

T.C.
BAHCESEHIR UNIVERSITY
GRADUATE SCHOOL
THE DEPARTMENT OF BUSINESS ADMINISTRATION
MASTER'S PROGRAM IN BUSINESS ADMINISTRATION



**INTEGRATING TECHNOLOGY READINESS AND ACCEPTANCE
MODELS TO EXAMINE DIGITAL PAYMENT RESISTANCE: THE CASE
OF IRAQ**

MASTER'S THESIS
FAWZ ABDULKAREEM

ISTANBUL 2025

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ABSTRACT

INTEGRATING TECHNOLOGY READINESS AND ACCEPTANCE MODELS TO EXAMINE DIGITAL PAYMENT RESISTANCE: THE CASE OF IRAQ

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Master's Program in Business Administration

Supervisor: Assoc. Prof. Mustafa Sundu

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Cash on Deliver (COD) remains the dominant payment method in the e-commerce sector in Iraq, particularly for consumer trust and management. However, this trust creates obstacles to sector growth, particularly when global markets change into digital cash restaurant transactions. This study examines the dual effect of COD on the development of e-commerce and consumer trust in Iraq. We examine how psychological factors such as optimism, innovative strength, and uncertainty are concerned about digital payment use, user friendliness, and perceived behavioral intent. Based on a quantitative approach from the research, this study shows that low ICT infrastructure and unclear guidelines for refunds increase trust in online purchases. The results show that users of digital payments for traction must recognize as advantageous and accessible, except that only psychological impairments are removed. This research is a manufacturer that provides valuable insight into online retailers and political decision-making, reduces dependence on COD, and promotes a more sustainable digital economy in developing countries.

Keywords: Digital Payments, E-Commerce, COD, Trust.

ÖZET

TEKNOLOJİ HAZIRLIKLIGI VE KABUL MODELLERİNİN ENTEGRASYONU: IRAK'TA DİJİTAL ÖDEME DİRENCİNİN İNCELENMESİ

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Nakit Kapıda Ödeme (Cash on Delivery - COD), Irak'taki e-ticaret sektöründe tüketici güveni ve kontrolü açısından hâlâ baskın ödeme yöntemi olmaya devam etmektedir. Ancak, bu güvenin kendisi sektörün büyümesine engel teşkil etmektedir, özellikle de küresel pazarların dijital ve nakitsiz işlemlere yöneldiği günümüzde. Bu çalışma, COD'un Irak'ta e-ticaretin gelişimi ve tüketici güveni üzerindeki çift yönlü etkisini incelemektedir. Psikolojik faktörler olarak iyimserlik, yenilikçilik ve belirsizlik gibi unsurların dijital ödeme kullanımı, kullanıcı dostu olması ve algılanan davranışsal niyet üzerindeki etkileri değerlendirilmektedir. Nicel araştırma yöntemine dayanan çalışma, düşük bilgi ve iletişim teknolojileri (ICT) altyapısı ile belirsiz iade politikalarının çevrim içi alışverişlerde COD'ye olan güveni artırdığını ortaya koymaktadır. Sonuçlar, dijital ödeme sistemlerinin benimsenebilmesi için yalnızca psikolojik engellerin kaldırılmasının yeterli olmadığını, aynı zamanda bu sistemlerin kullanıcılar tarafından faydalı ve erişilebilir olarak algılanması gerektiğini göstermektedir. Bu araştırma, çevrim içi perakendecilere ve politika yapıcılara COD'ye olan bağımlılığı azaltma ve geliştirmekte olan ülkelerde daha sürdürülebilir bir dijital ekonomi teşvik etme konusunda değerli içgörüler sunmaktadır.

Anahtar Kelimeler: Dijital Ödemeler, E-Ticaret, Kapıda Ödeme, Güven



To My Parents and Friends

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LIST OF ABBREVIATIONS

BI	Behavioral Intention
COD	Cash on Delivery
EFA	Exploratory Factor Analysis
GSM	Global System for Mobile Communications
PEOU	Perceived Ease of Use
PU	Perceived Usefulness
SPSS	Statistical Package for the Social Sciences
TAM	Technology Acceptance Model
THAM	Technology-Human Acceptance Model
TRAM	Technology Readiness and Acceptance Model
TRI	Technology Readiness Index
UPI	Unified Payments Interface
UTAUT	Unified Theory of Acceptance and Use of Technology
UX	User Experience

Chapter 1

Introduction

Developments in digitalized technologies have shaped consumer interaction with finance systems in immense ways; these innovations included mainly online payment platforms. In several developing countries, like Iraq, traversing the digital payment space meets multiple roadblocks like infrastructure shortages, distrust for digital processes, and people simply not willing to change. With Internet access and smartphone penetration rising, a large proportion of the populace, while occasionally getting an ectoplasmic experience watching scare movies like “Ghostbusters,” lives the reality primarily on the other side of the cryptocurrency—usually by way of hard cash or payment on delivery (COD).

According to Business LANDSCAPE VII – Digital Edition (2023), Iraq is mostly a cash-based economy, which has accounted for only about 23% of its adult population with bank accounts and a deplorable rate of 5.63 commercial branches for every 100,000 persons. Above all, there exists an awful lack of addressing systems atop a low level of trust in financial institutions, dramatically undercutting digital-payments enabling environment. These lacunae have excluded Iraq from any meaningful international platforms such as PayPal, Wise, or Shopify with the attendant far-reaching negative effects on the perceived access and ease of use of digital financial services (Business LAND VII, 2023).

The context being presented herein, therefore, underscores the reason for investigating deeper the COD framework and scant reception towards these digital payment alternatives. Digital readiness may be something that already exists Ness especially among the youths—where institutional circumstances may quash intrinsic self-influencing factors when determining payment behavior. The Technology Acceptance Model (TAM), which combines the psychological readiness as perceived ease of use and perceived usefulness of the system, would give a stable foundation for understanding the

individual-level adoption of technology in this cultural context. However, very few studies have brought to light how TAM findings apply to conflict/post-conflict settings or those underbanked contexts like that of Iraq where the digital trust and infrastructure are still nascent; yet it holds the exception of state-level trust and a broad lack of infrastructure.

1.1 Statement of the Problem

While frontrunning in its convenience and efficiency, digital payment systems have low acceptance rates in Iraq. COD is predominant, even among facile users of digital devices. One is led to ask about what psychological and perceptual barriers are in place for wider adoption. Using one's imagination, it is very hard to tell how user psychology (PU and PEOU) and behavioral intention in such contexts could be influenced by technology readiness as shown through optimism, innovativeness, discomfort, and insecurity. There are still many research gaps in understanding user psychology and readiness by a local level.

1.2 Research Objectives

The major aim of this study is to explore the extent to which psychological traits, also known as technological readiness dimensions, and Perceptions towards the system influence behavioral intention to use the e-payment system in Iraq. The other specific objectives stated by the study are:

- To identify the effects of optimism, innovativeness, discomfort, and insecurity upon perceived usefulness and perceived ease of use.
- To investigate how perceived usefulness and ease of use lead to behavioral intention to adopt e-payment.
- To determine the most vigorous predictions of digital payment adoption within the TRAM model.

- To give actionable insights serving e-commerce adoption and the financial technology of Iraq.

1.3 Research Questions

This Research Study Specifically Addresses the Following:

- a. How do technology readiness traits affect perceived usefulness and perceived ease of use of e-payment systems?
- b. What is the relationship between perceived usefulness, perceived ease of use, and behavioral intention in Iraq?
- c. Which readiness traits are the most influential in predicting digital payment adoption?
- d. What are some practical needs and implications of the research and how do these apply to the Iraqi digital economy?

1.4 Scope of the Study

Behavioral and psychological insights into the adoption of digital payment systems in Iraq are explored, and the data is tested in the Technology Readiness and Acceptance Model (TRAM). The main point of interest in this study was to determine the question of technology readiness and its constituent variables—optimism, innovativeness, discomfort, and insecurity—in the explanation of ease of use and usefulness to predict intention to adopt e-payment services.

Geographically, this research is focused only on Iraq and concerns only individuals who have dealt with online shopping and were offered either Cash on Delivery (COD) payment or e-payment options. The methodology of the research that underpins this study was purely quantitative. Using the online cross-sectional survey, the research scheme

covered different demographically positioned users from urban and semi-urban settings and does not fully represent the rural or digitized-excluded groups.

Thus, this study is more focused on individual-level perceptions and psychological readiness, avoiding a more direct and broad discussion of economic or infrastructural issues. This is not to say that any weight is afforded trust in the system or policy framework. However, the base conditions mentioned above are said to have put a greater influence on the ecosystem that must be present for e-payment success.

Picking on the psychological determinants of adoption within the contested, postwar underbanked society, the study contributes insights back into debates around broader narratives of digital transformation in emerging markets.

1.5 Significance of the Study

This research drives forward both the theoretical and practical circumstances, essentially checking for the TRAM framework in a unique socio-economic phenotype, thereby furnishing some definitive evidence concerning the developments of its post-conflict business activity. The immense implication would be for the designers, providers of digital payments, and indeed any policymaker in Iraq to design interventions that could help in enhancing consumer readiness, increase rates of adoption, and propel financial inclusion.

1.6 Scope and Limitations

The investigations focused on the context of digital payments in Iraq, based on the qualitative data collected from users who had the assertion about or exposure to e-payment systems. Its usage is constrained to cross-sectional design, self-reported questionnaire data, and a sample group that might not accurately mirror the situation in terms of age or

rural location. Furthermore, the study fails to account for deep influences of the social norms or infrastructural variations.

1.7 Organization of the Thesis

In the initial part of this paper, we outlined location of the study, objectives, research questions, and hypotheses, and finally defined the scope of the general study. The second chapter introduces theoretical considerations behind the study by examining relevant literature on the use of digital yet in connection with the Technology Acceptance Model and other behavior models associated with the acceptance of technology. These methods will encompass the research methodology set in Chapter 3, which includes a sample strategy, data collection methods, and analytical techniques. Chapter 4 will have statistical results derived from the materials gathered in 2-3. There will be a discussion on the findings of the present study in Chapter five vis-a-vis the available theories and previous research. Lastly, chapter six will conclude the study by presenting recommendations for stakeholders and also by the indication of the future research lines.

Chapter 2

Literature review

The chapter exhibits key theoretical and empirical studies relied upon for the acceptance of digital payments in emerging markets. Foundational models such as TAM, TRI, and TRAM have been highlighted in the narrative for an understanding of their relationship with consumer behavior in markets, either in the process of coming out of security crisis or where the battle is already over. Special emphasis is placed on psychological readiness, perceived system attributes, trust, and contextual barriers in the evolving digital financial landscape of Iraq.

2.1 Theoretical Foundations of Digital Payment Adoption

The Technology Acceptance Model (TAM) aims to detail the reasons behind technology adoption using only two beliefs: perceived usefulness (PU) and perceived ease of use (PEOU). PU is the extent to which an individual believes that adopting technology will improve performance, while PEOU refers to the belief that employing the technology is unproblematic (Davis, 1989; Venkatesh & Davis, 2000; Venkatesh et al., 2003). Numerous studies have supported TAM applicability in digital payment uptake, especially in emerging markets where consumer skepticism is higher, and clear benefits must be demonstrated to overcome hesitation (Gefen et al., 2003; Faiza & Perdana, 2024; Ngo et al., 2021).

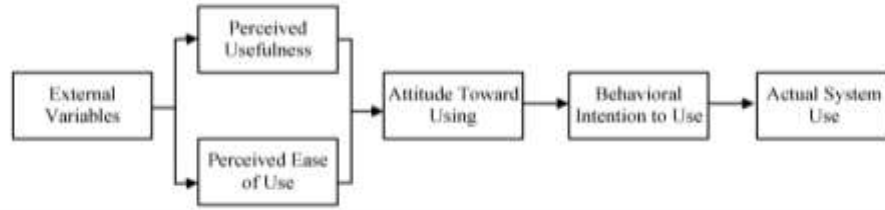


Figure 1. Technology acceptance model (TAM).

Source: (Venkatesh & Davis, 2000)

Technology Readiness Index (TRI) is a tool to measure the extent of an individual's inclination to come to terms with new technologies and modern gadgets with the factors placed in four different dimensions: optimism (O), innovativeness (I), discomfort (D), and insecurity (IS) (Parasuraman and Colby, 2014). The first two dimensions in the TRI are motivators of implementing a technology while the last two are inhibitors (Walczuch et al., 2007). Those with a high TRI tend to explore and adopt new payment systems like m-payments, and those with low TRI will need reassurance and support to have simplified ONBOARDING processes to build trust and confidence with the digital counterparts. (Editors: Mahmood et al., 2023; Hanifa et al., 2023; Andronie et al., 2021).

