

Extending UTAUT With Trust And Self-Efficacy: A Study Of Mobile Banking Adoption In Post-Conflict Iraq

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ABSTRACT

This paper examines the factors influencing the acceptance of mobile banking in Iraq by extending the Unified Theory of Acceptance and Use of Technology (UTAUT) framework through the integration of two constructs, trust and self-efficacy both of which are critical in fragile and low-trust environments. Based on a survey of 382 respondents in Iraq, and employing structural equation modeling (SEM), the study investigates the impact of antecedents (performance expectancy, effort expectancy, social influence, facilitating conditions, trust, self-efficacy) on users' behavioral intention toward and actual adoption of mobile banking services. The findings indicate that all the hypothesized relationships are supported, with trust and self-efficacy exerting a particularly strong influence on behavioral intention. Furthermore, behavioral intention strongly mediates the relationship between these constructs and actual use. The extended UTAUT model demonstrated good reliability and validity (CFI = 0.960, RMSEA = 0.071). These insights rich analysis highlight the importance of localizing technology adoption models in developing economies and offers both theoretical and practical recommendations for advancing digital financial inclusion in post-conflict contexts. Policymakers, financial institutions, and mobile operators are encouraged to foster adoption by strengthening trust, enhancing digital literacy, developing user-friendly interfaces, and implementing cultural customized engagement strategies.

INTRODUCTION

Mobile banking has become a hub of innovation and financial inclusion around the world, driven by the rapid evolution of mobile technology. Mobile banking has been recognized as a significant means of broadening access to banking services, enhancing transactional convenience, and lowering costs for financial institutions in both developed and developing economies (Akter et al., 2021; Venkatesh et al., 2003). However, while it has its advantages, mobile banking is not equally adopted in different regions, and the lack of uptake has been higher in developing economies due to several unique challenges, including poor technological infrastructure, low levels of financial literacy, and socio-cultural factors (Alalwan et al., 2016; Zhou, 2012).

Mobile banking in Iraq has witnessed rapid development in the past ten years, pushed by the extremely high rate of mobile ownership and the strategic vision of the Central Bank of Iraq towards a cashless economy (Central Bank of Iraq, 2020). Nonetheless, the sector is plagued by systemic challenges: a significant trust deficit in financial institutions, inadequate infrastructure, and overall consumer apprehension about participating in digital transactions (Salim Abdulrahman, 2019). There is limited research about technology acceptance in Iraq, and empirical studies using relevant theoretical models—especially those designed for context-specific socio-economic and cultural

settings—are uncommon. The UTAUT has seldom been applied, and an extensive theoretical framework has been adopted extensively to explain user adoption of information systems in previous research applications with different contexts (Venkatesh et al., 2003, 2012) however, it has rarely been applied in Iraq services research, and its important constructs, such as trust and self-efficacy, are often omitted, which are particularly relevant in low-trust environments.

Therefore, this study fills these gaps by integrating trust and self-efficacy into the UTAUT framework to provide a comprehensive model for explaining mobile banking adoption in Iraq. This paper seeks to test empirically this extended model in order to contribute theoretically by contextualizing UTAUT within a developing economy setting characterized by institutions' fragility and practically by offering actionable insights for policymakers, financial institutions, and mobile service providers in identifying potential ways for facilitating targeted adoption strategies.

The rest of this paper is organized as follows: Section 2 covers the relevant literature on mobile banking and UTAUT adoption, with a focus on the study's theoretical foundation. Section 3 presents the research model and hypotheses. Section 4 outlines the methodology, including data collection procedures, analytical techniques and the study's outcomes, and Section 5 discusses the findings. Finally, section 6 concludes with a discussion of the practical and theoretical implications.

LITERATURE REVIEW

Mobile Banking in Iraq

Mobile banking in Iraq represents an innovative and influential element of the Iraqi financial sector that has substantial potential to improve financial inclusion, advance economic modernization, and integrate new technological platforms, Iraq was a later entrant in the region to embrace this trend, but the past decade has witnessed a steady rise of mobile banking use (Al Dulaimi, 2022). The primary drivers of this growth are the rising use and demand for mobile phones and greater access to financial services, particularly among the unbanked population. According to the (World Bank, 2021), approximately 23% of Iraqi adults had a traditional bank account, and over 70% had a mobile phone, suggesting that mobile banking could bridge the financial gap. In response, companies such as Zain Cash, in cooperation with other operators, Asia Hawala, and NassWallet, have been set up, enabling users to transfer funds, pay bills, receive wages, and manage accounts without leaving their homes.

Mobile banking solutions are particularly critical in a post-war country such as Iraq, where banking installations have often been damaged or are inaccessible to rural communities (Hamid & Alwan, 2023). Nevertheless, the rapid expansion of the use of mobile banking now faces several challenges: (a) low levels of financial literacy, (b) lack of trust in financial service providers, (c) inadequate cybersecurity measures, and (d) a legal environment with significant gaps. This information is attributed to Mustapha Zouaoui for Zoom Eco, dated April 01, 2020. The Central Bank of Iraq (CBI) has been at the forefront of enabling digital financial services through actions such as licensing electronic wallet providers, introducing a national payment switch, and initiating campaigns to promote a cashless economy (Al-Sarraj et al., 2024). In 2020, the CBI recognized mobile financial services as an integral component essential to the financial sector, and the report presented legal and regulatory frameworks that ensure secure and efficient digital transactions (Central Bank of Iraq, 2020). However, implementation is slow, and public skepticism remains strong. Furthermore, (Sukaini, 2022) conclude that many customers are reluctant to use mobile banking applications due to concerns about security, reliability, and inadequate customer service. Additionally, low digital literacy continues to be a significant barrier to increased access.

