in this study, is a QR code-based mobile payment application developed by the CPA. However, it also incorporates mobile banking functionalities, including peer-to-peer transfers and balance consultation. This hybrid nature

combining mobile payment and mobile banking features positions Wimpay at the intersection of both service categories, which is why the mobile banking literature serves as the primary theoretical foundation for this research. Studies on mobile payment adoption confirm that performance expectancy, effort expectancy, and perceived trust are the strongest predictors of adoption intention, consistent with findings from the mobile banking literature (Islam S. R., 2024) (Nandru, 2024). (Source: CPA Bank , Internal Documentation)

2.4.2. Mobile CPA:

2.4.2.1 Definition of the “Mobile CPA” Service for Individuals

The Mobile CPA service is an extension of the e-banking service. Subscription to this new service is subject to the client's prior subscription to the e-banking service, in accordance with the procedures of the joint letter No. 05/2008 relating to the modalities and procedures for managing remote banking services (e-banking).

- **The subscribed client:** A natural or legal person, user of the Mobile CPA service, holding an account with CPA bank, as well as their designated representatives.
- **User:** A natural person of legal age and capacity, holder and/or representative of one or more accounts with the bank, and who uses all or part of this service.

The parties acknowledge that they have the technical means and knowledge required to sign this contract. The client may, within this framework, sign a contract for accounts opened in their name or for which they have a mandate or are authorized to operate.

By signing the contract form, the client also acknowledges having read these general conditions and their annexes and accepts them without reservation.

- **Mobile device:** The user must have a mobile device such as a smartphone or tablet connected to a Wi-Fi network or a 3G/4G network, on which the Mobile CPA application will be installed.
- **Mobile CPA application:** The bank’s mobile application called Mobile CPA, which the user can download and install on their smartphone or tablet via Google Play for Android systems and the App Store for iOS systems.
- **Identifier:** The identifier is provided by the bank to its client when they subscribe to the e-banking service, allowing authentication on the Mobile CPA application.

- **Password:** A personal and confidential numeric code provided by the bank to the client to authenticate on the Mobile CPA application and access the subscribed services.

The password is also used to sign transfer orders.

The user must change their password upon first login to the Mobile CPA application. The password can be changed via the user's session within the application.

- **Services:** Current and future services as described in Article 3 below of this contract, made available to the user through the Mobile CPA application.

2.4.2.2 Description of services:

Through the Mobile CPA application, the user can benefit from several services, including:

- Consulting the balance and history of current and savings accounts
 - Sorting and searching transactions in account statements by description, date, and amount
 - Sending bank account details (RIB) via SMS or email
 - Initiating, signing, and transferring single transfer orders remotely from account to account or to beneficiaries within CPA or other banks
 - Consulting the status of transfer orders
 - Accessing the list of all branches and their contact details
 - Locating CPA branches and determining their exact route on the map
 - Contacting the branch via email or phone securely using Secure Socket Layer (SSL) certificates that encrypt all exchanged data
 - Currency conversion
 - Changing the application language (Arabic, French, English)
- **Description of the single transfer service:** The single transfer service via the Mobile CPA application allows clients to initiate domestic transfers below one (01) million dinars in interbank transactions securely, for one or multiple beneficiaries, without visiting their branch, It also allows transfers between accounts (same holder, same beneficiary) or to beneficiaries in the same or different agencies or other banks, within the same amount limit, Transfers can be immediate and/or scheduled.

2.4.2.3 Implementation conditions:

The client acknowledges that operations carried out via the Mobile CPA application are subject to applicable regulatory provisions and contractual rules governing the accounts.

The bank has the right to take appropriate measures provided by the account agreement and may refuse any operation that does not comply with contractual terms.

- **Access conditions:**

- The client must subscribe to both e-banking and Mobile CPA services and sign this contract.
- Existing e-banking users can access Mobile CPA using the same credentials.
- The bank reserves the right to refuse registration for legitimate reasons (check restrictions, outdated KYC, high AML risk, etc.) without justification.

- **Connection to the Mobile CPA application:** Access is granted using the identifier and password via the application's virtual keyboard. The Mobile CPA application is considered digital content not provided on a physical medium. Services are available 24/7. However, the bank may interrupt services without prior notice for maintenance or improvement.

- **New version of the Mobile CPA application:**

- New versions will be regularly available via App Store and Google Play.
- Users will be notified, and by downloading updates, they accept modifications to the general terms.
- They must install updates within one month.

2.4.2.4 General security obligation:

- The user must protect their identifier and password, which are strictly personal and confidential.
- They must not share or store them.
- Passwords must be strong (avoid simple combinations).
- Devices must be secured (password or biometric).
- After 3 failed attempts, access is blocked.

2.4.2.5 Equipment compatibility:

- The user must ensure their device is compatible with the application.
- Relevant information is available on the bank's website.
- The application will not function if the device is incompatible with the bank's systems.

(Source : CPA Bank, Internal Documentation)

CHAPTER III: RESULTS AND DISUCSSION

This chapter is dedicated to presenting and interpreting the main findings of the study based on the data collected from both the questionnaire and the interviews. It aims to assess the influence of digital culture and technological maturity on the adoption of FinTech services among banking clients in Algeria, in accordance with the research objectives and hypotheses. The chapter is structured into three sections.

The first section focuses on the quantitative results obtained from the questionnaire responses. These results are analyzed using descriptive and inferential statistical tools through SPSS (Version 26) and SmartPLS. This section includes frequency distributions, means, standard deviations, and PLS-SEM path coefficients, all aimed at examining banking clients' perceptions of their digital culture, technological maturity, and the perceived technological maturity of FinTech platforms.

The second section presents the qualitative results obtained through semi-structured interviews with two bank employees at the CPA branch, namely a Customer Relationship Officer and a Monetics Department Employee. These insights offer a complementary perspective by shedding light on the technological maturity of Wimpay and Mobile CPA platforms from the viewpoint of banking professionals directly involved in their deployment and client support. The qualitative data was processed and analyzed using NVivo, through word frequency analysis, word trees, cluster analysis, and thematic coding.

The third section provides a comprehensive discussion of the results by comparing and contrasting the quantitative and qualitative findings. This section seeks to interpret the data in light of existing literature and theoretical models such as the Unified Theory of Acceptance and Use of Technology (UTAUT). It also explores how the results align or diverge from prior studies and highlights implications for the digitalization of the Algerian banking sector.

Through this structure, the chapter aims to provide a holistic understanding of the realities and challenges of FinTech adoption in Algeria

Section 1: Results

This section presents the results of the research conducted on the influence of digital culture and technological maturity on the adoption of FinTech services among banking clients in Algeria. It is divided into two main parts, combining both quantitative and qualitative findings in accordance with the adopted mixed methods approach. The quantitative results, derived from structured questionnaires administered to banking clients, offer a general overview of trends, perceptions, and challenges related to digital culture, user technological maturity, and the

perceived technological maturity of FinTech platforms. The qualitative results, based on semi-structured interviews conducted with two CPA bank employees (a Customer Relationship Officer and a Monetics Department Employee) provide in-depth insights into the platforms' technological maturity, adoption barriers, and user profiles. Together, these findings form the empirical foundation for the analysis and discussion presented in the next section.

The quantitative analysis is structured as follows: reliability and validity testing, descriptive statistics, sample profile, and PLS-SEM structural model testing, conducted respectively through SPSS (Version 26) and SmartPLS 4.

1.1 Quantitative Results

This section presents the quantitative findings derived from the analysis of 204 valid responses, conducted using SPSS 26 and SmartPLS 4.

1.1.1 SPSS Results

The following part presents the main statistical analyses performed using SPSS 26

1.1.1.1 Reliability and Internal Consistency of the Questionnaire

To ensure the consistency and accuracy of the measurement tool used in this study, the reliability of the questionnaire was assessed using Cronbach's Alpha coefficient. This test was applied to examine the internal consistency of the four thematic dimensions of the instrument, namely digital culture, user technological maturity, perceived platform technological maturity, and FinTech adoption. It is worth noting that the reliability analysis was conducted exclusively on the 37 Likert-scale items corresponding to these four dimensions. Demographic items and multiple-choice barrier questions were excluded from this analysis as they do not constitute reflective measurement scales. The statistical analysis, conducted via SPSS version 26, produced the following results:

Table 12: Overall Reliability and Internal Consistency of the Questionnaire

Reliability	
Cronbach's Alpha	Number of Items
0.935	37

Source: Prepared by the Author Based on SPSS Results

As shown in the table above, the overall reliability of the questionnaire is excellent, with a Cronbach's Alpha coefficient of **0.935**. This indicates a high degree of internal consistency among the 37 items and confirms the robustness of the instrument in capturing data on the

influence of digital culture and technological maturity on the adoption of FinTech services among banking clients in Algeria. Given that the obtained value significantly exceeds the minimum acceptable threshold of 0.70 in social science research (Nunnally, 1978), it reinforces the instrument's reliability and its validity in measuring the phenomena under investigation.

A more detailed evaluation of both reliability and validity was conducted at the level of each dimension of the questionnaire, as presented in the table below:

Table 13: Reliability and Validity Coefficients by Dimension

Dimension	N of Items	Cronbach's Alpha	Validity Coefficient
User's Digital Culture (UDC)	11	0.795	0.891
User Technological Maturity (UTM)	8	0.737	0.858
Perceived Platform Technological Maturity (PBTM)	13	0.906	0.952
FinTech Adoption (FA)	5	0.888	0.942
Overall Questionnaire	37	0.935	0.967

Source: Prepared by the Author Based on SPSS Results

The first dimension, which focuses on the UDC, achieved a Cronbach's Alpha of (0.795) and a corresponding validity coefficient of (0.891). These results indicate a satisfactory internal alignment between items measuring client's digital habits, online autonomy, and comfort with technology.

The second dimension, which addresses UTM, reported the lowest reliability coefficient among the four dimensions (0.737). Despite being relatively lower than the other dimensions, it remains above the acceptable threshold of (0.70) for social science research, suggesting sufficient internal coherence to reflect respondents' views on their digital equipment, experience, and self-assessed competence level.

The third dimension, focusing on PBTM, achieved the highest reliability score (0.906) and a validity coefficient of (0.952), indicating an excellent level of internal consistency. This confirms the robustness of the items measuring clients' perceptions of platform reliability, security, ergonomics, speed, and advanced features.

The fourth dimension, measuring FA, recorded a Cronbach's Alpha of (0.888) and a validity coefficient of (0.942), reflecting a very good level of consistency among items capturing clients' actual usage frequency, satisfaction, and behavioral intentions toward digital banking services.

Finally, the overall high reliability and validity coefficients affirm that the questionnaire is a reliable and valid tool for capturing banking clients' perspectives on digital culture, technological maturity, and FinTech adoption in Algeria.

It should be noted that the barriers dimension was excluded from reliability testing, as it consists of nominal categorical items that are not suited for Cronbach's Alpha analysis.

1.1.1.2 Correlation Between Dimensions

In order to interpret the strength of the relationships between the study's dimensions, a standard scale was adopted, based on standard correlation coefficient ranges widely used in social science research. This scale serves as a reference for reading the Spearman correlation matrix presented in (**Appendix 6: Interpretation Scale for Spearman's Correlation Coefficient**)

Table 14: Spearman Correlation Analysis of Dimensions

Correlations						
			Score_UDC	Score_UTM	Score_PBTM	Score_FA
Spearman's rho	Score_UDC	Correlation Coefficient	1,000	,537**	,551**	,456**
		Sig. (2-tailed)	.	,000	,000	,000
		N	204	204	204	204
	Score_UTM	Correlation Coefficient	,537**	1,000	,593**	,613**
		Sig. (2-tailed)	,000	.	,000	,000
		N	204	204	204	204
	Score_PBT M	Correlation Coefficient	,551**	,593**	1,000	,665**
		Sig. (2-tailed)	,000	,000	.	,000
		N	204	204	204	204
	Score_FA	Correlation Coefficient	,456**	,613**	,665**	1,000
		Sig. (2-tailed)	,000	,000	,000	.
		N	204	204	204	204

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Prepared by the Author Based on SPSS Results

To interpret the strength of the correlation coefficients obtained, the scale presented in the table above was adopted as a reference framework.

The results reveal statistically significant positive correlations between all four dimensions at the 0.01 significance level (N = 204), confirming the conceptual coherence of the research model.

The strongest correlation is observed between PBTM and FA ($r = 0.665$), which falls within the moderate range. This suggests that clients who perceive the FinTech platforms as technologically mature are considerably more inclined to adopt and use these services regularly.

UTM also demonstrates a moderate and significant association with FA ($r = 0.613$), indicating that clients with higher levels of digital competence and experience tend to adopt FinTech services more readily. Similarly, the correlation between UTM and PBTM ($r = 0.593$) falls within the moderate range, reflecting a mutual reinforcement between user digital capabilities and their perception of platform quality.

UDC shows moderate correlations with PBTM ($r = 0.551$) and UTM ($r = 0.537$), and a weak but significant association with FA ($r = 0.456$). This suggests that while digital culture plays an important role in shaping user's perceptions and competencies, its direct influence on FinTech adoption appears to be weaker compared to the other dimensions.

Overall, these results confirm the internal coherence of the conceptual model and support the relevance of the four dimensions in explaining FinTech adoption behavior among Algerian banking clients.

Table 15: Synthese of Pearson Correlation of Dimensions

Pair	Correlation	Interpretation
UDC ↔ UTM	0.537**	Moderate
UDC ↔ PBTM	0.551**	Moderate
UDC ↔ FA	0.456**	Weak
UTM ↔ PBTM	0.593**	Moderate
UTM ↔ FA	0.613**	Moderate
PBTM ↔ FA	0.665**	Moderate

** Significant at 0.01 level (2-tailed). N = 204

Source: Prepared by the Author Based on SPSS Results

1.1.1.3 Analysis of the Personal Data of the Study Sample

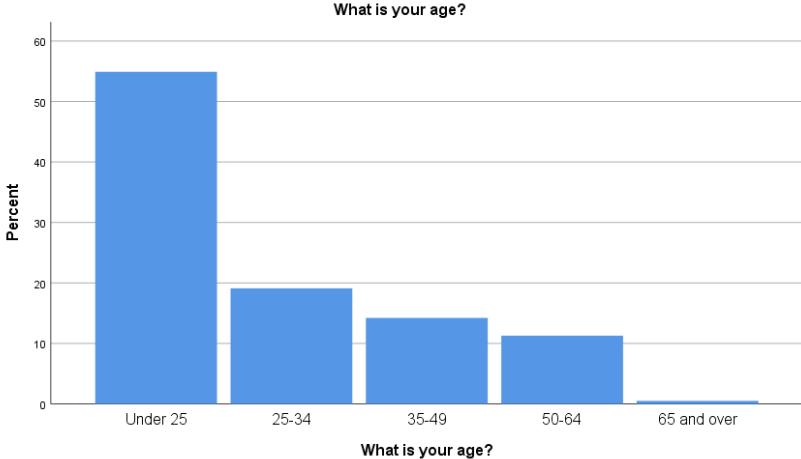
This section presents the demographic characteristics of the study participants. The sample consists of Algerian banking clients who use or have been exposed to digital banking services

and FinTech platforms. The analysis covers five variables: gender, age group, educational level, professional status, and monthly income range.

Understanding the composition of the sample is essential for contextualizing the findings and ensuring the representativeness of the results. The diversity in profiles enhances the explanatory power of the study and provides a comprehensive view of digital culture levels, user technological maturity, perceived platform technological maturity, and FinTech adoption behaviors, and possible barriers to adoption among Algerian banking clients.

a) Age Distribution of Respondents

Figure 5: Age Distribution of Respondents

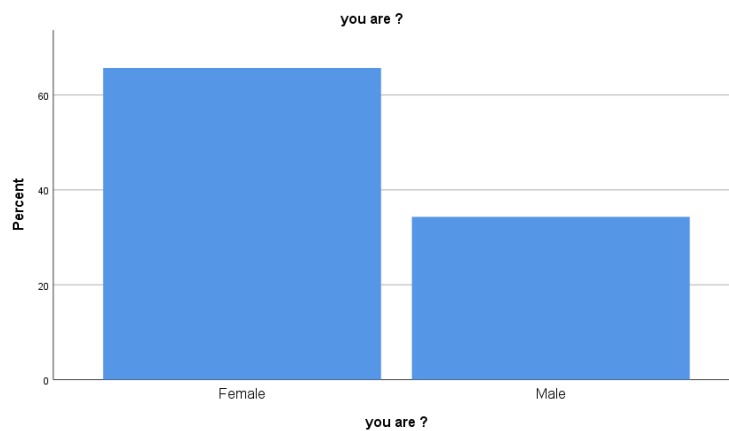


Source: Prepared by the Author Based on SPSS Results

As shown in the table above, the sample is predominantly composed of young respondents, with 54.9% being under 25 years of age, followed by the 25-34 age group representing 19.1% of the sample. Respondents aged 35-49 account for 14.2%, while those aged 50-64 represent 11.3%. The 65 and over category is nearly absent with only 0.5%. This age distribution reflects a predominantly young sample, which is consistent with the higher digital literacy and smartphone usage typically observed among younger generations in Algeria.

b) Gender Distribution of Respondents

Figure 6: Gender Distribution of Respondents

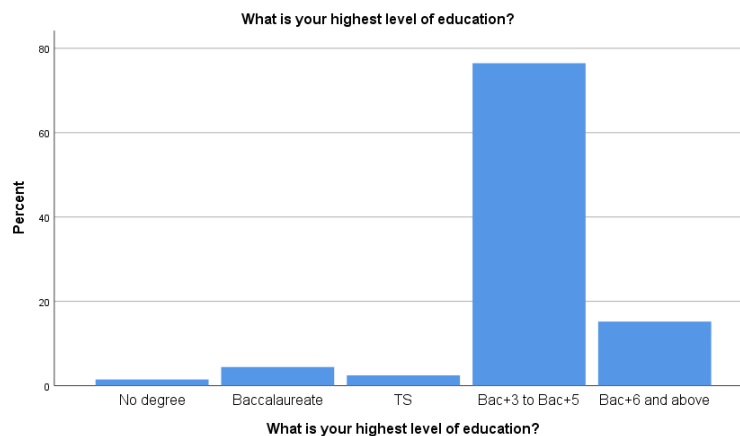


Source: Prepared by the Author Based on SPSS Results

The data reveals that the sample is predominantly female, with 65.7% of respondents being women and 34.3% being men. This distribution may reflect the accessibility of the online questionnaire and the willingness of female banking clients to participate in academic research.

c) Educational Level of Respondents

Figure 7: Educational Level of Respondents



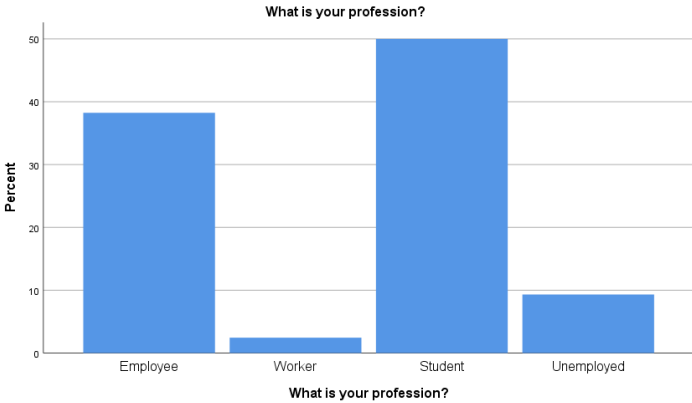
Source: Prepared by the Author Based on SPSS Results

The findings indicate that the educational profile of the sample reveals a highly educated population, with 76.5% of respondents holding a degree between Bac+3 and Bac+5 (Bachelor or Master level), and 15.2% holding a Bac+6 or above. Respondents with a Baccalaureate represent 4.4%, while those with a technical degree (TS) account for 2.5%. Only 1.5% of respondents have no formal degree. This high educational level suggests that the sample

possesses a relatively strong capacity for digital comprehension and critical assessment of FinTech platforms.

d) Professional Status of Respondents

Figure 8: Professional Status of Respondents

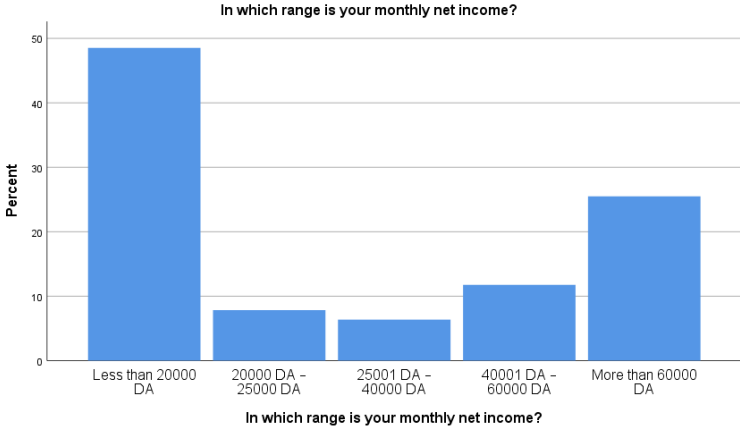


Source: Prepared by the Author Based on SPSS Results

The results show that in terms of professional status, students constitute the largest group with 50.0% of respondents, followed by employees at 38.2%. Unemployed respondents represent 9.3%, while workers account for 2.5%. The predominance of students is consistent with the age distribution observed earlier, and may partially explain the high proportion of respondents with limited income levels.

e) Monthly Income of Respondents

Figure 9: Monthly Income of Respondents



Source: Prepared by the Author Based on SPSS Results

The analysis demonstrates that regarding monthly income, 48.5% of respondents earn less than 20,000 DA, which is the largest income category. This is followed by those earning more than 60,000 DA (25.5%), those earning between 40,001 and 60,000 DA (11.8%), those earning between 20,000 and 25,000 DA (7.8%), and finally those earning between 25,001 and 40,000 DA (6.4%). The high proportion of low-income respondents is consistent with the large share of students in the sample, as students typically have limited or no independent income.

