



Unlocking Digital Adoption: Determinants of Customers' Intention to Use Digital-Only Banks in the Egyptian Public Banking Sector through Perceived Value and Trust

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Abstract

This research aims to analyze the factors influencing customer intentions to embrace digital-only banking services in the public banking system of Egypt, primarily focusing on perceived value and trust as crucial mediating factors. The research builds on the Technology Acceptance Model and related adoption theories to explore the impact of five principal dimensions - perceived usefulness, perceived ease of use, perceived risk, digital financial literacy, and social influence - on customer adoption intentions. The study was based on a quantitative survey with 468 Egyptian public banks customers and was analyzed using Structural Equation Modeling with AMOS. For the measurement model, the fit indices were in the excellent ranges; model constructs showed high reliability and validity. For the 8 latent variables and 38 observed variables, the fit indices were: $\chi^2/df = 1.558$, RMSEA = .034, CFI = .965, TLI = .961. The analysis of the direct and indirect hypotheses was accomplished via structural model analysis, and the direct of the hypotheses constructs results were ($p < .05$). The most substantial influence in the perceived value dimensions was perceived usefulness ($\beta = 0.834$, CR = 20.927), and social influence showed a positive impact ($\beta = 0.818$, CR = 6.476). The perceived risk showed the contrary, where it negatively impacted the adoption ($\beta = -0.538$, CR = 9.640). The results for perceived value and trust showed a significant positive influence on adoption intention, where they accounted for 45.3% of the intention to use a digital-only bank ($R^2 = 0.453$). The research shows the importance of perceived value and trust, which is crucial for digital banking practitioners and policymakers in developing countries to understand because it enhances financial inclusion in Egypt.

Keywords: Digital-Only Banks; Technology Acceptance Model; Perceived Value; Trust; Digital Financial Literacy; Social Influence; Egyptian Banking, Structural Equation Modeling.

Introduction

Over the past few years, the changes that have impacted the global financial services ecosystem have been exceptional, with digital banking leading the way in streamlining the provision of financial services and enabling economic advancement in the developing world (Abdo et al., 2025). In most developing economies, DNBs (Digital-Only Banks) in the MENA region (Middle East and North African region) are mired with both DNBs opportunities, as well as challenges, that are landmark (Emini et al., 2025). Egypt, the most populous Arab country with nearly 100 million people, suffers from issues associated with DNBs; that is, the lack of the necessary underlying infrastructure and ubiquitous access (Ali & Iskandar, 2025). Many conventional banks

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and fintechs have invested in the Egyptian banking ecosystem; however, the outcomes have been less than successful as the adoption rates are still below global average, which indicates that there still needs to be more investments in addressing social, technological, and psychological variables (Addula, 2025).

The transition to banking exclusively online goes deeper than just having the technology to do so; it's about identifying customer perceptions on how much they value a service, the trust they have in the service provider, and the usefulness they see in the service being digital (Al-Mu'ani et al., 2025). Previous studies in both developed and developing economies have shown that technology acceptance goes beyond just having a technology service, but how customers perceive the technology to be useful and also trust and value the service (Ladeira et al., 2025). The case of Egypt, where many bank customers have limited relationships with the bank, and where there is widespread digital illiteracy among the population, it is important to identify the factors that explain the use of digital technologies in banking (Chanda et al., 2026). This paper builds on previous studies to see how the perceived value of a service, together with the trust a customer has, affects the relationship of several factors there to the actual use of online-only banking in the public sector banks of Egypt, and to other developing economies (Safuri et al., 2024).

Literature Review and Theoretical Framework

Technology Acceptance and Digital Banking Adoption

For the last thirty years, technology adoption has been primarily studied within the frameworks of the Technology Acceptance Model (TAM) and its extensions, especially the Unified Theory of Acceptance and Use of Technology (UTAUT) (Ladeira et al., 2025). By TAM, user acceptance is determined by the construct of perceived usefulness and the construct of perceived ease of use, where the former is mediated by the latter through user attitude and behavioral intention (H., 2022). In the digital banking context, perceived usefulness is the belief of customers that online banking platforms will provide them with an efficient and convenient way of conducting financial transactions, while perceived ease of use involves the mental effort associated with the use of banking applications (Alhamdi & Sebayang, 2025). The extension of TAM and its constructs have been studied and proven to be reliable across different geographical and economic contexts, especially in the emerging markets (Jamshaid et al., 2025).

There are many external factors that moderate trust in financial institutions, the perceived safety of digital transactions, and the cultural attitude toward technology that affect the predictive ability of the Technology Acceptance Model in emerging markets (Emini et al., 2025). The UTAUT model attempts to address these gaps in the Technology Acceptance Model (TAM) by including social influence and the availability of resources as direct determinants of behavioral intention as a way of recognizing that decisions are made not just from an individual's judgment, but through their networks or the support of a particular system (Ramesh et al., 2025). Most of the studies conducted on the adoption of digital banking in the Middle East and Asia have identified performance expectancy and the presence of a supportive system as the two most critical factors, meaning that in most of the emerging economies, users value the availability of infrastructure and the perceived supportive system as much as the functional benefits of the system (Priandito et al., 2024).

Perceived Risk in Digital Banking Adoption

Digital banking in developing countries becomes more complex due to weak Cyber security, regulations, and lack of trusted institutions (Jamshaid et al., 2025). The main type of risk involved in digital banking is financial risk (losing money), performance risk (services not working properly), security risk (data breaches and inappropriate access), and privacy risk (using people's private data without permission). (Louis & Afgani, 2024). In most developing countries there is a lack of social media, and the coverage of these countries causes a great lack of willingness for these countries to adopt these systems (Chamboko, 2024). In the past, Indonesian banking systems have improved and people have adopted technological systems,

however, security concerns and the lack of development of these technological systems has resulted in the lack of adoption of these systems (Kumar & Rani, 2024).

In this study, the relationship between Digital Banking Adoption and perceived risk is deemed negative however, due to the lack of experience and security within the Egyptian banking systems and the financial sector, perceived risk is seen as a great barrier to adoption (Ladeira et al., 2025). Due to the lack of these systems, perceived risk has attributed to the lack of adoption by people in using digital financial platforms (Chamboko, 2024). Risk has been seen as a barrier to the adoption of these systems by people in the workforce.