UTAUT Model

The UTAUT is a comprehensive framework that was developed to explain and predict the acceptance and use of information systems and technologies. Developed by (Venkatesh et al., 2003), UTAUT is generated by combining concepts from different theories of technology acceptance

including Technology Acceptance Model (TAM), Theory of Planned (TPB), Innovation Diffusion Theory (IDT), etc.

The UTAUT model specifies four fundamental constructs that have a direct impact on behavioral intention and use behavior: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). Performance Expectancy (PE) refers to extent to which an individual believes that using the system will enable them to achieve performance gains in their work. Effort expectancy represents the perceived ease of the system. Social influence is the "degree to which an individual perceives that important others believe they should use the new system," while facilitating conditions are the "degree to which an individual believes that an organizational and technical infrastructure exists to support system use" (Venkatesh et al., 2003). These fundamental predictors are moderated by four factors...: gender, age, experience, and voluntariness of use, which influence the strength of the relationships among constructs as well as between the constructs and behavioral intentions.

Numerous domains including health care, education, e-government, and financial services have extensively applied and validated the UTAUT model since its inception. Several phenomenological analyses confirm its robustness and applicability in various cultures and technological contexts. For example, (Venkatesh et al., 2012) proposed an extension called UTAUT2 to add constructs including hedonic motivation, price value, and habit, notably in the context of consumers. The extension enhanced the model's ability to explain non-organizational use of technology. Here UTAUT has also been found effective cross-culturally. For instance, (Slade et al., 2015) applied the model in the context of the UK and India to investigate e-government service adoption and found empirical support for the importance of the core constructs, although cultural differences in its application. Furthermore, (Bervell & Umar, 2020) employed UTAUT to investigate mobile learning adoption in Ghana, emphasizing how the local context affects the acceptance of a technology.

Although the UTAUT model is widely accepted, it has its critics who claim it can be overly deterministic and favor cognitive-rational processes, overlooking contextual, affective, and situational factors that are said to influence user behavior. Moreover, the predominant reliance on quantitative survey data in most UTAUT-based studies constrains the depth of understanding user behavior, particularly in under-researched regions or among groups with limited exposure to technology. Nonetheless, the model serves as a fundamental instrument in information systems research due to its ability to integrate various theoretical perspectives and offer a simple yet holistic explanation of user behavior. Its application is still evolving, and scholars advocate for its customized use depending on cultural, institutional, and sectorial variations. In general, UTAUT remains a central framework for evaluating technology continues to guide researchers and practitioners to intervene in both research and practice in the context of digital transformation initiatives.

Hypothesis Development And Research Model

With the proliferation of digital channels for financial services, it is becoming important to understand factors that dictate user adoption of mobile banking. Use of formal mobile financial services varies in adoption from one context to another, for all the easy and potential benefits the channel provides. More precisely, this study aims to understand the factors that influence mobile banking adoption, with a special focus on the constructs of behavioral intention and actual use behavior, based on the Unified Thoery of Acceptance and Use of Technology (UTAUT). The core constructs examined in this study are "performance motivation expectancy, effort expectancy, social influence, facilitating conditions, hedonic, and habit," all of which are suggested to influence behavioral intention and use behavior (Venkatesh et al., 2012)

The UTAUT model proposed by Venkatesh et al. (2003) synthesizes elements from leading adoption models to explain technology acceptance. Fundamental propositions of UTAUT are that performance expectancy, effort expectancy, social influence, and facilitating conditions directly

affect behavioral intention and technology usage. The subsequent extensions, such as UTAUT2 (Venkatesh et al., 2012), add further constructs such as hedonic motivation and habit, which are highly pertinent in consumer contexts.

Performance Expectancy

In recent years, mobile banking has emerged as a disruptive innovation in the financial industry, providing improved convenience and quick and anytime access to account balances. In a developing country like Iraq, traditional banking systems may be costly or inefficient [10-12], while mobile phone companies can provide solutions by serving more remote areas than banks. It is important to know what influences mobile banking usage in such contexts, as this could be used to inform policy interventions and technology deployment strategies. The Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Venkatesh et al. (2003) provides a strong theoretical basis to understand the acceptance of technology behavior. One of its main components, performance expectancy, is the extent to which an individual believes that a system will enable him or her to attain improvements in his/her performance and productivity. This assumption is important, particularly with regard to mobile banking users, who might anticipate time savings compared to going personally to the bank and improved self-financial management facilitated by digital media. The presumption is that people are rational and will decide in their interest. Previous research has repeatedly emphasized the significance of performance expectancy in predicting behavioral intentions. For instance, Zhou et al. (2010a) have shown that performance expectancy was among the constructs impacting Chinese consumers' intention to adopt mobile banking, and Alalwan et al. (2016) also reported similar findings in Jordan. These results support the cross-cultural relevancy of this construct. Thus, the present study seems to support its generalizability in Iraq. Hence, in view of the possible advantages and benefits that can be derived from mobile banking, we propose:

H1: Performance expectancy has a positive impact on an individual's intention to use mobile banking.

