# Factors Influencing Individual's E-wallet Usage in Kurdistan Region of Iraq

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Abstract—E-wallets play a critical role in many ways people do cashless transactions. Technology innovations have made smartphone users carry out many transactions or payments using applications installed on their smartphones. The COVID-19 pandemic has boosted cashless payment awareness in numerous countries, including Iraq. The research objectives are to determine the factors that influence e-wallet usage in the Kurdistan Region of Iraq. This study methodology uses a questionnaire distribution based on the structural equation model. Ninety-nine sets of valuable data were collected from lecturers who use the FastPay e-wallet application at the University of Cihan-Erbil. The collected data have been analyzed using SmartPLS data analysis software. The present study revealed that perceived security, trust, ease of use, and usefulness strongly influence e-wallet usage. A future study suggests researching different e-wallet applications since this research only focused on FastPay.

Keywords—Mobile payment, E-wallet, FastPay, Cashless payment, E-wallet applications.

#### I. Introduction

In this era of advanced technology, the introduction of new technology is beneficial to customers. The launch of e-wallets and other digital payment methods is the most controversial topic as it is a valuable innovation that can contribute to society (Rabaa'i, 2021). As the number of e-wallet users increased rapidly in Iraq, other e-wallet developers also took that this opportunity e-wallet can be defined as a convenient way for people to set up an account in their "electronic wallet" to store or replenish their money and use it online or offline through an electronic device. With almost all electronic wallets, individuals can add funds in various ways, including online bank transfers, credit cards, and debit cards.

Software applications that function as electronic wallets have undergone rapid innovation in recent years. From well-known applications like PayPal to more recent ones like Google Pay, Apple Pay, or Samsung Pay, and even to local players such as Alipay and WeChat, there are a wide variety of payment apps available (Karim et al., 2020; Mei and Aun, 2019; Ming et al., 2020). In the Kurdistan Region of Iraq, the citizens use many e-wallet applications such as NassPay, Zaincash, AssiaHawala, ZagrozPay, and FastPay.

It is estimated that there are approximately 1 billion daily active mobile payment application users, representing 12% of the world's population. According to current estimates,

47% of all smartphone users in China use digital wallet apps regularly, making China the world leader in mobile payments (Ming and Jais, 2022).

Beneficiary apprehensions regarding security breaches pose a substantial obstacle for e-wallet systems. Perceived usefulness and ease of use, trust, and security are all factors that influence e-wallet usage (Ghani and Khalil, 2021). This study investigates the factors affecting e-wallet usage in Iraq's Kurdistan Region.

# A. Research Importance

The importance of research is shown by changing the traditional nature of money transactions. In addition, this research will shed light on e-wallets, such as FastPay's ability to deal with and handle money transactions in the Kurdistan Region.

# B. Research Problem

E-wallets face a significant challenge from beneficiary fears of security breaches that could lead to funds loss. Perceived security (Undale et al., 2020), perceived trust (Al-Sabaawi et al., 2021), perceived ease of use (Hanzaee and Alinejad, 2012), and perceived usefulness (Sulaiman et al., 2022) are all factors that influence e-wallet system usage. Existing studies on e-wallet adoption are primarily in developed countries,

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with more in developing countries. Still, the Kurdistan region has received little attention. According to the literature, most studies conducted in Iraq focus on e-payment implementation and e-payment company perspectives. However, studies have not yet explored the e-wallet system's perspective. Therefore, this study examines the factors that influence individual usage in the Kurdistan Region.

#### II. LITERATURE REVIEW

# A. The Origin of Digital Payments

The foundation of the use of computers and users' response to digital payment has opened opportunities for many businesses, including financial institutions, from small to large corporations. Banks are currently amongst the largest beneficiaries of using computers. In particular, digital or electronic payments through computers or smartphones have created new ways of handling transactions, such as purchasing online using computer applications.