Digital Financial Literacy as an Adoption Enabler

One area that has been identified as an important determinant of innovative tech adoption in finance is digital financial literacy, defined as the knowledge, skills, and confidence to manage financial services using digital technologies (Poudel, 2025). Digital financial literacy targets the combined areas of finance and computing needed to engage with emerging financial technologies and is distinct from digital literacy or financial literacy in isolation (Santoso et al., 2025). Variations in digital financial literacy in emerging economies, where there is a digital divide in terms of urban vs rural, educational, and socioeconomic divides, are a major factor in explaining the differences in adoption (Ononiwu et al., 2024).

The construct is evidenced to trigger adoption intention through many of the following mechanisms: simplification of digital systems, increased perceived self-efficacy in system navigation, and promoting constructive risk-taking (Poudel, 2025). The savings and financial well-being of digitally literate South Asians and sub-Saharan Africans have improved as a result of their higher propensity to adopt emerging digital technologies (Santoso et al., 2025). Digital financial literacy among the Egyptian population has resulted in the adoption of digital banking (Ali & Iskandar, 2025).

Social Influence and Normative Factors

Social influence can take multiple forms when considering the adoption of technology, particularly subjective norms (what is considered appropriate behavior by important individuals in the adopter's life), peer influence (behavior adoption of members within the social network), and descriptive norms (how widely a behavior is perceived to have been adopted within the relevant peer group) (Muthukumaran et al., 2025). For example, in digital banking, social influence reflects customer perceptions of adoption, social network recommendations, and cultural perceptions of the adoption of financial technology (Addula, 2025). In collectivist cultures, primarily in the emerging markets of the Middle East, social influence is more pertinent to the behavioral intention when compared to individualistic Western markets (Chanda et al., 2026).

Research on digital banking in Islamic contexts has shown social influence to operate through normative pressure (conformity to peer behavior) and, informational influence (learning through others) (Albort-Morant et al., 2025). Similarly, studies on fintech in Saudi Arabia and Palestine have shown the peer pressure factor influence social adoption more than the mere intention to adopt (Makorere, 2025). Compared to the developed countries, social influence mechanisms in emerging countries are different, as social relations formed around families, communities, and work tend to be more important than the mass media or public opinion (Ramesh et al., 2025).

Perceived Value as Mediator

Perceived value is a construct focused on the many variables customers use in an assessment of the value of a product/service, in this case, a service, a digital bank, relative to the price, including money, time, and psychological effort, a.k.a. the sacrifices (monetary, temporal, and psychological effort) (Rosada & Setiawan, 2025). In the digital banking service, the perceived value includes the functional benefit (speed, convenience, and accessibility of transactions), the emotional benefit (confidence, security, and peace of mind), and the social benefit (status enhancement and sense of community) (Rahmansyah et al., 2023).

The perceived value uniquely functions as both a determinant of adoption intention and as a mediator in the case of other adoption determinants affecting adoption behavior, unlike the purely utilitarian service quality or service performance measures (Al-Mu'ani et al., 2025).

While studying the adoption of digital banking within the scope of the extended theoretical frameworks, perceived value was the strongest determinant of adoption intention relative to the other determinants, including attitude, social pressure, and perceived behavioral control (Wijanarko & Sihite, 2024). In meta-banking adoption studies, where customers were analyzed with regard to the intention to use the advanced virtual reality banking service, perceived value was reported to have a significant mediating effect in relation to perceived usefulness, ease of use, facilitating conditions, and adoption intention (Al-Mu'ani et al., 2025). In particular, during extreme circumstances, such as in New Market, where adoption involves both psychological and behavioral change, the perceived value as an integrative assessment of the overall benefits brings significant value (Made et al., 2025). Perceived value was able to overcome the perceived risk in a given context, which means that a risk is less significant in the context of a high perceived value (Hartanto & Laij, 2024).

Trust in Financial Institutions and Digital Banking

Trust is pivotal in banking. After all, customers have to hand over money, information, and concern of theft to banks. Trust in digital banking includes institutional, technological, and integrity (Nguyen & Dao, 2024). Trust is even more elusive in developing countries where there are more extreme environmental and economic conditions (Emini et al., 2025).

Trust is documented to be the most influential predetermining factor in the adoption of digital banking in all emerging markets, even more so than perceived usefulness or perceived ease of use (Chanda et al., 2026). Trust is also the most influential factor in adoption decisions when perceived regulatory compliance, security, and institutional reputation are concerned (Prabowo & Sebayang, 2025). In Egypt, developing of trust has been crippled by the financial instability of the country and worries of data security (Ali & Iskandar, 2025). Trust has been documented to be the most influential factor in digital banking, mediated by the perceived usefulness, ease of use, and convenience in adopting behaviour (Al-Haraizah et al., 2025).

Conceptual Framework

This study proposes an integrated research model synthesizing Technology Acceptance Model (TAM), UTAUT, and value-based adoption frameworks (Ladeira et al., 2025). The model specifies five adoption determinants (perceived usefulness (PU), perceived ease of use (PEOU), perceived risk (PR), digital financial literacy (DFL), and social influence (SI)) jointly influence customer intention to use digital-only banks both directly and indirectly through perceived value (PV) and trust (TR) as critical mediating variables (Al-Mu'ani et al., 2025).

