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Factors influencing the adoption of M-Wallet: An exploratory study at University of Mosul

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Keywords:
M-wallet, Technology adoption, UTAUT2 model, Structural equation modelling, developing countries.

A R T I C L E I N F O

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Abstract: M-wallets services under the umbrella of e-payment have become a main tool for transferring money at an affordable cost. Although the benefits of m-wallets services, its adoption remains a huge challenge in developing countries such as Iraq. The purpose of this study is to explore the factors influencing the m-wallets services adoption Iraq by using the UTAUT2 theory with privacy. A quantitative approach was adopted to examine the proposed model. Survey method has been used to collect data; the sample was 230 participants from university of Mosul. Structural equation modeling (SEM) was used to analyze the collected data. The results of this research confirmed that performance expectancy, conditions, facilitating, Habit and Privacy have positively influence behavioral intent to use m-wallet services. While, price value and effort expectancy did not have an influence on the users 'intention toward m-wallet. Finally, the contribution to theory and Implications for practice for this research are also questioned.

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العوامل المؤثرة في تبني المحافظ الرقمية: دراسة استطلاعية في جامعة الموصل

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المستخلص

خدمات المحافظ الإلكترونية تحت مظلة الدفع الإلكتروني اصبحت أداة رئيسية لتحويل الأموال بتكلفة قليلة. على الرغم من الفوائد العديدة التي تقدمها المحافظ الإلكترونية، إلا أن اعتمادها لا يزال يمثل تحديًا كبيرًا في البلدان النامية مثل العراق. الغرض من هذه الدراسة هو استكشاف العوامل التي تؤثر على اعتماد خدمات المحافظ المتنقلة في العراق باستخدام نظرية UTAUT2. بالإضافة الى اختبار عامل الخصوصية. تم اعتماد نهج كمي لفحص النموذج المقترح في الدراسة. تم استخدام الاستبانة لجمع البيانات؛ وكانت العينة من 230 مشاركا من جامعة الموصل. تم استخدام نمذجة المعادلة الهيكلية (SEM) لتحليل البيانات التي تم جمعها. أكدت نتائج هذا البحث أن الأداء المتوقع، والظروف، والتسهيلات، والعادات والخصوصية قد أثرت بشكل إيجابي على النية السلوكية لاستخدام خدمات المحفظة الإلكترونية. بينما، لم يكن لقيمة السعر والجهد المتوقع تأثير على نية المستخدمين نحو المحفظة الإلكترونية.

الكلمات المفتاحية: المحافظ الرقمية، تبني التقنية، نموذج UTAUT2، نمذجة المعادلة الهيكلية، البلدان النامية.

1. Introduction

We are entering a "super-connected society" as a result of recent advances in information and communications technology (ICT), where technology has been used in the financial domain for a variety of purposes, such as storing electronic health records, education, monitoring, communication, and behavioral tracking (Talwar et al., 2020). The digitalization of financial transactions-connections can improve efficiency and allow for the delivery of higher-quality financial services, providing numerous benefits to stakeholders. Many innovative technological solutions have been developed in recent years to address the financial-related needs of people (Yuan et al., 2020). As an emerging field in the financial sector, the mobile wallet has received more and more attention in recent years (Choi et al., 2020). Mobile wallet, known as m-wallet, has emerged due to the increased connectivity to access financial-related information and transactions. The applications of m-wallet mobile payment have been used widely, and there has been improved the effectiveness of financial services (Rabaa'i, 2021; Shin, 2009). "Various