Effort Expectancy

The convenience with which clients can access and engage with mobile banking technologies immensely affects their intention to accept such services, especially in developing nations like Iraq, where digital experience varies. In the UTAUT, perceived ease of use is conceptualized as the extent to which a user perceives that using a particular system would be free of effort (Venkatesh et al., 2003). This construct is similar in nature to perceived ease of use from TAM and suggests that the easier technology seems to be used, the more likely individuals are to be willing to interact with it. Where access to digital services is limited for specific demographics, such as in the Iraqi context, having intuitive and user-friendly mobile banking is increasingly important for pushing adoption. Previous sections of this study have demonstrated that effort expectancy is a significant predictor of usage intentions. For example, Alalwan et al. (2016) showed that willingness to use new technology has a positive impact on mobile banking if it is assumed to be easy for the user, even users who previously were not used to using this type of technology. This suggests that lowering complexity can be a potential facilitator to late adopters or those who are hesitant with technology. Therefore, simplifying the interfaces, offering multilingual support, and educating users can enhance adoption rates. Thus, the following hypothesis is suggested:

H2: Effort expectation has a positive impact on an individual's intention to use mobile banking.

Social Influence

Users' social environment, along with their perceptions of its usefulness and ease of use, often influences their views on technology adoption. In the Unified Theory of Acceptance and Use of Technology (UTAUT), social influence refers to the extent which an individual perceives that

important others such as family members, friends, peers, or superiors—believe it is appropriate for them to use a given technology (Venkatesh et al., 2003). This perspective assumes that people are socially embedded actors whose behaviors towards technology use are influenced by normative pressures, particularly in collectivist cultures such as Iraq, where community-oriented values can significantly influence individual behavior. “In such societies, word of mouth is crucial for shaping people’s views on the positive and negative aspects of emerging technologies.” Empirical evidence supports the importance of social influence in adoption of mobile banking. For instance, Alalwan et al. (2016) found that both normative and informational aspects significantly impacted Jordanian consumers’ intention to use mobile banking services, especially among older adults with limited technological proficiency. Similarly, Yu (2012a) asserted that support from associates, based on perceptions of trends among peers, might reduce uncertainty and foster trust in mobile banking systems.

H3: Social influence has a positive impact on an individual’s intention to use mobile banking.
Trust

Trust significantly influences consumer confidence, particularly in digital financial services operating in fragile trust environments where both institutional reliability and data security may be lacking. Although, trust is not a core construct in the original UTAUT model (Venkatesh et al., 2003), several studies have shown that incorporating it into the model enhances its explanatory power for the adoption of privacy-related technologies, such as mobile banking (Alalwan et al., 2016). In this context, trust refers to the belief that mobile banking services are as secure or comparable in promoting user welfare to traditional offerings that is, they can be relied upon to function properly when transferring funds and to maintain confidentiality. In Iraq, where technological infrastructure is continuously developing and public trust maybe under mined by socio-political instability and weak formal institutions trust appears to be a critical factor in adoption decisions. This assertion aligns with findings from analogous settings. For example, Zhou (2012) found that trust significantly influenced users’ intention to adopt mobile banking, asking them, “Would you use mobile banking in the future?” Similarly, Liu et al. (2009) demonstrated that trust serves as a utility for individuals and can moderate as well as positively influence perceptions of adoption related risks. This aligns with common sense: This aligns users perceive mobile banking as usable and useful,, they will not adopt it unless they trust both parties in terms of security, safety, or good faith. Hence, to investigate this phenomenon further, it may be worth coming up with the following hypothesis based on the context of Iraq (socio-cultural and technological).

H4: Trust has a positive impact on an individual’s intention to use mobile banking.

Facilitating Conditions

Facilitating conditions, according to the Unified Theory of Acceptance and Use of Technology (UTAUT), are defined as “the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of a given system” (Venkatesh et al., 2003). In technology-dependent contexts, such as mobile banking, this variable plays a crucial role in determining behavioral intentions and usage. This logic is grounded in the belief that when users feel surrounded by adequate external support such as reliable internet connectivity, easy-to-use software interfaces, backup from technicians, organizational encouragement, they are more likely to switch over to new technologies. These enabling factors to become more important in countries such as Iraq, where the digital infrastructure and financial technology ecosystems are still emerging. Users who face these low-tech barriers, and have access to training or assistance, are more likely to perceive mobile banking as accessible and reliable. In developing economies, facilitating conditions are significant determinants of mobile banking adoption (Oliveira et al., 2014). In the Middle East, users’ intentions are often influenced by their perceptions of the availability of resources and support mechanisms (Alalwan et al., 2016). Hence, it is hypothesized that, in Iraq, a country where

infrastructural constraints may hinder digital adoption, enabling conditions will positively drive the readiness to use mobile for banking.

H5: Facilitating conditions has a positive impact on an individual's intention to use mobile banking.

Self-Efficacy

Self-efficacy and an individual's belief in their capability to perform tasks with a specific system is an important factor in technology adoption (Bandura, 1997). Although self-efficacy is not a core construct, in the original Unified Theory of Acceptance and Use of Technology (UTAUT), it is related to effort expectancy and facilitating conditions that represent ease of use, which could indirectly improve users' confidence. The research also shows that when it comes to mobile banking, self-efficacy plays a significant role for users who believe they have what it takes to navigate through apps, use transaction functions, and confront possible security issues. This is particularly relevant in developing countries such as Iraq, where digital literacy rates are low and fear of technology failure is widespread. Prior studies have shown a positive correlation between higher self-efficacy and behavioral intentions to use technology (Luarn & Lin, 2005; Zhou et al., 2010b). Similarly, echoes of the same perceptions are noticed in a Middle Eastern study since it emphasizes that trust of digital platforms was statistically mediated through ease of use with respect to real technology adoption (Al-Somali et al., 2009). Thus, a higher technological self-efficacy level of an individual will increase the intention to adopt mobile banking services in Iraq, and this is achieved by training, intuitive design, or support to empower individuals.