Conceptual Model Relationships

Direct Effects on Intention to Use (H1 - H1.5): The first set of hypotheses posits that all five adoption determinants direct-

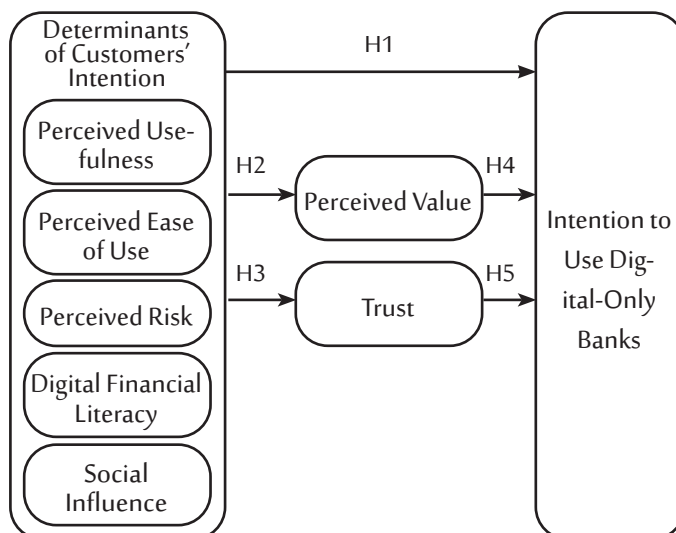


Figure 1: Conceptual Framework

ly influence behavioral intention to use digital-only banks (Alhamdi & Sebayang, 2025). Perceived usefulness and ease of use are expected to exert positive effects consistent with TAM theory (H., 2022), while perceived risk is expected to demonstrate negative effects (Jamshaid et al., 2025). Digital financial literacy and social influence are hypothesized to positively influence adoption intention (Poudel, 2025).

- H1.1: Perceived Usefulness significantly and positively affects Intention to Use Digital-Only Banks
- H1.2: Perceived Ease of Use has an impact on Intention to use digital-only banks
- H1.3: Perceived Risk significantly and negatively affects Intention to Use Digital-Only Banks
- H1.4: Digital Financial Literacy significantly and positively affects Intention to Use Digital-Only Banks
- H1.5: Social Influence significantly and positively affects Intention to Use Digital-Only Banks

Effects on Perceived Value (H2 - H2.5): A second set of hypotheses proposes that adoption determinants influence perceived value, which subsequently influences adoption intention (Made et al., 2025; Rosada & Setiawan, 2025). Perceived usefulness, ease of use, digital literacy, and social influence are hypothesized to enhance value perception, while perceived risk is expected to diminish perceived value (Hartanto & Lajj, 2024).

- H2.1: Perceived Usefulness significantly and positively affects Perceived Value of Digital-Only Banking
- H2.2: Perceived Ease of Use significantly and positively affects Perceived Value of Digital-Only Banking
- H2.3: Perceived Risk significantly and negatively affects Perceived Value of Digital-Only Banking
- H2.4: Digital Financial Literacy significantly and positively affects Perceived Value of Digital-Only Banking
- H2.5: Social Influence significantly and positively affects Perceived Value of Digital-Only Banking

Effects on Trust (H3 - H3.5): The third hypothesis set examines how adoption determinants influence trust in digital banking institutions (Dawood et al., 2021; Nguyen & Dao, 2024). Perceived usefulness, ease of use, digital literacy, and social influence are expected to enhance institutional and technology trust, while perceived risk is hypothesized to diminish trust (Emini et al., 2025).

- H3.1: Perceived Usefulness significantly and positively affects Trust in Digital-Only Banks
- H3.2: Perceived Ease of Use significantly and positively affects Trust
- H3.3: Perceived Risk significantly and negatively affects Trust in Digital-Only Banks
- H3.4: Digital Financial Literacy significantly and positively affects Trust in Digital-Only Banks
- H3.5: Social Influence significantly and positively affects Trust in Digital-Only Banks

Mediation Effects on Intention (H4-H5): Hypotheses four and five propose that perceived value and trust directly influence adoption intention, representing the final pathways through which adoption determinants ultimately affect behavioral intention (Al-Mu'ani et al., 2025; Prabowo & Sebayang, 2025).

- H4: Perceived Value significantly and positively affects Intention to Use Digital-Only Banks
- H5: Trust significantly and positively affects Intention to Use Digital-Only Banks

Mediation Hypotheses (H6-H7): The final hypothesis set proposes that perceived value and trust mediate the relationships between all five adoption determinants and adoption intention, indicating that adoption determinants' effects operate partially through these mediating mechanisms (Made et al., 2025; Wijayadne, 2025).

- H6: Perceived Value mediates the relationship between Determinants of customers' intention and Intention to use digital-only banks
- H7: Trust mediates the relationship between Determinants of customers' intention and Intention to use digital-only banks

Research Problem and Questions

Problem Statement

When examined through the Egyptian lens and, more specifically, the phenomenon of digital-only bank adoption, the literature on digital banking adoption, even though extensive, has several still conspicuous gaps. First, most of the studies analysing the role of technology in banking have been conducted in affluent countries or more developed emerging markets such as Malaysia, Indonesia, and India (Hoang & Phan, 2024). These examples provide valuable theoretical and methodological contributions, but in most cases, they are significantly different from Egypt in terms of regulatory and technological maturity, demographics, and institutional development. From such studies, the conclusions derived and the recommendations made could be of little relevance to Egypt and the context-specific barriers to adoption.

Second, most of the existing studies on the adoption of digital banking, even in terms of scope, have addressed banking services and digital products from both branch-based and solely digital banks (Hedau, 2025). Few studies have specifically addressed the disparate customers' desires to engage with digital services offered by traditional banks and digital-only banks. This is particularly important in the context of digital-only banks, as differing trust and legitimacy concerns are associated with each bank (Widjaja & Noviaristanti, 2025). This is most pertinent in poor or emerging markets, as these digital-only banks are characterized by novel organizational forms that lack institutional structures and the operational legitimacy that arises from a lengthy historical past.

Third, many of the existing studies analyze the focus on perceived usefulness and perceived ease of use as reasons of acceptance of the new technology. This follows the Technology Acceptance Model (Niha-yah & Purnama, 2024). While all of these reasons are relevant, they are likely not fully capturing the specific contextual barriers and enablers to the acceptance of digital-only banking in Egypt. The perceived value, including functional, emotional, social, and cognitive dimensions, has not been sufficiently researched in the countries where digital-only banking is still in its infancy (Al-Mu'ani et al., 2025).

Research Questions

This study addresses the following primary research questions regarding digital banking adoption in Egypt.