1.1.1.4 Descriptive Statistics of the Main Dimensions

To provide a general overview of respondents' perceptions across the four dimensions of the study, descriptive statistics were computed for each dimension score, including the mean, standard deviation, minimum, and maximum values. The results are presented in the table below.

Table 16: Descriptive Statistics of the Main Dimensions

		Statistics			
		Score_UDC	Score_UTM	Score_PBTM	Score_FA
N	Valid	204	204	204	204
	Missing	0	0	0	0
Mean		4,1555	3,3051	3,7089	3,4539
Std. Deviation		,59589	,74093	,68561	1,07348
Minimum		1,00	1,00	1,00	1,00
Maximum		5,00	5,00	5,00	5,00

Source: Prepared by the Author Based on SPSS Results

The results reveal that the UDC recorded the highest mean score (M = 4.155, SD = 0.595), indicating that respondents generally possess a strong digital culture and feel comfortable with technology and online services.

PBTM ranked second with a mean of 3.708 (SD = 0.685), suggesting a moderately positive perception of the technological maturity of FinTech platforms among banking clients.

FA recorded a mean of 3.453 (SD = 1.073), reflecting a moderate level of adoption among respondents. The relatively high standard deviation indicates notable variability in adoption behaviors across the sample.

Finally, UTM recorded the lowest mean score (M = 3.305, SD = 0.740), suggesting that while respondents have a good digital culture, their actual technological maturity in terms of equipment usage and digital experience remains moderate.

Overall, all dimensions recorded mean scores above 3.00 on a five-point Likert scale, reflecting generally positive perceptions and behaviors toward digital banking services among the sampled Algerian banking clients.

1.1.1.5 Barriers to FinTech Adoption

To identify the main obstacles preventing banking clients from using digital banking services, respondents were asked to select all applicable barriers from a predefined list. The results are presented in the table below.

Table 17: Barriers to FinTech Adoption

Barrier	Selected (%)	Not selected (%)
I do not feel secure	28.9	71.1
It is too complicated	10.3	89.7
I do not need these services	18.6	81.4
My phone or computer is not suitable	3.4	96.6
I do not trust technology	12.3	87.7
I prefer going to the branch	16.2	83.8
I am not familiar with these services	29.9	70.1

Source: Prepared by the Author Based on SPSS Results

The findings reveal that the most frequently cited barrier is lack of familiarity with these services (29.9%), closely followed by security concerns (28.9%). This suggests that a significant proportion of respondents are either unaware of the available FinTech services or lack sufficient knowledge to use them confidently, while a similar proportion feel uncertain about the security of digital transactions.

The third most cited barrier is lack of need (18.6%), indicating that a notable share of respondents do not perceive digital banking services as necessary for their daily needs. Preference for visiting the branch ranks fourth (16.2%), reflecting a persistent attachment to traditional banking practices among certain clients.

Distrust in technology was selected by 12.3% of respondents, while complexity of use was cited by 10.3%, suggesting that interface usability and technological confidence remain moderate concerns. Finally, device incompatibility represents the least cited barrier (3.4%), indicating that technical equipment is generally not a limiting factor for the sampled population.

Overall, these results suggest that the main barriers to FinTech adoption in Algeria are predominantly cognitive and behavioral in nature related to awareness, trust, and habit rather than technical or financial.

❖ **Synthesis of SPSS Results**

The descriptive and correlational analysis conducted via SPSS reveals several key findings. First, the sample is predominantly young, highly educated, and female, with students representing the largest professional group (50.0%), followed by employees (38.2%). Second, all four dimensions demonstrate satisfactory to excellent levels of internal consistency, with an overall Cronbach's Alpha of 0.935, confirming the robustness of the measurement instrument.

Regarding respondent's perceptions, UDC recorded the highest mean score ($M = 4.155$), indicating that respondents generally possess strong digital literacy and comfort with technology. PBTM ranked second ($M = 3.708$), followed by FA ($M = 3.453$) and UTM ($M = 3.305$). Notably, all dimensions scored above the theoretical midpoint of 3.00 on a five-point Likert scale, reflecting generally positive perceptions toward digital banking services among the sampled population.

Correlation analysis reveals significant positive associations between all dimensions at the 0.01 significance level. The strongest relationship is observed between PBTM and FA ($r = 0.665$), suggesting that platform quality perception is the most influential factor in driving adoption. The weakest association is between UDC and FA ($r = 0.456$), indicating that digital culture alone may be insufficient to directly drive FinTech adoption. Furthermore, the main barriers to adoption are predominantly cognitive and behavioral in nature, particularly lack of familiarity with services (29.9%) and security concerns (28.9%), rather than technical or financial obstacles.

The SPSS analyses presented above were conducted on the full set of 37 questionnaire items in order to obtain an initial overview of the instrument's internal consistency and of the bivariate relationships between the four dimensions. At this exploratory stage, all originally designed items were retained. It is noteworthy that even with this complete item set, the weakest correlation was observed between UDC and FA ($r = 0.456$), a first indication that digital culture might not be the primary direct driver of adoption.

In the subsequent PLS-SEM phase, the measurement model was assessed according to (Hair, 2019) guidelines. Items with outer loadings below the required threshold were removed in order to improve convergent and discriminant validity. Importantly, even before any item deletion,

the structural model run on the full item set already yielded a non-significant and slightly negative direct path from UDC to FA, confirming the SPSS trends. The refined model, presented below, sharpens these results by retaining only the most robust indicators, thereby offering a clearer view of the indirect, fully mediated influence of digital culture through perceived platform maturity. Thus, the two stages of analysis are complementary and convergent, moving from broad-brush exploration to precise structural relationships.

1.1.2 PLS-SEM Results

The assessment of the measurement model was conducted following (Hair, 2019) and evaluated through four criteria: indicator reliability (outer loadings), internal consistency reliability (Cronbach's Alpha, rho_a, and rho_c), convergent validity (AVE), and discriminant validity (Fornell-Larcker criterion and HTMT ratio).

Based on an initial assessment, items with outer loadings below 0.50 were removed to improve construct validity: UDC1, UDC5, UDC6, UDC7, UDC10, UDC11 from Digital Culture (UDC); UTM1, UTM6, UTM7 from User Technological Maturity (UTM); and PBTM1, PBTM2, PBTM4 from Perceived Platform Technological Maturity (PBTM). The revised model was then re-estimated using the PLS Algorithm.

1.1.2.1 Indicator Reliability (Outer Loadings)

Indicator reliability was assessed by examining the outer loadings of each item on its corresponding construct. According to (Hair, 2019), outer loadings should ideally exceed 0.70. However, items with loadings between 0.40 and 0.70 may be retained if their removal does not improve the Average Variance Extracted (AVE) above the recommended threshold.

As presented in the table below, the majority of items demonstrate satisfactory outer loadings. FA construct records the highest loadings, ranging from (0.744) FA5 to (0.891) FA3, confirming strong indicator reliability. PBTM construct presents loadings ranging from (0.630) PBTM13 to (0.787) PBTM11, which are considered acceptable. UDC construct shows loadings between (0.647) UDC3 and (0.830) UDC4, while UTM construct presents loadings ranging from (0.579) UTM3 to (0.762) UTM2.

It is worth noting that UTM3 (0.579) and PBTM13 (0.630) fall slightly below the 0.70 threshold. However, given the exploratory nature of this study and the fact that their removal did not significantly improve the AVE, these items were retained in the final model (Hair, 2019)

Table 18: Outer Loadings

	FA	PBTM	UDC	UTM
FA1	0,845			
FA2	0,863			
FA3	0,891			
FA4	0,813			
FA5	0,744			
PBTM10		0,734		
PBTM11		0,787		
PBTM12		0,757		
PBTM13		0,630		
PBTM3		0,698		
PBTM5		0,683		
PBTM6		0,726		
PBTM7		0,732		
PBTM8		0,684		
PBTM9		0,748		
UDC2			0,698	
UDC3			0,647	
UDC4			0,830	
UDC8			0,691	
UDC9			0,660	
UTM2				0,762
UTM3				0,579
UTM4				0,711
UTM5				0,658
UTM8				0,665

Source: Prepared by the Author based on SmartPLS4 results

1.1.2.2 Internal Consistency Reliability (α , ρ_c , ρ_A)

Internal consistency reliability was assessed using three complementary indicators: Cronbach's Alpha (α), Composite Reliability ρ_a (ρ_A), and Composite Reliability ρ_c (ρ_c). While Cronbach's Alpha is the most traditional measure, (Hair, 2019) recommend prioritizing ρ_c as a more accurate indicator of reliability in PLS-SEM. All three indicators should exceed the threshold of 0.70.

As shown in the table below, all constructs demonstrate satisfactory to excellent levels of internal consistency reliability across all three indicators.

Table 19: Internal Consistency Reliability

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
FA	0,888	0,894	0,918	0,693
PBTM	0,896	0,900	0,914	0,517
UDC	0,750	0,774	0,833	0,502
UTM	0,706	0,716	0,808	0,459

Source: Prepared by the Author based on SmartPLS4 results

FA and PBTM constructs record the highest reliability values, with rho_c of (0.918) and (0.914) respectively, indicating excellent internal consistency. UDC construct presents a rho_c of (0.833), while UTM construct records a rho_c of (0.808), both exceeding the 0.70 threshold. Although the Cronbach's Alpha of UTM (0.706) is slightly above the minimum threshold, the composite reliability values confirm the overall reliability of the construct.

1.1.2.3 Convergent Validity (AVE)

Convergent validity refers to the degree to which items measuring the same construct are correlated with each other. It is assessed using the Average Variance Extracted (AVE), which represents the proportion of variance captured by a construct relative to measurement error. Following (Hair, 2019), an AVE value above 0.50 indicates acceptable convergent validity. As presented in the table below, the results reveal mixed outcomes across the four constructs.

Table 20: Convergent Validity (AVE)

	Average variance extracted (AVE)	Status
FA	0.693	> 0.50
PBTM	0.517	> 0.50
UDC	0.502	> 0.50
UTM	0.459	< 0.50

Source: Prepared by the Author based on SmartPLS4 results

FA construct records the highest AVE (0.693), indicating excellent convergent validity. PBTM and UDC constructs present AVE values of (0.517) and (0.502) respectively, both exceeding the recommended threshold. However, UTM construct records an AVE of (0.459), slightly below the 0.50 threshold. This limitation is acknowledged and attributed to the multidimensional nature of the construct and the exploratory context of this study. Nevertheless, given that all composite reliability values exceed 0.70, the overall reliability of the UTM construct remains acceptable (Hair, 2019).

1.1.2.4 Discriminant Validity

Discriminant validity assesses the degree to which a construct is empirically distinct from other constructs in the model. It was evaluated using two criteria: The Fornell-Larcker criterion and the Heterotrait-Monotrait ratio (HTMT).

a) Fornell-Larcker Criterion

According to the Fornell-Larcker criterion, the square root of the AVE of each construct should exceed its correlations with all other constructs. As shown in the table below, the diagonal values (square root of AVE) are greater than the off-diagonal values for FA (0.833), PBTM (0.719) and UDC (0.708), confirming discriminant validity for these constructs. However, UTM (0.678) presents a value close to its correlation with FA (0.662) and PBTM (0.607), suggesting a partial concern for discriminant validity.

Table 21:Fornell-Larcker Criterion

	FA	PBTM	UDC	UTM
FA	0,833			
PBTM	0,662	0,719		
UDC	0,388	0,588	0,708	
UTM	0,662	0,607	0,464	0,678

Source: Prepared by the Author based on SmartPLS4 results

b) HTMT Criterion :

To check discriminant validity, we used the HTMT ratio. According to (Hair, 2019), discriminant validity is reached when values are below **0.85**. The table below shows that all our results are under this limit. The highest value is **0.815** (for the relation between UTM and FA), which is still acceptable. Therefore, we can confirm that each variable in the model is different from the others.

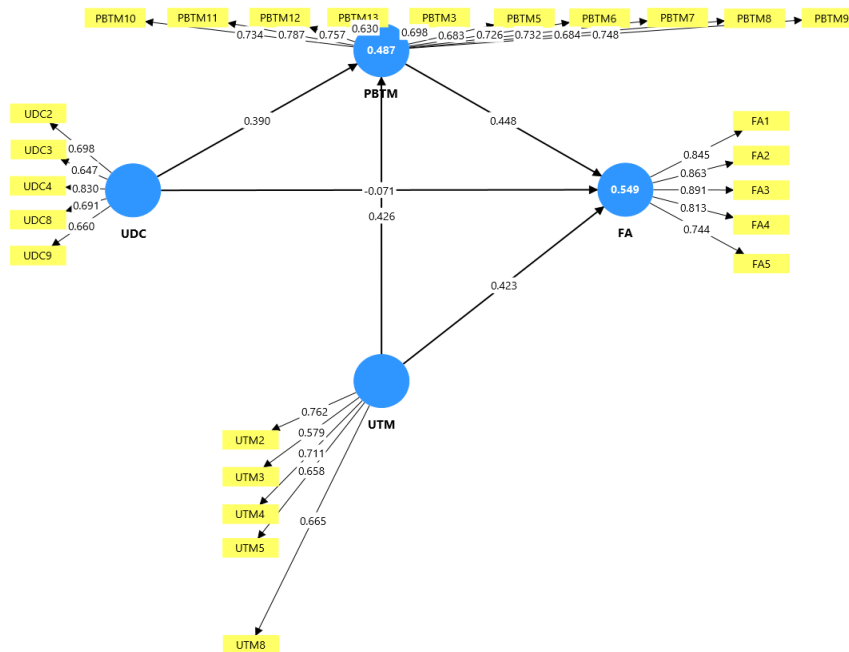
Table 22:HTMT Criterion

	FA	PBTM	UDC	UTM
FA				
PBTM	0,741			
UDC	0,460	0,696		
UTM	0,815	0,741	0,592	

Source: Prepared by the Author based on SmartPLS4 results

Figure 10 presents the final PLS-SEM structural model

Figure 10: Graphical Output of PLS-SEM



Source: Prepared by the Author based on SmartPLS4 results

1.1.2.5 Assessment of Collinearity (VIF)

Before evaluating the structural model and testing the hypotheses, it is essential to ensure the absence of collinearity among the predictor latent variables. High levels of collinearity between independent variables can bias the estimation of path coefficients and lead to unreliable results.

Collinearity is assessed using the Variance Inflation Factor (VIF). According to the results from the inner model analysis in table below, all VIF values range between **1.274 and 1.951**. These values are well below the conservative threshold of **3.0** suggested by (Hair, 2019), indicating that the model does not suffer from multicollinearity issues. Consequently, the structural model can be interpreted with confidence.

Table 23: Assessment of Collinearity (VIF)

	VIF
PBTM -> FA	1,951
UDC -> FA	1,571
UDC -> PBTM	1,274
UTM -> FA	1,627
UTM -> PBTM	1,274

Source: Prepared by the Author based on SmartPLS4 results

1.1.2.6 Path Coefficients and Hypothesis Testing

Following the validation of the measurement model, we evaluated the structural model to test the hypotheses regarding FA. A bootstrapping procedure with 5,000 resamples was conducted to determine the significance of the relationships.

The analysis reveals that UTM has a strong and positive impact on both PBTM ($\beta = 0.426$, $p < 0.001$) and direct FA ($\beta = 0.423$, $p < 0.001$). This confirms that when users are technologically mature, they are more likely to perceive their bank as technologically advanced and adopt its Fintech services.

Furthermore, PBTM is the strongest predictor of FA ($\beta = 0.448$, $p < 0.001$), suggesting that the user's trust in the bank's technical infrastructure is a critical driver for usage.

However, an interesting finding is that UDC does not have a direct significant impact on FA ($\beta = -0.071$, $p = 0.172$). While a high digital culture significantly improves how users perceive their bank's maturity ($\beta = 0.390$, $p < 0.001$), it does not lead to adoption on its own. This suggests that digital culture acts as a mindset that shapes perception, but the actual adoption depends more on the perceived technical quality of the bank and the user's own maturity.

Table 24: Path Coefficients

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
PBTM -> FA	0,448	0,453	0,077	5,837	0,000
UDC -> FA	-0,071	-0,071	0,052	1,366	0,172
UDC -> PBTM	0,390	0,393	0,067	5,830	0,000
UTM -> FA	0,423	0,422	0,071	5,944	0,000
UTM -> PBTM	0,426	0,425	0,066	6,433	0,000

Source: Prepared by the Author based on SmartPLS4 results

1.1.2.7 Indirect Effects (Mediation Analysis)

To further explore the relationships in our model, we analyzed the specific indirect effects. This analysis determines if PBTM acts as a bridge between our independent variables and FA.

The results show that both indirect paths are statistically significant ($p < 0.001$). Specifically, the path UDC \rightarrow PBTM \rightarrow FA is significant ($\beta = 0.175$, $p < 0.001$). Since the direct effect of UDC on FA was previously found to be non-significant, this indicates a full mediation. This suggests that user digital culture only leads to adoption by enhancing the user's perception of the bank's technological level.

For UTM, the indirect effect is also significant ($\beta = 0.191$, $p < 0.001$). Given that the direct effect was also significant, this represents a partial mediation, meaning that maturity influences adoption both directly and through improved perception of the bank.