Financial Technology describes a company that combines a financial service with a computer or smartphone. Every business insists that being categorized as a financial technology company has to offer Internet-based products with and applications installed on computers or smartphones. Modernized businesses aim to attract consumers with easy-to-use products, efficient services, and transparency.

In 1997, Coca-Cola introduced a few vending machines in Helsinki that allowed customers to purchase a can by sending a text message (Chen, 2008). This event is the beginning of digital payments as we know them today (Azman et al., 2021). It is considered that this was the beginning of what we know now as electronic wallet transactions, even though they are significantly different. Soon after, mobile devices became the primary way to purchase tickets for movies and travel and make hotel reservations and food orders. By 2003, around 95 million people who owned cell phones had made a purchase utilizing a mobile device (Al-Dmour et al., 2021). In 2011, Google was the first big corporation to market a mobile wallet, making it an industry pioneer. Apple Pay was released after a delay of 2 years. It began in the United States and swiftly expanded to both the United Kingdom and China. Android and Samsung Pay were both released in 2015. This payment method has gained much traction since the introduction of digital wallets such as Grab Pay, Lazada Wallet, PayPal, Touch n Go, and v cash, among many others.

# B. E-Wallet

An e-wallet is a digital entity electronically transferred from one person's account to another. Since it is used instead of banknotes, individuals can pay for goods and make financial transactions for the same amount. An e-wallet is the equivalent of a paper check, but it is more flexible, faster, and safer. These are used in e-commerce for various activities and sending and receiving money. In addition, there are simple activities such as buying movies and series online, concerts, cinemas, plane tickets, and similar activities such as fast food.

E-wallets have some characteristics such as being affordable, fast, and safe. E-wallets provide an easy way to pay different types of invoices, commercial or government, as well as restaurant and shop invoices. This gives the owner the ideal flexibility to carry out any electronic transaction. Financial transactions made by the wallet are much cheaper than bankers and faster. FastPay wallet is free, and there are many other privileges.

#### C. Wallet Adoption in Iraq

Iraq has done little research on adopting and accepting internet-based services (Sulaiman et al., 2022). Iraqi e-payment proposals are discussed, as well as the challenges the country faces in implementing e-payment (Al-Sabaawi et al., 2021). According to the report, Iraq will experience the challenges as other developing nations face, notably those countries in the Middle East. Iraq's political climate is another barrier to e-commerce adoption (Batra and Kalra, 2016). Due to the diversity of Iraq's society and politics, adopting e-payment would encounter several challenges and repercussions (Liu and Tai, 2016). As a result, research on internet-based facilities in Iraq has been done. Due to the present economic and political climate, the nation's e-communication system is underdeveloped, which has slowed the expansion of many e-services, especially e-payments. Both studies emphasize the complexity of integrating internetbased systems for e-services, particularly e-payments (Undale et al., 2020). In Iraq, the most pressing issues are the number of internet users, the dearth of IT infrastructure, the low level of user comprehension, and the legal and regulatory climate (Sulaiman et al., 2019). A lack of internet connectivity hinders Internet-based apps. In contrast, Iraq's lack of e-payment networks has hampered the growth of e-payments.

#### III. RESEARCH MODEL AND HYPOTHESIS

The research model's theoretical framework is built on existing technology acceptance models and ideas. Reviewing the prior studies on the acceptance of recent technology or innovations shows several applicable models, such as the Theory of Reasoned Action, the Theory of Planned Behavior, the Technology Acceptance Model (TAM), and the Unified Theory of Acceptance and Use of Technology. This study identifies three components from TAM and two factors, perceived security and perceived trust, from the literature on technology innovation. Fig. 1 demonstrates the conceptual model. The hypotheses on the model's relationships are detailed in later parts.