studies have confirmed that consumers prefer a technology that provides fast, convenient and useful services on a single platform. In this regard, mobile payment services denote an advanced multipurpose technique that includes such features" (Grover et al., 2017; Jocevski et al., 2020; Leong et al., 2020; Ma & Fildes, 2020). Mobile payment means any payment service implemented through a smart mobile phone. Many types of m-payment services available, both for physical and remote payments (Boden et al., 2020; M.-H. Hsiao, 2019; Verkijika, 2020). First, the point of sales services is available such as sound waves-based payments, near-field communication (NFC) payments, which provide a secure channel for credit/debit card transactions from the customer bank to retailers (De Luna et al., 2019). Second we have both remote and in-store payment technologies such as quick response (QR) code and mobile wallets (m-wallet)(De Luna et al., 2019; Shin, 2009; Suryotrisongko & Setiawan, 2012). On the one hand, M-wallet is a technology that needs to be setup and installed on the mobile phone and allows customers to store electronic money (e-money) and conduct transactions directly from the wallet. Where QR codes are available and works through most of the banking apps (Liébana-Cabanillas et al., 2015; Ugwu & Mesigo, 2015). Union's (ITU, 2013) report, "five billion people now have mobile phone subscriptions, 85% of the world has been covered by cell phone signals, 95% of people live in an area that is covered by a mobile cellular network, and mobile broadband networks (3G, 4G or above) are accessible to 84% of the world's population. Such widespread use of mobile phones has helped to drive their integration into healthcare"(Wallis et al., 2017). Recent information shows that Iraq had approximately 36 million mobile phone users. Moreover, approximately 19 million have access to the internet bur a few of them engaged with mobile payment through systems like m-wallet. However, adoption of technology began in a manner that still not at a level of payment systems adoption in Iraq. The value of digital transactions is low despite a few benefits; customers prefer using cash in transaction, which they feel is missing in digital transactions of payment. Low knowledge about technology usefulness and benefits are the main barriers (De Luna et al., 2019; Jawad et al., 2022) As well as, the lack of

information about infrastructural support resistance, innovativeness, interoperability issues and privacy norms (Singh et al., 2020). Consumers are concerned about information leaks and privacy issues while doing transactions digitally (Singh et al., 2020). serveral studies suggest many factors that may influence the intention and continued use of mobile payment services, as well as how to overcome such barriers and increase digital payment usage (Alalwan et al., 2017). As well as various technology adoption models has been used in many previous studies to predict consumer behavior towards new innovations. Such as TRA, MM, TAM, MPCU, TPB, Despite the extensive use of these models especially the TAM model in identifying users' intentions to accept and use electronic technologies, this study uses UTAUT2 (Unified Theory of Acceptance and Use of Technology). Which confirmed that performance expectancy, effort expectancy, social influence, facilitating condition are some of the significant factors, which have a remarkable influence on user's intention and their continuation of technology usage (Alalwan et al., 2017). The novelty of the present research is the UTAUT2 model is expanded by introducing new variables (hedonic motivation, price saving, orientation, habit, trust, technology security, and psychological empowerment) for an emerging country like Iraq. We have more than one study which take into account users' post-adoption behavior (Jaiswal et al., 2022); However, there have been few studies on mobile-wallet usage in Iraq where constructs such as recommendation and perceived satisfaction have been examined (Al-Sabaawi et al., 2021).

2. **Related studies:** There are several studies have attempted to examined the factors of mobile payments, those studies used various technology adoption theories as a base of their research models, as well as, some of them focused on technological factors and other behavioral factors. Table (1) presents the Summary of the research on m-health adoption in different developing and developed countries.

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Table (1): Summary of the related research on m-wallet adoption

Author	Country	Theoretical Framework	Objectives	Key Factors affecting the adoption
(Liébana-Cabanillas & Lara-Rubio, 2017)	Spain	-	Literature review of Trends in mobile payments research	User experience, Socioeconomic (Sector, number of employees, income in 2014, sales channels approached, role in the company) Variables related to behavior (Utility, Trust, Barriers faced by adoption)
(De Luna et al., 2019)	Spain	TAM	Determining the principal adoption factors of mobile payment systems.	perceived ease of use, perceived usefulness, attitude, Perceived security, Subjective norms
(Thakur & Srivastava, 2014)	India	TAM and UTAUT	1. investigate the functional relationship between adoption readiness (AR), perceived risk (PR), and usage intent for mobile payments. 2. stability investigation of proposed structural relationships and it was implemented across different customer groups	perceived usefulness, perceived ease of use, facilitating conditions, social influence, perceived security risk, perceived privacy risk, perceived monetary risk, Personal innovativeness
(Upadhyay & Jahanyan, 2016)	India	TAM	This study presents an approach to describe the factors that influence the intention to use mobile-based payment services	System Quality, Task-Technology Fit, Financial Value, Connectivity, Personal Innovation, Discomfort, Absorptive Capacity, Structural Assurance Perceived Usefulness and Ease of Use
(Dennehy & Sammon, 2015)	UK		this paper resulted in the findings of a literature review aimed at identifying the key research themes besides the methodologies researched	--------
(E. Slade et al., 2016)	UK	UTAUT	An Empirical Investigation of Remote Mobile Payment Adoption	performance expectancy, effort expectancy, social influence, and perceived risk
(Upadhyay & Chattopadhyay, 2015)	India	Unified approach	The study aimed to make a unified approach in identifying the issues influencing the usage intention of mobile based payment services	Externalities, System quality, Innovativeness, Task-fit, Per. ease of use, Discomfort, Connectivity, Absorptive capacity, Ease of use, Per. Usefulness, Monetory value
(Jaradat & Al-Mashaqba, 2014)	Jordan	TAM3	Introduced a modified TAM3 to investigate key factors influencing individuals' intention to use mobile payment	perceptions of external control, perceived ease of use perceived usefulness, subjective norm, image, output quality, self-efficacy, and playfulness
(Kapoor et al., 2015)	India	Diffusion of Innovations theory, Perceived Characteristics of Innovating theory	This study aims to examine three sets of attributes for the adoption of IMPS in the context of Indian	Attribute Set I – Relative Advantage, Compatibility, Complexity, Trialability, Observability. Attribute Set II – Cost, Communicability, Riskiness, Social Approval. Attribute Set III –Voluntariness, Image, Result Demonstrability, Visibility, Behavioral Intention.
(E. L. Slade et al., 2014)	UK	UTAUT2	To investigate what influences non-users' decisions to use remote mobile payment in the UK.	Habit, Facilitating conditions, Hedonic motivation, Performance expectancy, Effort expectancy, social influence, Price value, Self-efficacy, Innovativeness, Trialability, Perceived risk, Trust