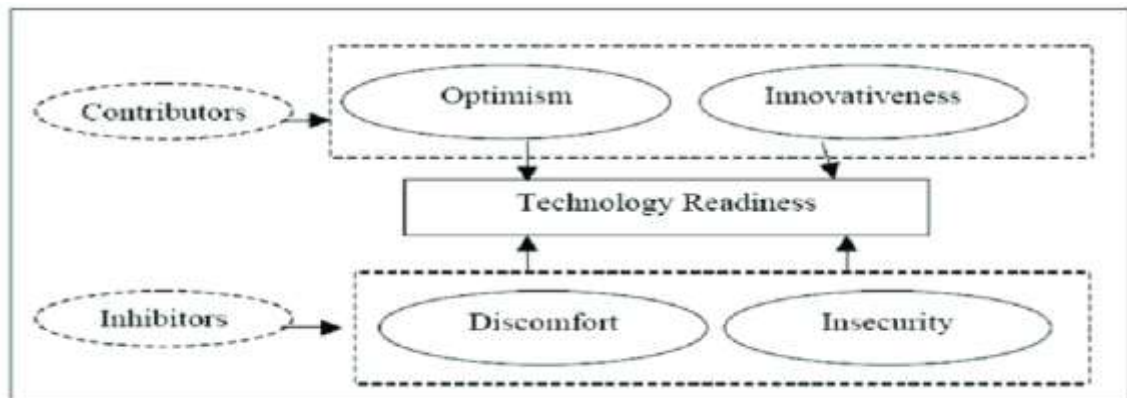


Figure 2. Technology readiness index (TRI).

Source: (Parasuraman & Colby, 2014)

The models, which are formed on a trust foundation, center on the importance of trust as a key driver behind the diffusion of digital payment systems. In cases of high-risk perception settings, trust would assume an even more central role. Trust involves confidence in service providers' competence, reliability, and integrity, as well as perceived transactional security (Gefen et al., 2003). Mistrust or concerns over privacy tend to further slowdown the transition to digital payment methods due to low bank trust or concerns over data privacy, thereby making even more explicit the necessity for enforcing a protocol of secure communications and institutional credibility (Faiza & Perdana, 2024; Lohana & Roy, 2021; Sundarasan et al., 2020).

It is recognized that trust is a key contextual factor even though it is not explicitly considered as a core construct within the TRAM-based framework employed in this study, particularly in environments of low trust such as Iraq. This study considers trust in the background as an enabler, influencing perceptions indirectly through attitudinal and social norms. While trust is not specifically identified within the model, it should be integrated more directly into the conceptualization in future amendments, specifically when applied in post-conflict or transitional economies.

The integrated model of Technology Readiness and Acceptance (TRAM) combines the attitudinal focus of TAM with the personality-based traits of TRI. This blended framework captures both internal dispositions and external perceptions, offering a more comprehensive understanding of consumer behavior towards digital payment adoption (Lin et al., 2007; Walczuch et al., 2007). Particularly in emerging markets, TRAM effectively accounts for individual-level readiness alongside system evaluation, though it requires localization to incorporate cultural factors such as collectivism and institutional trust, which are especially influential in contexts like Iraq (Mahmood et al., 2023; Lohana & Roy, 2021).

However, while TRAM serves as a solid theoretical base, it may not fully capture the complexity of adoption behavior in post-conflict or low-trust environments. For instance, psychological traits like insecurity may not significantly impact perceived

usefulness or ease of use in contexts where users already assume system instability or risk. Likewise, while social influence plays a central role in shaping digital behavior in collectivist cultures, it is not explicitly modeled within TRAM. These dimensions are recognized as important contextual moderators and are discussed throughout this study, though they are not directly included in the tested framework.

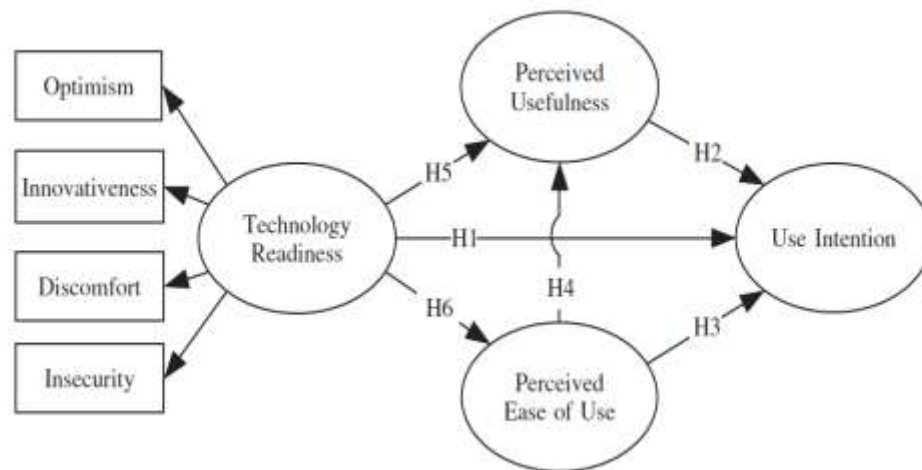


Figure 3. Integrated TRAM model.

Source: (Lin et al.2007; Walczuch et al, 2007)

2.2 Behavioral Factors Influencing Digital Payment Adoption

Perceived usefulness is a good predictor for adoption pertaining to digital payments; hence, consumers tend to go for systems with easily noticeable utility due to better convenience, speed, and efficiency (Davis, 1989; Venkatesh et al., 2003). Perceived ease of use cuts away a layer of cognitive hurdles leading to adoption (Venkatesh & Davis, 2000; Mallat, 2007). What comes to the fore is a positive intention heightened by the above two elements, trading on other plausible factors that ground change in practical, everyday solutions which are user-relevant (Mahmood et al., 2023; Mallat, 2008).

Perceived risk significantly influences user hesitation towards digital payments, encompassing concerns over financial loss, fraud, data privacy breaches, and transaction errors (Gefen et al., 2003; Rahman, 2021). High perceived risk necessitates robust trust-building strategies from service providers. Communicating security measures,

guaranteeing data privacy, and providing reliable customer support can mitigate risk perceptions and promote system adoption (Perdana, 2024; Sundarasan et al., 2020; Lohana & Roy, 2021).

Technology Readiness (Optimism, Innovativeness, Discomfort, Insecurity). Individual attitudes towards technology adoption are deeply influenced by their technology readiness. Optimism and innovativeness encourage exploratory behaviour and openness to new solutions (Parasuraman & Colby, 2014; Lin et al., 2007). In contrast, discomfort and insecurity, often stemming from low digital literacy or fear of technology, act as barriers to adoption (Mahmood et al., 2023; Hanifa et al., 2023). Strategies such as user-friendly interfaces, supportive onboarding, and community-led education campaigns can address these inhibitors effectively (Andronie et al., 2021; Sundarasan et al., 2020).

Social Influence and Community Trust. Social influence is very important in communities or collectivist societies. Recommendations from family, friends, or local opinion leaders can heavily affect the adoption decision (Walczuch et al., 2007; Faiza & Perdana, 2024). Community trust is highly valued, particularly for those experiencing digital reluctance for the first time (Mahmood et al., 2023; Lohana & Roy, 2021). The worthwhile strategies for stimulating uptake are to leverage the trust of community channels for endorsements via peers (Lohana et al., 2023).

While this study does not explicitly include social influence within the TRAM-based conceptual framework, its significance in the literature—especially in the Iraqi context—warrants attention. Social and community trust are considered underlying contextual forces that shape readiness and intention indirectly. Future research should explore ways to incorporate social influence as a moderating or mediating factor within TRAM-based models, particularly in cultures where interpersonal networks hold strong sway over behavioral intentions.

2.3 External Environmental Factors

Infrastructure Availability and Mobile Penetration. The existence of a digital infrastructure with internet connectivity in various forms of networks, particularly GSM, is the cornerstone of promoting digital payment systems (Vatsa, 2023; Lohana & Roy, 2021). In an area where infrastructure is really productive, customers and consumers may use the payment system without problem which will boost the transaction speed and predictability (Sundarasan et al., 2020). On the other hand, where infrastructure is scarce, for example in rural or remote areas, there are many barriers created from low connections and sky-high mobile data costs. Improved broadband penetration and affordable smartphone access are thus essential if digital payments are to be promoted in areas where infrastructure deficits are a big issue (Hanifa et al., 2023; Anjum & Chai, 2020).

Even with improved internet and mobile telephone access, Iraq still faces some critical infrastructure barriers against the scalability of e-payments. Without truly functioning physical address systems-drop shipping is paralyzed within the comity of nations-and with limited oversight by local governance, serious operational barriers constrain consumer usability. These barriers go on to block the platform's ascendancy to global e-commerce counterparts into countries but also lower the perceived ease of use (PEOU) and perceived usefulness (PU) constructs in the Technology Readiness and Acceptance Model (TRAM). Thus, even knowledgeable users might stop short of going digital in payment transactions due to system-generated inefficiencies-the key reason why the market persists in demanding Cash on Delivery (COD) even with sustainability objectives promoted in the digitalized systems.

Government Policies and Digital Payment Strategies. Govt-led moves are crucial in forming the landscape for digital payments (Bruce & Rahman, 2021). Policies formulated to encourage financial inclusion, provide incentives for digital transactions, and protect the economic framework to keep consumers safer will result in a significant rise in adoption (Hanifa et al., 2023; Faiza & Perdana, 2024). State policies like digital payment roadmaps, regulatory sandboxes, and administration-private partnership platforms would

thus elevate trusts and cooperation between both the consumer and industry . Furthermore, the promotion of clear-cut provisions for data privacy and cybersecurity is useful for allaying consumer fears and creating the most fertile ground for digital payment ecosystems to thrive (Parasuraman & Colby, 2014; Sundarassen et al., 2020).

Impact of the COVID-19 Pandemic on Digital Payment Adoption. The COVID-19 pandemic served to speed digital payment adoption on the global scale (Vatsa, 2023; Faiza & Perdana, 2024). Driven by social distancing measures and their fear of touching physical cash- hence creating an avenue for a desire shift to contactless or remote payment systems. Digital payments became the only way to conduct transactions for many consumers and customers who entered the scene as a compulsion rather than choice (Hanifa et al., 2023). Maintaining this tempo, if not rise, will all depend on the ability of businesses to bring home the benefits they obtained in this time of crisis for convenience and safety, with the correcting or addressing the trust and accessibility problems that cause a slide back to cash-based transactions (Rahman, 2021; Lohana & Roy, 2021).

2.4 Socio-Demographic Influences on Adoption

Age, Income, and Education. Younger consumers educated relatively more and having greater disposable incomes tended to favor the use of digital payment systems sooner (Vatsa, 2023; Hanifa et al., 2023). The true digital natives, who typically view mobile app and online service navigation as an extension of their routine digital avatar, are far more comfortable using all these applications. The education leads to greater digital literacy-leading to a smoother and more gratifying user experience: the onboarding. As for people having a source of income, they are more likely to possess a requisite financial tool, e.g., bank account or mobile wallet, to purposefully engage in digital transactions (Perdana, 2024; Andronie et al., 2021).

Gender and Urban-Rural Divide. Discrimination and geographic divide greatly influence the adoption of digital payment (Lohana & Roy, 2021). At multiple levels, men have a higher adoption rate, as in most cases, they usually have better access to technology

and financial resources (Hanifa et al., 2023). On the other hand, the gender gap is narrowing due to targeted programs designed to uplift women's digital inclusion, particularly in rural settings where mobile wage transfers empower female users. Generally speaking, urban people have in place much better infrastructure and service delivery as compared to the rural residents (Sundarasan et al., 2020). A multitude of strategies must be developed in order to bridge this urban-rural divide, which will include collaborations with mobile network operators reaching out to greater audiences on one end and community-led educational programs that will allow for increasing trust and positive experiences with digital platforms on the other side (Bruce & Rahman, 2021; Faiza & Perdana, 2024).

Unbanked Populations and Financial Inclusion. Those unbanked stand out as an essential demographic for advancing digital payment modes (Hanifa et al., 2023). These people have developed different yet, real impediments to payment adoption due to banking vacuum (Lohana & Roy, 2021). In response to this issue, the attempt to simplify account opening, promote mobile-money adoption, or integrate e-payment within existing informal financial networks are suggested (Faiza & Perdana, 2024; Anjum & Chai, 2020). Equally essential is the campaign to promote financial education as to the unbanked about the safety, advantages, and operation of digital payment; this will build trust and spur participation on the formal financial ladder (Hanifa et al., 2023; Sundarasan et al., 2020).

2.5 Technology Design and User Experience

User Onboarding Experience. First impressions made during the application onboarding process strongly influence the behavior towards user adoption (Hanifa et al., 2023; Faiza & Perdana, 2024). A streamlined user onboarding process, which is intuitive, will not only decrease friction but also establish trust, thereby assisting in increased continued engagement (Bruce, 2021). Substantive information, painless verification processes, and ready access to customer care help new and inexperienced users, now venturing into anything digital, freely pass through the onboarding stages for concluding at the very first use of their new medium (Mallat, 2007; Anjum & Chai, 2020). One study

ties the improvement in the onboarding process to perceived ease of use as well as trust formed in the early phases (Parasuraman & Colby, 2014; Mahmood et al., 2023). An appropriate multichannel capability in seamless onboarding would reduce abandonment rates among first-time users in developing countries and deepen pipelines into desired long-term adoption behavior (Hanifa et al., 2023).