H6: Self-efficacy has a positive impact on an individual's intention to use mobile banking

Behavioral Intention

According to the Unified Theory of Acceptance and Use of Technology (UTAUT), behavioral intention is a key antecedent of actual technology use, reflecting an individual's readiness and motivational predisposition toward engage with a particular technological system (Venkatesh et al., 2003). According to this model, a robust behavioral intention positively affects actual technology adoption in the presence or absence of key constructs such as performance expectancy, effort expectancy, social influence, and facilitating conditions. Mobile banking in Iraq serves as a salient example where trust and technological proficiency vary significantly. In this context behavioral intention being the critical mediating variable that translates psychological preparedness into actual behavior practice. Empirical support for this proposition is provided by Alalwan et al. (2016) and Yu (2012b), which shows that the constructs are generally applicable to an understanding of mobile banking adoption in different cultural and economic contexts; behavioral intention is one of the most robust behavioral constructs when adopted to assess. The Theory of Planned Behavior by Ajzen (1991) is also consistent with this idea that intention is the best direct predictor of behavior. Mobile banking requires a significant break from traditional banking behavior, so people who embody stronger behavioral intentions are more likely to use, accept, and repeatedly use mobile financial services. Both theoretical arguments and empirical evidence converge to support this conclusion.

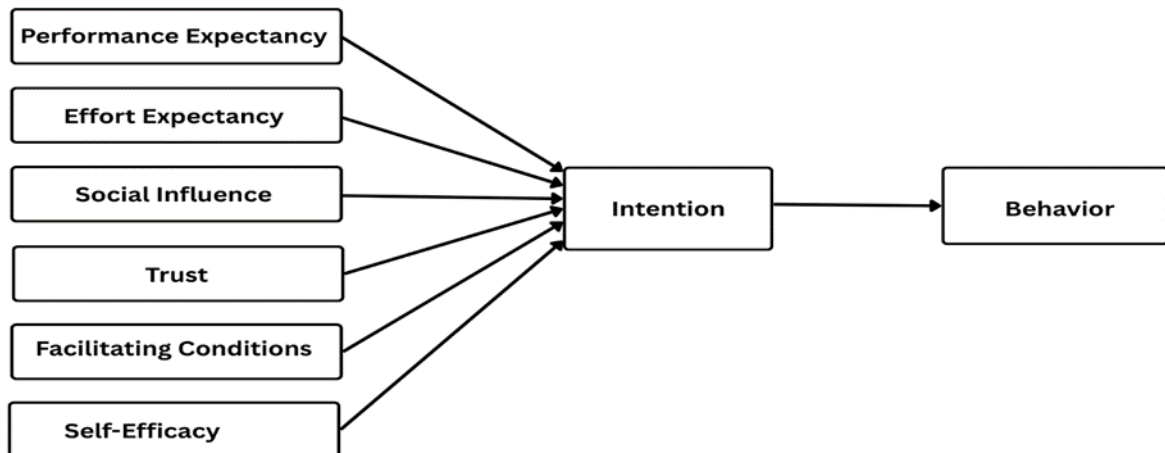
H7: Behavioral intention has a positive impact on an individual's behavior to use mobile banking.

Proposed Research Model

Figure (1) presents the proposed research model explaining the adoption of mobile banking by individuals in Iraq. Rooted in the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003), the model is extended to integrate trust and self-efficacy as additional constructs, which are considered key psychological and contextual drivers for technology adoption. Behavioral Intention is expected to mediate the effect of Performance Expectancy, Effort Expectancy, social influence, and Trust on actual Behavior, a central tenant of UTAUT. Likewise, facilitating conditions

and self-efficacy are hypothesized to have direct effects on behavior, suggesting that resource availability and individual competence may influence use independently of intention. The consolidated model provides a holistic view of mobile banking adoption, incorporating motivational and enabling drivers, which may be an explanation for the previous contradiction discovered by previous studies although developed economies have adopted traditional bank channels, such adoption has not necessarily influence potential adopters in developing countries.

Figure. 1. Research Framework



METHOD

This study investigates the determinants of mobile banking usage in Iraq. A modified questionnaire was employed to collect data. The items in Table 1 of the questionnaire were assessed on a five-point Likert scale: ranging from strongly disagree (1) to strongly agree (5). To ensure clarity and culture relevance the questionnaire was translated into Arabic so that respondents could better understand the content and provide meaningful responses. The target population for this study comprised all public and private sector employees working in Kut City, Iraq. Data was collected through a questionnaire disseminated via google form, which remained open for two months (June and July 2025). To maximum participation, the survey was shared on Facebook, appearing on users' timelines, in employee groups, and within professional networks. This was expected to help motivate the respondents to complete the questionnaire and to distribute it further among their peers and acquaintances. Facebook was selected as the primary distribution channel due to its large user base direct access to the target demographic. A total of 400 questionnaires were distributed; 382 were fully completed, while 18 were partially completed. Therefore, a total of 382 of the initial 400 questionnaires were included in the study, corresponding to a response rate of 95.5%. Thus, based on previous studies, the response rate is acceptable for analysis. However, it is acknowledged that without random sampling, the sample may not fully represent the population. A summary of the respondent's demographics characteristics is presented in Table I.

Measures

The questionnaire was adapted after reviewing prior literature to identify the constructs included in the research. It was reviewed and modified thereafter by three academic scholars with expertise in survey construction. Questionnaire items were drawn from previously validated studies. A pilot test was conducted at the beginning of the fieldwork to assess the questionnaire's content and the Iraqi customers' responses. The average time required for respondents to complete the questionnaire was also calculated. The findings of the pilot test led to refinements in the content, language, format, and presentation of the survey. Table 2 displays the final items.