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Author	Country	Theoretical Framework	Objectives	Key Factors affecting the adoption
(E. L. Slade et al., 2015)	UK	UTAUT	To explore the factors affecting non-users' intentions to adopt Remote Mobile Payment in the UK	Performance expectancy, Effort expectancy, social influence, Innovativeness, Perceived risk, Trust, Behavioral intention
(Liébana-Cabanillas et al., 2015)	Spain	TAM	This research had a main goal which is analyzing users' acceptance of (QR) code m-payment systems	Perceived usefulness, Perceived ease to uses, Personal Innovativeness, Individual mobility, Perceived compatibility, Perceived security, Subjective norms
(Dahlberg et al., 2015)	Finland		This article seeks to evaluate the development of mobile payment research during the previous eight years.	--------
(Patil et al., 2018)	UK		Meta analysis of several factors influencing risk and trust, as well as the effects of these two elements on behavioral intentions and user satisfaction.	--------
(Madan & Yadav, 2016)	India		The aim of this research was to analyses users' acceptance of mobile wallet services and to identify the main factors that have a significant impact on it	Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Perceived Value, Perceived Risk, Perceived Trust, Perceived Regulatory Support, Promotional Benefits
(Kaitawarn, 2015)	Thailand	UTAUT	This study aims to explore the factors influencing the acceptance and use of mobile payment with NFC technology in Thailand	P_Usefulness, Motivation, Relative Advantage, and Outcome Expectation, P_Ease of Use, Complexity, Subjective Norm, Social Factors, Image, P_Behavioral Control, F_Condition, and Compatibility, security
(Liébana-Cabanillas et al., 2014a)	Spain	TAM	Proposing a theoretical model to assess the relative weighting of several aspects for the adoption of new mobile payment	Ease of use, external influences, Perceived usefulness, trust and perceived risk, Attitude
(Liébana-Cabanillas et al., 2014b)	Spain	TRA and TAM	Has analyzed users' acceptance of mobile payment in VSN	external influences, usefulness, attitude, trust, ease of use and risk
(Kim et al., 2010)	South Korea	TAM	proposed an m-payment research model	Usefulness , Ease of Use , innovativeness, m-payment knowledge, mobility, reachability, compatibility, and convenience
(Mallat, 2007)	Finland	----	This paper examines consumer adoption of a new mobile payments.	Relative advantage, Compatibility, Complexity, Costs, Trust, security risks