Language Barriers and Local Language Support. Language barriers may serve as a significant hurdle against digital payment adoption, particularly in regions with linguistically diverse settings in which users could feel alienated by unfamiliar terminologies or directives (Hanifa et al., 2023). Local language support features go a long way toward enhancing interface accessibility and making users feel less anxious about making errors (Faiza & Perdana, 2024). The provision of multilingual language support will enhance interpretability and at the same time signal one's commitment to serving diverse user communities (Bruce & Rahman, 2021). Additionally, the provision of culturally appropriate and locally sensitive communications leads to better communication, particularly with users in rural and less-developed regions (Lohana & Roy, 2021). Herein, communicating with the poorest digitally illiterate segments employs strategies intended to reduce perceived effort or increase ES. (Parasuraman, 2000; Mahmood et al., 2023).

Simplified Interfaces for Low-TRI Consumers. The less technology-ready consumers who show off great--discomfort and insecurity--would benefit more from a simplified interface ensuring clarity in terms of navigation and user experience (Parasuraman & Colby, 2014; Mahmood et al., 2023). Allowing users step-by-step instructions within a minimalist design and using visual aids actually reduces the cognitive burden of new technology use for the most uncomfortable users (Anjum & Chai, 2020; Sundarasan et al., 2020). Some of the characteristics of payment system design that contribute a great deal of homeliness and intrusive attendance include default settings, pre-filling the forms, and prevention of errors (Hanifa et al., 2023; Faiza & Perdana, 2024). Suffice it to be mentioned that experiences have shown elements of interface simplification to not only foster perceived ease of use but also, in general, immediately to

quench feelings of discomfort and insecurity felt by low-TRI users (Parasuraman, 2000; Mahmood et al., 2023). Such design elements will boost self-belief and ultimately help hasten the practitioners' transition from cash-based transactions to digital payments (Ngo et al., 2021; Bruce & Rahman, 2021).

2.6 Trust and Security Considerations

Consumer Trust in Institutions and Providers. Consumer Trust in Data in Payment Systems and Providers. Trust in financial institutions, fintech institutions, and e-commerce platforms is at the core of digital payment adoption (Mahmood et al., 2023; Lohana & Roy, 2021). Consumers are likely to use digital payment systems if they assume that the service providers are reputable, reliable, transparent about their terms and act in the best interest of the users (Faiza & Perdana, 2024). Trust primarily comes from consistent service delivery, clear communication of terms and conditions, and visibly full attentions to address customer concerns (Nurhasanah & Chai, 2020). Institutional credibility's enhancement for adoption will have more in markets where trust toward financial services has been historically low.

In contrast, in the context of Iraq, public trust in the banking sector is low. The Business Landscape VII – Digital Edition report brings in worries for liability, service reliability, and data misuse. These concerns are important due to the institutional mistrust that is all there is to date. This is what makes COD remain the preferred approach since users view it as an alternative with which they can shield themselves from the dependable refund or dispute resolution framework missing. It is for this reason that even when users have the readiness in accepting technology, they may not take up the behavior of adoption against systemic trust issues instead of personal insecurity—underlining the need to strengthen outright institutional sanctuaries and consumer protection mechanisms in Iraq.

Data Privacy and Security Mechanisms. Moving forward, serious concerns regarding data secrecy and the protection of personal financial information have all been barriers opposing the extensive use of digital transactions (Anjum & Chai, 2020; Mallat,

2008). There arises, therefore, a need to lend confidence to users concerning confidentiality of their banking details against unauthorized access, misuse, or breach by setting up very strong hardware security and encryption protocols, multifactor authentication, and clear data use policies (Rafdinal & Senalasar, 2021). Furthermore, consumers are confident about ongoing data protection compliance and several security bulletins relating to respective digital platforms (Hanifa et al., 2024).

Fraud Prevention and Dispute Resolution Frameworks. Scam, fear of fraud, and financial loss are large persistent concerns for potential users of digital payments (Mahmood et al., 2023; Nurhasanah & Chai, 2020). However, we should urgently put in place risk-mitigation measures in digital payment ecosystems to allow them to be integrated with robust and easily recognizable fraud detection systems that can investigate frauds independently and introduce clearly defined dispute resolution processes. Mechanisms should be easily accessible, user-friendly, and responsive to consumer needs (Faiza & Perdana, 2024). Creating education for this purpose and effective handling of these instances have paramount importance in establishing trust, thus enabling users to accept the usage of digital payments (Hanifa et al., 2024; Venkatesh et al., 2003).

2.7 The Role of Social Influence and Education

Trusted Community Channels for Consumer Education. Community-based key opinion leaders and local influencers play a significant role in shaping consumer perceptions and behaviors for digital payments (Hanifa et al., 2024; Mahmood et al., 2023). Collaborations with existing social networks, citizenship trust anchors, can be leveraged for education campaigns to address misconceptions, reduce perceived risks, and nurture trial use opportunities (Anjum & Chai, 2020). Also, campaigns that engage local agents such as enterprises to make community-based education on digital literacy even more relevant can be beneficial. This kind of initiative is very important in the regions of distrust, where the formal finance institutions are disadvantaged (Ngo et al., 2021).

Role of Education Systems in Long-term Digital Literacy. Schooling on digital financial literacy serves as the backbone for developing future-ready social groups (Hanifa et al., 2024; Parasuraman & Colby, 2014). On what should be said within curriculum topics are online security, prudent spending, and operational knowhow of the digital payment platforms, fostering early acquaintance and competence (Ajzen, 1991). It thus becomes easy, on a long march, to create digitally competent citizens comfortable with any financial technology, reducing the obstacles that will impede their adoption mingle with the ongoing development in technology. (Mahmood et al., 2023).

Adult Digital and Financial Literacy Initiatives. Focused, coordinated adult-oriented educational programs are required in situations where digital literacy prospects were missed and digital payment literacy follows (Hanifa et al., 2024; Parasuraman et al., 2000). Such initiatives include workshop, community trainings, and online tutorials often tailored to different levels of digital literacy worldwide (Andronie et al., 2020). It must necessarily concentrate on execution-oriented events like protecting against fraud while running through some secure transactions, and understanding digital wallets in managing financial capabilities (Nurhasanah & Chai, 2020). The equipping of adults with these skills certainly improves individual financial empowerment, subsequently advancing the broader reception of digital payment ecosystems.

2.8 Comparative Studies Among Prior Studies: Similarities and Differences

Many Similarities Connect Trust, Use, and TRI. Trust, usefulness, and technology readiness were subjects that were addressed across a few studies, supported by recurrent evidence. Trust in service providers or platforms or in regulatory environments were found to be paramount among different bodies of studies (Mahmood et al., 2023; Ngo et al., 2021; Nurhasanah & Chai, 2020). In projects where there seems to be minimal trust, as is the case in post-conflict economies or underdeveloped financial ecosystems, the use of cash currently seems unmistakably ubiquitous.

Perception of usefulness leads directly to acceptance in a cross-disciplinary way. Users want and desire to use a payment mode that they believe to be convivial, fast, rewards yielding, and performing seamlessly with their daily life experience (Venkatesh & Davis, 2000; Faiza & Perdana, 2024). If those in the category have a low level of digital literacy, then this constituency finds tangible benefits to be motivational.

Evidence of support for the Technology Readiness Index also grows bearing the emerging pattern indicating that optimism and innovativeness lead to adoption, whereas discomfort and insecurity pose barriers (Parasuraman et al., 2014; Mahmood et al., 2023). Without reference to geographic context, most studies have shown that individuals with higher TRI numbers would be more likely to engage with digital financial services.

Differences Among Studies. Having shared points in common, however, the changes among studies add different societal and setting and institutional aspects.

Demographics: Age and socio-economic factors are highlighted in some reports discussing acceptance behavior. There is more adoption by the young, urban, well-educated, and more digital-fluent people, which also represent the population that can access internet services and smartphones in their daily life (Sulistyowati et al., 2023; Lohana & Roy, 2021). Older, rural, and low-income inhabitants tend thus to shy away in their adoption due to what could likely be a lack of exposure and even distrust for the technology arena (Hanifa et al., 2024).

Crises COVID-19: The pandemic fueled digital payments around the world to some extent, the extent of which varies. Especially, in places like Indonesia and Vietnam, this shift was within a lasting framework but Iraq's post-pandemic portrait shows the chance of not retaining the digital habits going forward. This was caused by weak institutional support and market skepticism for the continuing use of digital means-a situation made painfully clear and informative of the nature of trust beyond critical or outbreak moments (Mahmood et al., 2023).

Institutional Trust and Legal Protection: Economies that have systems that profoundly guard consumers with a sturdy legal framework or operational regulatory institutions will usually have an unequalled advantage in transitioning from manual-based systems to e-payment. On the other hand, user confidence is heightened in Southeast Asian countries where mechanisms ensure appropriate legal protection and cybersecurity motifs remain. Anemic legal infrastructure deters healthful risk percepts and thus adoption in the country like there in Iraq (Nurhasanah & Chai, 2020).

Platform strategy, COD entry point: Commencement combat has helped the start-ups in Pakistan and Indonesia wherein e-commerce platforms, like COD, are exploited as its initial strategy for transition, meeting consumer choices for tangible cash transactions and rewarding or educating for e-wallet or similar digital transactions (Anjum & Chai, 2020; Nurhasanah & Chai, 2020). Such changes rationally escape some prominent examples in Iraq because of disproportionate infrastructure foundations and lower maturity in e-commerce (Faiza & Perdana, 2024).

An Integrative Perspective: TRAM Model and Local Adaptations. For the analysis on the digital monetary system/transaction itself, the Technology Readiness and Acceptance Model (TRAM) are noteworthy in uniting both the Technology Acceptance Model (TAM) and Technology Readiness Index (TRI) (Lin et al., 2007). TRAM allows for the fitting of individual traits on emotional sets (optimism, innovativeness) and perceived environment, such as usefulness or confirmative ease of use.

It is an imperative for local adaptations due to TRAM to fit better country-specific comparisons. In Iraq, expanding the contents of TRI through the lenses of cultural collectivism, institutional trust, and crisis resilience would increase the explanatory capacity of this model (Mahmood et al., 2023). A blend of psychological, sociocultural, and infrastructural elements will enable more precise simulations for consumer decision-making and recommend face targeting interventions.

Recently unveiled insights in the Business Landscape VII reports corroborate and exemplify the study's TRAM-related explanation. Yet such readiness trails in participants, a greater degree for young mobile-savvy users, are instead buckling into environmental constraints—especially infrastructural and regulatory restrictions that disable proper thinking about perceived usefulness and perceived ease of use. Such environmental obstacles include ambiguities here and there, like the alleged absence of widely and literature-cited PayPal or Wise as founded in Pakistan-based eservices—badly sorbet into being incident- and circumstance-based. Frequently, evidence was observed maintaining that external environmental barriers dictate a lot more than readiness traits at the individual level. For that reason, insecurity or discomfort will often disadvantage readiness traits where specific context environments are contested, especially when either of these negative-learner traits is problematic in emerging or post-conflict economies.

This serves as an integrative explanation, whereas TRAM's tenability does suggest that the latter does eventually need a calibration specific to individual situations.

2.9 Country-Level Case Studies and Cross-Country Learnings

Southeast Asia (Vietnam, Indonesia, Pakistan). Southeast Asia provides rich case studies with regard to digital-payment infrastructure and financial inclusion. Vietnam, Indonesia, and Pakistan have, as identically stated, young and digitally aware populations, growing smartphone penetration, and government initiatives acting toward driving digital adoption.

In Vietnam, the promotion of Digital Transformation Program 2025 and associated incentives by the government and the quickly spurring growth were spectacularly effective in capacity building. Collaboration between banks, telcos, fintech companies served only to increase the services' penetration and level of confidence among the customers. It can be noted, although not yet fully implemented, that cashless payment mechanisms' penetration still faces a major challenge in rural locations owing also to disparities between infrastructure and digital literacy.

Indonesia saw prolific uptake of mobile wallets, which in part was due to fintech's like Go Pay and OVO. The pandemic acted as a catalytic assault, coming to have several million people begin to adopt digital transactions. Luring users through extremely friendly adoption systems from Cash on Delivery (COD) to incentives for digital payments was a decisive strategic approach (Nurhasanah & Chai, 2020). However, their contents along with language options and being supported by community-based agent network also meant that the system was inclusive in terms of reaching out to previously excluded and disadvantaged groups.

There is a strong top-down approach of impelling regulation and maintaining the welfare and financial inclusion agenda in Pakistan even if the journey from here to an evolved ecosystem is fraught with trust, safety, and COD reflexes (Anjum & Chai, 2020). Understanding consumers, especially those in rural and semi-urban communities, is important for driving financial literacy and access to a conflict management mechanism to address some entrenched issues.