Table 1. Items Measured

Variable	Code	Items	References
Performance Expectance	PE1	Using mobile banking will boost my performance.	(Foon & Fah, 2011; Morosan & DeFranco, 2016)
	PE2	Mobile banking would save time.	
	PE3	I'd use mobile banking everywhere.	
Effort Expectance	EE1	It's easy for me to learn how to use mobile banking.	(Saxena et al., 2023; Srripalawat et al., 2011)
	EE2	Mobile banking is easy for me to learn.	
	EE3	It is not difficult for me to acquire the skills necessary to use mobile banking.	
Social Influence	SI1	Important people in my life believe that I should use mobile banking.	e (Venkatesh et al., 2003)
	SI2	My acquaintances believe that I ought to use mobile banking.	
	SI3	People who influence my actions suggest I should utilize mobile banking.	
Trust	T1	I'm afraid to use mobile banking because I don't want to lose my banking information and safety.	(Chang et al., 2014; Pal et al., 2018)
	T2	Mobile banking offers a secure method for the confidential transmission of sensitive personal information.	
	T3	Giving out my personal information when using mobile banking seems unsafe to me.	
Facilitating Conditions	FC1	The environment in which I live makes it possible for me to use mobile banking.	(Venkatesh et al., 2003)
	FC2	My workplace encourages me to use mobile banking.	
	FC3	Mobile banking works well with my life	
Behavioral Intention	BI1	Using mobile banking is my preferred method.	(Venkatesh & Zhang, 2010)
	BI2	My plan is to make use of mobile banking.	
	BI3	I'd use mobile banking.	

Data Analysis

In this study, the reliability and validity of the constructs were assessed through Confirmatory Factor Analysis (CFA), while hypothesis testing was conducted using Structural Equation Modeling (SEM) in AMoS version 26. SEM was selected for its suitability for confirmatory, covariance-based analysis (Hair et al., 2019). This approach allows for simultaneous estimation of (a) a measurement model, which describes the associations between observed indicators and latent constructs, and (b) a structural model, defines the relationships among these latent constructs.

Demographic Information Of The Participants

Table 1 shows the demographic profile of the participants. The results indicate that slightly more than half (54.0%) were male, whereas females constituted (45.0%) of the total sample. Age was distributed in such a way that most (52.9%) of the respondents were between the ages of 31 and 40, 27.2% of respondents were age 41 or older, and 19.9% fell within the 20–30 age cohort. 71.9% of

respondents with an undergraduate degree, while 28.1% had obtained postgraduate study. In terms of employment sector, respondents indicated that the majority (61.2%) worked in the governmental sector, while (38.1%) worked in the private sector.

Table 2. Demographic Information Of The Participants

Variables	Characteristics	Frequency	Percentage
Gender	234	210	54.0%
	233	172	45.0%
Age	20-30 yeas	76	19.9%
	31-40 years	202	52.9%
	41 years and above	104	27.2%
Educational level	Undergraduate	275	71.9%
	Postgraduate	107	28.1%
Sector	Governmental sector	234	61.2%
	Private sector	148	38.8%

Descriptive Statistics

Table 2 presents the descriptive statistics for the study variables. The mean values ranged from 3.38 (facilitating conditions) to 4.05 (effort expectation and self-efficacy), with standard deviations between 0.80 and 1.74, indicating that participants generally reported moderate to high agreement with the questionnaire statements. The correlation analysis revealed that all constructs were significantly associated with each other, suggesting meaningful interrelationships among the variables. Furthermore, the correlation values were all below the 0.90 threshold, indicating no evidence of multicollinearity issues, as recommended by Tabachnick and Fidell (2014).

Table 3. Descriptive Statistics

Variables	Mean	SD	PE	EE	SI	T	FC	SE	BI	BU
Performance expectancy (PE)	3.84	1.47	1							
Effort expectation (EE)	4.05	1.13	0.43**	1						
Social influence (SI)	3.92	1.74	0.16*	0.11*	1					
Trust (T)	3.86	1.09	0.33**	0.39**	0.17**	1				
Facilitating conditions (FC)	3.38	1.42	0.19**	0.18**	0.24**	0.37**	1			
Self-efficacy (SE)	4.05	1.12	0.31**	0.40**	0.18**	0.54**	0.26**	1		
Intention to use (BI)	3.40	0.80	0.33**	0.32**	0.38**	0.42**	0.26**	0.39**	1	
Behavior of use (BU)	3.90	1.42	0.15**	0.27**	0.11*	0.34**	0.13*	0.68**	0.28**	1

* $p < 0.05$, ** $p < 0.01$

Measurement Model Analysis

A Confirmatory Factor Analysis (CFA) conducted in AMOS 25 established the reliability and validity of the measurement items. a confirmatory factor analysis to confirm that each construct had theoretical and methodological boundaries. Specifically, the CFA established that each construct met the recommended requirements for internal consistency, convergent validity, and discriminant validity with respect to the other constructs. Internal consistency reliability was examined using

Cronbach's alpha (α). As evidenced in Table 4, all constructs had excellent-level reliability. The Cronbach's alpha ranged from 0.826 to 0.969, which falls above the minimum 0.70 threshold (Hair et al. 2019). Performance Expectancy ($\alpha = 0.969$) had the highest level of internal consistency, followed by Self-Efficacy ($\alpha = 0.946$), and Behavior of Use ($\alpha = 0.960$). This implies a high level of consistency among the constructs in measuring the latent variable of interest. Other constructs, such as Effort Expectation ($\alpha = 0.924$), Social Influence ($\alpha = 0.978$), Trust ($\alpha = 0.870$), Facilitating Conditions ($\alpha = 0.829$), and Intention to Use ($\alpha = 0.826$) also exhibited reliability.