Source: Authors based on the reviewed studies

As showed in table 1, the previous studies have performed models such as the UTAUT (Unified theory of acceptance and use of technology) model to identify the factors that affect the users' intention to adopt new information technologies (Kaitawarn, 2015; E. Slade et al., 2016; E. L. Slade et al., 2015). While (E. L. Slade et al., 2014) has used UTAUT2 model. The other model that has been used for examining the mobile payment is TAM (technology acceptance model), where it used by (De Luna et al., 2019; Kim et al., 2010; Liébana-Cabanillas et al., 2014a, 2015; Upadhyay & Jahanyan, 2016), whereas (Jaradat & Al-Mashaqba, 2014) has been used TAM3. Other studies has combine between two models such as (Thakur & Srivastava, 2014) depended on TAM and UTAUT, (Liébana-Cabanillas et al., 2014b) used TRA and TAM, (Kapoor et al., 2015) used DOI (Diffusion of Innovations theory) and PCI (Perceived Characteristics of Innovating theory). The other model that was popular for examining the mobile payment is TAM (technology acceptance model). It has used by (De Luna et al., 2019) for determine the factors which impact on user adoption of mobile payment systems, in additional compare these factors to determine consumer acceptance of NFC (Near Field Communication), SMS (Short Message Service) and QR (Quick Response) mobile payment systems. The study of (Liébana-Cabanillas et al., 2015) has focused on examines the users' acceptance of Quick response (QR) m-payment systems depending on TAM. The study of (Liébana-Cabanillas et al., 2014a) has attempted to examine the adoption of m-payment by proposing model, In addition to analyzing the age of the consumer and its impact on the use of this tool. The experimental results demonstrated the behavioral model suggested was adjusted appropriately. This proves that the age of the user plays a significant role in differences in the suggested connections between the ease of using the payment system and external factors between the ease of use and perceived trust in the system, as well as between the trust in the system and a favorable attitude towards its use. The research model which proposed in the paper of (Kim et al., 2010) for dividing m-payment users into early and late adopters and outlining the various elements that influence each group's propensity to use m-payment. Investigating important variables that influence people's intentions to accept and use mobile payment in Jordan is the goal of the study (Jaradat & Al-Mashaqba, 2014).

3. **Research model and hypothesis development:** The following section review the aspects of proposed research model and hypothesis, this study utilized UTAUT with privacy as a foundation for the study. Fig. 1 presents the proposed research model.

3-1. Performance Expectancy (PE): Performance expectancy is one of the significant factors to influence the e-payment (Gupta & Arora, 2020). Users believe that using m-wallet will facilitate the attainment of excellent payment performances (Venkatesh et al., 2003). According to (Junadi[a], 2015), In general performance expectancy is when customers receive more benefits than applying the payment via traditional methods. PE is considered from the perspective of convenience in transactions, transaction productivity, and speed in transactions. The results of (Tusyanah et al., 2021) study found that the most important element influencing behavioral intentions to use an m-wallet was performance expectations. Accordingly, the following hypothesis was formulated "Performance expectancy has a significant effect on intention of m-wallet adoption"

3-2. Effort Expectancy (EF): Effort expectancy in the m-wallet in particular and in e-payment in general means how easy to use and clear to understand when users intent to interact with the system (Venkatesh et al., 2003). According to (Nguyen et al., 2014), intent of use of m-wallet is inversely proportional to the effort you make in using m-wallets. EF also means how easy using and understanding the systems without special skills (Venkatesh et al., 2003). EF is significant in influencing the behavioral of intention to use the application cashless transactions(Tusyanah et al., 2021). Accordingly, the following hypothesis was formulated **"**Effort expectancy has a significant effect on intention of m-wallet adoption"

3-3. Facilitating Condition (FC): Facilitating condition is an individual believe the technical and organizational infrastructures will help in adapting and using the technology system in a convenient way (Phan et al., 2020). Most of the researchers measured the influence of the FC on behavior not on intention (Tusyanah et al., 2021). The higher the FC, the higher the intention to use cashless applications in e-payment (Tusyanah et al., 2021). Oliveira, et.al. (2015) conducted research entitled "Extending the understanding of mobile banking adoption: When UTAUT meets TTF and ITM" who found that FC influence behavioral intention of using mobile wallet (Baptista & Oliveira, 2015). Accordingly, the following

hypothesis was formulated **"**Facilitating condition has a significant effect on intention of m-wallet adoption"

3.4 Price value: Price value is defined as the balance between the service's perceived value and the monetary expenses for using that service, and it was evaluated by the value offered when using the service comparing with the cost of using it (Venkatesh et al., 2012). The higher perceived value (price value is one dimension of the perceived value (Sweeney & Soutar, 2001)) the consumer get, the more desire they have to use the service (Oluwafemi & Dastane, 2016). According to (Wibowo et al., 2016), "price value does not have significant influence towards behavioral intentions by using the level of significance of 0.05". Hence, and due to the differences in measuring the price value influence on the intention of m-wallet, this study had the price value in its model. Accordingly, the following hypothesis was formulated "Price value has a significant effect on intention of m-wallet adoption"