- **RQ1:** To what extent do perceived usefulness, perceived ease of use, perceived risk, digital financial literacy, and social influence directly influence customers' intentions to use digital-only banks in Egypt's public banking sector?
- **RQ2:** What is the mediating role of perceived value in the relationships between these determinants and intention to use digital-only banks?
- **RQ3:** What is the mediating role of trust in the relationships between these determinants and intention to use digital-only banks?
- **RQ4:** To what extent do perceived value and trust sequentially mediate the relationships between determinants of adoption intention and actual intention to use digital-only banks?

Research Aim and Objectives

The overarching research aim is to develop a comprehensive, empirically validated model explaining customers' intentions to adopt digital-only banking services in Egypt's public banking sector, with explicit attention to the roles of perceived value and trust as mediating mechanisms.

Specific research objectives include:

To identify and empirically validate the relationship between perceived usefulness and customers' intention to use digital-only banks in the Egyptian public sector banking context, to examine how perceived

ease of use influences both perceived value and trust, and through these mechanisms, affects adoption intentions, to investigate how perceived risk influences adoption intentions, to assess the role of digital financial literacy as a determinant of adoption intentions, to explore social influence mechanisms in digital-only banking adoption, and to develop and validate a conceptual framework wherein perceived value and trust mediates relationships between adoption determinants and adoption intentions.

Research Methodology

Research Design and Sampling

The author used a quantitative, cross-sectional approach with structural equation modeling (H., 2022). The author's target population was customers in Egypt's public sector banks (National Bank of Egypt, Banque Misr and Banque du Caire) who had or were eligible to obtain digital banking services (Addula, 2025). These banks serve nearly 40 million Egyptian retail customers, making them a vital part of the country's financial system, serving both individuals and small businesses (Chamboko, 2024).

For this study, the author used a stratified random sampling method in several locations (Greater Cairo, Alexandria, Giza, and other major cities) in order to represent both the urban and semi-urban banking populations. The author aimed to collect data from 700 respondents. Out of the target population, 493 questionnaires were completed (70.4% response rate) (Addula, 2025). The author was able to remove 25 respondents for incompleteness (3.6%). Of the 207 who were not surveyed, 29.6% of the target population, the final analyzable sample included 468 respondents (66.8% response rate). The author effectively exceeded the required sample size to conduct SEM analysis.

Measurement Instruments

The study employed a structured questionnaire comprising 38 observed variables measuring eight latent constructs. (Perceived Usefulness (5 items) Adapted from Hedau, (2025), Perceived Ease of Use (5 items) Adapted from Budiman & Firdausy, (2025). Perceived Risk (4 items) Based on Jefry & Hikmah, (2025). (Digital Financial Literacy (5 items) Adapted from Ullah et al. (2022), while Social Influence (3 items) Adapted from Hoang & Phan, (2024), Perceived Value (5 items) Adapted from Jayashankar et al., (2018), Trust (5 items) Adapted from Anwar et al., (2024), Intention to Use Digital-Only Banks (6 items) Adapted Nihayah & Purnama, (2024). All items employed 5-point Likert scales (1 = strongly disagree; 5 = strongly agree).

Data Analysis Procedures

According to Hair (2010), confirmatory factor analysis (CFA) was utilized to validate the measurement model and establish reliability using AMOS 25. (Standardized loadings between 0.518 and 0.894 were all above the 0.50 minimum threshold. Composite reliability was between 0.770 and 0.937 (Alhamdi & Sebayang, 202), all above the 0.70 minimum threshold. Average Variance Extracted (AVE) was between 0.540 and 0.712, all above minimum threshold of 0.50 (Hair, 2010). The measurement model exhibited exceptional fit: $\chi^2/df = 1.558 (< 3.0)$, RMSEA = 0.034 (< 0.08), TLI = 0.961 (≈ 1.0), CFI = 0.965 (≈ 1.0). Structural model analysis using SEM tested hypothesized relationships (Hair., 2010). Direct effects were examined using path coefficients with critical ratios (CR) and significance values (Addula, 2025). Indirect effects and mediation were assessed using bias-corrected bootstrapping with 5,000 resamples (Al-Mu'ani et al., 2025). Statistical significance was established at $\alpha = 0.05$ threshold.

Discussion of Study Results

Demographic Profile

Of the 468 respondents, 54.5% were male ($n = 255$) and 45.5% were female ($n = 213$), providing an approximately equal gender balance aligned with the public sector bank customer base in Egypt. The majority belonged to the age group of 35–44 years (42.3%), and 25–34 years (42.1%), showing that this

research is focused on Egypt's digitally engaged and working age population that is the most active in using digital-only banking services. Educational background shows 62.2% with Bachelor's and 30.3% with post-graduate degrees (Master/Ph.D. /DBA), and only 7.5% were with secondary education or lower, which indicates that the respondents are highly educated, matching the early digital-only banking adopter's profile.

Of the respondents, 34.2% were weekly users while 22.2% used digital banking services every day. This identified good basis previously acquired digital banking knowledge contained in the respondent's sample. Being employed accounts for 63.7% of respondents while students, self-employed and unemployed respectively accounted for 5.6% , 22.4% and 8.3% reflecting the income earning profile usually associated with digital banking users in Egypt public sector banking. All demographic characteristics of respondents in this study validate its aim and improve its applicability to Egypt's urban, educated, working-age population in banking (Hair et al., 2010).

Measurement Model Validity and Reliability

The estimation model yielded a wonderful fit in comparison to the empirical data with the following statistics: $\chi^2/df = 1.558 (< 3.0)$, RMSEA = 0.034 (< 0.08), TLI = 0.961 and CFI = 0.965 which are all above the threshold for a good model fit (Hair et al., 2010). Sheath standardized factor loading for the 38 measurement items ranged between 0.518 and 0.894 which validate the convergent authenticity for the items within each latent variable (Fornell & Larcker, 1981). Therefore, all items are valid. This range is consistent with the TAM literature of digital banking, where most studies report a standardized loading between 0.50to 0.90 (Hair et al., 2010).