Table 25: Indirect Effects (Mediation Analysis)

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O/STDEV))	P values
UDC -> PBTM -> FA	0,175	0,178	0,044	3,987	0,000
UTM -> PBTM -> FA	0,191	0,193	0,047	4,016	0,000

Source: Prepared by the Author based on SmartPLS4 results

1.1.2.8 Total Effects Analysis

The total effect analysis provides a complete picture of the influence each construct exerts on FA by combining both direct and indirect paths. The results, presented in Table 38, show that all total effects are statistically significant ($p < 0.05$).

Notably, while UDC did not have a significant direct impact on adoption, its total effect is significant ($\beta = 0.103$, $p = 0.041$). This finding is crucial as it demonstrates that digital culture does contribute to Fintech adoption, primarily by shaping how users perceive the platform's technological maturity.

Additionally, UTM shows the strongest total effect on adoption ($\beta = 0.614$, $p < 0.001$), followed by PBTM ($\beta = 0.448$, $p < 0.001$). These results confirm that technological maturity, both from the user's side and the bank's side, remains the primary driver for adopting Fintech services.

Table 26: Total Effects Analysis

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O/STDEV))	P values
PBTM -> FA	0,448	0,453	0,077	5,837	0,000
UDC -> FA	0,103	0,107	0,050	2,048	0,041
UDC -> PBTM	0,390	0,393	0,067	5,830	0,000
UTM -> FA	0,614	0,615	0,053	11,579	0,000
UTM -> PBTM	0,426	0,425	0,066	6,433	0,000

Source: Prepared by the Author based on SmartPLS4 results

1.1.2.9 Coefficient of Determination (R^2)

The coefficient of determination (R^2) is used to evaluate the explanatory power of the structural model in PLS-SEM. It represents the percentage of variability in the endogenous construct that is accounted for by the independent constructs in the model, with values ranging from 0 to 1 larger values indicating a higher proportion of variance explained. According to (Hair, 2019), R^2 values of 0.25, 0.50, and 0.75 are considered weak, moderate, and substantial respectively. The Adjusted R^2 takes into account the number of predictors in the model, adjusting the R^2 value accordingly, where a value close to 1 indicates that the model explains a large part of the variance even after adjustment, while a value close to 0 suggests poor explanatory power.

As presented in the table below, the model explains 54.9% of the variance in FA ($R^2 = 0.549$), which reflects a moderate to substantial explanatory power. This indicates that Digital Culture, User Technological Maturity, and Perceived Platform Technological Maturity together account for more than half of the variation in FinTech adoption behavior among Algerian banking clients.

Regarding PBTM, the model explains 48.7% of its variance ($R^2 = 0.487$), which is considered moderate. This suggests that Digital Culture and User Technological Maturity are significant predictors of how clients perceive the technological maturity of FinTech platforms.

The adjusted R^2 values (FA = 0.542, PBTM = 0.482) are very close to the original R^2 values, confirming the stability and parsimony of the model. We deduce that both FA and PBTM are well explained by their respective predictors, even after adjusting for the number of constructs in the model.

Table 27: Coefficient of Determination (R^2)

	R-square	R-square adjusted
FA	0,549	0,542
PBTM	0,487	0,482

Source: Prepared by the Author based on SmartPLS4 results

1.1.2.10 Effect Size (f^2)

The effect size (f^2) measures the contribution of each predictor construct to the R^2 of the endogenous construct. According to (Cohen, 1988), f^2 values of 0.02, 0.15, and 0.35 indicate small, medium, and large effects respectively. As shown in the table below:

Table 28: Effect Size (f^2)

	f-square	Interpretation
PBTM -> FA	0,228	Medium effect
UDC -> FA	0,007	No effect
UDC -> PBTM	0,233	Medium effect
UTM -> FA	0,244	Medium effect
UTM -> PBTM	0,277	Medium effect

Source: Prepared by the Author based on SmartPLS4 results

The results confirm that UTM and PBTM exert the strongest effects on FinTech adoption, while UDC shows no direct effect on FA ($f^2 = 0.007$), consistent with the non-significant path coefficient found earlier. However, UDC demonstrates a medium effect on PBTM ($f^2 = 0.233$), reinforcing its indirect role in the model.

1.1.2.11 Model Fit (SRMR)

The Standardized Root Mean Square Residual (SRMR) measures the overall fit of the model. Values below 0.08 indicate a good model fit (Henseler, 2015).

As shown in the table below, the SRMR value is 0.083 for both the saturated and estimated models, which is slightly above the 0.08 threshold. This suggests an acceptable but not perfect model fit, which is common in exploratory PLS-SEM studies with complex constructs.

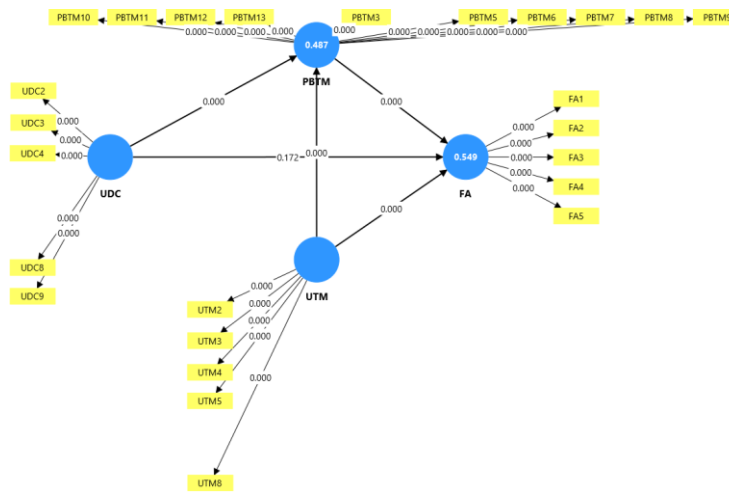
Table 29: Model Fit (SRMR)

	Original sample (O)	Sample mean (M)	95%	99%
Saturated model	0,083	0,056	0,063	0,066
Estimated model	0,083	0,056	0,063	0,066

Source: Prepared by the Author based on SmartPLS4 results

Figure 11 presents the bootstrapping results of the PLS-SEM model

Figure 11: Graphical Output of Bootstrapping



Source: Prepared by the student based on SmartPLS4 results

❖ **Summary of PLS Results**

The PLS-SEM analysis conducted in this study provides a comprehensive assessment of the relationships between Digital Culture (UDC), User Technological Maturity (UTM), Perceived Platform Technological Maturity (PBTM), and FinTech Adoption (FA). The following table summarizes the results of the five hypotheses tested in this study.

Table 30: Hypotheses Validation Summary

Hypothesis	Path	β	T-Stat	P-Value	Result
H1	UDC → FA	-0.071	1.366	0.172	Rejected
H2	UTM → FA	0.423	5.944	0.000	Supported
H3	PBTM → FA	0.448	5.837	0.000	Supported
H4	UDC → PBTM	0.390	5.830	0.000	Supported
H5	UTM → PBTM	0.426	6.433	0.000	Supported

Source: Prepared by the Author based on SmartPLS4 results

Overall, four out of five hypotheses are supported, demonstrating the robustness of the proposed conceptual model. UTM and PBTM emerge as the strongest predictors of FinTech adoption, with path coefficients of (0.423) and (0.448) respectively. UDC, while not directly influencing adoption, plays a significant indirect role through its effect on perceived platform maturity ($\beta = 0.390, p < 0.001$), suggesting a full mediation effect of PBTM in the

UDC → FA relationship

Furthermore, the model demonstrates moderate to substantial explanatory power, with R^2 values of (0.549) for FA and (0.487) for PBTM, confirming that the selected constructs effectively capture the key determinants of FinTech adoption among Algerian banking clients.

These quantitative findings will be further enriched and discussed in light of the qualitative results obtained from the semi-structured interviews, as presented in the following section.

1.2 Qualitative Results

This section presents the results of the qualitative study conducted during the internship at the CPA bank branch. A total of two semi-structured interviews were carried out with bank employees directly involved in the deployment and management of FinTech platforms: a Customer Relationship Officer and a Monetics Department Employee. The interviews aimed to explore the perceived technological maturity of Wimpay and Mobile CPA platforms, the enrolment processes, adoption barriers, and user profiles, in alignment with the thematic structure of the interview guide. **Although both platforms serve individual and corporate clients, this study focuses exclusively on their adoption by individual users (retail banking)**

The qualitative data was processed and analyzed using NVivo software through thematic coding, word frequency analysis, and word trees analysis. Each dimension of the interview guide is analyzed separately. For each theme, the responses of both interviewees are compared and contrasted, highlighting points of convergence and divergence where applicable.

a) Qualitative Methodology

This section outlines the methodological approach adopted for the qualitative component of the study

a.a) Sample Description

The qualitative study was conducted through two semi-structured interviews carried out with bank employees at the CPA branch during the internship period. The first interview was conducted with the Customer Relationship Officer, who is directly responsible for enrolling clients onto the bank's FinTech platforms and providing day-to-day support. This interview lasted approximately 1 hour and 11 minutes, reflecting the depth and richness of the information shared.

The second interview involved the Monetics Department Employee, who is responsible for the technical and operational management of the bank's FinTech platforms, namely Wimpay and

Mobile CPA. This interview was conducted in two sessions, lasting 24 minutes and 27 seconds and 17 minutes and 32 seconds respectively, for a combined duration of approximately 42 minutes.

The two interviewees were the only branch employees directly involved with Mobile CPA and Wimpay. Because the internship took place in a local branch, the researcher did not have access to the bank's central departments (such as Central Monetics or Digital Strategy), where additional technical or strategic staff might have provided further perspectives. Consequently, only these two employees could be interviewed.

Their complementary roles: one focused on client relations, the other on technical operations nevertheless ensured that the collected insights were both relevant and credible.

Table 31 : Interviewees profile

Interviewees Profile	Key Responsibilities	Interview Duration
Customer Relationship Officer	Primary contact for clients; responsible for enrollment in Wimpay and Mobile CPA; provides day-to-day support, handles complaints, and monitors client usage of digital tools.	71 minutes
Monetics Employee	Handling technical enrollment; configuring access to features (Transfers, OTP); managing card services and monitoring technical incidents.	42 minutes

Source: Prepared by Author

a.b) Data Collection

The qualitative data was collected through semi-structured interviews, allowing for a flexible yet guided conversation while ensuring that all relevant themes were covered. The interviews were conducted in person at the CPA branch during the internship period, recorded with the consent of the participants, and subsequently transcribed verbatim to ensure accuracy and completeness.

An interview guide was developed in alignment with the research objectives, covering themes that complement the quantitative phase of the study, particularly the perceived technological maturity of FinTech platforms and its relationship with adoption behaviors. The guide was organized into five main themes :

- Perceived Technological Maturity of Platforms
- Adoption of FinTech Services
- Barriers to Adoption

- Enrolment Process and Available Features of Platforms
- Evolution & Improvement of The Platforms

a.c) Analysis Method

The qualitative data was analysed using a thematic content analysis approach, which involves identifying, organizing, and interpreting recurring patterns and themes across the interview transcripts. This method was deemed appropriate given the exploratory nature of the qualitative phase and the relatively small sample size of two interviews.

The analysis was conducted using NVivo software, which facilitated the systematic coding and organization of the data. The analytical process involved four main steps:

- **Transcription:** The interviews were transcribed verbatim following their recording, ensuring the completeness and accuracy of the data.
- **Thematic Coding:** The transcripts were coded according to five main themes and their corresponding sub-themes, each further distinguished between Wimpay and Mobile CPA.
- **Visual Analysis:** Word frequency analysis, word trees, and cluster analysis were generated using NVivo to identify the most prominent terms and conceptual associations within each theme.
- **Comparative Analysis:** The responses of both interviewees were systematically compared to identify points of convergence and divergence in their perceptions.

The principle of thematic saturation was considered throughout the analysis. Although the sample consists of two interviewees, both occupy complementary roles within the branch, one focused on client relations and the other on technical operations. ensuring a comprehensive and multi-perspective view of the phenomena under investigation.

1.2.1 Perceived Technological Maturity of the Platforms

This section presents the qualitative findings related to the perceived technological maturity of Wimpay and Mobile CPA, as assessed by both interviewees. The analysis is structured around the ten criteria of the technological maturity grid developed for this study. For each criterion, the perceptions of both employees are presented and compared, highlighting points of convergence and divergence between the two platforms.

Table 32:Reliability

	Mobile CPA	Wimpay
Customer Relationship Officer	Reliable, no crashes or data loss reported	Operates perfectly without errors, crashes, or data loss
Monetics Employee	Reliable, initial balance display issues resolved through successive updates. No complaints recorded for nearly two years	Operates without errors, crashes, or data loss

Source: Prepared by the Author Based on Interview Data

1.2.1.2 Stability

Both interviewees agree that the only disruptions observed are related to external network connectivity issues, not internal platform failures. This confirms the technical stability of both platforms and suggests that perceived instability among clients may be attributable to internet quality rather than platform weaknesses.

Table 33:Stability

	Mobile CPA	Wimpay
Customer Relationship Officer	Satisfactory stability , only external network issues observed	Same ,no internal platform failures
Monetics Employee	Satisfactory stability , disruptions only related to internet connection	Same , both applications operate exclusively online

Source: Prepared by the Author Based on Interview Data

1.1.2.3 Speed

Both interviewees converge on Wimpay's superior speed compared to Mobile CPA. The 24-hour delay in Mobile CPA is consistently identified as its main limitation in terms of perceived speed, attributed to the mandatory branch confirmation process required before balance updates.

Table 34:Speed

	Mobile CPA	Wimpay
Customer Relationship Officer	24-hour delay due to branch confirmation process	Transactions fast, balance updates nearly instantaneous
Monetics Employee	24-hour delay between branch transactions and application update	Transaction speed nearly instantaneous after operation

Source: Prepared by the Author Based on Interview Data

1.1.2.4 Advanced Features

Both platforms offer biometric authentication features. The Monetics Employee additionally highlights the instant transfer option available on Mobile CPA, which was not mentioned by

the Customer Relationship Officer. Both interviewees agree on the absence of online chat functionality, which represents a common limitation of both platforms.

Table 35: Advanced Features

	Mobile CPA	Wimpay
Customer Relationship Officer	Facial recognition. No online chat ,email and phone assistance available	Facial recognition, fingerprint authentication. No online chat, email and phone assistance available
Monetics Employee	Facial recognition, instant transfer option. No online chat	Facial recognition, fingerprint authentication. No online chat

Source: Prepared by the Author Based on Interview Data

1.1.2.5 Security

Both interviewees converge on Wimpay's stronger security system, featuring two-factor authentication, while Mobile CPA relies on a virtual keyboard mechanism. Importantly, both interviewees confirm that no fraud, phishing, or unauthorized access attempts have ever been reported on either platform, indicating a satisfactory overall security level.

Table 36: Security

	Mobile CPA	Wimpay
Customer Relationship Officer	Virtual keyboard with shuffled keys, SMS notifications per transaction. No two-factor authentication	Two-factor authentication (email + OTP via SMS), mandatory password renewal every 3 months, minimum 8 characters
Monetics Employee	Virtual keyboard with shuffled keys, SMS notifications. Mandatory password renewal every 3 months	Two-factor authentication (email + OTP via SMS), mandatory password renewal

Source: Prepared by the Author Based on Interview Data

1.1.2.6 Ergonomics

Both interviewees describe both platforms as clear, intuitive, and accessible, even for digitally inexperienced clients. Wimpay is consistently praised for its simplicity, while Mobile CPA is recognized for its richer and more comprehensive interface, reflecting the broader range of features it offers.

Table 37: Ergonomics

	Mobile CPA	Wimpay
Customer Relationship Officer	Slightly richer interface with activity graphs, transaction labels, dedicated sections	Simple and intuitive with two main sections (QR code and transactions)
Monetics Employee	More comprehensive interface suited to diversity of features	Great simplicity with two main sections, accessible to inexperienced users

Source: Prepared by the Author Based on Interview Data

1.1.2.7 Scalability

Both platforms benefit from regular updates. The Customer Relationship Officer specifically mentions the recent integration of the EDI option for Mobile CPA, while the Monetics Employee highlights the progressive resolution of early balance display issues. This confirms the scalability and continuous improvement of both platforms.

Table 38: Scalability

	Mobile CPA	Wimpay
Customer Relationship Officer	Regular updates, and recently integrated EDI option for merchants	Regular updates with bug fixes and new features
Monetics Employee	Balance display issues resolved through updates since launch	Regular updates with bug fixes and functional improvements

Source: Prepared by the Author Based on Interview Data

1.1.2.8 Interoperability

Both interviewees fully converge on this criterion. Wimpay does not support interoperability with external systems, while Mobile CPA enables communication with other banking institutions through inter-bank and inter-branch transfer options. This represents a clear functional differentiation between the two platforms.

Table 39: Interoperability

	Mobile CPA	Wimpay
Customer Relationship Officer	Inter-bank and inter-branch transfers available upon branch activation	No interoperability with external systems
Monetics Employee	Supports inter-bank and inter-branch transfers	No interoperability with external systems

Source: Prepared by the Author Based on Interview Data

1.1.2.9 Technical Compatibility

Both interviewees fully agree on the technical compatibility of both platforms. Wimpay and Mobile CPA are compatible with all Android and iOS systems as well as computers, ensuring broad accessibility regardless of the type of device or operating system used by clients.

Table 40: Technical Compatibility

	Mobile CPA	Wimpay
Customer Relationship Officer	Compatible with all Android and iOS systems and computers , broad accessibility regardless of device	Compatible with all Android and iOS systems and computers
Monetics Employee	Compatible with all Android and iOS systems and computers, broad technical compatibility	Compatible with all Android and iOS systems and computers

Source: Prepared by the Author Based on Interview Data

1.1.2.10 Traceability and Transparency

Both interviewees converge on a clear distinction between the two platforms regarding traceability. Mobile CPA offers complete traceability with six months of transaction history, while Wimpay is limited to balance consultation without access to a detailed history. This represents a significant limitation of Wimpay compared to Mobile CPA in terms of transparency for clients.

Table 41: Traceability and Transparency

	Mobile CPA	Wimpay
Customer Relationship Officer	Complete transaction history, receipts printable	Balance consultation only and no detailed transaction history
Monetics Employee	History for past 6 months including withdrawals, deposits, commissions	Balance consultation only and no detailed transaction history

Source: Prepared by the Author Based on Interview Data

Both interviewees assess the overall technological maturity of both platforms as being at a fairly mature level, noting their smooth day-to-day operation, the absence of major malfunctions, and the gradual evolution of features since their respective launches. The Customer Relationship Officer additionally highlights a significant increase in client demand for these applications in recent years, suggesting a progressive improvement in digital adoption behavior among CPA clients.

1.2.2.1 Adoption Rate of the Platforms

Both interviewees fully converge on the fact that Mobile CPA is more widely adopted than Wimpay. The primary driver is the perceived usefulness of balance and history consultation features, which eliminate the need for branch visits. The Customer Relationship Officer additionally highlights a significant increase in overall demand for both platforms in recent years, reflecting a gradual improvement in digital adoption behaviors among Algerian banking clients.

Table 42: Adoption Rate of the Platforms

	Mobile CPA	Wimpay
Customer Relationship Officer	Clients use Mobile CPA more than Wimpay. This preference is mainly explained by the perceived usefulness of the history and balance consultation feature, which meets a frequent daily need without requiring a visit to the branch. A significant increase in demand has been noted compared to previous years, indicating that clients are progressively becoming more comfortable with digital tools.	Less frequently used than Mobile CPA. Wimpay is specifically designed for contactless payment and transfers.
Monetics Employee	Clients use Mobile CPA more than Wimpay. This preference is explained by the diversity of Mobile CPA features, particularly balance and history consultation, which meet daily needs without requiring a branch visit. Mobile CPA is considered simpler for clients, although the Wimpay enrolment process is considered more complex for staff.	Wimpay is more commonly used for contactless payment, a practice that is still developing among the clientele.