Common Lessons: The assortment of trust creation, strong government infrastructure efforts, and creative, hybrid strategies (COD and even digital rewards) remain instrumental in fostering usage across these countries. These cases further support the necessity of gateways and transitional behaviors which, instead of dumping users into a completely different territory of possibilities, lead them their step by step.

Iraq: Challenges and Opportunities in Post-Conflict Context. Iraq's journey to the stage of digital payment adoption is a transformation forged on the rough page of post-conflict environments, weak institutions, and promiscuous cash favoring. Despite the relative maturity of mobile penetration in Iraq, the use of digital financial services lagged far behind (Mahmood et al., 2023).

Some of the perceived barriers have been listed below:

- Trust deficit: Banks are not trusted, an obstacle compounded by weak consumer protection laws.

- Regulatory hole: No policy framework has been enunciated, and operations moved slower in utilization of digital financial framework.
- Cultural rights: peculiar traditions shy away from digital financial services.

Gender and geographical delinquencies: Women and the rural population have specific exclusions because of the absence of infrastructure and culture.

In consideration of Iraq's peculiar context, some opportunities can also be pinpointed:

- Population: The country banked most of its fate on its young and curious tech generation.
- Policy signals: As recent interest by policymakers suggests, the digitization of financial systems may integrate very well with financial inclusion agendas.
- Private domain: Many thriving startups in fintech and mobile operators looking toward financial support.

For Iraq, lessons from Southeast Asia would make sense; hybrid and trust-building commerce would suit well across Iraq, with specific financial education campaigns that take away the intended-user attitude towards positive action. Furthermore, the adaptations should be made keeping into account Iraq's sociopolitical environment while exerting efforts toward permanent restoration of trust in local authorities and institutions.

Ethiopia, Bangladesh, India: Comparative Insights. Ethiopia, Bangladesh, and India in their respective environments provide further comparative insights along with a decent resemblance to countries like Iraq.

In Ethiopia, the National Digital Payments Strategy (2021-2024) intends to advance financial inclusion primarily by creating a mobile money-driven ecosystem. The government-private players programs developed for financial inclusion have taken their

toll to increase rural accessibility even though challenges to connectivity have yet to be resolved (Hanifa et al., 2024).

Bangladesh has taken the lead by integrating mobile financial services into daily life. Platforms like bKash still dominate the playing ground, Ray again benefiting from the leverage of a robust agent network and the innovative partnership between them and national policymakers. Adding to this, it can be noticed that educated local agents play an important role in providing access to rural or illiterate end-users-an example of a social belief system that drives usage that we call social proof (Islam et al., 2023).

India probably has the most transformative model. Systems such as Unified Payments Interface (UPI) and Pradhan Mantri Jan Dhan Yojana (PMJDY) have brought to scale access to digital payments for all using trust as an edge as the government propagated interoperability, low-cost transactions, and strong cybersecurity framework. Awareness drives have further catalyzed mobilization and assimilation of benefits with disbursement platforms (Vatsa, 2023).

Takeaways:

Policy commitment is fundamental. Clear national strategies set the tune for ecosystem development.

Public-private partnership unlocks the possibility of scaling with telecoms with fintech inclusion.

Agent networks and localized education bridge gaps for rural and low-income users.

Interoperability and affordability sustain user engagement and ensure accessibility across their different segments.

Through these examples, and more strictly, will Iraq realize that one cannot sideline local participation, sanctification of a robust regulatory environment, and outreach tailored to socio-political structures? Despite challenges, the global lessons are available to sponsor refined ways to catalyze digital payments on even more hybrid conditions.

2.10 Implementation Strategies for Stakeholders

This section brings together insights from the literature and results from analysis in order to advance recommendations for different stakeholders supporting digital payment adoption in Iraq and its kindred.

Consumer Segmentation Strategies. Adoption is contingent on psychological and demographic characteristics of the users. Celebrities can heighten customer involvement
By Tech Readiness Index (TRI):

- Readiness High (Optimistic, Innovative): Responds best to progressive features, customer loyalty programs, lifestyle amalgamation, etc.
- Readiness Low (Last Place in: Transactional discomfort, security concerns): Should simplify verification processes, customer communication, onboarding portions (Parasuraman & Colby, 2015; Mishra et al., 2018).

By Demographics:

- Young urbanites will favor speed and convenience (; Mahmood et al., 2023).
- Old and rural tolerate more education/sensibilization or trust-building programs.

By Trust Profile:

- Those with asymmetrically low capital trust can intertwine messaging promises concerning risk mitigation, customer recourse, and credible community recommendations (Rosário & Raimundo, 2021).

Trust-Building for the Greenhorn User. To alleviate this initial hesitation felt by new users, platforms must:

- Offer no-holes-barred disclosure on data protection and privacy protocols (Bailey et al., 2022).
- Use design and onboarding connectedness (Gupta et al., 2019).
- Transmute onlookers into fans (Nguyen et al., 2024).
- Earn association with an established brand to increase desympathized legitimacy (Chan et al., 2022).
- Enzrige large loads of gentleness by extending low-entry, trial, or cash-back incentives (Rosário & Raimundo, 2021).

- Engage quick and responsive customer service personnel so that the first tentatively emerging questions in the mind of newbies may be answered outright and very assuringly (Gusain et al., 2023).

Intra-Sector Collaboration. An integrated environment is a precondition for large-scale adoption:

- Banks, fintech companies, and telecom operators should collaborate to provide integrated services and smooth the payment customer journey (Rosário & Raimundo, 2021).
- Open APIs and infrastructure can help in driving innovation and discouraging silo mentality (Bailey et al., 2022).
- Government dialogues across platforms in order to bring trust and collaboration (Andaregie et al., 2024).
- Public-private partnerships in rural areas engaging with telecom company infrastructure and with the banking regulator may provide wider accessibility.
- Giving room for financial regulatory sandboxes is crucial for allowing real-time testing of new tech models with reduced risk.

Consumer Protection Law Modernization. The duty to impart trust, as well as the confidence of users, can also be bolstered by legal reform initiatives.

- Balanced provisions regarding liability for instances of fraud and operational failure (Gusain et al., 2023).
- International standards should be interspersed with data protection laws (Chan et al., 2022).
- Require clear disclosures of charges and fees and simplified terms and conditions (Rosário & Raimundo, 2021).
- Introduce a fuss-free, independent dispute mechanism that truly aims at protecting the interest of consumers (Mahmood et al., 2023).
- Regular update of laws to serve today's operational and tech landscape as it steadily advances include any imminent risk owing to new technologies like CBDCs (Andaregie et al., 2024).

- Vulnerable groups like the elderly, the unbanked, and the uninitiated in digital finance need to be prioritized under the rules and regulations.

Education and Digital Literacy. Education is fundamental to long-run adoption:

- A digital finance curriculum should be a part of primary and secondary education (Rosário & Raimundo, 2021).
- Teacher training must ensure teachers are capable of delivering financial education effectively (Mahmood et al., 2023).
- Community workshops for adults and underserved groups (Gusain et al., 2023).
- Further national campaigns should aim at local cultural relevance concerning financial literacy
- Timely and relevant content can be delivered by public-private partnerships (Bailey et al., 2022).
- The expansion of technology should be on a fair basis in schools for training pupils regarding cyber-hygiene practices (Gupta et al., 2019).

2.11 Gaps and Future Research Directions

While extensive research exists on the enablers and barriers to digital payment adoption, important gaps remain. Addressing these can significantly strengthen the theoretical understanding and practical implementation of digital financial ecosystems, particularly in emerging markets.

Need for Cultural Variables in Adoption Models. Most dominant models, such as the Technology Acceptance Model (TAM), Technology Readiness Index (TRI), and even their integrated form (TRAM), tend to emphasize individual-level factors like perceived usefulness, ease of use, and personal readiness (Davis, 1989; Parasuraman, 2000; Lin et al., 2007). However, these models often underrepresent critical cultural dimensions.

In regions like Iraq and similar post-conflict societies, cultural factors such as collectivism, social trust, and institutional confidence play a decisive role in consumer behavior (Mahmood et al., 2023; Lohana & Roy, 2021). Consumers' reliance on informal

community recommendations, hesitation towards formal banking due to past instabilities, and sensitivity to religious or local norms about financial transactions require integration into predictive models (Anjum & Chai, 2020; Vatsa, 2023).

Future research should therefore prioritize enhancing existing frameworks by embedding cultural dimensions explicitly. Customizing TRAM with variables such as community trust, role of local influencers, and historical distrust of institutions would yield richer insights into adoption hesitations and motivators in diverse markets (Andronie et al., 2021; Mishra et al., 2018).

Addressing Unbanked Populations. While the unbanked remain one of the most discussed demographics in financial inclusion conversations, they are still underexplored in academic literature specific to digital payments.

Unbanked users face unique barriers beyond mere lack of formal accounts — including low financial literacy, distrust of formal financial institutions, and limited access to enabling infrastructure like smartphones and mobile internet (Hanifa et al., 2023). Research tends to generalize these users as a homogeneous group, overlooking the diversity within the unbanked population in terms of age, gender, region, and informal financial behaviors (Sundarasan et al., 2020; Vatsa, 2023).

Future studies should segment unbanked consumers more precisely and explore strategies that combine mobile money solutions, agent networks, and community education (Lohana & Roy, 2021). Understanding how informal financial habits (such as reliance on cash and local money handlers) can transition into digital behaviors is crucial for crafting tailored adoption pathways (Roy & Sinha, 2021).

Longitudinal Studies. Transition from COD to Digital Payments. The reliance on Cash on Delivery (COD) continues to dominate in many emerging e-commerce markets due to factors like mistrust of online transactions, fear of payment failures, and preference for tangible exchange at the point of delivery (Anjum & Chai, 2020).

Most existing research captures adoption drivers in static, cross-sectional snapshots, failing to account for the evolving nature of consumer trust and experience over time (Rafdinal & Senalajari, 2021; Hanifa et al., 2023). Longitudinal studies are needed to track how consumers transition from COD to digital payment methods, identifying critical moments of behaviour change (Mahmood et al., 2023).

Such studies would illuminate:

- What post-purchase experiences reinforce digital payment trust (Nurhasanah & Chai, 2020).
- How repeated positive interactions influence confidence (Mallat, 2008).
- The role of incentives, convenience, and word-of-mouth in sustaining digital habits (Hanifa et al., 2023; Mallat, 2008).
- How crisis-driven adoption (e.g., COVID-19) evolves in the post-crisis landscape.

This longitudinal perspective is vital for policymakers and businesses alike to design sustained interventions that nurture digital payment behaviour beyond temporary spikes in usage (Lohana & Roy, 2021; Parasuraman & Colby, 2014).

2.12 Conceptual Framework

The conceptual framework for this study is grounded in the Technology Readiness and Acceptance Model (TRAM), an integrative model that combines psychological traits from the Technology Readiness Index (TRI) and cognitive evaluations from the Technology Acceptance Model (TAM). This framework is tailored to assess digital payment adoption among Iraqi consumers, where trust, ease of use, and perceived value significantly impact user behavior.

TRAM posits those four psychological dimensions—Optimism, Innovativeness, Discomfort, and Insecurity—influence two core TAM constructs: Perceived Ease of Use (PEOU) and Perceived Usefulness (PU), which in turn shape Behavioral Intention (BI) to adopt digital payment systems. In this study, optimism and innovativeness are expected to positively influence PEOU and PU, while discomfort and insecurity are hypothesized to have negative impacts.

This framework reflects the contextual challenges of Iraq's e-commerce ecosystem, such as low institutional trust, heavy reliance on cash-based transactions, and technological unfamiliarity among certain demographic groups. It allows for a nuanced understanding of both psychological readiness and technological perceptions, offering a pathway to identify and address adoption barriers.

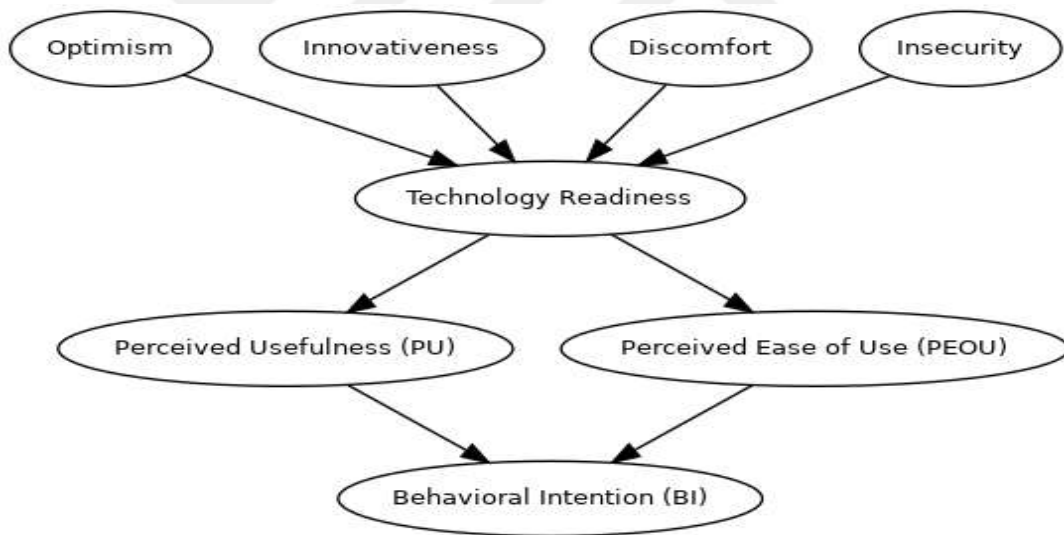


Figure 4. Theoretical conceptual framework based on TRAM.