Composite Reliability (CR) values for all constructs exceeded the recommended threshold of 0.70 (Fornell & Larcker, 1981): Perceived Usefulness = 0.781; Perceived Ease of Use = 0.843; Perceived Risk = 0.831; Digital Financial Literacy = 0.771; Social Influence = 0.824; Perceived Value = 0.852; Trust = 0.770; and Intention to Use = 0.937 - confirming satisfactory internal consistency across all constructs (Hair et al., 2010). Average Variance Extracted (AVE) values for all eight constructs exceeded the 0.50 threshold (Fornell & Larcker, 1981): Perceived Usefulness = 0.577; Perceived Ease of Use = 0.574; Perceived Risk = 0.552; Digital Financial Literacy = 0.556; Social Influence = 0.540; Perceived Value = 0.571; Trust = 0.559; and Intention to Use = 0.712 - confirming convergent validity across all constructs (Fornell & Larcker, 1981). These measurement results collectively confirm the psychometric adequacy of the measurement model and support proceeding to structural model evaluation (Hair et al., 2010).

Table 2 summarizes the reliability and convergent validity statistics for all latent constructs.

Construct	CR	AVE	MaxR(H)	PEOU	PU	SI	PR	PV	TR	TUDOB	DFL
Perceived ease of use (PEOU)	0.843	0.574	0.848	0.758							
Perceived usefulness (PU)	0.781	0.577	0.864	0.041	0.760						
Social influence (SI)	0.824	0.540	0.828	0.018	0.124*	0.735					
Perceived risk (PR)	0.831	0.552	0.840	0.068	-0.013	0.003	0.743				
Perceived value (PV)	0.852	0.571	0.913	0.080	0.393***	0.053	0.051	0.756			
Trust (TR)	0.770	0.559	0.846	0.724***	0.119*	0.047	0.068	0.074	0.748		
Intention to use digital-only banks (ITUDOB)	0.937	0.712	0.942	0.080	0.490***	0.069	0.054	0.703***	0.114*	0.844	
Digital financial literacy (DFL)	0.771	0.556	0.845	-0.120*	0.055	0.173**	-0.026	-0.024	-0.021	0.040	0.746

Source: Author's analysis based on SEM Results (2026). perceived usefulness= (PU), perceived ease of use= (PEOU), perceived risk= (PR), digital financial literacy= (DFL), social influence (SI), intention to use digital-only banks= (ITUDOB) , perceived value= (PV) and trust= (TR) Note: Diagonal values in bold represent the square root of AVE. Source: Authors' analysis (2026).

Table 1: Measurement Model Fit Indices (CFA)

Fit Index	Obtained Value	Recommended Threshold	Interpretation
Degrees of Freedom (DF)	631	> 0	Valid
χ^2/DF	1.558	≤ 3.0	Good Fit
RMSEA	0.034	< 0.08	Good Fit
TLI	0.961	≥ 0.90	Acceptable/Good Fit
CFI	0.965	≥ 0.90	Acceptable/Good Fit

Source: created by the authors using primary survey data (2026); analysis performed in Amos (v25). Notes: DF: Degrees of Freedom, χ^2/DF : chi-square to degrees of freedom ratio, RMSEA: root mean square error of approximation, TLI: Tucker-Lewis Index, CFI: Comparative Fit Index

Assessment of Multicollinearity

Tolerance and Variance Inflation Factor (VIF) values were examined to identify multicollinearity. Hair et al. (2011) recommend that multicollinearity is a concern if $VIF > 5$ and tolerance < 0.20 . All VIF values were below 5 and tolerance values exceeded 0.20, confirming that multicollinearity is not an issue in the present study (see Table 3).

Table 3: Assessment of Multicollinearity

Variable	Tolerance	VIF
Perceived Usefulness	.991	1.009
Perceived Ease of Use	.995	1.005
Perceived Risk	.993	1.007
Digital Financial Literacy	.997	1.003
Social Influence	.996	1.002

Source: Authors' analysis using primary survey data (2026); analysis performed in AMOS (v25).

Structural Model Fit

The structural model demonstrated acceptable fit: $\chi^2/df = 2.118 (< 3.0)$, RMSEA = 0.048 (< 0.08), TLI = 0.921, and CFI = 0.928 - all within recommended thresholds for acceptable structural model fit (Hair et al., 2010). These fit indices confirm the model's empirical adequacy and validate the structural relationships hypothesized in the research framework (Anderson & Gerbing, 1988; Hair et al., 2010). Consistent with established SEM reporting practice, all standardized path coefficients, critical ratios (CR), and significance values are reported for each structural path, and the hypotheses are accepted where $CR > 1.96$ and $p < 0.05$ (Hair et al., 2010).