3-5. Habit: Consumers who automatically engage in a particular conduct are said to have a habit because of a satisfying result obtained from a previous experience in the same environment (Venkatesh et al., 2012). Studies have examined various technology usage habits, and found that it has a positive relationship with users' intention to use m-payments (Jia et al., 2014) . Behavioral and psychology sciences suggest that consumers' habits are significant factors of technology adoption (Limayem et al., 2007). In UTAUT2, Venkatesh et al. (2012) have found that habits have the more significant impact on intention behavioral than any other factor in the model. According to several studied "consumers would increase their willingness to use similar mobile technology services when forming a habit of using mobile technology" (Baptista & Oliveira, 2015)(C.-H. Hsiao et al., 2016). Accordingly, the following hypothesis was formulated **"**Habit condition has a significant effect on intention of m-wallet adoption"

3-6. Hedonic Motivation: It one of the important factors in m-wallet services adoption, hedonic motivation factor is a one of the requirement in users attraction to adopt m-wallet (E. L. Slade et al., 2014). It can be defined as "the enjoyment that users feel when using electronic payment technology" (Salimon et al., 2016). Accordingly, the following hypothesis was formulated **"**hedonic motivation has a significant effect on intention of m-wallet adoption"

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3-6. Privacy: The (Amoroso & Magnier-Watanabe, 2012) and (Chen, 2008) studies have shown that the security and privacy of m-wallet is the degree in which the consumers' information was kept safe and intent without any authorized access, as well as the consumers' information is kept confidential. According to (Tran, 2020), users relate to trustworthiness when they intent to use e-wallet and this will increase their intention of using a specific system. However, according to (Yuwono & Sari, 2021), the security and privacy showed an insignificant positive relationship with the e-payment intention. Accordingly, the following hypothesis was formulated **"**Privacy has a significant effect on intention of m-wallet adoption"

3-7. Behavioural Intention: The behavioral intention is expressed in the readiness of the consumer to use the service/product (Venkatesh et al., 2003) . The user attitude toward products and services has a statistically significant effect on the purchase intention (Won & Kim, 2020). The Study of (PHAN et al., 2020) concluded, "The higher the intention the consumer is likely to have, the higher the actual behavior and vice versa"