Source: Prepared by the Author Based on Interview Data

1.2.2.2 Usage Frequency

Both interviewees agree that Mobile CPA is used more frequently than Wimpay. This is attributed to the diversity and daily relevance of Mobile CPA features, which cover a broad range of banking operations. Wimpay, by contrast, is used occasionally and specifically for contactless payment scenarios, limiting its frequency of use among clients.

Table 43: Usage Frequency

	Mobile CPA	Wimpay
Customer Relationship Officer	Frequently used for daily operations , balance consultation, transfers, cheque book requests, and banking details access. Oriented towards consultation and transfers.	Less frequently used mainly for occasional contactless payments when cash or card is unavailable.
Monetics Employee	Frequently used for daily banking operations , balance and history consultation, internal and inter-bank transfers. Meets daily needs without requiring a branch visit.	Less frequently used ,contactless payment via QR code, a practice still developing among clients.

Source: Prepared by Author Based on Nvivo Results

1.2.2.3 User Profile

The two interviewees partially converge on the typical user profile. Both identify middle-aged clients as the primary adopters of both platforms. However, the Monetics Employee provides a broader age range (25–60) compared to the Customer Relationship Officer (35–60), and specifically highlights elderly clients as the most resistant group due to a lack of digital skills and a persistent preference for in-person branch interactions. The Customer Relationship Officer notes that no marked sociodemographic difference exists between users of the two platforms, suggesting that adoption behavior is driven more by perceived usefulness than by demographic characteristics.

Table 44: User Profile

	Mobile CPA	Wimpay
Customer Relationship Officer	Typical adopters aged between 35 and 60 years. No marked sociodemographic difference observed between Mobile CPA and Wimpay users. Clients are progressively becoming more comfortable with digital tools.	Same profile as Mobile CPA users that are aged between 35 to 60 years.
Monetics Employee	Typical adopters aged between 25 and 60 years, with relative digital ease. Elderly clients represent the most resistant profile due to lack of digital skills and preference for in-person branch interactions.	Same profile users that are aged between 25 to 60 years. Elderly clients remain the most resistant group.

Source: Prepared by the Author Based on Interview Data

1.2.3 Barriers to Adoption

This section presents the qualitative findings related to the barriers that hinder the adoption of Mobile CPA and Wimpay, as reported by the two CPA employees. The analysis covers the

main obstacles discussed during the interviews, including digital skills limitations, interface complexity, password and account access issues, and trust and security perceptions.

The following word cloud, generated from the interview transcripts using NVivo, displays the most frequent terms related to barriers to FinTech adoption in the employees' discourse. Words such as **"forgotten"**, **"lockouts"**, **"enrolment"**, **"elderly"**, **"skills"**, and **"complexity"** stand out clearly, suggesting that operational difficulties, memory-related access issues, and the profile of certain user groups dominate the discussion of obstacles

Figure 14: Barriers to Adoption



Source: Prepared by the Author Based on Nvivo Results

As shown in the figure above, the word cloud generated from the interview transcripts highlights the terms most frequently associated with barriers to adoption in the employees' discourse. The presence of words such as **"confusion"**, **"activation"**, **"occasionally"**, and **"interactions"** reflects the operational difficulties that clients encounter, particularly the 72-hour activation delay which generates repeated branch visits and reports of malfunction before the account is fully active. The term **"sometimes"** suggests that several obstacles are not systematic but occur under specific conditions, such as the complexity of the enrolment process or forgotten passwords that require in-person reset. Words such as **"demand"**, **"technology"**, and **"application"** further point to a tension between a growing interest in digital tools and the persistent frictions that prevent their seamless use. Overall, this word cloud confirms that adoption barriers are multifaceted, combining cognitive resistance, limited digital skills, and platform-side operational constraints that hinder the transition to autonomous digital banking.

1.2.3.1 Digital Skills

Both interviewees converge on the fact that lack of digital skills is a significant barrier, particularly among elderly clients. The Customer Relationship Officer specifically identifies Wimpay's complex opening process as the primary source of difficulty, while the Monetics Employee highlights the general digital resistance of elderly clients on both platforms.

Table 45: Digital Skills

	Mobile CPA	Wimpay
Customer Relationship Officer	Distrust of technology observed occasionally, particularly among elderly clients. A significant increase in demand noted in recent years suggests progressive digital improvement.	Most frequently observed barrier is the complexity of the opening process involving multiple steps (two-factor authentication, OTP codes via SMS and email, managing entry time limits). Lack of digital skills frequently reported.
Monetics Employee	Elderly clients represent the most resistant profile due to lack of digital skills and preference for in-person interactions.	Elderly clients occasionally lack digital skills to navigate the platform.

Source: Prepared by the Author Based on Interview Data

1.2.3.2 Interface Complexity

Both interviewees identify interface complexity and activation delays as notable barriers. The 72-hour activation delay for Mobile CPA is consistently flagged as a source of confusion, while Wimpay's multi-step enrolment process is considered complex both for clients and for staff.

Table 46: Interface Complexity

	Mobile CPA	Wimpay
Customer Relationship Officer	72-hour activation delay is a major source of confusion, clients attempt to use the application before activation and return to the branch reporting a malfunction.	Enrolment process considered complex as it has multiple steps involved in the opening procedure.
Monetics Employee	Interface complexity occasionally reported. 72-hour activation delay generates confusion among clients who attempt to use the application before it is activated.	Interface complexity considered too cumbersome by some clients. Enrolment process more complex for staff due to the number of steps involved.

Source: Prepared by the Author Based on Interview Data

1.2.3.3 Password and Account Issues

Both interviewees fully converge on this barrier. Forgotten passwords and account lockouts represent one of the most frequently observed obstacles on both platforms. The Monetics

Employee additionally highlights the current limitation that password resets require a mandatory branch visit, which reduces the overall ease of use and autonomy of clients.

Table 47: Password and Account Issues

	Mobile CPA	Wimpay
Customer Relationship Officer	Forgotten passwords and account lockouts frequently reported, compounded by the 72-hour activation delay.	Forgotten passwords and account lockouts frequently reported.
Monetics Employee	Frequent forgotten passwords reported and it requires a branch visit for reset, limiting platform ease of use.	Forgotten passwords and account lockouts frequently reported.

Source: Prepared by the Author Based on Interview Data

1.2.3.4 Trust & Security Perception

Both interviewees converge on the occasional nature of trust and security concerns as barriers to adoption. Fear of fraud and general distrust of technology are more prevalent among elderly clients, but do not constitute major systematic barriers for the broader clientele. This finding is consistent with the quantitative results, where security concerns were identified as the second most cited barrier by respondents (28.9%).

Table 48: Trust & Security Perception

	Mobile CPA	Wimpay
Customer Relationship Officer	Distrust of technology and lack of need occasionally observed, particularly among elderly clients.	Fear of fraud and lack of trust in technology occasionally observed.
Monetics Employee	Fear of fraud and lack of trust in technology occasionally observed.	Fear of fraud and lack of trust in technology occasionally observed.

Source: Prepared by the Author Based on Interview Data

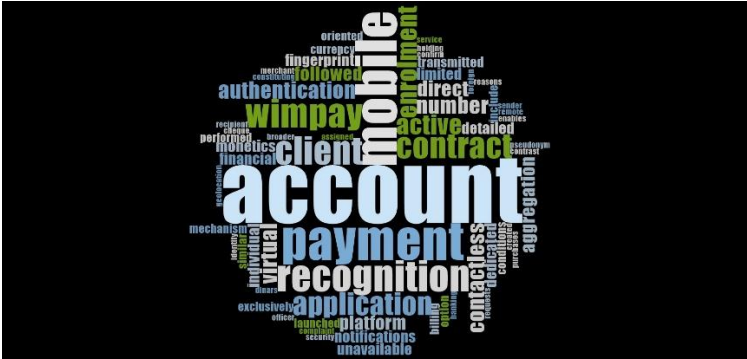
1.2.4 Enrolment Process and Available Features of platforms

This section presents the qualitative findings related to the enrolment process and the available features of Mobile CPA and Wimpay, as described by the two CPA employees. The analysis covers the steps required to subscribe to each platform, the technical and administrative prerequisites, and the functional scope offered to clients, highlighting differences and similarities between the two services.

The following word cloud, generated from the interview transcripts using NVivo, displays the most frequent terms related to the enrolment process and the features of the two platforms. Words such as "authentication", "fingerprint", "recognition", "security", and "account" stand

out clearly, indicating that discussions of enrolment and functionality are centred on access procedures, biometric technologies, and the strong emphasis placed on securing client data.

Figure 15: Enrolment Process and Available Features of platforms



Source: Prepared by the Author Based on Nvivo Results

As shown in the figure above, the word cloud also brings to light terms that reflect the operational constraints and specific characteristics of each platform. The presence of "limited", "contract", "office", and "unavailable" points to the mandatory in-branch enrolment, the requirement to sign a physical contract, and the absence of certain features that clients might expect. Words such as "receiver", "payment", and "direct" distinguish Wimpay's orientation toward contactless and peer-to-peer transactions, while "notifications" and "mechanism" refer to the technical infrastructure that supports transaction alerts and authentication. The contrast between "fingerprint" and "recognition" on the one hand and "unavailable" on the other highlights a gap between the advanced biometric options that are offered and other features that remain absent. Overall, this word cloud confirms that the enrolment process is highly structured and centralised, that the two platforms share a common security foundation, and that the functional scope of each application reflects a deliberate but still partial deployment of digital banking capabilities.

1.2.4.1 Enrolment Process of the Platforms

Both interviewees fully converge on the enrolment processes for both platforms. The Wimpay enrolment process is consistently described as more complex from the staff's perspective due to the multiple steps involved, including the two-factor authentication mechanism, OTP codes, and managing entry time limits. The Mobile CPA enrolment process, while simpler for staff, is complicated by the mandatory 72-hour activation delay, which is identified by both interviewees as a recurring source of confusion among clients. Both processes require an

exclusive branch visit, with no possibility of self-registration as a limitation highlighted by both interviewees as an area requiring improvement.

Table 49:Enrolment Process of the Platforms

	Mobile CPA	Wimpay
Customer Relationship Officer	Enrolment at the branch with contract signing, for any type of bank account. ID and password provided by the branch. Account activated only after a 72-hour delay which is a major source of confusion as clients attempt to use the application before activation and return to the branch reporting a malfunction. Considered straightforward for clients.	Enrolment exclusively at the branch with contract signing. Required conditions: bank account (types 410, 402, 400 or 403), National Identification Number (NIN), active email address, and active phone number. Performed by staff via a dedicated platform. Client receives a first code by email, followed by an OTP code via SMS as two-factor authentication mechanism. Considered more complex from the staff's perspective.
Monetics Employee	Enrolment at the branch with contract signing, for any type of bank account. ID and password created and provided by the Monetics Department Employee. Account activated only after a 72-hour delay, sometimes generating confusion among clients who attempt to use the application before activation. Considered simpler for clients.	Enrolment exclusively at the branch with contract signing. Required conditions: bank account (types 410, 402, 400 or 403), NIN, active email address, and active phone number. Performed by Monetics or Customer Relationship staff via a dedicated platform. Client receives a first code by email, followed by an OTP code via SMS. Considered more complex for staff due to the number of steps involved.

Source: Prepared by the Author Based on Interview Data

1.2.4.2 Features of the Platforms

Both interviewees fully converge on the available features of both platforms. Wimpay is specifically designed for contactless mobile payment via QR code and transfers, offering a limited but focused set of features. The Monetics Employee additionally highlights an important billing constraint for Mobile CPA: clients holding only a foreign currency account cannot open a Mobile CPA account, as a dinar account is required for service billing; a limitation not mentioned by the Customer Relationship Officer.

Table 50:Features of the Platforms

Feature	Mobile CPA	Wimpay
Balance consultation	Available (with full history)	Available (without detailed history)
Transaction history	Available (6 months)	Unavailable
Internal account transfers	Available	Available

Instant transfers to other banks	Available	Unavailable
Contactless mobile payment (QR code)	Unavailable	Available
Facial recognition	Available	Available
Fingerprint authentication	Unavailable	Available
Account aggregation	Available (all account types)	Available (types 410 & 402 only)
SMS notifications (OTP)	Available	Available
Cheque book requests	Available	Unavailable
Access to banking details (RIB, IBAN, SWIFT)	Available	Unavailable
Branch geolocation	Available	Unavailable
Complaint management	Available (phone or email)	Available (phone or email)
Bill payments (water, electricity)	Unavailable	Unavailable
Online chat	Unavailable	Unavailable
Virtual card creation	Unavailable	Unavailable
Real-time card opposition	Unavailable	Unavailable
Financial product simulation	Unavailable	Unavailable

Source: Prepared by the Author Based on Interview Data

Mobile CPA offers a significantly wider functional scope, covering a broad range of daily banking operations including balance and history consultation, inter-bank transfers, cheque book requests, access to banking details, and branch geolocation. However, both interviewees agree that neither platform supports bill payments, online chat, virtual card creation, real-time card opposition, or financial product simulation: representing common functional limitations shared by both platforms.

The Customer Relationship Officer additionally notes that Wimpay allows transfers using an alias system which is a pseudonym assigned to the recipient by the sender for security reasons, ensuring that the recipient's identity remains protected during the transaction. This feature, unique to Wimpay, adds an additional layer of privacy and security for peer-to-peer transfers.

1.2.5 Evolution & Improvement of the platforms

This section presents the qualitative findings related to the evolution of Mobile CPA and Wimpay and the improvements suggested by the two CPA employees. The analysis covers the updates made since the launch of each platform, the observed progress in stability and

1.2.5.1 Updates & Evolution of the Platforms

Table 51: Updates & Evolution of the Platforms

	Mobile CPA	Wimpay
Customer Relationship Officer	Benefits from regular updates improving stability and features. Has notably integrated the EDI option for merchants. Interface has remained simple since launch. No significant downtime recorded. Security mechanisms consistent since launch. Overall technological maturity assessed as fairly mature given smooth day-to-day operation and gradual feature evolution.	Benefits from regular updates improving stability and features. Interface has remained simple since launch with no major ergonomic changes. No significant downtime ever recorded, only occasional network connection issues. Security mechanisms have remained consistent since launch. A significant increase in client demand noted compared to previous years.
Monetics Employee	Notable evolution since its launch in 2019. At the start, display delays of up to one week were reported and these issues were fully resolved through successive updates. Stability has improved significantly over time. Overall technological maturity assessed as fairly mature.	Advanced features such as facial recognition were present from launch, contributing positively to perceived technological maturity. Stability has improved significantly over time. Overall technological maturity assessed as fairly mature given evolutions since launch and absence of major malfunctions.

Source: Prepared by the Author Based on Interview Data

Both interviewees converge on the progressive improvement of both platforms since their respective launches. The Monetics Employee provides additional historical perspective on Mobile CPA, highlighting that initial display delays of up to one week were eventually resolved through successive updates demonstrating the platform's capacity for continuous improvement. The Customer Relationship Officer additionally highlights a significant increase in client demand for both platforms in recent years, suggesting a growing digital maturity among the clientele. Both interviewees assess the overall technological maturity of both platforms as being at a fairly mature level.

1.2.5.2 Improvement Suggestions for the Platforms

Table 52: Improvement Suggestions for the Platforms

	Mobile CPA	Wimpay
Customer Relationship Officer	No particular suggestion for Mobile CPA. Generally advocates for a self-registration system allowing clients to enrol themselves without mandatory bank staff intervention.	Suggests integrating the possibility of linking a savings account to Wimpay, which is currently limited to current accounts (types 410 and 402). Also advocates for a self-registration system.

<p>Monetics Employee</p>	<p>Suggests extending the history consultation period beyond the current six months to improve traceability. Advocates for a self-registration system. Highlights the constraint related to forgotten passwords which require a mandatory branch visit for reset, as a key limitation on platform ease of use.</p>	<p>Advocates for a self-registration system allowing clients to enrol themselves without mandatory staff intervention. Highlights forgotten password reset as a limitation requiring improvement.</p>
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Source: Prepared by Author Based on Interview Data

Both interviewees fully converge on one major improvement suggestion: the implementation of a self-registration system that would allow clients to enroll themselves on both platforms without requiring mandatory bank staff intervention. This is consistently identified as the most impactful improvement that could significantly enhance the client experience and reduce the workload of branch staff.

Beyond this shared suggestion, each interviewee provides platform-specific recommendations. The Customer Relationship Officer suggests extending Wimpay's account aggregation to include savings accounts, currently limited to current accounts. The Monetics Employee recommends extending Mobile CPA's transaction history beyond six months and addressing the password reset constraint, which currently forces clients to visit the branch as a significant limitation on platform autonomy and ease of use.

❖ **Synthesis of Qualitative Results**

The qualitative analysis conducted through semi-structured interviews with two CPA bank employees a Customer Relationship Officer and a Monetics Department Employee, provides a rich and multi-perspective understanding of the FinTech adoption landscape within the Algerian banking sector. The findings are synthesized below across the five main themes analysed.

Regarding the perceived technological maturity of the platforms, both interviewees assess Wimpay and Mobile CPA as being at a fairly mature level, given their smooth day-to-day operation and the gradual evolution of their features since their respective launches. Both platforms demonstrate strong reliability, stability, and broad technical compatibility across Android, iOS, and computer systems. However, notable differences emerge between the two platforms in terms of specific maturity criteria. Wimpay excels in transaction speed with nearly instantaneous balance updates and security, through its robust two-factor authentication system

combining email access and OTP codes via SMS. Mobile CPA, on the other hand, demonstrates superior traceability, offering six months of transaction history, and stronger interoperability through inter-bank and inter-branch transfer capabilities. The primary technological limitation of Mobile CPA is the 24-hour balance update delay attributed to the branch confirmation process, while Wimpay's main limitation lies in its restricted traceability and limited account aggregation. Both platforms share common functional gaps, including the absence of bill payment options, online chat, virtual card creation, and financial product simulation areas that represent opportunities for future development.

Regarding adoption rates and usage patterns, both interviewees fully converge on the fact that Mobile CPA is more widely adopted than Wimpay. This preference is consistently explained by the perceived usefulness of Mobile CPA's balance and history consultation features, which meet frequent daily banking needs without requiring a branch visit. Wimpay adoption remains more limited, primarily used for contactless payment via QR code, a practice that is still developing among Algerian banking clients. The Customer Relationship Officer additionally highlights a significant increase in overall demand for both platforms in recent years, reflecting a progressive improvement in digital adoption behaviors among the clientele.

Regarding user profiles, both interviewees identify Active population clients as the primary adopters of both platforms, with an age range broadly spanning from 25 to 60 years. Elderly clients are consistently identified as the most resistant group, due to a lack of digital skills and a persistent preference for in-person branch interactions. No marked sociodemographic difference is observed between Wimpay and Mobile CPA users, suggesting that adoption behavior is driven more by perceived usefulness and digital readiness than by demographic characteristics alone.

Regarding barriers to adoption, four main obstacles emerge consistently across both interviewees and both platforms. First, forgotten passwords and account lockouts represent the most frequently reported barrier, compounded by the current requirement for a mandatory branch visit to reset passwords a significant limitation on client autonomy. Second, lack of digital skills, particularly among elderly clients, constitutes a recurring challenge for both platforms. Third, interface complexity and enrolment process difficulties, especially Wimpay's multi-step opening procedure involving two-factor authentication, OTP codes, and entry time limits generate frequent difficulties for clients. Fourth, the 72-hour activation delay for Mobile CPA is consistently identified as a major source of confusion, with clients returning to the branch reporting malfunctions before their account is effectively activated. Trust and security

concerns, while occasionally observed, do not constitute systematic barriers and are generally addressed by the robust security mechanisms integrated into both platforms.