Source: (Parasuraman, 2000); Davis,1989)

2.13 Research Hypotheses

Based on the conceptual framework and existing literature, the following hypotheses guide this study:

- H1:** Optimism positively influences perceived ease of use (PEOU).
- H2:** Optimism positively influences perceived usefulness (PU).
- H3:** Innovativeness positively influences perceived ease of use (PEOU).
- H4:** Innovativeness positively influences perceived usefulness (PU).
- H5:** Discomfort negatively influences perceived ease of use (PEOU).
- H6:** Discomfort negatively influences perceived usefulness (PU).
- H7:** Insecurity negatively influences perceived ease of use (PEOU).
- H8:** Insecurity negatively influences perceived usefulness (PU).
- H9:** Perceived ease of use (PEOU) positively influences behavioral intention (BI).
- H10:** Perceived usefulness (PU) positively influences behavioral intention (BI).

These hypotheses aim to empirically test the interplay between technology readiness traits, user perceptions of digital payment systems, and their resulting behavioral intention to adopt such technologies.

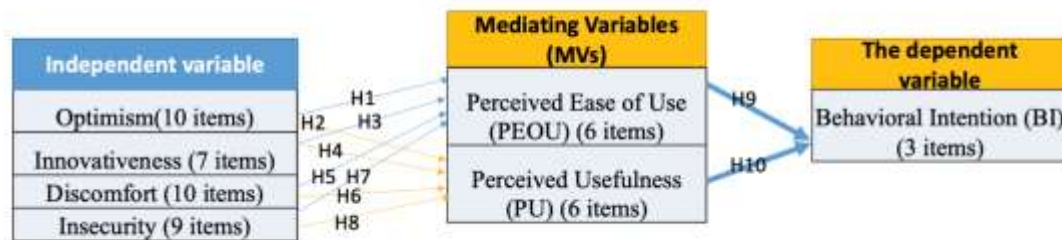


Figure 5. Research hypotheses model illustrating TRAM pathways.

Source: Developed by the researcher based on TRI and TAM constructs (adapted from Parasuraman, 2000; Davis, 1989; Lin et al., 2007).

2.14 Summary

This chapter reviewed theoretical and empirical backgrounds on adoption of digital payments in emerging markets. It began by positioning different behavioral drivers through TAM and psychological readiness via TRI towards an integrated perspective of

TRAM. The chapter then reviewed empirical studies that had predominantly exploited socio-demographic variables, institutional trust, technological design, and environmental influence.

Moreover, this study develops a conceptual framework that follows these research insights in order to understand how various factors affecting the potential adoption behaviors, both (i) internally among the psychological and perceptual, and (ii) externally in the environmental and institutional. The hypotheses formulated from this framework would be used in the validation of TRAM quantitatively within the context of Iraq, thus furnishing stakeholders across domains involved in policy formulation, businesses, and academics such theoretical refinements and practical implications.

Chapter 3

Research Methodology

3.1 Research Approach and Design

This study falls within the quantitative research paradigm and employs cross-sectional survey research to empirically study how psychological readiness pertains to cognitive perception toward the acceptance of e-payment systems in the e-commerce sector in Iraq. Employing the Technology Readiness and Acceptance Model (TRAM), which merges the Technology Readiness Index (TRI) and Technology Acceptance Model (TAM) to study the attitudes of consumers towards behavioral intention, it is a deductive approach where structured statistical analysis is used to test the ten pre-set hypotheses.

3.2 Theoretical Framework

The research setup grounds itself in the TRAM (Lin et al., 2007), which combines psychological predisposition from TRI (Optimism, Innovativeness, Discomfort, and Insecurity) with cognitive evaluation from TAM (Perceived Usefulness and Perceived Ease of Use) to explain the formation of Behavioral Intention (BI) to use digital payment systems. This framework is extremely apt for an emerging market like Iraq, where trust and familiarity with technology vary significantly across segments of the population.

3.3 Population and Sample

The population of this study included Iraqi online consumers who have used Cash on Delivery (COD) or digital payment systems to undertake transactions in the past year. Thus, a non-probability purposive sampling technique was utilized to recruit respondents. The sample consisted of responses gathered from various regions of Iraq, i.e.: age, gender, education, and employment status. A final number of 560 usable responses were obtained.

3.4 Data Collection Instrument

The questionnaire used in the study was designed as a structured, self-administered online survey conducted on Google Forms and then broadly uploaded on social media and e-commerce platforms. To ensure accessibility and clarity for Iraqi participants, the original English version of the questionnaire was translated into Arabic. The translation aimed to preserve the original meaning and was reviewed for cultural relevance and comprehension. The Arabic version was used for all data collection activities.

The survey comprised four sections: one for demographic information, four for TRI constructs (10 for optimism, 7 for innovativeness, 10 for discomfort, and 9 for insecurity), two for TAM constructs (6 for perceived ease-of-use--PEOU, 6 for perceived usefulness--PU), and three items for behavioral intention.

They were slightly modified from surveys done in India. Every item measured on a 5-point scale 1 = Strongly Disagree to 5 = Strongly Agree. Several behavioral questions in the survey specifically Questions 7 through 10 were designed to allow multiple responses. This approach enabled a more comprehensive understanding of user behavior, preferences, and concerns, particularly regarding their experience with digital payment systems and the rationale behind choosing cash on delivery (COD).

3.5 Scale Construction and Measurement:

Scales for the operationalization of the constructs were drawn from previously validated scales:

- Technology Readiness Index (TRI): This construct consists of four dimensions—Optimism, Innovativeness, Discomfort, and Insecurity—measured using 36 items, adapted from Parasuraman (2000).
- Technology Acceptance Model (TAM): The constructs Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) were measured using 12 items, based on the scale developed by Davis (1989).
- Behavioral Intention (BI): This was measured using 3 items, adapted from the TAM2 and UTAUT literature, particularly from the works of Venkatesh and Davis (2000) and Venkatesh et al. (2003).

3.6 Validity and Reliability

Content validity was established through feedback from experts and conducting the pretest in a small sample. Construct validity has been established through EFA. The reliability, on the other hand, was measured by Cronbach alpha, representing a range of 0.70 to 0.91 for the constructs expressed as very high levels of internal consistency.

3.7 Ethical Considerations

Ethical standards ensured throughout the study. Participation by the participants was voluntary. They were apprised of the aims of the research, assured of the confidentiality of all information, and knew they had the freedom to pull out at any point. No personal identification information was gathered. All records were anonymized and utilized just for academic research.

3.8 Data Analysis Techniques

- I. The data were tested using SPSS (Statistical Package for the Social Sciences), designed to guarantee the reliability and validity of the research hypothesis:

- II. Cronbach's Alpha – Reliability Analysis for the assessment of internal consistency of variables in the questionnaire. All constructs gained appropriate alpha values above 0.70.
- III. Shapiro-Wilk Test – Normality testing aimed at investigating variable distribution. The outcome indicated that data never supported a normal distribution, which validated the use of non-parametric methods to pursue testing.
- IV. Exploratory Factor Analysis – Conducted on SPSS to confirm the construct structures of the questionnaire. The principal axis factoring was used along with varimax rotation in the analysis. Data rationality was supported in terms of Kaiser-Meyer-Olkin value = 0.93 and the Bartlett's Test of Sphericity ($p < 0.001$); nine factors explaining 50.84% of the total variance were extracted, ranging from 0.40 to 0.77 communalities. Scree plot and factor loadings verified construct validity.
- V. The Mann-Whitney U test and the Kruskal-Wallis ANOVA test – were employed to find differences between demographic groups like gender, age, education level. Their use in such situations does not make any assumptions regarding the normality.
- VI. Little's Non-Parametric Correlation Test: Spearman's Correlation – was used to establish the association between TRI traits, TAM constructs, and Behavioral Intention. The test, in turn, informs the direction and strength of association among the study constructs.
- VII. Multiple Regression Analysis – aimed at understanding the predictive potential of given relationships, as laid out in the conceptual model of the TRAM model. The analysis will reveal the relationship between the independent variables (predictors: in this study, optimism and insecurity) and the mediation of the dependent outcome variables (PEOU, PU, and finally Behavioral Intention).

Chapter 4

Data Analysis and Results

4.1 Demographic Profile of Respondents

The sample involved an assorted group of Iraqi online shoppers who had made at least one purchase using either cash on delivery (COD) or digital payment methods during the last year. The sample was young, predominantly aged 25-34, having completed their bachelor's degree. Employment statuses within the database consisted of placement both in public/private arenas, students, and freelancers. In terms of payment types, there was a large preference for COD; this decision was considered underlying to the fact of the particular cultural and enabling environment of Iraq's e-commerce landscape.

Table 1 below presents a detailed demographic breakdown of the respondents, covering gender, age, education level, employment type, and geographical distribution

Table 1

Demographic Questions Results (N-560)

Gender	Frequency	Percentage
Male	165	29.46%
Female	395	70.54%
Age		
18-27	254	45.36%
28-35	246	43.93%
36-45	49	8.75%
46+	11	1.96%
Education		
High School	22	3.93%
Institute / Diploma	34	6.07%
Bachelor's Degree	390	69.64%
Postgraduate Studies	106	18.93%
Other	8	1.43%
Employment		
Private Sector Employee	207	36.96%
Public Sector Employee	200	35.71%

Table 1 (cont.d)

Self-Employed / Business Owner	30	5.36%
Freelancer / Independent Seller	66	11.79%
Stay-at-Home Worker	57	10.18%
<hr/>		
Location		
Baghdad	412	73.57%
Basra	37	6.61%
Other	111	19.82%

In table 1, demographic variables were presented, shedding light on some key features of the respondents (N = 560). While tourism does generate a major share of women (70.54%) worthy of note in online shopping in Iraq or maybe due to a higher female response rate.

The older age groups had fewer representations in the study, with the most significant segment of respondents being 18 to 27 years old (45.36%), closely followed by the 28–35 group (43.93%), indicating the sample of mainly young, digital active people. Less than 10% of respondents comprised those over 36 years of age, indicating less interest and engagement in digital platforms amongst the older population groups.

In terms of education, most respondents held bachelor's degrees (69.64%), followed by those with postgraduate qualifications (18.93%). The highly educated nature of the sample implies a segment of the population inclined to use technology and online platforms, thus strengthening the applicability of technology acceptance and readiness models.

By employment, the majority of the people considered under examination were working-private sector (36.96%) or under public sector (35.71%), while 11.79% of them were freelancers, 10.18% were stay-at-home workers, and 5.36% identified themselves as self-employed. The varying category of respondents in turn stands for the diversity in the economy with different aspects of motivation and barriers to digital payment adoption.

Planning-wise, Baghdad dominated (73.57%), with Basra coming in at second (6.61%), followed by other categories (19.82%). The overrepresentation of Baghdad-based respondents is further testimony of the same state's ascendancy as the digital and commercial center, where exposure to e-commerce platforms and technological infrastructures is ordinarily higher.

These demographic patterns are important in understanding the backdrop of study findings, especially concerning consumer trust, technology readiness, and payment preferences as stratified by age, education, employment, and location.

4.2 Behavioral Profile of Respondents

The behavioral profile of the respondents thus provides major insights into the respondents' online payment methods and attitudes. Table 2 offers a summarized view of key behavioral variables, such as payment methods of preference in online shopping, frequency of e-payment usage, and principal motivations driving the users to engage in digital transactions. It also details the primary reasons for choosing COD as a payment alternative, what factors would increase their probability of e-payment adoption, and problems faced while undertaking digital transactions. For some items, respondents could select multiple answers, so total counts can exceed the number of respondents (N = 560), and percentages do not necessarily sum to 100%. These behavior indicators are a must to set up the context for the psychological variables of readiness and adoption we delve into later.

Note: Some responses might contain multiple responses. Therefore, frequencies can sum up to a value greater than the respondent count (n=560) and percentages may not add up to 100%.