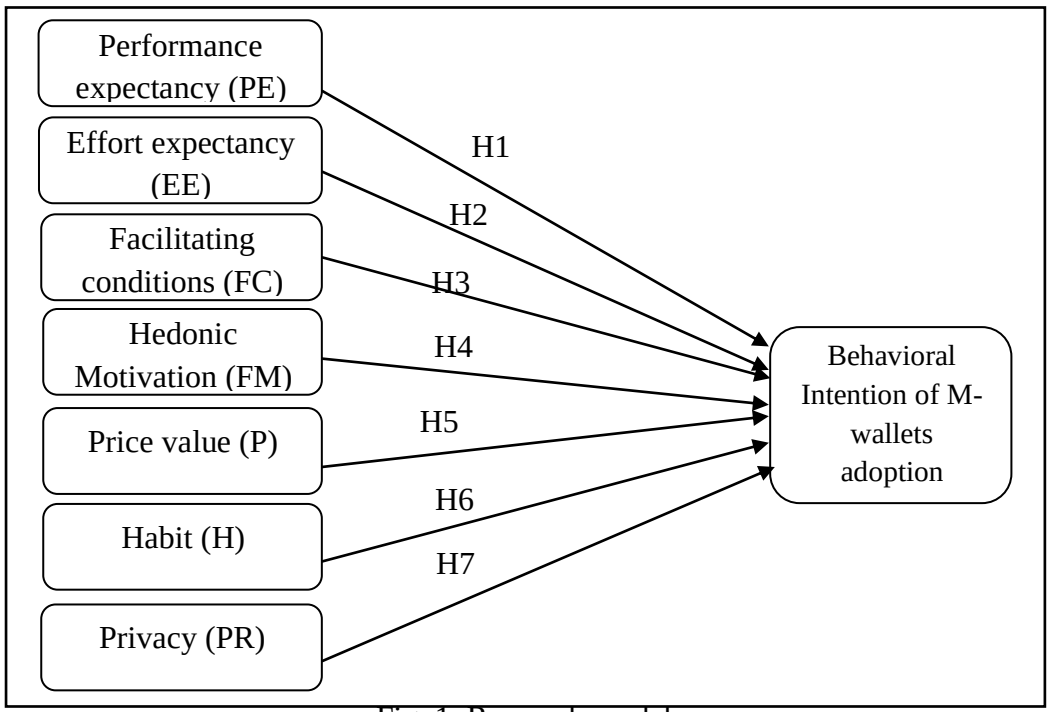

Fig. 1. Research model

Source: Authors

4. Research methods

4-1. Questionnaire design and source of data: The primary objective of this study is to examine the factors influencing M-wallets from the people's perspective. This study investigated the effects of M-wallet adoption

intention using UTAUT theory. A theoretical foundation was used to develop hypotheses. Additionally, in the positivist paradigm, researchers gather quantitative data and employ a suitable statistical method to evaluate the data in order to test the hypotheses that are put forth. (Robson and McCartan 2016). Adults in Iraq who have Bachelor's degrees and above were selected as the research subjects. A survey approach was used in this study to gather quantitative data, A total of 230 samples were received were valid samples. Based on the relevant literature, the questionnaire was designed. Table 1 lists the constructs and literature resources. Where necessary, these scales were altered to fit the context of M- payments.

Table (1): questionnaire items with literature resources

Variables	References
Performance expectancy (PE)	(Junadi[a], 2015; Rabaa'i, 2021; Rabaa'i & AlMaati, 2021; Venkatesh et al., 2012)
Effort expectancy (EE)	(Rabaa'i & AlMaati, 2021; Venkatesh et al., 2012)
Facilitating conditions (FC)	(Rabaa'i, 2021) (Venkatesh et al., 2012)
Price value (P)	(Venkatesh et al., 2012)
Habit (H)	(Putri, 2018; Venkatesh et al., 2012)
Hedonic Motivation	(Venkatesh et al., 2012)
Privacy (PR)	(Junadi[a], 2015)
Behavioral Intention of M-Wallet adoption	(Rabaa'i, 2021; Venkatesh et al., 2012)

Source: Authors based on related studies

4-2. Statistical methods: To investigate the causal connection between the measurement model's and structural model's variables, structural equation modeling (SEM) has been used. SEM deals with a system of regression equations, not only with a single simple or multiple linear regression, thus it is very flexible tool. The SEM considers several equations simultaneously, which was the main reason for considering it instead of ordinary regression analysis. "The same variable may represent a predictor (regressor) in one equation and a criterion (regressand) in another equation" (Nachtigall, Pawloski, & Au, 2003). The commercial software AMOS 26 was employed for the analysis.

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5. Empirical analysis

5-1. Sample characteristics: Table 2 presents the sample characteristics.

Table (2): sample characteristics

Gender	**N**	**%**
Male	175	76
Female	55	24
Age (years)	N	%
Less 25	43	19
25-30	64	28
30-45	92	40
Above 45	31	13
Educational qualification	N	%
Bachelor's degree	148	64
Higher diploma	5	2
Master	50	22
PhD	27	12

Source: Authors based on SPSS results

230 valid samples in total were collected. The respondents were 76% male and 24% female. The majority of the samples came from respondents who ranged in age of 30 and 45 (40%), representing a total of 92 respondents. In addition, most of the samples 64% have Bachelor's degree.

5-2. Descriptive statistics: Table 3 presents the sample characteristics

Table (3): Descriptive statistics analysis

Variables	Items	Mean	Std. Deviation
Performance expectancy	I believe that a M-wallet can be very useful in my daily life	1.8522	.75047
	Paying through a M-wallet will allow me to transfer money more quickly	1.6522	.74814
	Paying through the M-wallet will enable me to transfer money at any time	1.6261	.76451
	Paying through the M-wallet will increase my ability to transfer money and purchase online with less effort	1.7739	.87229
Effort expectancy	I believe that learning to use a M-wallet is easy for me	2.0565	.82076
	Is it easy to become a M-wallet master	1.9565	.77506
	I see that learning to pay through the M-wallet requires less effort than other payment methods	2.0391	.87829
	Transferring money via a M-wallet requires less effort	1.8522	.83842