Regarding the evolution and improvement of the platforms, both interviewees confirm a positive trajectory in the technological maturity of both platforms since their respective launches. The Monetics Employee provides historical perspective on Mobile CPA, noting that initial display delays of up to one week were fully resolved through successive updates, and that the platform's stability has improved significantly over time. Both interviewees fully converge on a key shared improvement priority: the implementation of a self-registration system that would allow clients to enrol themselves on both platforms without mandatory bank staff intervention. Additional platform-specific suggestions include extending Wimpay's account aggregation to savings accounts, extending Mobile CPA's transaction history beyond six months, and resolving the password reset constraint to enable remote resets without requiring a branch visit.

Overall, the qualitative findings paint a picture of two technologically mature yet functionally distinct platforms, each serving complementary purposes within the CPA branch's digital offering. The convergence between both interviewees across all themes analyzed reinforces the credibility and consistency of the qualitative data collected, and provides a solid foundation for the triangulation with the quantitative results presented in the following section.

1.3 Triangulation: Integrating Quantitative and Qualitative Findings

Following the individual presentation and analysis of both the quantitative and qualitative data, this section synthesizes both strands of results and relates them to the underlying theoretical framework, namely the Unified Theory of Acceptance and Use of Technology (UTAUT). The triangulation process allows for a comprehensive interpretation of how digital culture, user technological maturity, and perceived platform technological maturity influence FinTech adoption among Algerian banking clients, while drawing on employee perceptions to contextualise and enrich the quantitative findings.

1.3.1 User Technological Maturity as a Primary Driver of Adoption

The quantitative results confirm that User Technological Maturity (UTM) is a significant and positive predictor of both FinTech Adoption (FA) ($\beta = 0.423$, $p < 0.001$) and Perceived Platform Technological Maturity (PBTM) ($\beta = 0.426$, $p < 0.001$). Furthermore, UTM demonstrates the

strongest total effect on adoption ($\beta = 0.614, p < 0.001$), making it the most influential construct in the model.

These findings are strongly supported by the qualitative evidence. Both interviewees consistently identified lack of digital skills particularly among elderly clients as the most frequently observed barrier to adoption on both platforms. The Customer Relationship Officer specifically noted that the complexity of Wimpay's opening process, involving multiple steps including two-factor authentication, OTP codes via SMS and email, and entry time limits, constitutes a major obstacle for clients with limited technological experience. The Monetics Employee further confirmed that elderly clients represent the most resistant profile due to their limited digital skills and persistent preference for in-person branch interactions.

These converging findings align with the broader literature. Studies conducted in South Korea (Yunwoo Choi, 2024) found that prior experience with technology, ownership of digital devices, and frequency of internet usage are the strongest predictors of FinTech adoption among older populations, while age alone is not a determining factor. Similarly, the meta-analysis covering Sub-Saharan Africa (Lars Hornuf, 2025) confirmed that digital literacy and mobile skills play key roles in adoption, alongside perceived ease of use and usefulness. In the Algerian context, where digital infrastructure and user habits are still evolving, the centrality of user technological maturity as a driver of adoption reflects the transitional stage of the country's digital ecosystem.

1.3.2 Perceived Platform Technological Maturity as the Strongest Direct Predictor

The quantitative analysis identifies Perceived Platform Technological Maturity (PBTM) as the strongest direct predictor of FinTech Adoption (FA) ($\beta = 0.448, p < 0.001$), with an R^2 of 0.549, indicating that the model explains 54.9% of the variance in adoption behavior.

This result is strongly corroborated by the qualitative findings. Both interviewees assessed both Wimpay and Mobile CPA as being at a fairly mature technological level, highlighting their reliability, stability, technical compatibility, and the progressive improvement of their features since launch. The Monetics Employee specifically noted that Mobile CPA's initial display delays of up to one week observed at launch in 2019 were fully resolved through successive updates, demonstrating the platform's capacity for continuous improvement. This trajectory of maturity confirms that institutional investment in platform quality directly shapes client perceptions and, consequently, adoption behavior.

However, the qualitative findings also reveal important technological limitations that partially explain why PBTM does not reach its full potential. The 24-hour balance update delay in Mobile CPA, attributed to the mandatory branch confirmation process, is consistently flagged by both interviewees as the platform's primary limitation in terms of perceived speed, one of the ten criteria of the technological maturity grid. Similarly, Wimpay's restricted traceability limited to balance consultation without access to a detailed transaction history, represents a notable gap in platform transparency. These limitations are consistent with the quantitative findings, where clients rated platform maturity positively but with moderate rather than excellent scores ($M = 3.708$).

These results align with the existing literature on institutional technological maturity. The French BIMM study (Fayon, 2018) confirmed that users have high security expectations and prefer mobile applications that meet advanced quality standards. The present findings extend this perspective to the Algerian context, demonstrating that even in an emerging market, perceived platform quality is a critical determinant of adoption.

1.3.3 The Mediating Role of PBTM: Digital Culture and the Full Mediation Effect

One of the most significant findings of this study is that UDC does not have a significant direct effect on FinTech Adoption ($\beta = -0.071$, $p = 0.172$), leading to the rejection of H1. However, UDC exerts a significant indirect effect on adoption through PBTM ($\beta = 0.175$, $p < 0.001$), confirming a full mediation effect. Additionally, UDC significantly influences PBTM ($\beta = 0.390$, $p < 0.001$), supporting H4.

This finding is particularly meaningful and receives important qualitative support. The Customer Relationship Officer noted a significant increase in client demand for both platforms in recent years, indicating that clients are progressively becoming more comfortable with digital tools. This suggests that a strong digital culture exists among the sampled population a finding consistent with the high mean score of UDC ($M = 4.155$) but that this culture alone does not translate directly into FinTech adoption without the mediation of perceived platform quality.

The qualitative data further supports this interpretation. Both interviewees observed that clients who are digitally literate tend to have higher expectations regarding platform performance, security, and ergonomics. When these expectations are met, adoption follows naturally. When they are not particularly in the case of the 72-hour activation delay or the complexity of Wimpay's enrolment process even digitally sophisticated clients may hesitate to adopt the

platforms. This suggests that digital culture acts as a mindset that shapes perception, but the actual adoption depends more on the perceived technical quality of the platforms.

This finding resonates with the literature on digital literacy and FinTech adoption. Studies in India (Mohamed Cherif El Amri, 2026) confirmed that digital literacy acts as a mediator between financial literacy and adoption, rather than a direct driver. Similarly, the Indonesian study (Salzakina Wa'dah. R, 2026) found that digital financial literacy influences adoption indirectly through financial decision-making. The present research extends this mediation logic to the platform level, showing that in the Algerian context, digital culture shapes how clients perceive the technological maturity of FinTech platforms, which in turn drives their adoption behavior.

1.3.4 Barriers to Adoption: Convergence Between Quantitative and Qualitative Findings

The quantitative results identified the main barriers to FinTech adoption as lack of familiarity with services (29.9%) and security concerns (28.9%), followed by lack of need (18.6%) and preference for branch visits (16.2%). These findings are strongly corroborated by the qualitative evidence.

Both interviewees identified forgotten passwords and account lockouts as the most frequently reported barrier on both platforms a finding not explicitly captured in the quantitative barriers section but highly consistent with the overall picture of limited digital autonomy among clients. The qualitative data also confirms that security concerns, while occasionally observed, do not constitute systematic barriers a nuance that complements the quantitative finding that 28.9% of respondents cited security as a barrier, suggesting that this concern exists but is not overwhelming.

Furthermore, both interviewees converged on the 72-hour activation delay for Mobile CPA as a major source of confusion clients returning to the branch reporting malfunctions before their account is effectively activated. This specific barrier, rooted in platform immaturity rather than user behavior, is not directly captured by the quantitative questionnaire, illustrating the added value of the qualitative phase in revealing operational barriers that surveys cannot easily measure.

These findings are consistent with the broader literature. The global synthesis on older adults (Molnar Mark-Denis, 2025) identified digital literacy, trust, and perceived usefulness as key enablers, while limited technological skills and perceived risk act as barriers. The present study

confirms these patterns in the Algerian context, while adding platform-specific operational barriers that enrich the understanding of adoption challenges.

1.3.5 Qualitative Explanation of the Non-Significant Path: Why Digital Culture Does Not Directly Drive Adoption

The rejection of H1 ($UDC \rightarrow FA, \beta = -0.071, p = 0.172$) constitutes one of the most theoretically interesting findings of this study. The qualitative data provides a compelling explanation for this result.

Both interviewees noted that while clients increasingly demonstrate digital comfort and familiarity with technology, this alone does not translate into platform adoption. Several platform-specific barriers including the complexity of Wimpay's enrolment process, the 72-hour activation delay for Mobile CPA, forgotten passwords, and limited self-registration options create friction that prevents even digitally literate clients from adopting the platforms. In other words, digital culture creates the necessary preconditions for adoption, but platform-level factors determine whether adoption actually occurs.

This finding suggests that in the Algerian banking context, the relationship between digital culture and FinTech adoption is not direct but conditional on the perceived quality of the platforms. When platforms are perceived as mature, reliable, and easy to use, digitally cultured clients adopt readily. When platforms present operational barriers as is partially the case with both Wimpay and Mobile CPA digital culture alone is insufficient to overcome these obstacles.

This interpretation aligns with the UTAUT framework, which emphasizes that performance expectancy as equivalent to perceived platform maturity which is a stronger predictor of adoption than effort expectancy alone. It also resonates with the findings of the Italian study (Luana Serino, 2025), where perceived security was identified as the strongest predictor of adoption, suggesting that platform characteristics outweigh user attitudes in certain contexts.

1.3.6 Overall Assessment: Complementarity of Quantitative and Qualitative Findings

Overall, the triangulation of quantitative and qualitative findings reveals a highly consistent and mutually reinforcing picture of FinTech adoption dynamics in the Algerian banking sector. The quantitative results provide a statistically rigorous assessment of the structural relationships between the key constructs, while the qualitative findings enrich these results by providing operational detail, contextual nuance, and employee perspectives that surveys cannot capture alone.

The convergence between both strands of data is particularly strong regarding the centrality of perceived platform maturity and user technological readiness as primary drivers of adoption. The divergence most notably in the explanation of H1's rejection illustrates the added value of the mixed methods design, as the qualitative phase provides a compelling contextual explanation for a statistically unexpected result.

Together, these findings confirm that FinTech adoption in Algeria is shaped by the interplay between users' digital capabilities and the perceived quality of banking platforms, with neither dimension sufficient on its own. This dual dependency highlights the importance of simultaneously developing both user digital literacy and platform technological maturity a conclusion with important implications for banking institutions and policymakers seeking to accelerate digital financial inclusion in Algeria.

Section 2: Discussion

The present study set out to examine the combined influence of user digital culture, user technological maturity, and perceived platform technological maturity on FinTech adoption in the Algerian banking sector, using a concurrent mixed-methods design. By integrating quantitative survey data ($n = 204$) with qualitative interviews of two CPA employees, the research tested a structural model in which both user-side factors and platform-side perceptions jointly predict adoption of mobile banking and payment services (Mobile CPA and Wimpay). This discussion interprets the main findings, confronts them with the existing literature, and outlines their theoretical and practical significance.

2.1 The indirect role of digital culture: a full mediation through platform maturity

One of the most striking results is that User Digital Culture (UDC) does not exert a significant direct effect on FinTech Adoption ($\beta = -0.071$, $p = 0.172$), leading to the rejection of hypothesis H1. At first glance, this appears to contradict a substantial body of work that positions digital literacy or digital financial literacy as a direct antecedent of FinTech use (Mahfuzur Rahman, 2024) (Aljaafreh, 2025) (Salzakina Wa'dah. R, 2026) However, closer inspection reveals that UDC exerts a significant indirect effect through Perceived Platform Technological Maturity (PBTM) ($\beta = 0.175$, $p < 0.001$), and that its total effect, while modest, is significant ($\beta = 0.103$, $p = 0.041$). In other words, digital culture does contribute to adoption, but only by shaping how users perceive the technological robustness of the banking platform.

This finding moves beyond the simple “literacy → adoption” linear models that dominate the literature. It aligns instead with studies that attribute a mediating role to digital competencies. For instance, the Indian study demonstrated that digital literacy and cybersecurity awareness act as sequential mediators between financial literacy and FinTech adoption (Charles Jebarajakirthy, 2021). Similarly, the Ethiopian study showed that digital literacy mediates the usability-adoption relationship. The present research extends this mediation logic to the platform level: digital culture creates a lens through which users evaluate platform maturity, and it is this perceived maturity that actually drives behavior.

The qualitative data strongly reinforce this interpretation. Both interviewees noted that clients increasingly display digital comfort, yet this comfort does not automatically lead to enrolment or regular use when the platform presents operational frictions like the complexity of Wimpay’s multi-step opening procedure (OTP codes, two-factor authentication), the 72-hour activation delay for Mobile CPA, forgotten passwords with no self-service recovery, and limited transaction history in Wimpay. Digitally cultured individuals are therefore more demanding; they will adopt only if the platform meets their quality expectations. Thus, digital culture acts as a necessary but insufficient condition. It builds the cognitive readiness that makes users capable of evaluating and appreciating platform quality.

This nuanced view refines the UTAUT framework’s effort expectancy and facilitating conditions: user’s digital habits are not direct catalysts for adoption but rather amplifiers of platform-related perceptions.

2.2 User technological maturity: a robust direct and indirect driver

User Technological Maturity (UTM) emerges as the most influential construct in the model. Its direct effect on adoption is strong ($\beta = 0.423$, $p < 0.001$), it indirectly promotes adoption through PBTM ($\beta = 0.191$, $p < 0.001$), and its total effect is the highest among all predictors ($\beta = 0.614$, $p < 0.001$). These results confirm hypotheses H2 and H5 and are fully consistent with the technology readiness literature.

Previous research has repeatedly shown that optimism, innovativeness, prior technology experience, and device ownership are powerful predictors of FinTech and mobile banking uptake. (Yunwoo Choi, 2024) demonstrated in South Korea that among older populations, technology usage time and ICT experience mattered far more than chronological age. In Sri Lanka (Tennakoon, 2024) and Indonesia (Darayani Annisa Nuramalina, 2025), technology

readiness particularly optimism and innovativeness was found to increase digital banking usage. The present study corroborates these patterns in the Algerian context, adding that user maturity not only pushes individuals toward adoption directly but also heightens their sensitivity to how sophisticated the bank's platform is. Technologically mature users demand more from the platform and, because they navigate it with ease, perceive it as more mature, which further boosts adoption.

The qualitative findings deepen this picture. Employees reported that elderly clients with limited digital experience represent the most resistant segment, while younger, tech-savvy clients adopt both platforms without major difficulty, as long as the platform does not present abnormal obstacles. The most telling evidence is that even a digitally comfortable user can be blocked by the 72-hour activation lag or the multi-step Wimpay enrolment process, indicating that UTM's influence is partially conditional on the platform meeting a minimum quality threshold. This conditional logic is not captured by standard direct-effect models and constitutes a valuable extension of the technology readiness perspective.

2.3 Perceived platform technological maturity: the keystone of adoption

Perceived Platform Technological Maturity (PBTM) is confirmed as the strongest direct predictor of FinTech Adoption ($\beta = 0.448$, $p < 0.001$), supporting hypothesis H3. Together, UTM and PBTM explain 54.9% of the variance in adoption, a substantial proportion that underlines how critical platform-side perceptions are in this setting.

This finding echoes a growing body of research that moves beyond user-centric models to incorporate institutional and technological dimensions. The French BIMM model (Bertoni, 2022) emphasized that users hold high security and performance expectations, and that mobile banking success depends on the perceived maturity of the bank's digital infrastructure. (Aljaafreh, 2025), TOE-based research found that while technological compatibility did not directly influence FinTech adoption, organizational readiness closely related to institutional maturity that moderated key relationships. The present study's ten-criteria grid (reliability, stability, speed, advanced features, security, ergonomics, evolutivity, interoperability, compatibility, and traceability) provides a far richer operationalization than the basic "usability and security" lenses commonly employed.

The quantitative data show that clients rate platform maturity moderately positively ($M = 3.708$), and the qualitative interviews corroborate this assessment: both platforms are

considered fairly mature, with notable improvements since their launch, yet they suffer from specific shortcomings such as a 24-hour balance update delay in Mobile CPA and restricted traceability in Wimpay that prevent PBTM from reaching its full adoption-driving potential. These findings refine UTAUT's performance expectancy: in this Algerian context, performance expectancy is not just about whether the service is useful, but about the holistic perception of how mature, stable, transparent, and evolving the platform is.

2.4 An integrated model: merging user-side and platform-side perspectives

A key gap identified in the literature review was the persistent separation between studies focusing on user characteristics (digital literacy, technology readiness) and those examining institutional or platform maturity. The present research directly addresses this gap by testing a model where UDC and UTM jointly shape PBTM, which in turn drives adoption. The results demonstrate that neither user readiness nor platform quality alone suffices, they are profoundly intertwined.

The total effect analysis is particularly instructive. UDC, despite having no significant direct effect, still exhibits a significant total effect on adoption. This indicates that ignoring the mediating role of platform perceptions would lead to the erroneous conclusion that digital culture is irrelevant, when in fact it is operating through a more complex causal chain. Similarly, UTM's influence is partly channeled through PBTM, meaning that user maturity not only facilitates adoption directly but also enhances the perceived attractiveness of the platform. This dual mechanism helps explain why some digitally skilled individuals still abandon or avoid FinTech services: their maturity raises their quality expectations, and if the platform fails to meet them, adoption stalls.

This integrated perspective extends the UTAUT beyond its original focus on individual cognitions. It suggests that effort expectancy (reflected in UTM) and facilitating conditions (captured partially by UDC) operate in conjunction with a refined form of performance expectancy (PBTM). Moreover, the full-mediation pattern of UDC points to a sequential, conditional process that UTAUT, in its standard additive formulation, does not fully capture. The present results, therefore, encourage a more dynamic, platform-dependent reading of technology acceptance theories.

2.5 Barriers to Adoption: Cognitive, Behavioural, and Platform-Specific Obstacles

Beyond the hypothesised structural relationships, the study also sheds light on the barriers that hinder FinTech adoption. The quantitative survey identified lack of familiarity with digital financial services (29.9 %) and security concerns (28.9 %) as the two most frequently cited obstacles, followed by a perceived lack of need (18.6 %) and a persistent preference for in-person branch visits (16.2 %). These figures indicate that cognitive and behavioral barriers, rooted in insufficient knowledge, low trust, and established banking habits, have remain the primary impediments for a substantial segment of Algerian clients. The qualitative findings both corroborate and deepen this picture. The two CPA employees consistently reported that forgotten passwords, account lockouts, and the inability to reset credentials without visiting a branch represent the single most frequent operational barrier on both platforms. Moreover, they highlighted the 72-hour activation delay for Mobile CPA and the multi-step, time-sensitive enrolment procedure for Wimpay as persistent sources of user frustration, which discourage even clients with moderate digital skills. Elderly users, in particular, were described as highly resistant, largely owing to limited digital literacy and a deep-seated preference for face-to-face interaction. These observations align closely with the existing literature: security-related anxieties have been identified as a significant brake on adoption in studies from Italy (Luana Serino, 2025) and Jordan (Lars Hornuf, 2025), while the Ethiopian investigation (Samuel Godadaw Ayinaddis, 2025) and the Indian study (Charles Jebarajakirthy, 2021) demonstrated that digital literacy deficits mediate and dampen the adoption process. Importantly, the presence of platform-specific operational frictions activation lags, rigid password recovery, and cumbersome enrolment extends the institutional maturity perspective (Fayon, 2018) (Aljaafreh, 2025) by showing that even a moderately mature platform may still contain critical “points of pain” that undermine user confidence. These barriers also illuminate the full mediation effect of perceived platform maturity observed in the structural model: when the platform presents such obstacles, a strong digital culture on the user side is not sufficient to produce adoption. Instead, digital culture translates into adoption only when platform maturity reaches a threshold that removes these daily frictions, reaffirming that platform quality is the indispensable gateway through which user readiness must pass.