Convergent validity was evaluated using standardized factor loadings, Composite Reliability (C.R.), and Average Variance Extracted (A.V.E.). Table 4 demonstrates that all standardized factor loadings were above the acceptable level of 0.50 and were statistically significant at the 0.05 level. Most items were even above 0.70, demonstrating a strong relationship between the observed variables and the underlying construct. For example, the items related to Performance Expectancy item had extraordinarily high loadings (ranging from 0.891 to 0.990), meaning that respondents consistently accepted these items were accurate reflections of the underlying construct. Similarly, Social Influence (0.790-0.998), Self-Efficacy (0.790-0.998), and Behavior of Use (0.863-0.987) also demonstrated strong loadings.

The Composite Reliability (CR) values provided further evidence of the constructs' internal consistency, which were found to range from 0.827 to 0.978, all above the 0.70 cutoff. The Performance Expectancy CR of 0.971 was the highest, followed closely by the CR for Intention to Use (0.978) and Self-Efficacy (0.962), indicating that the reliability for these measures was exceptionally high as well. In addition, the Average Variance Extracted (AVE) values ranged from 0.615 to 0.937, and were all above the recommended 0.50 cutoff, suggesting that each construct was able to explain more than half of the variance among their items. Overall, Performance Expectancy had the highest AVE (0.917), indicating strong convergence among the items within the construct.

In conclusion, the measurement model shows excellent psychometric properties, with high levels of internal consistency confirmed by Cronbach's alpha and CR; high factor loadings and AVE values, confirming convergent validity; and similarly high levels of internal consistency across all constructs indicating the measurement model is reliable and valid. The results indicate that the constructs are theoretically sound and empirically supported, meaning they are good for testing the hypothesized relationships in this study.

Table 4. Measures and CFA

Constructs	Measurement Items	Factor Loading	α	CR	AVE
Performance expectancy (PE)	PE_1	0.891	0.969	0.971	0.917
	PE_2	0.990			
	PE_3	0.988			
Effort expectation (EE)	EE_1	0.736	0.924	0.931	0.820
	EE_2	0.983			
	EE_3	0.975			
Social influence (SI)	SI_1	0.993	0.978	0.840	0.639
	SI_2	0.790			
	SI_3	0.998			
Trust (T)	T_1	0.922	0.870	0.951	0.868
	T_2	0.862			
	T_3	0.736			
Facilitating conditions (FC)	FC_1	0.676	0.829	0.827	0.615
	FC_2	0.819			
	FC_3	0.889			
Self-efficacy (SE)	SE_1	0.993	0.946	0.962	0.895

	SE_2	0.790			
	SE_3	0.998			
Intention to use (BI)	BI_1	0.795	0.826	0.978	0.937
	BI_2	0.820			
	BI_3	0.735			
Behavior of use (BU)	BU_1	0.987	0.960	0.874	0.70
	BU_2	0.863			
	BU_3	0.983			

a= Cronbach's alpha, CR =Composite Reliability and Average, AVE=Variance Extracted

Discriminant Validity

Following the evaluation of convergent validity, further testing of discriminant validity measured to see if theoretically non-related variables had low correlations with each other, just as (Fornell & Larcker, 1981) proposed. In their method, discriminant validity occurs when the square root of the Average Variance Extracted (AVE) for each construct is greater than the correlation values of that construct with all other associated constructs. Table (5) clearly shows that the square root of the AVE values for all variables are greater than the corresponding inter-construct correlation values, confirming that there is discriminant validity for these constructs.

Table 5. Discriminant validity

Constructs	PE	EE	FC	SE	BI	BU	SI	T
Performance expectancy (PE)	0.958							
Effort expectation (EE)	0.424**	0.905						
Facilitating conditions (FC)	0.189**	0.134*	0.799					
Self-efficacy (SE)	0.278**	0.393**	0.287**	0.932				
Intention to use (BI)	0.351**	0.332**	0.328**	0.378***	0.784			
Behavior of use (BU)	0.144**	0.279**	0.147**	0.649**	0.288**	0.946		
Social influence (SI)	0.113*	0.098	0.229**	0.200***	0.024	0.125*	0.968	
Trust (T)	0.347**	0.381**	0.425**	0.559**	0.489**	0.375**	0.177**	0.837

Notes: Bold values in diagonal represent the squared root estimate of AVE. AVE= Average Variance Extracted, * p<0.05, ** p<0.01