Table 2

Behavioral Questions Results (N=560)

Which payment method do you prefer when shopping online?	Frequency	Percentage
Cash on Delivery (COD)	268	47.86%
E-Payment (Credit/Debit Card, Mobile Wallet, etc.)	268	47.86%
When was the last time you used an e-payment system for a transaction?		
In the past month	363	64.82%
In the past 3 months	59	10.54%

Table 2 (cont.d)

In the past 6 months	31	5.54%
Once in a year	28	5.0%
I have never used an e-payment system	79	14.11%
What was the primary purpose of your last e-payment transaction? (Multiple responses allowed)		
Online shopping (purchasing products/services)	282	50.4%
Paying for delivery or logistics services	99	17.7%
Subscription payments (e.g., Netflix, digital services, mobile credit, etc.)	208	37.1%
Bill payments (electricity, water, internet, etc.)	77	13.8%
Sending money to another person (peer-to-peer transfers)	227	40.5%
Other	108	19.3%
If you prefer Cash on Delivery (COD), what is the main reason? (Multiple responses allowed)		
I do not trust online payment security	117	20.9%
I prefer paying after receiving the product	292	52.1%
I do not have access to an e-payment method	66	11.8%
I had a bad experience with e-payments before	51	9.1%
Other (Please specify)	130	23.2%
What would make you more likely to use e-payment instead of COD? (Multiple responses allowed)		
Better security guarantees (fraud protection, refunds, etc.)	206	36.8%
Discounts or cashback on e-payment transactions	170	30.4%
Faster delivery for prepaid orders	128	22.9%
Easier refund policies	98	17.5%
Other	151	27%
Have you ever experienced an issue while using an e-payment system? (Multiple responses allowed)		
Yes, the payment failed but my money was deducted	119	21.3%
Yes, I had trouble receiving a refund	75	13.4%
Yes, I faced a security issue (fraud, unauthorized transaction, etc.)	31	5.5%
No, I have never had an issue with e-payment	381	68%

Duality in consumers' behavioral profile for payment systems emerged with respondents evenly split: 47.86% were in favor of the Cash on Delivery (COD) option, and the other half were in e-payments (credit or debit cards, mobile wallets). This common split signifies an evolving and yet cautious acceptance of digital-payment options by Iraqi online shoppers.

Either 64.82% or more had used e-payment in the last month, which met the criterion of active user engagement with digital transactions. Such barrier of non-adoption might persist in another 14.11%, like digital exclusion or mistrust.

Depending on the specific instances cited for recent use of e-payments, purchases via the internet topped the list at 50.4%, followed by 40.5% of respondents who cited peer-to-peer transfers, and then 37.1% for subscription services. This shows that the use of digital payments is broad in daily life and goes far beyond merely buying products.

Considering the reasons behind preference for COD, paying after receiving the product came out on top with 52.1%, followed by concerns on online payments security at 20.9%, then prior bad experiences at 9.1%. It is noteworthy that 23.2% selected "Other," which could suggest context-specific or more nuanced concerns that were not captured by the standard categories.

Several conditions have been highlighted by respondents as inducements to switch from COD to digital payments: greater security guarantees (36.8%), discounts or cashback (30.4%), and faster delivery for paid orders (22.9%). These kickers would hold good water within the fundamental principles of perceived usefulness and trustworthiness in the literature of technology adoption.

Besides, these operational shortcomings contributed to the skepticism and continuous reliance on COD, with 68% never having experienced a problem with e-payments, while 21.3% had a payment failure with deduction of money, and 13.4% had matters with refunds.

In a nutshell, the gist is that more people have become familiar with and willing to use e-payments, yet deep-rooted trust issues coupled with infrastructure gaps and haunting bad experiences make COD full of charm. These clues are indeed fundamental to

understanding how to interpret both the respondents' psychological readiness and behavioral intention toward digital payment systems.

4.3 Reliability Analysis

A reliability analysis was conducted using Cronbach's Alpha coefficient on the data to ensure the internal consistency of the constructs used in this study. Alpha is widely applied to assess how well a set of items measures consistently a single latent attribute. A high degree of internal consistency would obtain a value higher than 0.80 in a reliability test; of satisfactory level would be a value not lower than 0.7 (Nunnally, 1978). Table 3 displays the Cronbach's Alpha values for each construct.

Table 3

Reliability Statistics for Study Constructs

Construct	Items (Codes)	No. of Items	Cronbach's Alpha
Optimism	Q12–Q21	10	0.870
Innovativeness	Q22–Q28	7	0.758
Discomfort	Q29–Q38	10	0.818
Insecurity	Q39–Q47	9	0.854
Perceived Usefulness (PU)	Q48–Q53	6	0.884
Perceived Ease of Use (PEOU)	Q54–Q59	6	0.908
Behavioral Intention (BI)	Q60–Q62	3	0.864

All constructs showed reliability levels varying from acceptable to good reliability. Special mention goes to these constructs:

- Perceived Ease of Use, $\alpha = 0.908$, and Perceived Usefulness, $\alpha = 0.884$, have produced the highest internal consistency levels, barring the minor technical errors; the reliability of the TAM items was thereby provided as closely related.

- The Optimism construct also exhibited strong reliability with a Cronbach's Alpha of 0.870, followed by Insecurity ($\alpha = 0.854$) and Discomfort ($\alpha = 0.818$).
- Behavioral Intention showed good reliability at 0.864, supporting the coherence of the items that measure participants' intent to adopt e-payment systems.
- After a reverse-scoring scheme for item Q23 to merge with the scale directionality, innovatively has improved its alpha value to 0.758, well within limits of acceptance for exploratory research.

Consequently, these results are typical to others suggesting that around latent construct measures, albeit technology readiness, will be accepted when practical to an extent in e-payment solutions.

4.4 Normality Testing

Depending on the data normality test result, the statistical analyses used for this study were chosen. Testing for normality had to be done at two levels because two types of statistics were involved: non-parametric testing of individual survey items (e.g., Mann-Whitney U, Kruskal-Wallis) and parametric testing of aggregate construct scores (e.g., regression, correlation).

Evaluating items, the Shapiro-Wilk test revealed significant departures from normality ($p < .001$) for all items. However, skewness and kurtosis values were generally between ± 1 , and histograms and Q-Q plots showed only mild deviations from normality. Given the large sample size ($N = 559$), the normality test's significance was commonplace and generally did not translate to a departure from severe non-normality. Thus, non-parametric tests were deemed more appropriate for that particular level of testing.

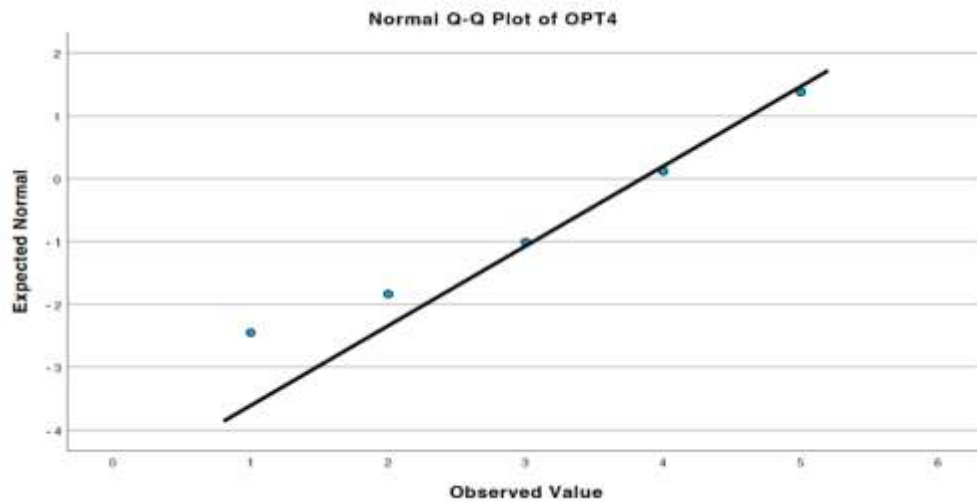


Figure 6. Q-Q Plot of OPT4 indicating deviation.

By contrast, composite-level scores (e.g., PU_Total, PEOU_Total, BI_Total) indicated significant results in the Shapiro-Wilk tests but acceptable skewness and kurtosis values and an approximate normality in the plots as far as visual inspection was concerned. They were considered approximately normally distributed based on these indicators, so the parametric testing, such as regression, was then applied.

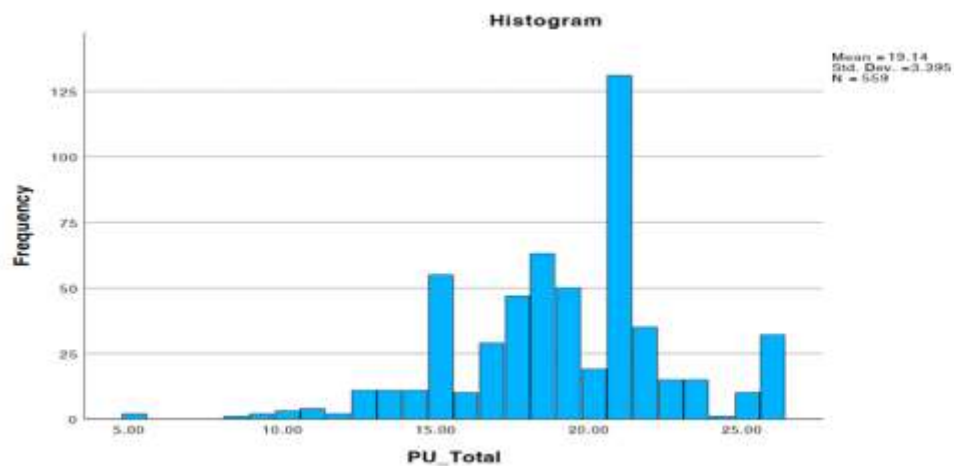


Figure 7. Histogram of PU_total showing approximate normality.

To evaluate whether the data met the assumptions for parametric testing, tests of normality were conducted on the composite scores of the main constructs, including PU

(Perceived Usefulness), PEOU (Perceived Ease of Use), BI (Behavioral Intention), and the four dimensions of Technology Readiness (Optimism, Innovativeness, Discomfort, and Insecurity). Both the Kolmogorov–Smirnov and Shapiro–Wilk tests were applied. Table 4 presents the results of these tests. Although all significance values were less than .001—indicating statistical non-normality—this is commonly observed in large samples (N = 559). Therefore, visual inspection (histograms, Q–Q plots) and acceptable skewness and kurtosis values (within ± 1) were also considered to assess approximate normality.

Table 4

Tests of Normality for Composite Constructs Using Kolmogorov–Smirnov and Shapiro–Wilk Methods

Variable	Kolmogorov–Smirnov			Shapiro–Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PU_Total	.128	559	< .001	.961	559	< .001
PEOU_Total	.150	559	< .001	.950	559	< .001
BI_Total	.155	559	< .001	.941	559	< .001
Optimism	.101	559	< .001	.965	559	< .001
Innovativeness	.068	559	< .001	.989	559	< .001
Discomfort	.075	559	< .001	.994	559	< .001
Insecurity	.056	559	< .001	.992	559	< .001

Note: All significance values are based on Lilliefors significance correction. N = 559.

As shown in Table 4, both the Kolmogorov–Smirnov and Shapiro–Wilk tests returned statistically significant results ($p < .001$) across all constructs, suggesting

deviations from a perfectly normal distribution. However, these tests are known to be highly sensitive in large samples ($N = 559$), often producing significant results even when actual deviations from normality are minimal.

Despite the significance values, the Shapiro–Wilk statistics for all composite variables were relatively high (ranging from .941 to .994), which typically suggests that the distributions are close to normal. This is further supported by visual inspections of Q–Q plots and the skewness and kurtosis values, which generally fell within the accepted range of ± 1 for approximate normality.

Taken together, these findings justify the use of parametric tests such as regression analysis in the subsequent sections. This conclusion aligns with standard practice in the social sciences, where minor departures from normality are considered acceptable when the sample size is sufficiently large and other distributional indicators support the assumption of normality.

4.5 Independent Samples T-Test Results (Mann-Whitney U Test)

The Mann-Whitney U test was used to find out whether consumers' behavioral intentions (BI) toward e-payment systems vary by their mode of preferred payment method—COD or Digital Payment. This non-parametric test was considered as a violation of the assumption of normality was found by the Shapiro-Wilk test reported earlier.

Responses to three Behavioral Intention items (Q60, Q61, Q62) were compared between the two independent groups:

- Group 1: Respondents who preferred COD (coded as 1),
- Group 2: Respondents who preferred Digital Payment (coded as 2).

The findings showed that there were statistically significant differences between all three items in behavioral intention scores:

Table 5

Mann–Whitney U Test Results Comparing Behavioral Intention by Payment Preference

Variable	U Statistic	p-value	Mean Rank: COD (Group 1)	Mean Rank: Digital Payment (Group 2)
Q60	23114.000	< 0.001	220.75	316.25
Q61	20016.000	< 0.001	209.19	327.81
Q62	21988.500	< 0.001	216.55	320.45

As can be inferred from the above table, the sample displaying preference for digital payments had consistently much greater mean rankings on all items in BI than those with preferences for COD. Practically, the p-values for all comparisons were less than 0.001; hence casting, these differences signify a statistically significant criterion.