2.6 The Algerian context: a specific inflection of global trends

The findings must be interpreted against the backdrop of Algeria’s digital and banking landscape. Mobile phone penetration is high, but comprehensive digital financial services are

relatively new, and a large segment of the population still relies heavily on cash and branch visits. In this transitional environment, platform maturity becomes a particularly sensitive lever because users have not yet accumulated the unconditional trust that characterises mature digital ecosystems.

The high mean score of UDC ($M = 4.155$) suggests that the sampled population likely biased towards younger, urban, educated individuals feels culturally equipped to handle digital tools. Yet the qualitative evidence reveals that operational obstacles, trivial in purely technical terms, loom large in consumers' decision-making. The 72-hour activation delay, mandatory branch confirmation for transactions, and Wimpay's limited transaction history are features that, in a more advanced market, would be considered unacceptable. Their persistence signals that institutional digital maturity has not yet caught up with the growing digital culture of the client base. This mismatch explains why digital culture fails to translate directly into adoption and why PBTM emerges as the critical bottleneck.

These observations align with findings from other developing and emerging regions, Cameroon (Steve Douanla Meli, 2022), Uganda (Jackson Abandu, 2025), Ethiopia (Samuel Godadaw Ayinaddis, 2025) where infrastructural frictions often overshadow individual-level predictors. However, they also point to a specifically Algerian dynamic: a rapidly digitalising society served by a banking system that is still building its technological backbone. The present study, by documenting both the strengths and the gaps of two real platforms, contributes to a more nuanced understanding of FinTech adoption in North Africa, a region largely ignored in the existing literature.

2.7 Theoretical contributions and re-examination of UTAUT

This study makes several theoretical contributions. First, it demonstrates that digital culture, when measured as a multidimensional construct encompassing habits, values, attitudes, and skills, does not operate as a simple direct determinant; rather, it is a shaping force whose influence is filtered through platform perceptions. This invites researchers to move beyond direct-effect models of digital literacy and to systematically test mediating pathways involving platform quality.

Second, it proposes and validates a ten-criteria framework for perceived platform technological maturity that goes far beyond the classic ease-of-use and security items. By including

dimensions such as evolutivity, interoperability, compatibility, and traceability, the study offers a transferable instrument for assessing institutional digital maturity from the user's perspective.

Third, the study underscores the value of mixed methods in technology adoption research. The triangulation of quantitative paths and qualitative employee narratives provided a compelling explanation for the surprising non-significant direct effect of digital culture. Without the qualitative input, the rejection of H1 would have remained a statistical anomaly; with it, the rejection becomes one of the most theoretically insightful findings of the research.

Finally, the results suggest a refinement of the UTAUT for emerging market contexts. While UTAUT correctly posits that performance expectancy is a strong predictor, it does not fully account for the threshold effect observed here: platform maturity must reach a certain level before other drivers, such as digital culture, can exert their influence. Incorporating such a conditional or mediated relationship would enhance UTAUT's explanatory power in settings where digital infrastructure is still maturing.

Taken together, the findings paint a coherent picture: in the Algerian banking sector, FinTech adoption is driven first and foremost by the perceived quality of the platform, with user technological maturity acting as a powerful amplifier both directly and indirectly. Digital culture, although widespread among the sampled users, cannot overcome platform shortcomings on its own; instead, it raises expectations and increases reliance on platform maturity as the gateway to adoption. This interplay explains why previous research, which often examined these constructs in isolation, may have overestimated the direct effect of digital literacy and underestimated the pivotal role of perceived platform maturity.

The next sections will derive managerial and policy implications, acknowledge the study's limitations, and outline avenues for future research, before concluding on the broader significance of this work for digital financial inclusion in Algeria.

2.8 Managerial Implications

The findings carry clear and actionable messages for the CPA and for Algerian banking institutions more broadly.

- **Prioritise platform maturity before relying on digital culture:** Because digital culture alone does not lead to adoption, initiatives aimed solely at raising digital literacy (training sessions, awareness campaigns) will yield limited returns if the platforms themselves are

not perceived as mature, reliable, and transparent. The CPA should concentrate first on eliminating the operational frictions that both employees and clients identified.

- **Address the most critical platform shortcomings:** The 72-hour activation delay for Mobile CPA and the complexity of Wimpay’s multi-step enrolment (two-factor authentication, OTP codes, time limits) are repeatedly cited as major barriers. Reducing the activation delay to a few minutes or at least making it near-instantaneous and simplifying the opening process would directly address the “missing link” between digital readiness and adoption.
- **Enable self-service functions:** Both interviewees strongly advocated for a self-registration system and for remote password reset capabilities. Implementing these features would reduce client reliance on branch visits, lower the workload of front-office staff, and increase the perceived autonomy and convenience of the platforms, thereby raising PBTM.
- **Leverage the relative strengths of each platform for tailored promotion:** Mobile CPA, with its rich transaction history, inter-bank transfers, and daily banking operations, corresponds to a frequent and essential need; it is already the more adopted platform. Wimpay, with its speed, simplicity, and QR-code contactless payment, serves a different, still-developing usage pattern. The bank could promote Mobile CPA as the “daily digital branch” and Wimpay as the “secure, instant payment companion,” while working to extend Wimpay’s traceability and account aggregation to increase its perceived usefulness.
- **Use the ten-criteria maturity grid as an internal diagnostic tool:** The CPA could periodically evaluate both platforms and any future digital service, against the ten criteria, using both client feedback and staff observations. This would allow the bank to track progress, identify regressions, and communicate improvements transparently to clients, further strengthening their perception of platform maturity.
- **Segment and support users according to digital readiness:** Because elderly clients and those with limited digital skills remain the most resistant, the bank should design simplified interfaces, in-branch assistance, and step-by-step video tutorials that reduce the cognitive load of first-time use. For the digitally cultured segment, offering advanced features (extended history, financial simulations) could convert digital comfort into deeper engagement.

From a policy perspective, the results suggest that national strategies aimed at digital financial inclusion in Algeria should couple investments in digital literacy with concrete incentives for

banks to upgrade their platform infrastructure. A regulatory framework that sets minimum standards for speed, transparency, traceability, and interoperability could accelerate the closing of the gap between growing user digital culture and still-maturing banking platforms.

2.9 Limitations and Future Research

Despite its contributions, the present research has several limitations that must be acknowledged

2.9.1 Limitations of the Study

Despite its contributions, the present research has several limitations that should be acknowledged.

- **Sample profile and generalisability:** The quantitative sample is predominantly young (54.9 % under 25), highly educated (76.5 % between Bac +3 and Bac + 5), and largely female (65.7 %), with half of the respondents being students. This profile, partly a consequence of online questionnaire dissemination and the socio-demographic characteristics of active internet users in Algeria, limits the generalisability of the findings to older, less educated, or male populations. Replication with a more balanced sample is necessary.
- **Sample size:** The final sample of 204 respondents falls below the threshold of 384 suggested by Cochran's formula for a 5 % margin of error, which constitutes a limitation of this study. Nevertheless, it exceeds the threshold of 196 calculated at a 7 % margin of error, a level that is often deemed acceptable for exploratory research in social sciences where relationships between latent variables are investigated rather than population parameters estimated (Hair et al., 2019). Therefore, while the results must be interpreted with caution, the sample size remains adequate for the PLS-SEM analyses and the research objectives pursued.
- **Single-bank, two-platform context:** The study focuses exclusively on the CPA and its two digital applications, Mobile CPA and Wimpay. Although this choice permits an in-depth analysis, it restricts the transferability of the conclusions to private banks, to other public banks, or to FinTech services with different functional scopes. What holds true for a public bank with a transitional digital infrastructure may differ in a fully digital-native setting.

- **Cross-sectional design:** The data were collected at a single point in time. Thus, although the structural model identifies associations consistent with the proposed causal chain, it cannot establish temporal causality. Digital culture, technological maturity, and adoption likely co-evolve, and a longitudinal design would be required to capture these dynamics.
- **Self-reported measures:** Both the quantitative survey and the qualitative interviews rely on self-reported perceptions. Client-reported digital culture and platform maturity may be inflated by social desirability or by a lack of benchmarking. Similarly, employee accounts, while highly informative, reflect their specific roles and may be influenced by institutional loyalty. Future research could complement perceptual measures with objective indicators
- **Small qualitative sample:** The qualitative phase involved two employees, a Customer Relationship Officer and a Monetics Department Employee. Although their roles are complementary and provided rich insights, they represent a limited perspective. Additional interviews with employees from the bank's central departments, to which the internship did not grant access, or even clients themselves would enrich the understanding of adoption barriers.
- **Construct measurement:** The User Technological Maturity (UTM) construct demonstrated an AVE slightly below the 0.50 threshold (0.459), indicating that a portion of its variance remains unexplained. While composite reliability values remained satisfactory, this limitation suggests that future refinements of the UTM scale may be needed, especially when adapting it to the Algerian context.
- **Exogenous variables omitted:** The model deliberately concentrated on digital culture and technological maturity, leaving out other potentially influential factors such as trust, perceived cost, social influence, or satisfaction. Some of these variables are known determinants in UTAUT and TAM models, and their exclusion limits the comprehensiveness of the explanatory framework. This delimitation was necessary to test a focused, parsimonious model centred on the interplay between user-side and platform-side dimensions, which constituted the core gap identified in the literature.

2.9.2 Perspectives for Future Research

Building on the present work, several avenues for future investigation can be proposed.

- **Replication in diverse Algerian banking settings:** Testing the same model with clients of other public banks (e.g., BNA, BADR) and private banks operating in Algeria would assess

whether the observed relationships especially the full mediation of digital culture and hold across different institutional contexts and platform maturity levels.

- **Cross-Maghreb comparative studies:** Extending the research to Morocco and Tunisia, which share cultural and linguistic ties with Algeria but possess distinct digital banking trajectories, would help disentangle country-specific effects from regional patterns, contributing to a much-needed body of knowledge on FinTech adoption in North Africa.
- **Longitudinal designs:** A repeated-measures study following the same clients over time, ideally before and after significant platform updates, could capture the causal impact of improved platform maturity on adoption and reveal how digital culture and technology readiness evolve with usage experience.
- **Incorporation of objective maturity metrics:** Future research could complement perceived maturity with actual technical indicators such as server uptime, transaction failure rates, response latency, number of security incidents, to build a hybrid index of platform technological maturity, thereby reducing common method bias.
- **Multi-actor qualitative inquiry:** Enriching the qualitative strand with interviews of additional branch staff, IT developers, central bank regulators, and a diverse set of clients (adopters, non-adopters, dropouts) would offer a 360-degree view of the adoption ecosystem and uncover barriers that neither surveys nor a small number of employee interviews can capture.
- **Extension of the model with additional constructs:** Integrating trust in the institution, perceived risk, price value, and social influence would allow testing whether digital culture and platform maturity retain their explanatory power when these traditional determinants are controlled for. In particular, examining whether perceived platform maturity can compensate for low institutional trust would be of great interest in emerging markets.
- **Segmentation and typology analysis:** Future research could employ latent class analysis or cluster analysis to identify distinct user profiles based on the interplay of digital culture, technological maturity, and adoption behavior. Such profiles could then be linked to specific platform feature preferences, guiding personalised interface design and targeted communication strategies.

Conclusion

1. Research Overview

This study set out to investigate how digital culture and technological maturity at both the user and the platform levels jointly influence the adoption of FinTech services in the Algerian banking sector. While prior research has extensively examined isolated determinants such as perceived usefulness, ease of use, trust, or digital literacy, very few studies have brought together user-side and platform-side dimensions within a single empirical framework, and even fewer have done so in a North African context. The present research addressed this gap through a concurrent mixed-methods design centred on the CPA bank and its two mobile applications, Mobile CPA and Wimpay.

The quantitative phase, based on a survey of 204 Algerian banking clients, and the qualitative phase, consisting of semi-structured interviews with two bank employees, yielded convergent and mutually reinforcing findings. Perceived platform technological maturity emerged as the most direct and powerful lever of adoption: clients who judge the platform to be reliable, fast, secure, and transparent are far more likely to use it regularly. User technological maturity the combination of device access, digital experience, and psychological readiness proved to be the most influential force overall, acting both directly on adoption and indirectly by heightening user's appreciation of the platform's quality.

2. Synthesis of Main Findings

The most theoretically intriguing result concerns digital culture. While the surveyed clients displayed a strong general digital culture, this alone did not translate into higher adoption. Instead, digital culture exerts its influence entirely through the perception of platform maturity. In other words, digitally acculturated individuals are not automatically inclined to adopt FinTech services; they become adopters only when the platform meets their quality expectations. When the platform presents operational frictions such as a lengthy activation delay, a complex enrolment process, or limited transaction traceability even a high level of digital culture remains insufficient to drive adoption.

These findings refine the UTAUT framework by showing that user-side readiness and platform-side quality are not simply additive but deeply intertwined. They also demonstrate the value of the ten-criteria grid developed for this study, which captures dimensions of platform maturity well beyond the usual measures of usability and security. From a practical standpoint, the implications are clear: for the CPA and similar Algerian banks, the priority must be to elevate the technological maturity of the platforms themselves simplifying enrolment, enabling

self-service password recovery, reducing activation delays, and enriching transaction history so that the growing digital culture of the population can be converted into actual adoption.

3. Limitations and Future Research Perspectives

Naturally, the study has limitations. The sample, while informative, was modest in size and skewed toward young, educated urban users; the data were collected at a single point in time; and the qualitative insights were drawn from two informants within a single public bank. These constraints limit the generalisability of the findings and point to the need for replication with broader samples, longitudinal designs, and comparative multi-bank studies.

In the Algerian context, where digital financial services are still expanding, this research demonstrates that fostering FinTech adoption cannot be achieved solely through digital literacy campaigns or awareness programmes. It requires a simultaneous and coordinated effort to enhance the technological maturity of the platforms themselves. When users perceive the digital environment as reliable, fast, transparent, and secure, their cultural readiness is activated and transformed into meaningful usage. Achieving this alignment is not merely a managerial challenge for banks but also a matter of public policy if digital financial inclusion is to become a tangible reality.

Ultimately, this study offers both a diagnostic and a roadmap. It shows that in the Algerian banking sector, platform quality is the keystone, user technological maturity is the engine, and digital culture is the catalyst that only works when the first two are firmly in place. By illuminating this interplay, the research hopes to inform more effective strategies for bridging the gap between a digitally willing population and the financial services they are ready to embrace, not only in Algeria but in other emerging markets facing similar challenges of digital transition

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APPENDIX

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Appendix 1: Literature Review synthetic table

Prior study	Study scope	Methodology	Limitations
(Rehan Aftab, 2025)	Pakistan – behavioral biases (risk aversion, overconfidence) and financial literacy in FinTech adoption	Quantitative survey of banking customers, regression analysis	Cross-sectional, self-reported data, social desirability bias
(Mahfuzur Rahman, 2024)	Bangladesh – role of perceived usefulness and perceived ease of use in FinTech adoption	Structural Equation Modeling (SEM)	Cross-sectional, self-reported data
(Mahmud Akhter Shareef, 2018)	Malaysia – trust and perceived security among mobile banking users	Survey, SEM	Not individually specified, cross-sectional self-reporting
(Yunwoo Choi, 2024)	South Korea – FinTech adoption among older adults (technology usage time, ICT experience, device ownership)	Secondary panel data (Korea Media Panel Survey 2019–2020), N=3465, regression	Absence of psychological variables, exclusion of elderly people without mobile devices, limited generalizability
(Thomas Appiah, 2025)	Four Sub-Saharan African countries – perceived benefits, risks, and trust	Quantitative survey, PLS-SEM and fsQCA	Cross-sectional, exclusion of grey literature, geographic concentration
(Salim Saidy, 2025)	36 Sub-Saharan African countries – ownership of formal accounts and mobile phones	Global Findex 2021 data (World Bank), machine learning algorithms (XGBoost, Random Forest)	Cross-sectional, aggregated data
(Lars Hornuf, 2025)	Sub-Saharan Africa – meta-analysis of 67 quantitative studies	Random-effects models, effect sizes	Possible publication bias
(Luana Serino, 2025)	Italy – determinants of the intention to continue using FinTech (usefulness, security, trust, social influence)	Quantitative survey, 465 users, SEM	Convenience sample (students), cross-sectional
(Luong Thuy Tien, 2026)	Tourism sector – extended TAM model, perceived risk, personal innovativeness	Survey, 462 tourists, SEM	Cross-sectional
(Muhammad Akhtar, 2024)	Pakistan – behavioral biases and moderation by financial literacy	Regression analysis	Cross-sectional, self-reported data
(Syed Kumail Abbas Rizvi, 2024)	Global index – relationship between innovation, digital adoption, and FinTech development	Principal component analysis, log-log regression	Cross-sectional, aggregated indices

(Kun-Huang Huarng, 2022)	30 countries (2020) and 28 countries (2021) – configurations leading to high FinTech adoption	fsQCA	Short time period, cross-sectional
(Molnar Mark-Denis, 2025)	Older adults worldwide – facilitators and barriers	Systematic review (PRISMA), bibliometric analysis, content analysis (55 articles)	Concentration on developed countries
(Hawazen Alamoudi, 2024)	Middle Eastern countries – trust, security, and cultural moderators	Survey, SEM	Cross-sectional
(Charles Jebarajakirthy, 2021)	India – convenience dimensions and hedonic/utilitarian values	Survey, 446 banking customers, CB-SEM	Cross-sectional, single-country study
(Mahfuzur Rahman, 2024)	Malaysian millennials during the pandemic – predictors of mobile banking adoption	Survey, 270 respondents, PLS-SEM; explained variance 61%	Convenience sample, pandemic-specific context
(Mahmud Akhter Shareef, 2018)	Adoption stages (static, interaction, transaction) based on the General Adoption Model	Survey, 201 users, SEM	Single developing country, exclusion of demographic-cultural moderators
(Steve Douanla Meli, 2022)	Socio-economic factors (education, income, mobile ownership)	Global Findex 2017 survey, 1000 individuals, Probit model	Ignores psychological and service-related factors
(Qianyu Zhu, 2022)	Role of mass and interpersonal communication	Survey, 1291 rural households, binary probit model	Limited generalizability (rural Chinese context)
(Gaurav R. Sinha, 2025)	Subjective financial literacy, digital engagement, and mobile payment services	Secondary data from the 2021 National Financial Capability Study (NFCS), 20,758 adults, ordinal logistic regression, latent class analysis	U.S.-specific, cross-sectional
(Samuel Godadaw Ayinaddis, 2025)	Ease of use, compatibility, accessibility, perceived usefulness	Survey, 361 customers of the Commercial Bank of Ethiopia, regression; $R^2 = 0.556$	Single bank, exclusion of cost variable (multicollinearity)
(Jackson Abandu, 2025)	Institutional factors (awareness, training, user protection), mediating role of perceived usefulness	Survey, 480 agro-entrepreneurs, Process Macro regression	Cross-sectional, single agricultural region
(Pradeep Singh, 2025)	Sequential mediation of digital literacy and cybersecurity awareness between financial	Survey, 600 users (Millennials/Gen Z), SEM and artificial neural networks	Geographic limitation (Rajasthan), cross-sectional, self-reporting

	literacy and FinTech adoption		
(Salzakina Wa'dah, R, 2026)	Digital financial literacy, financial decision-making, FinTech adoption, risk tolerance	Survey, 250 young adults, PLS-SEM	Cross-sectional, geographic restriction
(Venkatesan, 2025)	Influence of digital financial literacy on adoption, frequency, and complexity of mobile banking use	Secondary data: national survey (2,211 adults) + Capital One survey (3,000 consumers)	Self-reporting, limited international generalizability
(Varania Pambagyo Sabila, 2024)	Effects of financial and digital literacy on mobile banking adoption (ease of use, usefulness, relative advantage)	Survey, 210 banking customers, multiple linear regression	Educated young participants, convenience sample
(Aljaafreh, 2025)	Role of financial and digital literacy in FinTech usage, with gender as a moderator	Online survey, 463 millennials, PLS-SEM	Jordanian context, female-dominated sample, cross-sectional
(Mohamed Cherif El Amri, 2026)	Access, beliefs, and security measures as determinants of digital payment experience	Survey, 320 respondents, SEM	Cross-sectional, self-reporting, context-specific
(Samuel Godadaw Ayinaddis, 2025) (LEYKUN, 2026)	Mediation of digital literacy between perceived usability and mobile banking adoption	Survey, 289 users, regression and mediation analysis	Self-reporting, limited to the capital city, external factors ignored
(Ahmad Marei, 2023)	TOE factors (relative advantage, top management support, competitive pressure, technological compatibility), organizational readiness, FinTech adoption, and financial performance	Online survey, 215 commercial bank managers, SEM	Jordanian banks only, cross-sectional, perceptual self-reporting
(Fayon, 2018)	Digital maturity model for banks (BIMM): user expectations, security, data exploitation	Qualitative survey (248 experts), quantitative survey (301 users), proof of concept for contactless mobile payment	French context, arbitrariness in selecting dimensions/indicators, limited comparability between actors
(Hien Ho, 2025)	Moderating role of technology readiness dimensions (optimism, innovativeness, discomfort, insecurity) in the satisfaction-loyalty relationship	Online survey, 258 mobile banking users, SEM	Sample of American students, cross-sectional, self-reporting