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Variables	Items	Mean	Std. Deviation
Facilitating conditions	I believe that transferring and receiving money through a M-wallet fits my lifestyle	2.2217	1.00586
	I believe have all the capabilities that allow me to use the M-wallet to transfer and receive money	2.2783	1.04942
	Transferring and receiving money via a M-wallet does not require a lot of requirements and resources	2.2000	.94569
	I can get technical assistance from other (technical) individuals when i encounter a problem while transferring and receiving money via the M-wallet	2.1391	.92879
	I have experience in using the M-wallet, which allows me to benefit from all the services the M-wallet	2.4652	1.02634
Hedonic Motivation	I will find pleasure when using the M-wallet to transfer and receive money	2.0174	.91549
	Transferring money through the M-wallet is attractive	2.0130	.90356
	I believe that transferring and receiving money through the M-wallet is a modern thing	1.7087	.88036
	Transferring and receiving money through the M-wallet is fun and it is expected that I will use the M-wallet a lot in the future	1.8304	.79953
	I will feel comfortable when transferring and receiving money through the M-wallet	2.0261	.90086
Price value	I see that using a M-wallet for the purpose of transferring and receiving money is financially costly	2.9217	1.08300
	I will transferring money using the M-wallet, even if it is expensive, because it will bring me more benefit	2.7130	1.04706
	I believe that the M-wallet saves my money	2.6217	.97589
	I believe paying through the M-wallet can i get valuable promotions	2.3522	.92154
Habit	I believe I will always use the M-wallet to transfer and receive money	2.2783	.93030
	In the future, using a M-wallet will become part of my routine for transferring and receiving money	2.0696	.88876
	I plan to use the M-wallet for the purpose of transferring and receiving money in the future because it improves my image in front of my colleagues	2.3913	1.06304
	I see in the future that I will continue use the M-wallet and mobile devices to transfer and receive money	2.1739	.93230
Privacy	I am sure that the personal information that I provide when I transfer and receive money through the M-wallet will be safe	2.3304	.99098
	I believe that unauthorized persons do not have the ability to see my personal information or any information that I provide when I perform any transfer and receive money via the M-wallet	2.2913	.94264
	I believe that any information I provide when using the M-wallet will not be manipulated or exploited negatively by any party	2.3696	.96576
Behavioral Intention of M-wallets adoption	I intend to use the M-wallet in transferring money	2.1174	.87625
	I tend to continue using the M-wallet to receive and transfer money	2.3174	.91525
	I have an actual need to use the M-wallet to transfer and deliver money	2.2478	.98210
	I believe my intention is to use the M-wallet in transferring money rather than any other method	2.2130	.88796

Source: Authors based on SPSS results.

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5-3. Measurement model: reliability and validity: For the factor loading, Cronbach's alpha, and Composite Reliability (CR) analyses, the commercial software SPSS 16.0 and AMOS 26 are utilized (Table 4). Cronbach's alpha coefficients for all variables ranged from 0.60 to 0.850. The latent construct's CR value ranged from 0.60 to 0.88. These findings attest to the questionnaire's validity and internal consistency. The reliability test yielded an average variance extracted (AVE) of between 0.69 and 0.85. These data suggest excellent convergent validity for each latent variable.

Table (4): Internal reliability and convergent validity test results

Constructs		Loadings	Cronbach's Alpha	CR
Performance expectancy (PE)	PE1	0.716	0.671	0.592
	PE2	0.732		
	PE3	0.724		
	PE4	0.788		
Effort expectancy (EE)	EE1	0.614	0.743	0.680
	EE2	0.614		
	EE3	0.603		
	EE4	0.657		
Facilitating conditions (FC)	CO1	0.733	0.664	0.652
	CO2	0.818		
Hedonic Motivation	FM1	0.782	0.736	0.608
	FM2	0.738		
Price value (P)	P1	0.211	0.6	0.634
	P2	0.781		
	P3	0.843		
Habit (H)	H1	0.793	0.8.5	0.707
	H2	0.773		
	H4	0.786		
Privacy (PR)	PR1	0.894	0.848	0.710
	PR2	0.814		
	PR3	0.747		
Behavioral Intention of M- wallets adoption	BI1	0.815	0.839	0.704
	BI2	0.716		
	BI3	0.732		

Source: Authors based on SPSS and AMOS results

5-4. Hypotheses testing analysis: The suggested model was validated using a structural equation model using AMOS. After evaluating reliability and validity of the measurement scales, the research hypotheses were tested, below table show hypotheses results.