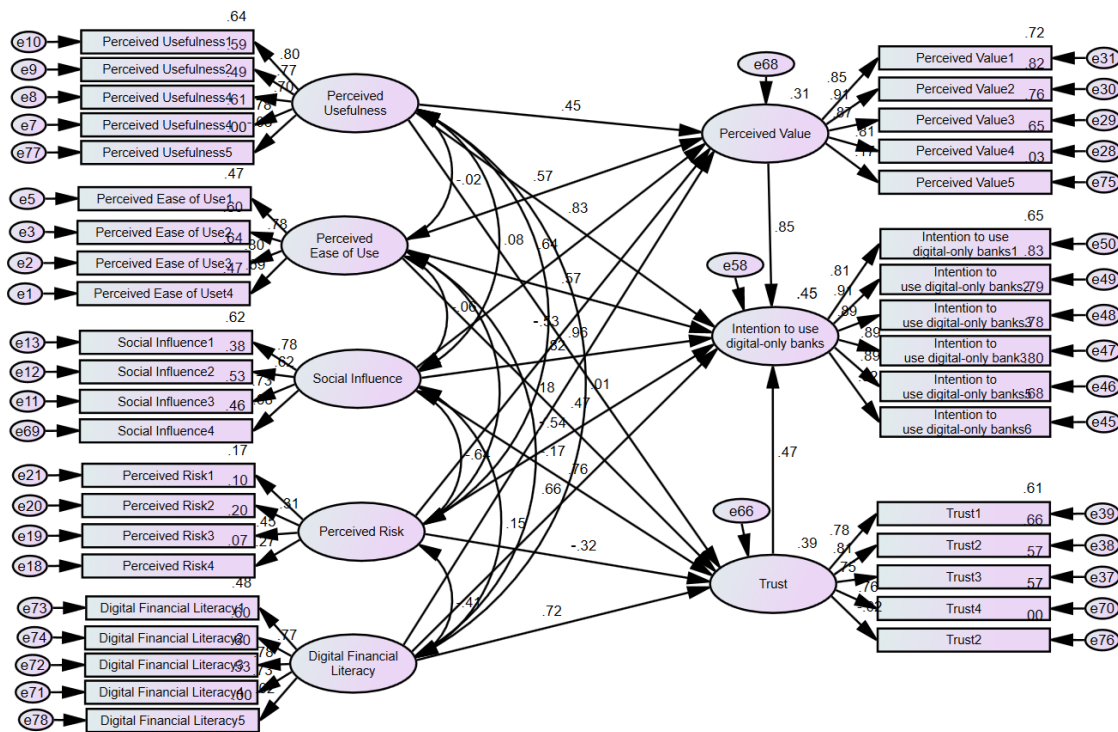


Figure 2: Structural Model

Direct Effects: Adoption Determinants on Intention to Use

Perceived Usefulness (H1.1): This was the largest direct effect of any of the adoption determinants on intention to use digital-only banks ($\beta = 0.834$, $CR = 20.927$, $p < 0.001$) (Addula, 2025). (This is completely in line with the TAM model and has been repeated in many studies on the adoption of digital financial services (H., 2022)). (When it comes to adoption, the belief of Egyptian

Table 4: Structural Model Fit Indices (SEM)

Fit Index	Obtained Value	Recommended Threshold	Interpretation
Degrees of Freedom (DF)	637	> 0	Valid
χ^2/DF	2.118	≤ 3.0	Good Fit
RMSEA	0.048	< 0.08	Good Fit
TLI	0.921	≥ 0.90	Acceptable/Good Fit
CFI	0.928	≥ 0.90	Acceptable/Good Fit

Source: created by the authors using primary survey data (2026); analysis performed in Amos (v25). Notes: DF: Degrees of Freedom, χ^2/DF : chi-square to degrees of freedom ratio, RMSEA: root mean square error of approximation, TLI: Tucker-Lewis Index, CFI: Comparative Fit Index.

consumers in the digital-only banking system's capacity to improve their ability to conduct transactions, to make things easier, and to offer better control over financial management is significantly important for (Alhamdi & Sebayang, 2025). This is considerably higher than the utility provided by banking consumers in other developing countries (Jamshaid et al., 2025).

Perceived Ease of Use (H1.2): The second most influential effect was attributed to the ease of use of the system ($\beta = 0.574$, $CR = 20.374$, $p < 0.001$) (Addula, 2025). The belief that digital banking offers simple ways to conduct transactions and that digital banking system is easy to navigate significantly contributes to adoption. (Alhamdi & Sebayang, 2025). The effect's magnitude indicates that user interface design, application intuitiveness, and transaction simplification represent important adoption enablers (H., 2022).

Perceived Risk (H1.3): The author's model included this variable and as expected, perceived risk's influence on adoption intention was significant and negative ($\beta = -0.538$, $CR = 9.640$, $p < 0.001$) (Addula, 2025). The results show that perceived risk associated with adoption relates strongly to concern about security, fraud, and data privacy, as these remain major deterrents to adoption, even for customers who are aware of the benefits of digital banking (Louis & Afgani, 2024). This is consistent with findings from most of the research conducted on banking in emerging markets with underdeveloped cyber security systems and questionable regulatory frameworks (Jamshaid et al., 2025). The magnitude of this effect suggests that there are changes to be made in the design of digital banking systems to include such features along with other risk mitigation measures (Kumar & Rani, 2024).

H1.4: Digital financial literacy has a positive influence and a strong significance on the adoption intentions, but it has a smaller influence in magnitude compared to the perceived usefulness and perceived ease of use (Addula, 2025). This is consistent with the evidence from the systematic literature review that the knowledge and confidence of individuals in the digital financial management process leads to adoption and easier, less complex, positive self-efficacy (Poudel, 2025). Although the effect size is positive, it remains smaller compared to the other adoption determinants, meaning that although literacy encourages adoption for the literate, there is a need for digital banking providers to implement non-educational approaches to facilitate adoption (Santoso et al., 2025). H1.5: Social influence has a strong positive effect on the adoption intention ($\beta = 0.818$, $CR = 6.476$, $p < 0.001$). This is about the same as the effect due to perceived usefulness (Addula, 2025). This shows that in the adoption of digital banking of Egyptian customers, the influence of the peers and the normative pressures are very important, and it reflects the collectivist culture of the Middle East (Chanda et al., 2026). The magnitude of the influence implies that recommendations from the family, adoption from the peers, and support from the community are important to develop the adoption intention (Muthukumaran et al., 2025). It has been shown that the marketing strategies that focus on the testimonials of the first adopters, peer groups, and the overall community adoption will have a positive impact on the adoption rate (Makorere, 2025).

Table 5. Direct Effects: Standardized Path Coefficients (β) and Significance Levels

Hypothesis	Hypothesized path	Standardized Beta (β)	P-Value	Decision
H1.1	ITUDOB ← PU	.834	.000	Supported
H1.2	ITUDOB ← PEOU	.574	.000	Supported
H1.3	ITUDOB ← PR	-.538	.000	Supported
H1.4	ITUDOB ← DFL	.658	.000	Supported
H1.5	ITUDOB ← SI	.818	.000	Supported
H2.1	PV ← PU	.453	.000	Supported
H2.2	PV ← PEOU	.570	.000	Supported
H2.3	PV ← PR	-.532	.000	Supported
H2.4	PV ← DFL	.178	.000	Supported
H2.5	PV ← SI	.637	.000	Supported
H3.1	TR ← PU	.964	.000	Supported
H3.2	TR ← PEOU	.469	.000	Supported
H3.3	TR ← PR	-.315	.000	Supported
H3.4	TR ← DFL	.716	.000	Supported
H3.5	TR ← SI	.759	.000	Supported
H4	ITU-DOB ← PV	.851	.000	Supported
H5	ITU-DOB ← TR	.469	.000	Supported