(Sonny Francisco Siboro, 2025)	Influence of technology readiness and financial literacy on FinTech usage and financial planning	Survey, Generation Z (Greater Jakarta), PLS-SEM	Single generation, limited region, cross-sectional
(Tennakoon, 2024)	Influence of technology readiness on digital banking adoption, mediation by behavioral intention	Online survey, 172 commercial bank customers (Western Province), multiple regression, Sobel test	Single region, convenience sample, rural areas excluded
(Darayani Annisa Nuramalina, 2025)	Innovation resistance, technology readiness, adoption, satisfaction, continuance intention	Survey, 600 mobile banking users (urban, semi-urban, rural), PLS-SEM	Cross-sectional, single region, variables such as trust or switching costs excluded

Source: Elaborated by Author inspiring from the Literature

Appendix 2: Questionnaire Structure

Section	Q	Item wording (abbreviated) / Variable	Criterion from the grid	Categories / Scale	Source / Inspiration / Justification
Section 1: User's Digital Culture (UDC)	Q1	I use the Internet every day (computer or smartphone)			(Ng, 2012), (Salzakina Wa'dah. R, 2026)
Section 1: User's Digital Culture (UDC)	Q2	I like learning to use new applications or online services			(Ng, 2012) (Luana Serino, 2025)
Section 1: User's Digital Culture (UDC)	Q3	I feel comfortable with new technologies			(Ng, 2012) (Aljaafreh, 2025)
Section 1: User's Digital Culture (UDC)	Q4	I am able to carry out administrative procedures online without help			(Ng, 2012) (Venkatesan, 2025)
Section 1: User's Digital Culture (UDC)	Q5	I regularly make purchases online			(Salzakina Wa'dah. R, 2026)
Section 1: User's Digital Culture (UDC)	Q6	I use social media (Facebook, Instagram, WhatsApp, etc.)			(Pradeep Singh, 2025)
Section 1: User's Digital Culture (UDC)	Q7	When I get stuck on an application, I look for the solution myself (tutorials, forums)			(Ng, 2012)
Section 1: User's Digital Culture (UDC)	Q8	I am able to solve a simple technical problem on my smartphone or computer by myself			(Ng, 2012)

Section 1: User's Digital Culture (UDC)	Q9	I regularly check the reliability of websites before entering personal or banking information			(Mohamed Cherif El Amri, 2026) (Pradeep Singh, 2025)
Section 1: User's Digital Culture (UDC)	Q10	I easily understand the terms and conditions of applications or online services			(Salzakina Wa'dah. R, 2026)
Section 1: User's Digital Culture (UDC)	Q11	I prefer using an application rather than a website for my banking operations			(Bertoni, 2022)
Section 2: User Technological Maturity (UTM)	Q12	I own digital devices (smartphone, computer, tablet, etc.)			(Yunwoo Choi, 2024) (Salzakina Wa'dah. R, 2026)
Section 2: User Technological Maturity (UTM)	Q13	How often do you use a banking application on your smartphone?			(Venkatesan, 2025)
Section 2: User Technological Maturity (UTM)	Q14	Contactless payment with smartphone (QR code)			(Mahfuzur Rahman, 2024) (Fayon, 2018)
Section 2: User Technological Maturity (UTM)	Q15	Instant transfer			Self-developed to capture advanced FinTech feature usage (Venkatesh T. &., 2012)
Section 2: User Technological Maturity (UTM)	Q16	Facial recognition or fingerprint to access the banking application			Self-developed, reflecting biometric adoption; technology readiness (Parasuraman, 2015)
Section 2: User Technological Maturity (UTM)	Q17	Online chat with an advisor			Self developed to measure awareness/use of support features (Jackson Abandu, 2025)institutional support
Section 2: User Technological Maturity (UTM)	Q18	Quality of your home internet connection			(Qianyu Zhu, 2022) infrastructure; facilitating conditions in UTAUT
Section 2: User Technological	Q19	Self assessment of your digital skill level			(Parasuraman, 2015) technology readiness

Maturity (UTM)					“innovativeness” self perception; (Samuel Godadaw Ayinaddis, 2025)digital literacy self rating
Section 3: Perceived Platform Technological Maturity (PBTM)	Q20	The platform is reliable (few errors)	Reliability		(Samuel Godadaw Ayinaddis, 2025)
Section 3: Perceived Platform Technological Maturity (PBTM)	Q21	The platform is stable (rarely unavailable)	Stability		(Fayon, 2018) platform stability expectation; paper 6 (Lars Hornuf, 2025)system reliability
Section 3: Perceived Platform Technological Maturity (PBTM)	Q22	Transactions and logins are fast	Speed		(Mahmud Akhter Shareef, 2018) performance expectancy
Section 3: Perceived Platform Technological Maturity (PBTM)	Q23	The platform offers advanced features (e.g., instant transfer, facial recognition, chat)	Advanced features		Self developed from the grid; inspired (Fayon, 2018)
Section 3: Perceived Platform Technological Maturity (PBTM)	Q24	I feel safe when using this platform	Security		Multiple studies: (Luana Serino, 2025) perceived security; (Aljaafreh, 2025) UTAUT security extensions (Venkatesh V. e., 2016)
Section 3: Perceived Platform Technological Maturity (PBTM)	Q25	The interface is simple and intuitive	Ergonomics		(Mahfuzur Rahman, 2024) interface simplicity
Section 3: Perceived Platform Technological Maturity (PBTM)	Q26	The platform is compatible with my smartphone or computer	Technical compatibility		UTAUT facilitating conditions; (Venkatesh V. e., 2016) (Fayon, 2018) multi device compatibility
Section 3: Perceived Platform Technological Maturity (PBTM)	Q27	I receive clear notifications for each transaction	Traceability/transparency		Self developed from the ten criteria grid; inspired by traceability expectations in (Mohamed Cherif El Amri, 2026)

Section 3: Perceived Platform Technological Maturity (PBTM)	Q28	I have the necessary knowledge to use this platform	(knowledge)		This item overlaps with UTAUT facilitating conditions; also used in (Varania Pambagyo Sabila, 2024)
Section 3: Perceived Platform Technological Maturity (PBTM)	Q29	Using these services saves me time	(performance expectancy)		(Venkatesh M. D., 2003) performance expectancy; many adoption studies (Mahmud Akhter Shareef, 2018)
Section 3: Perceived Platform Technological Maturity (PBTM)	Q30	These services are easy to use	(effort expectancy)		(Venkatesh M. D., 2003) effort expectancy; (Mahmud Akhter Shareef, 2018)
Section 3: Perceived Platform Technological Maturity (PBTM)	Q31	I trust my bank to secure my data	(trust)		(Luana Serino, 2025) (Aljaafreh, 2025) UTAUT trust extensions
Section 3: Perceived Platform Technological Maturity (PBTM)	Q32	I can easily get help if I have a problem with these services	(facilitating conditions)		(Venkatesh M. D., 2003) (Jackson Abandu, 2025) institutional support
Section 4: Adoption of FinTech Services (FA)	Q33	I am registered on my bank's application			(Venkatesh T. &., 2012)actual use (Venkatesan, 2025)mobile banking adoption
Section 4: Adoption of FinTech Services (FA)	Q34	How often do you use your banking application?			(Venkatesan, 2025) usage frequency (Salzakina Wa'dah. R, 2026) adoption intensity
Section 4: Adoption of FinTech Services (FA)	Q35	My banking application allows me to carry out all the operations I need			Self-developed item measuring perceived completeness; inspired by (Charles Jebarajakirthy, 2021)
Section 4: Adoption of FinTech Services (FA)	Q36	I would recommend my banking application to others			(Venkatesh T. &., 2012)adoption intention; word-of- mouth items in (Mahmud Akhter Shareef, 2018)

Section 4: Adoption of FinTech Services (FA)	Q37	These services help me better manage my money			(Salzakina Wa'dah, R, 2026) financial decision- making (Venkatesan, 2025)perceived benefits
Section 5: Possible Barriers	Q38	I do not feel secure			(Luana Serino, 2025); (Aljaafreh, 2025) (Molnar Mark-Denis, 2025)
Section 5: Possible Barriers	Q39	It is too complicated			(Samuel Godadaw Ayinaddis, 2025) usability barriers; (Mohamed Cherif El Amri, 2026) complexity
Section 5: Possible Barriers	Q40	I do not need these services			Self-developed item capturing lack of perceived usefulness; consistent with non-adoption literature (Mahfuzur Rahman, 2024)
Section 5: Possible Barriers	Q41	My phone or computer is not suitable			(Qianyu Zhu, 2022) device constraints; UTAUT facilitating conditions
Section 5: Possible Barriers	Q42	I do not trust technology			(Charles Jebarajakirthy, 2021) cybersecurity distrust; (Tennakoon, 2024) discomfort and insecurity
Section 5: Possible Barriers	Q43	I prefer going to the branch			Preference for traditional banking practices and resistance to digital technologies (Davis, 1989)
Section 5: Possible Barriers	Q44	I am not familiar with these services			(Steve Douanla Meli, 2022)lack of awareness; (Jackson Abandu, 2025) awareness barrier
Section 6: Demographic Variables and Measurement Items	Q45	Age		Under 25 / 25–34 / 35–49 / 50–64 / 65 and over	Adapted from demographic classifications commonly used in technology adoption and survey research. Inspired by

					(Formifyr, 2024) survey recommendations
Section 6: Demographic Variables and Measurement Items	Q46	Gender	Female / Male		Standard demographic variable widely used in FinTech and technology adoption studies.
Section 6: Demographic Variables and Measurement Items	Q47	Education level	No diploma / Baccalaureate / TS / Bac+3 to Bac+5 / Bac+6 and above		Adapted from OECD education level classifications (OECD, 2022).
Section 6: Demographic Variables and Measurement Items	Q48	Profession	Employee / Retired / Worker / Student / Unemployed		Common socio-professional categories used in consumer behavior and FinTech adoption research.
Section 6: Demographic Variables and Measurement Items	Q49	Monthly net income	Less than 20,000 DA / 20,000–25,000 DA / 25,001–40,000 DA / 40,001–60,000 DA / More than 60,000 DA		Adapted to the Algerian context and income distribution, inspired by SMIG classifications and (Formifyr, 2024) survey recommendations

Source: Elaborated by Author inspiring from the Literature

Appendix 3: Questionnaire and Interview guide

English Questionnaire :

https://docs.google.com/forms/d/e/1FAIpQLScJMH6Z9uC9ecPvfiBUtAlu0mv64BaTAqZ4M_OoNTwrpy7TXw/viewform?usp=header

French Questionnaire :

https://docs.google.com/forms/d/e/1FAIpQLSfbj61DeB2MF7easw1ueLYnj8prauSV4viuUKYVNRt_80eHnQ/viewform?usp=header

Appendix 4: Interview Guide (French)

Interview Guide (French) :

Bonjour ! Avant tout, nous tenons à vous exprimer notre gratitude pour cet entretien. Nous sommes en formation de master en management financier des entreprises à l'École Nationale Supérieure de Management.

Cet entretien est mené dans le cadre de notre mémoire de master portant sur l'impact de la culture numérique et de la maturité technologique sur l'adoption des FinTech, avec la CPA Banque comme cas d'étude. Avant de débiter l'entretien, nous tenons à préciser que les informations recueillies durant cette discussion seront utilisées uniquement à des fins académiques et de recherche.

Nous garantissons également la confidentialité des réponses et l'anonymat des personnes interrogées. Vous pouvez ainsi répondre librement et sans réserve aux différentes questions.

Participants à l'entretien :

- Chargée de relation clientèle
- Employée du département monétique

Rôle et responsabilités

Q1– Quel est votre poste et quelles sont vos missions concernant **Wimpay** et **Mobile CPA** (inscription, support, gestion, suivi) ?

Q2 – Description et différences Pouvez-vous décrire brièvement ce qu'est **Wimpay** et ce qu'est **Mobile CPA** ? Quelles sont les principales différences entre ces deux plateformes (objectifs, fonctionnalités, public cible) ?

Q3 – Maturité technologique perçue

Avant de répondre, précisons ce que nous entendons par **maturité technologique** d'une plateforme. Il s'agit d'un concept multidimensionnel qui inclut :

- **La fiabilité** : la plateforme fonctionne-t-elle sans erreur, sans plantage, sans perte de données ?
- **La stabilité** : les temps d'indisponibilité (maintenance, pannes) sont-ils rares et prévisibles ?
- **La rapidité d'exécution** : les transactions, les connexions, les chargements sont-ils fluides et rapides ?
- **La capacité à offrir des fonctionnalités avancées** : présence de reconnaissance faciale, virement instantané, chat en ligne, agrégation de comptes, etc.
- **La sécurité perçue et réelle** : double authentification, notifications de transaction, protection contre la fraude, conformité aux normes.
- **La facilité d'utilisation (ergonomie)** : l'interface est-elle intuitive, accessible aux novices ?
- **L'évolutivité** : la plateforme bénéficie-t-elle de mises à jour régulières (nouvelles fonctions, corrections de bugs) ?
- **L'interopérabilité** : peut-elle communiquer avec d'autres systèmes (agrégation de comptes externes, liens avec des wallets) ?
- **La compatibilité technique** : fonctionne-t-elle sur différents appareils (smartphones anciens/récents, ordinateurs) et systèmes d'exploitation ?
- **La traçabilité et transparence** : l'utilisateur peut-il consulter l'historique complet, recevoir des justificatifs ?

Si vous souhaitez ajouter d'autres critères, n'hésitez pas.

Comment évalueriez-vous la maturité technologique de **Wimpay** ? Et celle de **Mobile CPA** ?

Q4 – Fonctionnalités spécifiques de chaque plateforme

Voici une liste de fonctionnalités courantes. Pour chaque plateforme (**Wimpay** et **Mobile CPA**), veuillez indiquer si la fonctionnalité est **disponible** ou **indisponible**. Vous pouvez également ajouter d'autres fonctionnalités que nous n'aurions pas listées.

- Consultation de solde et historique
- Virement entre comptes internes

- Virement instantané vers d'autres banques
- Paiement de factures (électricité, eau, etc.)
- Paiement mobile sans contact (NFC)
- Reconnaissance faciale ou empreinte digitale pour connexion
- Chat en ligne avec un conseiller
- Agrégation de comptes externes (voir ses autres comptes bancaires)
- Notifications push pour chaque transaction
- Découverte / simulation de produits d'épargne ou de crédit
- Autre (à préciser)

Q5 – Fiabilité, performance et sécurité

Pour chaque plateforme (Wimpay et Mobile CPA), pouvez-vous nous dire si vous avez constaté :

- Des **temps d'indisponibilité** (serveur down, maintenance prolongée) ?
- Des **lenteurs** lors des connexions ou des transactions ?
- Des **bugs récurrents** (affichage incorrect, plantage de l'application) ?
- Des **problèmes de sécurité** (tentatives de fraude, phishing, accès non autorisés) ?
- Des **difficultés de mise à jour** (mise à jour qui supprime des données ou change l'interface sans préavis) ?

Quels sont, selon vous, les points faibles et les points forts de chaque plateforme sur ces aspects ?

Q6 – Processus d'inscription : Comment se passe l'inscription à Wimpay ? Et à Mobile CPA ?

Laquelle est la plus simple pour les clients ? Quelles sont les difficultés les plus fréquentes sur chaque plateforme ?

Q7 – Taux d'adoption et utilisation : Selon vous, les clients utilisent-ils davantage Wimpay ou Mobile CPA ? Pourquoi ?

Q8 – Freins observés chez les clients pour Wimpay et Mobile CPA

Voici une liste de freins possibles. Pour chaque frein, dites-moi si vous l'observez chez les clients pour **Wimpay**, puis pour **Mobile CPA**. Vous pouvez donner des exemples ou des situations concrètes.

- Complexité de l'interface (trop de menus, illisible)
- Peur de la fraude ou du piratage
- Manque de confiance dans la technologie
- Manque de compétences numériques (ne savent pas utiliser une application)
- Absence de besoin (préfèrent le guichet ou le téléphone)
- Coût (abonnement, frais cachés)
- Lenteur ou bugs décourageants

- Problème de compatibilité du téléphone (trop ancien)
- Manque d'accompagnement ou de formation
- Oubli du mot de passe / blocage du compte

Pour chacun de ces freins, y a-t-il une différence marquée entre **Wimpay** et **Mobile CPA** ? Y a-t-il d'autres freins que vous avez observés et qui ne figurent pas dans cette liste ?

Q9 – Profil des utilisateurs : Pour chaque plateforme (Wimpay et Mobile CPA), pouvez-vous décrire le profil type des utilisateurs qui adoptent facilement ? Et celui des réfractaires ?

Q10 – Évolution de la maturité technologique : Rappelons que la **maturité technologique** évolue dans le temps. Elle se manifeste par :

- La **fréquence et la qualité des mises à jour** (corrections de bugs, nouvelles fonctionnalités)
- L'**amélioration de la stabilité** (moins de plantages)
- L'**ajout de fonctionnalités avancées** (biométrie, virement instantané, chat)
- La **simplification de l'interface** (meilleure expérience utilisateur)
- La **réduction des temps d'indisponibilité**
- La **renforcement de la sécurité** (double authentification, notifications)

Depuis que vous utilisez **Wimpay**, avez-vous observé une évolution sur ces aspects ? Et pour **Mobile CPA** ?

Pouvez-vous donner des exemples concrets de changements ?