Goodness Of Fit Index Of The Model

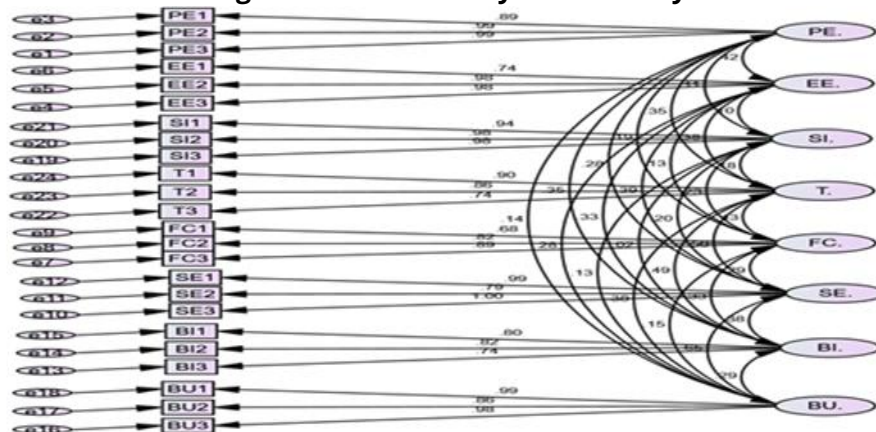
The assessment of the fit indices (Table 6) reveals that overall, the proposed model fits well, based on the recommended criteria for structural equation modelling. The Chi-square divided by degrees of freedom (χ^2/df) is 2.92, which is below the cut-off value of 3.0 to deem a model an acceptable fit. The Root Mean Square Error of Approximation (RMSEA) is 0.071 and is still less than or equal to 0.08; this again shows that the model is in reasonable equilibrium regarding complexity and explainability. The Tucker-Lewis Index (TLI) and the Comparative Fit index (CFI) are 0.951 and 0.960, both of which are greater than 0.90 which shows strong comparative fit of the model relative to how the observed data fit the model. The Goodness-of-Fit Index (GFI) is 0.928, which is above the recommended value of 0.90. Finally, the Root Mean Square Residual (RMR) value is 0.077 and is below the recommended value of 0.08, suggesting that the discrepancies between the predicted and observed values were small. Collectively, these indices provide strong support for a good fit of the

measurement model and demonstrate that the proposed measurement model is still an appropriate representation of how the data reveals its underlying structure.

Table 6. Goodness Of Fit Index Of The Model

GOFI	GOFI Criteria	Results	Interpretation
χ^2/df	≤ 3.0	2.92	Good fit
RMSEA	≤ 0.08	0.071	Good fit
TLI	≥ 0.90	0.951	Good fit
CFI	≥ 0.90	0.960	Good fit
GFI	≥ 0.90	0.928	Good fit
RMR	≤ 0.08	0.077	Good fit

Figure 2. Confirmatory Factor Analysis



Common Method Bias Checks

Cross-sectional data was used in this study along with a single-report questionnaire. Consequently, common method variance (CMV) is likely to have some impact on the accuracy of the measures, as Podsakoff and Organ (1986) comment upon. To address the concern, Harman's single-factor test was carried out via exploration factor analysis (EFA). The results indicate that total variance accounted for by one factor was under 50%, leading us to believe that common method variance does not have a large impact on the interpretation of the results.

Hypotheses Testing Results

The data were analyzed using SEM in AMOS (v.29), with the hypothesized model displayed in Figure 2. The standardized coefficients were used to test the hypotheses and the results are summarized in Table 7. The results indicated that Hypothesis 1 was supported proposing a positive effect of performance expectancy on individuals' intention to use mobile banking ($\beta = 0.165$, $p < 0.001$). This suggests that when users believe mobile banking will promote better management of their finances, their intention to use mobile banking increases.

Hypothesis 2 suggested that effort expectancy would positively influence intention to use mobile banking. The results confirmed this relationship ($\beta = 0.101$, $p = 0.032$), implying that the easier the system is perceived to use, the more likely individuals are to adopt it.

Similarly, Hypothesis 3, which examined the role of social influence, was supported ($\beta = 0.105$, $p = 0.026$), indicating that recommendations or encouragement from friends, family, or colleagues significantly boost adoption intentions.

Trust also emerged as a strong predictor of behavioral intention, as shown in Hypothesis 4 ($\beta = 0.218$, $p < 0.001$), highlighting that individuals are more inclined to use mobile banking when they have confidence in the security and reliability of the service.

Hypothesis 5 proposed a positive impact of facilitating conditions on intention to use mobile banking. The relationship was supported ($\beta = 0.127$, $p = 0.070$), suggesting that having the necessary resources, infrastructure, and support encourages adoption, even though the effect was relatively modest compared to other factors.

The results also supported Hypothesis 6, which examined the influence of self-efficacy on intention to use mobile banking ($\beta = 0.204$, $p < 0.001$). This finding suggests that individuals who feel capable of using mobile banking technology are more likely to intend to adopt it.

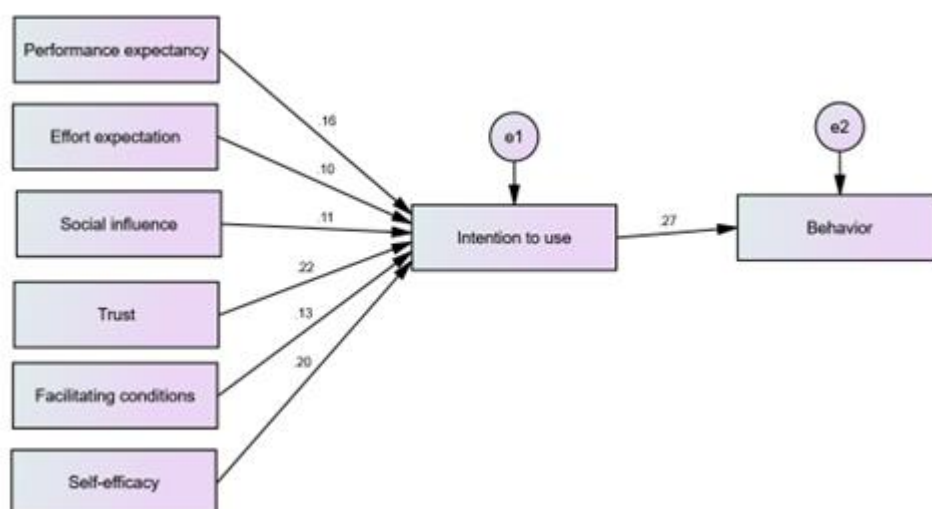
Finally, Hypothesis 7, which tested the effect of behavioral intention on actual mobile banking usage, was strongly supported ($\beta = 0.269$, $p < 0.001$). This underscores that intention is a key driver in translating motivation into actual user behavior.