These findings support this hypothesis: that payment method preference is somehow related to the consumers' behavioral intent to perform e-payment services. In other words, those who tended to lean toward digital payment methods expressed stronger intent to utilize e-payment avenues, possibly because of easy convenience, perceived security, or greater familiarity with digital technologies.

4.6 ANOVA Test Results (Kruskal-Wallis Test)

A Kruskal-Wallis H test was performed to evaluate differences in Behavioral Intention (BI) scores across different education levels, specifically:

- 1 = High School
- 2 = Diploma
- 3 = Bachelor

- 4 = Postgraduate

Table 6

Kruskal–Wallis Test Results Comparing Behavioral Intention by Education Level

Item	χ^2 (H Statistic)	p-value
Q60	0.531	0.912
Q61	6.622	0.085
Q62	3.775	0.287

Results from the Kruskal-Wallis H test show that there were statistically non-significant differences in BI values across education levels for all three BI items (Q60–Q62), with p-values all above 0.05. Q61 exhibited the maximum observed test statistic value, $H = 6.622$, although it was still statistically insignificant with $p = 0.085$.

The findings indicate that behavioral intention to adopt e-payment systems among respondents in Iraq is not significantly affected by education level. In addition, thus, behavioral patterns toward digital payments are more or less homogenous across educational backgrounds.

4.7 Exploratory Factor Analysis

In order to comprehend the facets underlying the measured constructs and to validate the instrument's construct validity, an Exploratory Factor Analysis (EFA) was performed through Principal Axis Factoring with Varimax rotation.

KMO and Bartlett's Test; The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.939, which constitutes an excellent value (Kaiser, 1974). Furthermore, Bartlett's Test of Sphericity came out highly significant ($\chi^2 = 14593.547$, $df = 1275$, $p < .001$), which signified a go-ahead for factor analysis based on the correlation matrix. Such values imply

a sufficiently large sample and ample shared variance among the items for a factor analysis to be justified (Hair et al., 2010).

Most of the communalities for the items are in the range of 0.40 to 0.77, which reveals that the variance of each item was considerably explained by the factors extracted. For example:

- Q62 = 0.711
- Q61 = 0.729
- Q56 = 0.648

The abovementioned values confirm that the extracted factors were reliable and interpretable.

Total Variance Explained; Nine factors were extracted in all, explaining 50.84% of the total variance, which is admitted in social scientific research, especially considering the rather large number of items. The variance explained by each factor is as follows:

- Factor 1: 12.659%
- Factor 2: 9.310%
- Factor 3: 8.346%
- Factor 4: 4.491%
- Factor 5: 4.383%
- Factor 6: 4.236%
- Factor 7: 3.932%
- Factor 8: 1.959%
- Factor 9: 1.528%

Rotated Factor Structure; The Varimax-rotated matrix produced a clear solution with clear factors loading onto most items. A few examples follow:

- Factor 1 loaded Q13, Q14, Q15, Q17, and Q21 – the TAM constructs of Perceived Usefulness and Ease of Use.
- Factor 2 grouped Q55, Q56, Q57, and Q59 – Technology Readiness inhibitors of Discomfort and Insecurity.

- Factor 3 and Factor 4 builders to behavioral and trust-related constructs associated with the use and perception of Cash on Delivery (COD).
- Factors 5–9 comprised grouping latent constructs related to interface familiarity, skepticism on digital payment, or demographic-oriented response variation.

The scree plot visually supported the decision to retain nine factors, showing a clear “elbow” after the ninth factor. This confirms that subsequent factors explain minimal incremental variance and are likely not meaningful.

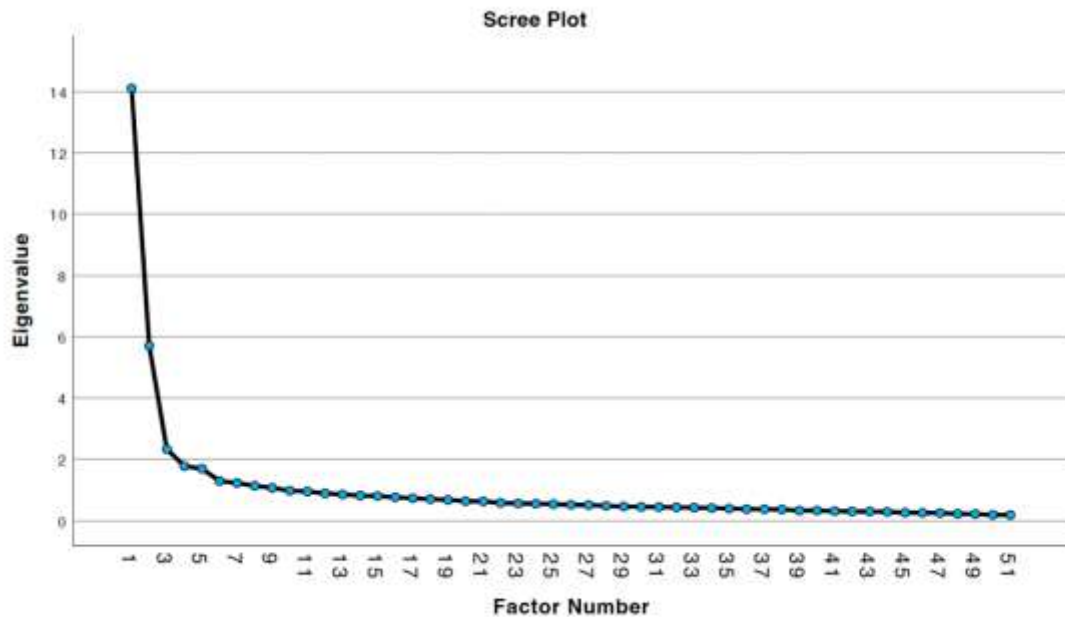


Figure 8. Scree plot displaying the retention of nine factors in exploratory factor analysis.

Conclusion, The EFA results confirm that the survey items grouped logically into interpretable constructs consistent with the theoretical foundation (TRAM model: TRI + TAM), and empirical COD-related behavior literature. The high KMO, significant Bartlett’s test, substantial communalities, and strong rotated loadings all validate the structure of the instrument.

This analysis justifies proceeding with further reliability, correlation, and regression assessments using these extracted factors.

"The factor analysis results validate the theoretical constructs of Technology Readiness (TRI), Technology Acceptance (TAM), and Behavioral Intention (BI), ensuring a strong foundation for further inferential statistics." (Venkatesh & Davis, 2000; Parasuraman, 2000)

4.8 Correlation Analysis (Spearman's ρ)

To assess the relationships between the psychological dimensions of technology readiness (optimism, innovativeness, discomfort, and insecurity), the cognitive dimensions of technology acceptance (perceived usefulness [PU] and perceived ease of use [PEOU]), and the behavioral intention (BI), Spearman correlation tests were run. These non-parametric tests were selected because the dataset was found to be non-normally distributed as per the normality tests.

Findings are summarized below:

Table 7

Spearman's Correlation Coefficients Between TRI, TAM, and BI Constructs

Relationship	Spearman's ρ	Significance (p-value)
Optimism → PU	0.647**	p < 0.01
Optimism → PEOU	0.512**	p < 0.01
Innovativeness → PU	0.599**	p < 0.01
Innovativeness → PEOU	0.591**	p < 0.01
Discomfort → PU	-0.343**	p < 0.01
Discomfort → PEOU	-0.351**	p < 0.01
Insecurity → PU	-0.264**	p < 0.01
Insecurity → PEOU	-0.194**	p < 0.01
PU → BI	0.613**	p < 0.01
PEOU → BI	0.606**	p < 0.01

Note: All correlations are significant at the 0.01 level (2-tailed).

The results show that a positive correlation exists between psychological enablers of innovation and optimism and technology acceptance, namely PU and PEOU. On the other hand, discomfort and insecurity, indicating the inhibitors within the TRI framework, showed negative correlations with PU and PEOU.

Furthermore, PU and PEOU are positively related to the behavioral intention (BI) to use e-payment systems. Hence, the results give support to the TAM and integrated TRAM framework conceptualized in this study.

The significance of these relationships has supported the study's H1-H10 hypotheses and tells that both the disposition of psychology and system evaluation influence the consumer's intention in adopting digital payment methods.

4.9 Regression Analysis

Although the Shapiro–Wilk tests for normality were statistically significant for all constructs, the skewness and kurtosis values for composite scores (e.g., PU, PEOU, BI, and TRI dimensions) were within the acceptable range (± 1). This, combined with the large sample size ($N = 559$) and approximately normal distribution observed in Q–Q plots, justified the use of parametric analyses such as multiple regression in line with social sciences conventions.

To examine the predictive power of psychological readiness and perceived system evaluations on behavioral intention (BI) to adopt e-payment systems, a series of multiple linear regression analyses were conducted in accordance with the theoretical framework of the Technology Readiness and Acceptance Model (TRAM).

TRI Dimensions Predicting Perceived Usefulness (PU). A multiple regression analysis was performed with PU as the dependent variable and the four technology readiness dimensions—Optimism, Innovativeness, Discomfort, and Insecurity—as independent variables.

The overall model was significant, $F(4, 554) = 115.18$, $p < .001$, and explained approximately 45.4% of the variance in PU ($R^2 = 0.454$).

Table 8

Regression Results – TRI Dimensions Predicting Perceived Usefulness (PU)

Predictor	β (Standardized Coefficient)	Sig. (p-value)
Optimism	0.516	< .001
Innovativeness	0.212	< .001
Discomfort	-0.077	.068
Insecurity	-0.020	.601

Hence, optimism and innovativeness were found to have a significant positive effect on PU supporting H2 and H4. Discomfort and insecurity could not significantly predict PU; hence H6 and H8 were rejected in our model.

TRI Dimensions Predicting Perceived Ease of Use (PEOU). The second regression analysis used PEOU as the dependent variable with the same four TRI dimensions as predictors.

The model was significant, $F(4, 554) = 109.37, p < .001$, accounting for 44.1% of the variance in PEOU ($R^2 = 0.441$).

Table 9

Regression Results – TRI Dimensions Predicting Perceived Ease of Use (PEOU)

Predictor	β (Standardized Coefficient)	Sig. (p-value)
Optimism	0.306	< .001
Innovativeness	0.402	< .001
Discomfort	-0.140	.001
Insecurity	-0.050	.235

Interpretation; Optimism, innovativeness, and discomfort were significant predictors of PEOU, which led to the acceptance of H1, H3, and H5. Meanwhile, insecurity was still a non-significant predictor, leaving H7 unsupported.

PU and PEOU Predicting Behavioral Intention (BI). The final regression analysis tested BI as the dependent variable, with PU and PEOU as predictors.

The model was statistically significant, $F(2, 556) = 283.29, p < .001$, explaining 50.5% of the variance in BI ($R^2 = 0.505$).

Table 10

Regression Results – PU and PEOU Predicting Behavioral Intention (BI)

Predictor	β (Standardized Coefficient)	Sig. (p-value)
PU	0.424	< .001
PEOU	0.360	< .001

Interpretation; Both PU and PEOU had significant positive effects on behavioral intention, confirming hypotheses H9 and H10. This reinforces the predictive validity of the TAM component of the TRAM model in the context of digital payment adoption.

Conclusion of Regression Analyses; The regression results back up TRAM's core structure in a way. Two psychological enablers, optimism and innovativeness, were consistently shown across all models to influence user perception of usefulness and ease of use. Discomfort had a negative effect on ease of use, while insecurity did not manifest significant power to predict it. PU and PEOU, finally, greatly influence behavioral intention to adopt e-payment systems among consumers in Iraq.

Justification for Regression Design: Dependent and Independent Variable Structure. In line with the Technology Readiness and Acceptance Model (TRAM), this study employed a two-stage regression analysis approach to empirically assess the relationships among technology readiness traits, perceived usefulness (PU), perceived ease of use (PEOU), and behavioral intention (BI) toward adopting e-payment systems in Iraq.

Although PU and PEOU serve as mediating variables in the conceptual model, they were treated as dependent variables in the first stage of regression analysis. This empirical design was adopted to test hypotheses H1 through H8, which explore how the four core dimensions of technology readiness—Optimism, Innovativeness, Discomfort, and Insecurity—affect users' perceptions of a system's usefulness and ease of use.

Table 11

Stage 1 Regression Structure

Predictor Variables	Dependent Variables
Optimism	PU and PEOU
Innovativeness	PU and PEOU
Discomfort	PU and PEOU
Insecurity	PU and PEOU

This structure is consistent with the TRAM framework, which assumes that an individual's psychological readiness influences how they perceive a technology's performance (PU) and usability (PEOU).

In the second stage, the regression analysis assessed the influence of PU and PEOU on Behavioral Intention (BI), in line with hypotheses H9 and H10.

Table 12

Stage 2 Regression Structure

Predictor Variables	Dependent Variables
PU and PEOU	BI

This two-step design enables the stepwise validation of TRAM pathways, allowing for the identification of which psychological traits shape technology perceptions (PU and PEOU), and how those perceptions subsequently influence behavioral intention to adopt e-payment solutions. It also allowed the researcher to determine which pathways were supported empirically and which were not, while preserving the theoretical integrity of the TRAM model.