Q11 – Formation et accompagnement : Avez-vous reçu une formation spécifique pour aider les clients sur **Wimpay** ? Sur **Mobile CPA** ? Les supports sont-ils différents ?

Q12 – Suggestions d'amélioration : Si vous pouviez améliorer un aspect de **Wimpay**, quel serait-il ? Et pour **Mobile CPA** ?

Questions spécifiques à l'employée de la monétique

Q1 – Paiements et cartes : Les fonctionnalités de paiement sont-elles différentes entre **Wimpay** et **Mobile CPA** ? Les clients utilisent-ils davantage l'une ou l'autre pour les paiements mobiles ou sans contact ?

Q2 – Sécurité : Avez-vous constaté des problèmes de sécurité ou des fraudes spécifiques à **Wimpay** ou à **Mobile CPA** ?


Questions spécifiques à la chargée de clientèle

Q1 – Accompagnement personnalisé

Lorsqu'un client bloque sur **Wimpay** ou sur **Mobile CPA**, comment l'aidez-vous ? Utilisez-vous des tutoriels, une hotline dédiée ?

Appendix 5: Mobile CPA and Wimpay Contracts

Mobile CPA:



القرض الشعبي الجزائري
CREDIT POPULAIRE D'ALGERIE

CONTRAT D'ADHESION AU SERVICE « MOBILE CPA »

Le client soussigné⁽¹⁾.....

Représenté par : Madame Mademoiselle Monsieur

Nom : Prénom :

Qualité :

Date et lieu de naissance

Adresse personnelle :

Pièce d'identité N°..... délivrée le..... par.....

Adresse professionnelle :

Adresse du siège social :

Forme juridique

Registre de Commerce N°..... Délivré le..... par.....

N.I.F.....

N°s Tel :

N°s Fax.....

E-mail :

Déclare souscrire au service *Mobile CPA* sur le(s) compte(s) mentionné(s) ci-dessous suivant les conditions générales annexées au verso du présent contrat.

Nature de la prestation	Canal	N° (s) de compte(s) autorisé(s)
- Service Consultation - Service des ordres de virement unitaire à distance via l'application « MOBILE CPA ».	Mobile CPA	N°..... N°..... N°..... N°..... N°.....

Signature et cachet de l'agence

Fait à Le

Signature du client précédée
de la mention manuscrite « Lu et approuvé »

(1) Nom et prénom ou raison sociales

Source: CPA Bank internal documents



القرض الشعبي الجزائري
CREDIT POPULAIRE D'ALGERIE

CONVENTION D'ADHESION AU SERVICE « WIMPAY CPA Particulier »

Client Particulier

Le client soussigné : _____

Représenté par : Madame Monsieur

Nom : _____ Prénom : _____

Qualité : Titulaire Mandataire

Date et lieu de naissance : _____

Adresse personnelle : _____

Pièce d'identité N° : _____ délivrée le : _____ par : _____

Numéro d'identification national : _____

N° Tél Mobile : _____

E-mail : _____

Alias¹: _____

RIB: _____ 004 00 _____ 4 _____

Déclare souscrire au service « *Wimpay CPA* » particulier sur le compte mentionné ci-dessus suivant les conditions générales annexées au verso de la présente convention.

Fait à : _____ Le : _____

Signature et cachet de l'agence

Signature précédée
De la mention manuscrite « *Lu et approuvé* »

¹Alias : pseudonyme à choisir par le client

Source: CPA Bank internal documents

CONDITIONS GENERALES	
<p>1. OBJET</p> <p>Les présentes conditions générales définissent les conditions et les modalités d'utilisation du service de Paiement Mobile dénommé ci-après « <i>Wimpay CPA particulier</i> » via une connexion internet et régissent les relations contractuelles entre la Banque (CPA) et son client abonné utilisateur de ce service.</p> <p>2. Définition du service « Wimpay CPA » particulier</p> <p>Le service « Wimpay CPA particulier » (mobile payment solution) est un service de paiement par mobile basé sur le scanne du QR Code, il permet à la clientèle CPA d'effectuer des paiements à distance et de proximité (paiement des achats, des factures etc ...) ainsi que des transferts instantanés d'argent de personne physique à personne physique.</p> <p>En adhérant à ce service, le client accepte les conditions générales énoncées dans la présente convention, lesquelles régissent l'utilisation de l'application de paiement mobile « Wimpay CPA » particulier ».</p> <p>2.1 Le client abonné :</p> <p>Personne physique utilisateur du service « <i>Wimpay CPA particulier</i> », titulaire de comptes auprès de la Banque CPA ainsi que ses mandataires désignés.</p> <p>2.2 Utilisateur :</p> <p>Personne physique majeure et capable qui est titulaire, Co-titulaire et/ou mandataire du compte désigné, ouvert auprès de la banque, afin d'utiliser Tout ou une partie de ce service.</p> <p>Les parties reconnaissent disposer des moyens et des connaissances techniques leur permettant de signer la présente convention.</p> <p>Le client peut signer, dans ce cadre, une convention pour le compte tenu en son nom ou pour lesquels il a un mandat ou qu'il est habilité à faire fonctionner.</p> <p>A la signature du formulaire de la présente convention, le client reconnaît également avoir pris connaissance des présentes conditions générales et les avoir acceptées sans réserves.</p> <p>2.3 Appareil Mobile :</p> <p>L'utilisateur doit avoir un appareil mobile tel qu'un Smartphone ou une Tablette, connecté à un réseau WIFI ou d'un réseau 3G/4G et plus, sur lequel l'Application « <i>Wimpay CPA particulier</i> » sera installée.</p> <p>2.4 Application « Wimpay CPA particulier » : l'application mobile</p>	<p>de la Banque, appelée « <i>WIMPAY CPA particulier</i> » que l'utilisateur peut télécharger et installer sur son Smartphone ou Tablette à travers le centre de téléchargement « Play store » pour les systèmes ANDROID et « App Store » pour les systèmes IOS.</p> <p>2.5 Identifiant client : le client utilisateur s'identifie sur l'application « Wimpay CPA particulier » par la saisie de son adresse mail.</p> <p>2.6 Mot de Passe :</p> <p>Code numérique personnel (code secret) transmis, par mail, par la plateforme Qui gère l'application « Wimpay CPA particulier » à ses clients pour s'authentifier sur l'application « Wimpay CPA » particulier et leur permet d'accéder aux services auxquels ils seront abonnés.</p> <p>L'utilisateur doit modifier son mot de passe à la première connexion via l'application « Wimpay CPA particulier ».</p> <p>Le changement du mot de passe se fait via la session de l'utilisateur sous l'application « Wimpay CPA particulier ».</p> <p>2.7 Le Paiement mobile : Aussi appelé m-paiement, il englobe toutes les transactions de paiement et le transfert d'argent effectuées depuis un téléphone mobile ou d'une Tablette.</p> <p>2.8 Alias : Pseudonyme à choisir par le client, utilisé pour identifier l'utilisateur dans les solutions de paiement mobile et pour la recherche des clients adhérents à ce service dans le cadre de transfert d'argent entre personnes physiques particuliers.</p>
<p>3. CONDITIONS ET FONCTIONNEMENT</p> <p>3.1 Services disponibles : La banque propose, dans le cadre du service de paiement mobile « <i>Wimpay CPA particulier</i> », les prestations suivantes :</p> <ul style="list-style-type: none"> ✓ Le paiement de prestations de service ou de biens à distance chez des commerçants et professionnels ainsi que les institutions gouvernementales acceptant les paiements via « <i>Wimpay CPA</i> » particulier ✓ La Consultation du solde du compte « <i>Wimpay CPA particulier</i> » ainsi que l'historique de l'ensemble des opérations effectuées. ✓ Le transfert instantané d'argent de personne 	<p>physique à personne physique.</p> <ul style="list-style-type: none"> ✓ Changement de la langue (Arabe, Anglaise et Française) <p>3.2 Conditions d'adhésion au service paiement mobile « Wimpay CPA » particulier : L'accès à « Wimpay CPA particulier » est réservé exclusivement aux particuliers, personnes physiques âgées de plus de 19 ans, remplissant les critères suivants :</p> <ul style="list-style-type: none"> ✓ Posséder un ou plusieurs compte chèque et/ou compte épargne ouvert auprès de la banque ; ✓ Designier l'un des comptes cités plus haut pour l'ouverture du service ; ✓ Être en possession d'un smartphone ou d'une tablette avec une connexion Internet ; ✓ Avoir une adresse e-mail active. ✓ Signer la convention d'adhésion au service « Wimpay CPA » client particulier. <p>3.3 Moyens techniques :</p> <p>L'accès au service se fait via un smart phone ou une tablette présentant les degrés de compatibilité et de sécurité requis connecté à internet. Le client souscripteur est responsable :</p> <ul style="list-style-type: none"> ✓ De son accès à Internet y compris le choix de l'opérateur technique fournissant l'accès à internet. ✓ De la compatibilité du matériel (smartphone ou tablette) nécessaires à l'utilisation du service ; <p>Le client doit télécharger et installer l'application sur son smartphone ou tablette.</p> <p>Seul le compte ouvert en son nom personnel peut être associé aux services « Wimpay CPA » particulier.</p> <p>4. OUVERTURE DU SERVICE «Wimpay CPA particulier» AUX CLIENTS : L'ouverture par la Banque de ce service aux clients en agence est réalisé via la solution technique de Gestion des Abonnement suite à la signature par les clients de la présente convention d'adhésion « Particuliers » au service Mobile Paiement « Wimpay CPA particulier ».</p>
	<p>Le mot de passe pour accéder à cette application, est transmis par mail aux clients.</p> <p>5. RESPONSABILITE DU CLIENT</p> <p>Le client souscripteur des services « Wimpay CPA particulier » assume l'entière responsabilité de la conservation et de l'utilisation de son identifiant (adresse mail) et de son mot de passe. Il est fortement recommandé de ne pas le consigner par écrit. En cas de doute quant à la confidentialité de son mot de passe par une tierce personne, le client doit le modifier immédiatement. L'utilisation de l'identifiant et du mot de passe pour accéder au service « Wimpay CPA particulier » permet au client de bénéficier des services offerts, toutes les opérations étant légalement reconnues comme étant effectuées par lui-même.</p> <p>Par mesure de sécurité, l'accès au service peut être temporairement refusé à l'utilisateur après trois (03) tentatives infructueuses de saisie du mot de passe. Il est vivement recommandé au client de modifier fréquemment son mot de passe « Wimpay CPA particulier ».</p> <p>Il s'engage à mettre à jour ses informations enregistrées en cas de changement.</p> <p>Il doit également faire preuve de discrétion en introduisant son identifiant et son Mot de Passe pour accéder à l'Application « Wimpay CPA particulier ». Le Mot de passe doit être choisi avec soin, en évitant les combinaisons trop évidentes (sa date de naissance, par exemple), et surtout, ne pas sauvegarder le mot de passe sur l'appareil.</p> <p>Il y a lieu également de protéger le Smartphone ou la Tablette en le verrouillant par un mot de passe ou une empreinte et de n'activer la connexion internet ainsi que les connexions infrarouge ou Bluetooth qu'au besoin.</p> <p>Le client est tenu d'informer immédiatement la banque en cas de fonctionnement anormal de l'application « Wimpay CPA particulier » ou de toute autre anomalie constatée. La détention de identifiants et des mots de pass relève de la responsabilité exclusive du client en ce qui concerne la conservation et leur utilisation.</p> <p>Le client s'engage à disposer et maintenir la provision dans le compte pour l'exécution des opérations ordonnées par l'application « Wimpay particulier ».</p> <p>L'utilisation des services « Wimpay CPA particulier » wimp</p>

Source : CPA Bank internal documents

Appendix 6: Interpretation Scale for Spearman's Correlation Coefficient

Coefficient Range	Interpretation
0.00 – 0.30	Negligible correlation
0.31 – 0.50	Weak correlation
0.51 – 0.70	Moderate correlation
0.71 – 0.90	Strong correlation
0.91 – 1.00	Very strong correlation

Source: Prepared by the Author

Appendix 7: Statistical Tables Related to the Study Sample

Age Distribution of Responders:

What is your age?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 25	112	54,9	54,9	54,9
	25-34	39	19,1	19,1	74,0
	35-49	29	14,2	14,2	88,2
	50-64	23	11,3	11,3	99,5
	65 and over	1	,5	,5	100,0
	Total	204	100,0	100,0	

Source: Prepared by the Author Based on SPSS Results

Gender Distribution of Responders :

you are ?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	134	65,7	65,7	65,7
	Male	70	34,3	34,3	100,0
	Total	204	100,0	100,0	

Source: Prepared by Author Based on SPSS Results

What is your highest level of education?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No degree	3	1,5	1,5	1,5
	Baccalaureate	9	4,4	4,4	5,9
	TS	5	2,5	2,5	8,3
	Bac+3 to Bac+5	156	76,5	76,5	84,8
	Bac+6 and above	31	15,2	15,2	100,0
	Total	204	100,0	100,0	

Source: Prepared by Author Based on SPSS Results

What is your profession?					
		Frequency	Percent	Valid Percent	Cumulative Percent

«	Employee	78	38,2	38,2	38,2
	Worker	5	2,5	2,5	40,7
	Student	102	50,0	50,0	90,7
	Unemployed	19	9,3	9,3	100,0
	Total	204	100,0	100,0	

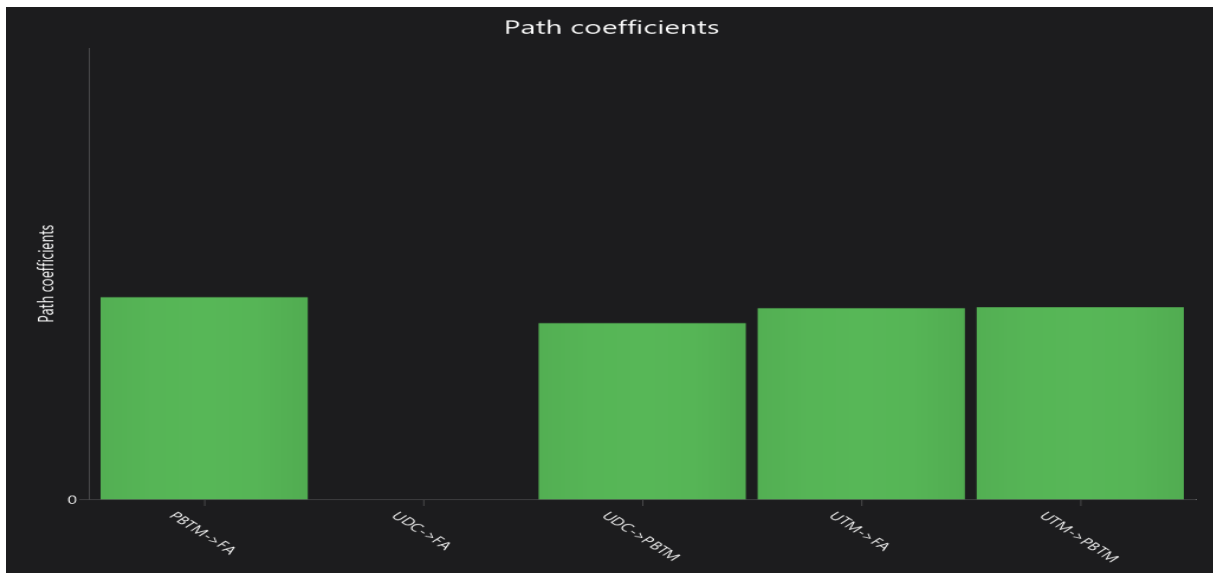
Source: Prepared by Author Based on SPSS Results

In which range is your monthly net income?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 20000 DA	99	48,5	48,5	48,5
	20000 DA – 25000 DA	16	7,8	7,8	56,4
	25001 DA – 40000 DA	13	6,4	6,4	62,7
	40001 DA – 60000 DA	24	11,8	11,8	74,5
	More than 60000 DA	52	25,5	25,5	100,0
	Total	204	100,0	100,0	

Source: Prepared by Author Based on SPSS Results

Appendix 8: Graphics from PLS-SEM Results

Path coefficients graphic:



Source: SmartPLS Results

Appendix 9: Condensed Matrix

	A : Adoption of FinTech Services	B : Barriers to Adoption	C : Evolution & Improvement	D : Platform Comparison (Wimpay vs Mobile cpa)	E : Technological Maturity of Platforms
1 : Customer Relationship...	<p>Mobile CPA is oriented towards consultation and transfers</p> <p>Wimpay is designed for contactless payment and transfers.</p> <p>a significant increase in demand for these applications compared to previous years, indicating that clients are progressively becoming more comfortable with digital tools.</p> <p>clients use Mobile CPA more than Wimpay</p>	<p>a significant increase in demand for these applications compared to previous years, indicating that clients are progressively becoming more comfortable with digital tools.</p> <p>This delay is one of the main sources of confusion among clients, who sometimes attempt to use the application before it is effectively activated.</p> <p>although the Wimpay enrolment process is considered more complex</p>	<p>significant increase in demand for these applications compared to previous years, indicating that clients are progressively becoming more comfortable with digital tools.</p> <p>both platforms benefit from regular updates improving their stability and features.</p> <p>Mobile CPA has notably integrated the EDI option for merchants.</p> <p>The interface has remained simple since launch, with no major changes to the</p>	<p>Wimpay is a mobile payment application launched in 2023</p> <p>It enables contactless payment via QR code as well as transfers, either by bank account number (RIB) or by alias is a pseudonym assigned to the recipient by the sender for security reasons, so that no one can identify who the money is being sent to. When a client does not have cash or a bank card, they can use Wimpay to pay for purchases, provided the merchant also has the application which does not need to be CPA's own</p>	<p>It is important to note that a processing delay occurs after the EOD (end-of-day processing): updated balances only appear on the application after the branch has verified and finalised the transactions.</p> <p>considered reliable by the Customer Relationship Officer. Wimpay operates perfectly without errors, crashes, or data loss</p> <p>Mobile CPA demonstrates the same level of reliability, with no crashes or data loss reported.</p>
2 : Monetics Department ...	<p>Mobile CPA is considered simpler for clients</p> <p>although the Wimpay enrolment process is considered more complex for staff due to the number of steps involved.</p> <p>clients use Mobile CPA more than Wimpay.</p> <p>This preference is explained by the diversity of Mobile CPA features, particularly balance and history consultation, which meet daily needs without requiring a branch visit.</p>	<p>This delay sometimes generates confusion among clients who attempt to use the application before it is activated.</p> <p>although the Wimpay enrolment process is considered more complex for staff due to the number of steps involved.</p> <p>For Wimpay, the most frequently observed barrier is interface complexity, considered too cumbersome by some clients. Forgotten passwords and account lockouts are also frequently</p>	<p>These advanced features contribute positively to the perceived technological maturity of both platforms.</p> <p>display delays of up to one week had been reported; these issues were resolved through successive updates.</p> <p>The stability of the platform has thus improved significantly over time.</p> <p>suggestion on extending the history consultation period beyond the current six months, in order to improve traceability for clients</p>	<p>Wimpay is an application dedicated to contactless payment via QR code</p> <p>while Mobile CPA is more oriented towards transfers and balance consultation, with no direct payment option.</p> <p>It is worth noting that Mobile CPA billing is conducted in Algerian dinars: a client holding only a foreign currency account cannot open an Mobile CPA account, as a dinar account is required for service billing.</p>	<p>Wimpay is considered reliable by the Monetics Department Employee: the platform operates without errors, crashes, or data loss</p> <p>Mobile CPA demonstrates the same level of reliability. The few balance display issues observed at launch were resolved through successive updates, and no complaints regarding application malfunctions have been recorded for nearly two years.</p> <p>platforms demonstrate satisfactory stability. The</p>

Source: Nvivo Results