	Hypothesis			Estimate	S.E.	C.R.	P	Label
H1	BI	<---	PE	.339	.083	4.082	***	Acceptance
H2	BI	<---	EE	-.029	.054	-.534	.594	Rejected
H3	BI	<---	CO	.356	.102	3.483	***	Acceptance
H4	BI	<---	FM	.238	.059	4.029	***	Acceptance
H5	BI	<---	P	.061	.051	1.214	.225	Rejected
H6	BI	<---	PR	.212	.045	4.685	***	Acceptance
H7	BI	<---	H	.434	.059	7.406	***	Acceptance

Source: Authors based on AMOS results

6. Discussion: This study proposed a model based on UTAUT theory with privacy to explore the determinants of the m-wallet adoption according to users' perspective. The findings suggest that the performance expectancy, facilitating conditions, hedonic motivation, habit, and privacy are effect on intention of users toward m-wallet adoption. As it is evident through the results that all hypotheses are accepted with the exception of H2 and H5, and therefore this is a positive indication. With respect to performance expectancy, when users perceived benefits and advantages of this application m-wallets will motivate their behavioral intentions toward the adoption of m-wallets. This significant effect of PE on BI was supported prior in particular to m-wallets studies (e.g., (Singh et al., 2020) (Rabaa'i, 2021). As for the facilitating conditions, the results demonstrated that there is a significant effect of facilitating conditions on behavioral intention toward the adoption of an m-wallet. This finding is consistent with prior empirical efforts (Chawla & Joshi, 2019) (Rabaa'i, 2021). The results of this study confirmed that there is a significant positive effect of hedonic motivation on behavioral intention. The users who felt enjoyment, and pleasure when they used m-wallet for sending or receiving money, their intention will be improved toward m-wallet. This result was consistent with the results of previous studies as a study (Rabaa'i, 2021). The hypothesis related to the effect of price value on users' intention toward of m-wallet was not supported. that means a non-significant effect of price value on

users' behavioral intention to adopt an m-wallet. This result may be caused by the cost of using m-wallet apps that are not expensive against the benefits that users gain. This is consistent with (Rabaa'i, 2021). The results suggest that privacy is a significant factor towards adopting m-wallet. This result was in agreement with the recent study (Salloum,2019) .The habit was to be affecting intention to use m-wallets, this finding is consistent with some prior studies (Bhattacherjee and Lin, 2014) (Gaitan ,et.al, 2015).

7. **Conclusions and implications:** This study focused on investigating the individual use of technology, it proposed a research model for users' adoption of M-wallet. The study contributes to the body knowledge of information systems. Although the existence many studies related to users' adoption of M-wallet; there are few studies that examined user adoption behavior in Iraq context. The results reflected the behavior of users toward m-wallet as well as they may enhance the understanding of individuals' behavior toward technologies in general in Iraq.

7-1. **Contribution to theory**: This study focused on developing countries, especially Iraq. It has added to the adoption and acceptance literature on M-wallet, where this area academically and practically is still in its early stages. As well as this study focused on the intention of the users toward M-wallet at Iraq, so to the best of our knowledge, it the first study that empirically examined the behavioral of users at Iraq toward M-wallet.

7-2. Implications for practice: Examining the factors that affect users toward adopting the m-wallet from the users' view, it has practical implications for some organizations that wish to increase the use of their m-payment apps. Suggestions are made as follow for organizations that offer M-wallet services. First, the results of this study prove that performance expectancy, facilitating conditions, hedonic motivation, habit, and privacy are important reasons that users adopt m-wallet. Therefore, in practice, organizations should take these factors into their account when offering their m-payment services.

7-3. Limitations and future research directions: This study is one of the few to make an attempt to explain people's views regarding the adoption of m-wallets from a theoretical standpoint with empirical support. This research created a theoretical model based on UTAUT and privacy. Although the study's contributions, this study has some limitations, the study examined the factors of UTAUT with privacy to explore the intention

of individuals toward m-wallet, there are still many other factors that were not considered. The study suggests that can include pertinent research parameters or alternative theories to examine the effect of users' adoption intentions of m-wallet. As well as, explore the user's intentions based on dual-factor concepts that combine technology adoption from the perspective of enablers and inhibitors.

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