4.10 Summary of Hypotheses Testing Results.

Hypothesis testing results gleaned through regression methods are tabulated below. Each hypothesis is linked with its associated expected relationship, while the final support for the hypothesis from a statistical standpoint has been undermined or validated through data analysis.

Table 13

Summary of Hypotheses Testing Results Based on Regression Analysis

Hypothesis	Relationship	Effect Direction	Supported
H1	Optimism → PEOU	Positive	Supported
H2	Optimism → PU	Positive	Supported
H3	Innovativeness → PEOU	Positive	Supported
H4	Innovativeness → PU	Positive	Supported
H5	Discomfort → PEOU	Negative	Supported
H6	Discomfort → PU	Negative	Supported
H7	Insecurity → PEOU	Negative	Not Supported
H8	Insecurity → PU	Negative	Not Supported
H9	PEOU → BI	Positive	Supported
H10	PU → BI	Positive	Supported

Supported: Statistical results confirmed the hypothesis ($p < 0.05$).

Not Supported: Statistical results did not confirm the hypothesis ($p < 0.05$).

Hypotheses H7 and H8 were not statistically significant, indicating that this dimension of technology readiness did not significantly influence perceived ease of use or usefulness in e-payment adoption in Iraq. All the remaining hypothesized relationships were supported, thus confirming the TRAM framework as applied in this study.

Chapter 5

Discussion

5.1 Overview of Findings

The study aimed to study and prove the Technology Readiness and Acceptance Model (TRAM) in the context of the adoption of e-payments in Iraq. The findings in support of most of the TRAM hypotheses, with one noteworthy exception. The construct optimism for innovativeness causes a strong positive and statistically significant effect upon perceived usefulness (PU) and perceived ease of use (PEOU), justifying their importance in projecting user attitudes. Discomfort depresses caringly and significantly both toward PU and PEOU; these are tracked with good theoretical expectations. But insecurity did not have a significant effect upon PU or PEOU and did not correspond at all with that conceptual scheme.

Both perceived usefulness (PU) and perceived ease of use (PEOU) directly influence the intention to adopt, lending support to the basic structure of the original TAM. PU appears to have influenced more strongly than PEOU, suggesting that users are mostly driven by a sense of practical value rather than ease only. This offers insights into how the adoption of digital payment unfolds within the Iraqi context where behavior is determined by an internal psychological readiness perhaps triggered under differing contextual variables.

5.2 Interpretation According to TRAM

According to TRAM, four readymade psychological traits—optimism, innovativeness, discomfort, and insecurity-impact BI through PU and PEOU. In the present study, three of these four psychological traits were validated.

The emergence of optimism and innovativeness as strong influences suggests that psychologically ready individuals tend to consider e-payments as useful and user-friendly.

Similar to the congregate expectation, discomfort had a negative effect, signifying its psychological inhibitor by keeping both perceptions of usability and usefulness lower.

Insecurity, on the other hand, failed to influence either PU or PEOU, which is quite bizarre, as it does not come under the original framework for TRAM hypothesis. In practical terms, TRAM always considered psychological insecurity as yet another impediment, but this does not hold in the Iraqi context. Thus, psychological insecurity might-not operate as a barrier but might operate as a facilitator into adaptation-through-acclimatization-to-environment-everything-here-as-problematic. The divergence is explained in terms of a broader perspective rather than an individual level of the hindrance.

Based on Business Landscape VII – Digital report, the Iraqi customer-seen to be digitally literate-suffers blocked websites, inaccessible service providers with global reach, such as PayPal or Wise, as well as poor security and legal frameworks. The ecosystem of digital-economics deteriorates by lessening the credibility of e-payment platforms. These situational shortcomings seem to influence technology perception more significantly than the perception of insecurity from within. Hence, there is a high probability of these users' encountering a scenario where they may use e-payment system entirely because of the elements of needfulness, and privacy and security concerns because of fraud or data misuse.

This subtly means that in Iraq, the perceived usefulness and ease of use have more to do with infrastructure limitations than with psychological inhibitors. Many users adjust to dysfunctional systems, devise workarounds, or simply trade-off against the vulnerabilities of a system; this is possible only because of a total lack or weakness in regard to formal wisdoms such as refunds and guarantees for breaches of customer protection.

This serves as a serious critique of TRAM's classical model when demonstrating how behavioral reasoning and models must be tailored to the emerging markets and conflict-prone contexts. Such a case may annihilate the existence of the fear of endangerment. In turn, the adoption in bills and services may be determined by external benefits and terrain realities, instead of internal dispositions. Thus, it becomes very interesting and fruitful for further exploration and possible adaptation for regional models.

5.3 Comparison with Prior Studies

The present findings are closely linked with prior research, confirming the role of optimism and innovativeness in technology acceptance. For instance, the authors Parasuraman (2009) and Parasuraman & Colby (2013) interpreted this factor in the first Technology Readiness Index. Concerning optimism in their study on ICT adoption in India, Mahmood and co-authors (2013) echoed this study.

The strong effect of PU also elicits a clear echo from the seminal work of Davis (1989) and Venkatesh et al. (2003), where PU acted as a major predictor of intentions across different technologies. However, the null effect of insecurity stands out. While past studies, such as Walczuch et al. (2007) and Faiza & Perdana (2024), suggested that insecurity negatively affected technological perception, the present case indicates a cultural and/or contextual buffer within Iraq itself—perhaps related to the expectation of system risk or lack of awareness about data security.

5.4 Conceptual Implications

The study supports the TRAM model as a go-to model for the examination of digital adoption in Iraq with some modifications. While the major predictors largely conform to the expectations, the absence of an action between trust and insecurity calls for fine-tuning. One possible refinement would consider integrating external trust factors, such as institutional or societal trust, in future iterations. The other possibility points towards separating access to infrastructure or influence within the model itself, given their potential pertinence to emerging markets.

It may be the case that for either volatile or post-conflict environments, composite models that integrate THAM with constructs from UTAUT or the Theory of Planned Behavior may better uncover the motivations of users. This might untangle the otherwise-meagre approaches from the path along which technology adoption occurs: endogenous prerequisites, perceived system quality, and community-level cues.

5.5 Managerial Implications for E-Commerce in Iraq

From a practical point of view, the following are some of the implications of this study for key digital payment stakeholders in Iraq:

- The PU construct stands as a postulate. Therefore, to persuade people to provide digital payment platforms, it is a necessity to persuade them.
- Marketers can differently target clientele in matters concerning their TR beliefs-optimism and innovativeness.
- Interventions should relate to the system in priority with suspicion/discomfort and/or low readiness specifically targeting ease of use, a simpler onboarding process, and user support facilities such as help centers or guided video tutorials.
- Interestingly, the absent importance of insecurity shows an argument against immediate necessity. However, there is a dire need for qualitative inquiry to clearly uncover as to whether apprehensions have been suppressed or grossly misinterpreted.
- Goals to broaden public awareness with an emphasis on user experience (UX) improvements would ensure decreasing unease assignable to adoption among the anxious.
- E-commerce stakeholders also need to take on board the peculiar dynamics thriving within Iraq, like the absence of formal addresses, payment gateway constraints, and a ban on international platforms from all players—such as PayPal, Wise, Shopify, to name a few—while designing checkout procedures and delivery platforms. As alluded to in the Business Landscape VII report, foundational issues such as these disallowed the switch from COD by procuring reliance on cash on delivery, despite elevated penetration of smartphones and the internet. Unless the trust issues regarding right logistics, refund processes, and platform.

5.6 Limitations of the Study

- While some valuable insights were gathered from this research, the study has several constraints:

- Primarily, because the survey data was collected from Iraq, relatively few generalizations can be made to other regions or contrasting cultural contexts.
- Cross-sectional design of the survey restricts causal inference as longitudinal data is needed to capture user behavior over time.
- In observational studies, the possibility of social desirability bias and recall inaccuracies while responding must be acknowledged.
- Owing to data collection strategies, it is possible that older and less tech-savvy groups of people are underrepresented as the online survey might have left out key demographic data.
- Future research may be conducted utilizing longitudinal methods to build in interspecific variation (e.g., banking, retail) or to include mixed methods, especially in relation to trust, insecurity and adoption pathways.

Chapter 6

Conclusion and Recommendations

6.1 Summary of the Study

This study aimed to examine how psychological traits—specifically technology readiness dimensions—and the use of the Cash on Delivery (COD) model affect e-payment adoption in Iraq. The central research objective was to assess the applicability of the Technology Readiness and Acceptance Model (TRAM) in understanding user behavior in a developing, post-conflict environment.

The research employed a two-stage regression design. In the first stage, technology readiness traits (optimism, innovativeness, discomfort, and insecurity) were analyzed in relation to perceived usefulness (PU) and perceived ease of use (PEOU). In the second stage, the effects of PU and PEOU on behavioral intention (BI) to adopt digital payments were examined.

The results showed that optimism and innovativeness were strong, positive predictors of both PU and PEOU. Discomfort negatively influenced both variables, albeit with a milder effect. Insecurity, contrary to theoretical expectations, did not have a statistically significant influence on either PU or PEOU. In line with TAM, both PU and PEOU significantly influenced BI, with PU having the stronger effect.

6.2 Key Conclusions

Several key conclusions form the basis for this study on digital payment adoption in Iraq:

- Largely, the TRAM model is just partially supported in Iraq in a payment context. While most of the readiness traits did affect perceived characteristics of digital payment systems, insecurity did not.

- PU and PEOU act as central mediators between individual psychological traits and the intention to adopt e-payments.
- Optimism and innovativeness are the best predictors among readiness traits, meaning that potential users that are confident and eager to try technologies will fairly accept digital payments.
- Discomfort had a negative but strong effect, suggesting that minimizing complexity and improving user support are key issues.
- Insecurity did not affect perceptions significantly, which may be viewed as a possibility for contextual/cultural resilience to digital risk or perhaps a lack of awareness around such risks.
- On the whole, adoption of e-payments in Iraq seemed to thrive more based on ease of use, usefulness, and psychographic readiness instead of risk aversion.

6.3 Policy and Practice Recommendations

Drawing upon the study findings, the following steps can be proposed to different stakeholder groups:

Policymakers:

- Work on digital literacy: Merge financial and digital education into the curriculum of national schools and develop community programs for readiness, especially in rural areas with many unbanked populations.
- Strengthen Consumer Protection Laws: Develop clear frameworks around fraud, refunds, and data privacy to promote trust regarding digital financial systems.
- Encourage cross-sector collaboration: Act in ways that favor interplay between banks, mobile network companies, and fintech companies across the industry to expand access and reduce existing infrastructure lows.

- Clarity in regulation and focus on national addressing: Business Landscape VII has articulated its opinion concerning disarming challenges, such as postal addresses and access to global financial systems, which impede adoption. Policy-makers should consider prioritizing the reform of regulations, up-gradation of digital infrastructure, and establishing partnerships with platforms like PayPal, Wise.
- Broaden the financial infrastructure: Push for wider dissemination of ATMs and POS terminals and drive the scale-up of local mobile wallets like Zain Cash and Asia Hawala, thus enabling interlap out cash points of delivery (COD) through more accessible, reliable, and digital methods. (Company LANDVII, 2023).

For E-Commerce:

- Enhance user experience (UX): In that sense, keep digital platforms simple and keep interfaces free from complication to guarantee extreme ease for potential users, possibly with low digital literacy.
- Design integrated marketing communications for certain segments: Plan for dynamic and optimistic segments with words that prize speed, convenience, and modernity.
- Colossal investment in onboarding products and help: To greet those completely new to these platforms, detailed instructions, tutorials, and prompt assistance go further actively to work on removing apprehensions and uncertainties.

For Developers and Payment Providers

- Highlights efficiency and reliability: Transaction swiftness, system stability, and dependability of your service should be termed as your ultimate service ability.

- **Enhance Transparent Communication:** Talk about the security of data throughout the unfolding of any procedure, e.g., during transaction failures possibly first experiences of the user.
- **Enforced trust signals:** Putting up secure icons next to real-time feedback mechanisms and verified provider badges can make users feel more at ease.

6.4 Suggestions for Future Research

In summary, this study opens the following avenues for further examination:

- **Cross-country comparisons:** Replicate the study in other emerging markets to analyze performance of TRAM in different cultural and economic conditions.
- **Qualitative insights:** Interviews or focus groups to know reasons why operationalization of insecurity did not significantly affect users' perception and also to help know underpinning user concerns.
- **Longitudinal designs:** Follow consumer attitude changes or behavior developments over time, especially as Iraqi digital infrastructure and financial literacy undergo improvement.
- **Model extension:** Incorporate supplementary constructs like trust, social influence, or mobile experience quality to further enhance the model's explanation power and accuracy.
- **Demographic segmentation:** Study the pattern of adoption variation based on gender, age, education, and region for the purpose of developing targeted policies and platform design.

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