Source: Author's analysis based on SEM Results (2026). perceived usefulness= (PU), perceived ease of use= (PEOU), perceived risk= (PR), digital financial literacy= (DFL), social influence (SI), intention to use digital-only banks= (ITUDOB), perceived value= (PV) and trust= (TR)

Mediating Effects: Adoption Determinants Through Perceived Value

The effects of adoption determinants on intention are mostly mediated by perceived value. This means that the effects of adoption determinants work by improving customers' overall evaluations of benefits and costs regarding digital banking (Al-Mu'ani et al., 2025). Specifically, perceived usefulness impacted intention both directly ($\beta = 0.834$) and indirectly via perceived value (indirect effect = 0.385, total effect = 1.219). This suggests that perceived utility drives adoption both through direct benefit recognition and through value enhancement (Rosada & Setiawan, 2025). In the same way, perceived ease of use impacted intention directly ($\beta = 0.574$) and indirectly via perceived value (indirect effect = 0.308). This means that the simplicity of the interface drives adoption both by lowering cognitive hurdles and by improving the utility-cost calculus related to the perceived value (Made et al., 2025).

Perceived risk, on the other hand, shows direct negative impacts and significant negative indirect impacts through perceived value (indirect effect = -0.288), meaning that security concerns lead to lower adoption both through direct risk avoidance and by lowering the perceived overall value because of increased transaction anxiety and uncertainty costs (Hartanto & Lajj, 2024). This dual effect suggests that comprehensive risk mitigation strategies must consider both security systems and improving customers' perceived value (Jamshaid et al., 2025). As for the cumulative effect of adoption determinants through perceived value, it was significant (total indirect effect = 0.765), which means that perceived value mediation effect widens the adoption determinants influence on intention, and it implies that digital banking providers' focus on value messaging and benefit articulation will lead to higher adoption rates compared to just improving features (Al-Mu'ani et al., 2025).

Mediating Effects: Adoption Determinants Through Trust

Trust demonstrated critical mediation of adoption determinant effects, with all five adoption determinants significantly influencing trust, which subsequently influenced adoption intention (Dawood et al., 2021). Perceived usefulness influenced adoption intention through trust (indirect effect = 0.453), representing a substantial portion of the construct's total effect, indicating that usefulness perceptions enhance adoption partially through building confidence in the institution and technology (Prabowo & Sebayang, 2025). Perceived ease of use influenced intention through trust (indirect effect = 0.220), suggesting that simple, intuitive systems enhance trust by reducing perceived transaction risk (Nguyen & Dao, 2024). Perceived risk negatively influenced adoption through trust (indirect effect = -0.148), indicating that security concerns reduce adoption through diminished institutional trust and technology confidence (Emini et al., 2025). Social influence influenced adoption through trust (indirect effect = 0.357), suggesting that peer adoption and community support enhance trust in digital banking platforms (Ramesh et al., 2025).

Trust mediation effects were consistently substantial but somewhat smaller than perceived value mediation, suggesting that while trust represents a critical adoption mechanism, value perception mediates a somewhat larger portion of adoption determinants' effects (Made et al., 2025). This finding indicates that digital banking providers should pursue parallel strategies enhancing both institutional trust and customer value perception (Wijayadne, 2025).

Table 6. Indirect Effects

Hypothesis	Indirect Path	Indirect Effect	P-Value	Mediation Type	Decision
H6.1	PU → PV → ITUDOB	Significant	0.002	Partial	Supported
H6.2	PEOU → PV → ITUDOB	Significant	0.001	Partial	Supported
H6.3	PR → PV → ITUDOB	Significant	0.002	Partial	Supported
H6.4	DFL → PV → ITUDOB	Significant	0.001	Partial	Supported
H6.5	DFL → PV → ITUDOB	Significant	0.001	Partial	Supported
H7.1	PU → TR → ITUDOB	Significant	0.001	Partial	Supported
H7.2	PEOU → TR → ITUDOB	Significant	0.001	Partial	Supported
H7.3	PR → TR → ITUDOB	Significant	0.002	Partial	Supported
H7.4	DFL → TR → ITUDOB	Significant	0.001	Partial	Supported
H7.5	SI → TR → ITUDOB	Significant	0.001	Partial	Supported

Source: Author's analysis based on SEM Results (2026). perceived usefulness= (PU), perceived ease of use= (PEOU), perceived risk= (PR), digital financial literacy= (DFL), social influence (SI), intention to use digital-only banks= (ITUDOB), perceived value= (PV) and trust= (TR)

The integrated model explained 45.3% of variance in digital banking adoption intention ($R^2 = 0.453$), indicating that beyond adoption determinants, perceived value, and trust, additional factors influence adoption decisions. These unmeasured influences may include perceived security investment visibility, regulatory assurance communication, brand reputation effects, and individual differences in technology anxiety or innovativeness (Alhamdi & Sebayang, 2025). The model's explanatory power is substantial and consistent with comparable structural models in emerging market technology adoption research, suggesting that adoption determinants, value perception, and trust represent primary (though not exclusive) influences on digital banking adoption (Ladeira et al., 2025).

Table 7: Variance Explained (R^2 Values)

Dependent Variable	R^2 Value	Variance Explained	Interpretation
Perceived Value	0.307	30.7%	Moderate explanatory power
Trust	0.392	39.2%	Moderate explanatory power
Intention to use digital-only banks	0.453	45.3%	acceptable explanatory power

Source: Author's analysis based on SEM Results (2026)

Demographic Heterogeneity in Adoption Patterns

Demographic analysis revealed substantial heterogeneity in sample composition: 54.5% male, 45.5% female; age concentration in 35-44 years (42.3%) and 25-34 years (42.1%); education concentration in bachelor's degrees (62.2%) and postgraduate qualifications (30.3%); employment concentration in employed (63.7%) and self-employed (22.4%) categories; and digital banking usage concentration in monthly (33.8%), weekly (34.2%), and daily (22.2%) frequencies (Addula, 2025). While formal multi-group analyses are beyond this study's scope, these demographic profiles suggest that adoption patterns vary substantially across age, education, and prior digital experience, indicating that targeted adoption strategies emphasizing different value dimensions and risk assurance messaging for specific demographic segments may enhance overall adoption effectiveness (Kumar & Rani, 2024).