In summary, all proposed hypotheses were supported, indicating that performance expectancy, effort expectancy, social influence, trust, facilitating conditions, and self-efficacy significantly shape individuals' intentions to use mobile banking. Furthermore, these intentions strongly translate into actual usage behavior, confirming the robustness of the proposed model.

Table 7. Hypothesis Outcomes

Hypothesis	Path.	.Beta. (β)	p-Value	Outcome
.H1.	Performance expectancy positively impacts individual's intention to use mobile banking	0.165	0.001	Supported
.H2.	Effort expectation positively impacts individual's intention to use mobile banking	0.101	0.032	Supported
.H3.	Social influence positively impacts individual's intention to use mobile banking	0.105	0.026	Supported
.H4.	Trust positively impacts individual's intention to use mobile banking	0.218	0.001	Supported
.H5.	Facilitating conditions positively impacts individual's intention to use mobile banking	0.127	0.07	Supported
.H6.	Self-efficacy positively impacts individual's intention to use mobile banking	0.204	0.001	Supported
.H7.	Behavioral intention impacts individual's behavior to use mobile	0.269	0.001	Supported

Figure 3. Structural Paths



Discussion

This paper examines the factors that influencing mobile banking adoption in Iraq by extending the Unified Theory of Acceptance and Use of Technology (UTAUT) with the construct of trust and self-efficacy. The findings support the predictive validity of all proposed constructs, consistent with evidence from both developed and developing countries (Venkatesh et al., 2003; Venkatesh et al., 2012). Performance expectancy exerted a positive and significant effect on behavioral intention, indicating that perceived usefulness is a key determinant in contexts where traditional banking systems are limited or less prevalent. This finding aligns with prior results reported in other contexts (Alalwan et al., 2016; Zhou et al., 2010). Similarly, effort expectancy emerged as significant predictor in a context characterized by uneven digital literacy, where user-friendly and intuitive design is particularly relevant (Saxena et al., 2023). Social influence was also significant suggesting that peer norms and culture expectations play a critical role in a collectivist society such as Iraq. This result is consistent with prior studies conducted in the Middle East and Asia (Dwivedi et al., 2017). Moreover, trust had the greatest influence on behavioral intention across constructs, which highlights the significance of trust particularly in post-conflict or low-trust contexts in which the organization's credibility is compromised (Gefen et al., 2003; Zhou, 2012). Facilitating conditions had a mild effect on behavioural intention which demonstrates that even if external facilitators matter, they might not generate sole impact on adoption without motivational and enabling characteristics in the individual. The strong correlation with self-efficacy supports this argument. Users who are confident with their technical knowledge will more likely use mobile banking – an attitude that is not only supported by Banka (1997) theory, but also strongly confirmed in mobile finance application contexts (Luarn & Lin, 2005). Behavioral Intention and Actual Use. The direct effect from behavioral intention to use was strong and statistically significant, validating the underlying principles of UTAUT and the Theory of Planned Behavior (Ajzen, 1991). This confirms the mediating function of intention as a psychological antecedent of behavior of technology use (Venkatesh et al., 2003).

Conclusion

This research provides a robust empirical foundation for understanding the uptake of mobile banking in Iraq, which remains under-researched and is characterized by a complex socio-economic climate. Incorporation of trust and self-efficacy into the UTAUT model enhances the model's predictive validity by capturing psychological and contextual factors, in Iraq. All hypothesized relationships were statistically significant, implying that mobile banking adoption is influenced by perceived usefulness, ease of use, trust, social influence (e.g. encouragement from significant others) facilitating conditions and perceived security and assurance. These findings demonstrate that technology acceptance models need to be modified to more accurately reflect the social cultural and structures in the developing world. This study contributes a theoretical contribution to understanding and developing practice by embedding established constructs within a novel national context and by suggesting practical ways to improve mobile banking services in fragile countries.

This study makes substantive contributions to the literature of digital financial services adoption in emerging economies by extending UTAUT and confirming that the integration of trust and self-efficacy enhances the model's predictive strength in contexts dominated by institutional frailty and users' apprehension, echoing previous calls for contextualizing the model (Dwivedi et al., 2019; Venkatesh et al., 2012).

It also underlines the need for cultural contextualization as the findings indicate that social influence is more important in collectivist cultures, consistent with Hofstede's cultural dimensions and adoption research in non-Western settings (Straub et al., 1997). Further, the significant mediation of behavioral intention highlights the viability of intention-based models to elucidate digital banking behavior, especially in environment with low levels of institutional trust (Gefen et al., 2003; Pavlou & Fygenson, 2006). From a pragmatic standpoint, the results also offer actionable knowledge for Iraq and comparable context. The study recommended that policymakers, including

the Central Bank of Iraq and other relevant government agencies, make efforts to build public trust through awareness campaigns, cybersecurity programs, and digital literacy education, with particular focus on rural and disadvantaged populations. Financial institutions should develop easy-to-use, multilingual mobile apps that cater to different digital skills and embed robust security features to foster use trust.

Mobile operators can harness the high impact of social influence to promote uptake through the endorsement strategies, including influencer and peer to peer campaigns. Finally, investing in education and training such as self-efficacy programs, hands-on training courses, convenient help desks, and streamlined onboarding flows can help to enhance users' confidence in the product and can greatly contribute to adoption.

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