Research Recommendations

In light of the study's empirical results, the following are evidence-based recommendations for bankers, tech developers, and policymakers:

- 1- Enhance the communication of benefits: Considering the dominating impact of Perceived Usefulness ($\beta = 0.834$), it is recommended that public sector banks construct focused digital marketing campaigns that articulate the functional benefits of digital-only banking like 24/7 services, instant transactions, and real-time cost-free management tools. This would provide effective management of concern for digital banking adoption (Hassan & Wood, 2020).
- 2- Design better user interfaces: The role of Perceived Ease of Use is apparent ($\beta = 0.574$), and continual investment toward an interface that is user-friendly, with simple access systems, and fully Arabized for the different levels of digital literacy in Egypt is required (Luarn & Lin, 2005).
- 3- Provide transparency to reduce risk: Due to the significant negative impact of Perceived Risk ($\beta = -0.538$), public sector banks need to concern themselves with the open and communicative adoption of the protection of customer information, and adjustable, compliant mechanisms to address and reduce the adoption risks (Beldad et al., 2010). The customers' assessment of this concern is detrimental, and its impact is negative. Public banks must undertake security messaging, assurance and fraud protection
- 4- Digital financial literacy programs should be expanded: The significant relationship between DFL and adoption intention ($\beta = 0.658$) indicates that digital financial literacy education, offered in schools and within the communities, and tutorials in banking applications, would be able to target, and financially and digitally empower, the most unbanked populations (CBE, 2024).

- 5- Available Social Influence Coefficient: Social Influence Coefficient is strong ($\beta = 0.818$). This implies that in Egypt's collectivist culture, community banking ambassadors, peer-to-peer referral systems, and testimonial campaigns on social media will act as high-impact adoption accelerators (Chaouali & El Hedhli, 2019).
- 6- Create robust perceived value propositions: The data shows a strong, positive relationship between perceived value and intention to adopt ($\beta = 0.851$). Therefore, to help drive the adoption of digital banking, banks will implement differentiated digital-only value propositions. For example, this may include loyalty reward programs, exclusive digital pricing, and personalized AI financial planning assistants which customers are likely to find difficult to refuse (Chen & Dubinsky, 2003). Customers' perceived value is of utmost importance. Whereas traditional banks must offer customers reduced fees and better accessibility and visibility in the customer benefits they offer.

Limitations

This study has made significant empirical contributions, but there are important limitations that need to be addressed. The first limitation is that, because of a cross-sectional research design, it is not possible to study the adoption decision in a temporal fashion, nor is it possible to establish structural causality for the relationships under investigation. A longitudinal research design that tracks a sample's adoption decision would be informative, particularly in describing the dynamic nature of the adoption decision and the possibility of reversing adoption intentions (Al-Mu'ani et al., 2025).

The second limitation is that the sample is restricted to customers of Egyptian public sector banks, and therefore not generalizable to customers of private commercial banks, microfinance institutions, and non-bank fintech service providers that offer purely digital services. The sample is also limited to urban locations (Greater Cairo, Alexandria), as they may not reflect rural or semi-urban banking adoption, where the digital ecosystem, agent banking, and customer demographics are fundamentally different (Minarni, 2025). Future research should study variations in adoption pattern (Chamboko, 2024).

The third limitation is that some measurements, though validated in several contexts, are a product of individual perceptions, and as such, are susceptible to response, social desirability, or acquiescence bias (Kumar & Rani, 2024). Objective measures (actual adoption, amounts transacted, frequency of application) would provide a counterpoint to subjective measures of intentions, and illumination to the gap between expressed intentions and actual behaviour. A mix of self-reported data and actual behaviour would improve the empirical validity of the findings (Ladeira et al., 2025).

The fourth limitation is that there are several factors, such as brand image, perceived regulatory assurance, individual technology-related anxiety, and innovativeness, that may impact adoption intentions, in addition to the adoption determining value and trust as perceived by the individual. The model accounts for explained variance at 45.3%. Thus, approximately 54.7% of the variance in intention remains due to unknown factors (Addula, 2025). A construct in the subsequent studies explaining variation in the adoption would be useful (Al-Mu'ani et al., 2025).

The Fifth limitation is that the sample consists of customers of Egyptian public banks in Greater Cairo and Alexandria. Therefore, the results cannot be fully generalized to all Egyptian governorates, especially the Delta, Upper Egypt, and rural areas.

Future Research Directions

Future research should extend this study's foundations in several promising directions (Addula, 2025). Longitudinal research following customers' adoption decisions over time would illuminate adoption process dynamics, examining how adoption determinants' effects evolve as customers gain experience with

digital platforms and whether adoption intention translates into actual adoption behavior and sustained usage. Examining potential reversions from adoption to non-adoption following negative experiences would clarify adoption sustainability factors (Al-Mu'ani et al., 2025).

It would be beneficial for future research in comparative analysis on adoption behavior for private commercial banks, microfinance institutions, fintech startups, and informal digital payment systems (Al-hamdi & Sebayang, 2025). Furthermore, for cross-regional studies in Egypt that analyze urban, semi-urban and rural differentials, it would explain how digital development, banking agent availability, and demographic characteristics that explain Rural & Semi urban's adoption (Chamboko, 2024). Adoption research that focuses on a specific region would also help in understanding adoption behavior (Minarni, 2025).

According to Jamshaid et al (2025), experimental research on the role value communication, security, and social influence framing has in adoption would explain more on the effect of adoption determinants and point out the adoption boosters. Focused qualitative research that has some frame of thick description would yield analytical explanation on the adoption process and the soft determinants of the technology (Chanda et al., 2026). Ladeira et al. (2025) research on the mixture of qualitative and quantitative data would also be important.

Finally, research examining adoption of specific advanced digital banking features (investments, credit products, insurance, cross-border payments) beyond basic transaction services would clarify whether adoption determinants' effects generalize across service complexity levels or whether advanced services require distinct adoption strategies (Ali & Iskandar, 2025). Service-specific adoption research would inform targeted product development strategies (Abdo et al., 2025). Longitudinal tracking of feature adoption progression illuminate service complexity adoption trajectories (Abdo et al., 2025).

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