# A. Perceived Ease of Use

The extent to which an individual believes that utilizing a particular system would be free (Davis, 1989). If the technology is easy to use, then the barriers have been vanquished; however, if it is not easy to use and the boundary is convoluted, no one has a positive attitude towards it. As a result, the following hypothesis is constructed:

H1. Perceived ease of use has a significant relationship with e-wallet usage in the Kurdistan Region

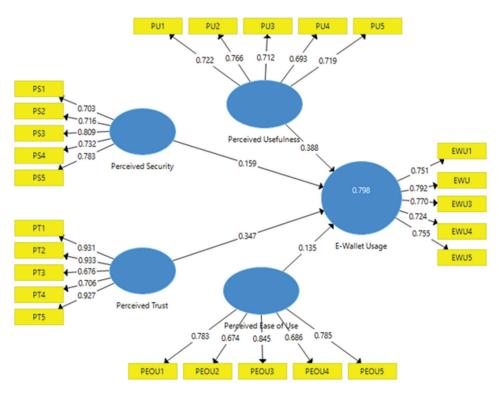


Fig. 1: Path coefficient results.

# B. Perceived Security

Security can be defined as "the ability to maintain and keep the sensitive personal information from any changing, destruction, disclosure, and waste or taken by unauthorized people such as hackers and internet interlopers" (AL-Maaitah et al., 2015). Perceived security might be one of the critical factors determining e-wallet acceptance (Liu and Tai, 2016). Perceived security has been added to TAM in several studies (Azman et al., 2021; Ming and Jais, 2022; Undale et al., 2020), for instance, employ the TAM to explore the factors that influence the propensity to use mobile payment services. According to Hanzaee and Alinejad (2012), the significance and strength of their relationship were demonstrated by the results of previous research by researchers who studied the adoption of e-payments by Iranian consumers. The subsequent hypothesis will be developed:

H2. Perceived Security has a significant relationship with e-wallet usage in the Kurdistan Region

#### C. Perceived Trust

Trust is "the belief that an individual will have his transactions reliably accomplished" (Liu and Tai, 2016). According to the research, individuals continually seek to adopt highly trusted systems. Individuals' sentiments regarding e-wallet adoption are heavily influenced by their level of trust in the system (Liu and Tai, 2016). Studies in this area have found a strong correlation between trust and usage. Hence, the following hypothesis is formulated:

H3. Perceived trust has a significant relationship with e-wallet usage in the Kurdistan Region

# D. Perceived Usefulness

As a measure of customer confidence, perceived usefulness can be defined as the belief that adopting a particular technology can improve one's performance (Davis, 1989). Electronic wallets are an excellent way to make payments when individuals cannot meet face-to-face, such as when individuals are on a self-imposed quarantine. Furthermore, e-wallets can be used as an alternative payment system to help the authorities reduce the spread of COVID-19. According to previous studies, e-wallet use is strongly linked to perceived usefulness (Mei and Aun, 2019). As a measure of customer confidence, perceived usefulness can be defined as the belief that adopting a particular technology can improve one's performance (Davis et al., 1989). Electronic wallets are an excellent way to make payments when individuals cannot meet face-to-face, such as when individuals are on a self-imposed quarantine. Furthermore, e-wallets can be used as an alternative payment system to help the authorities reduce the spread of COVID-19. E-wallet use is strongly linked to the perception of usefulness, according to the previous studies. Thus, the following hypothesis is proposed by the present study.

H4. Perceived usefulness has a significant relationship with e-wallet usage in the Kurdistan Region

#### IV. METHODOLOGY

## A. Data Collection

In this study, we prepared some samples as a paper. Questions, we asked 99 lecturers from the University of Cihan-Erbil who used FastPay as an e-wallet. They respectfully responded to our requirements and gave their

opinion about FastPay and the importance of Electronic Wallet for themes.

# B. Instrument Development

The survey used in this study consists of three parts. Part one is related to demographic information from the participants. The second part deals with the FastPay usage, and the final part consists of 25 items on a five-point Likert scale about five factors, as mentioned in Table I. Most of the items were adapted from previous studies such as Davis et al., 1989; Karim et al., 2020; and Undale et al., 2020.

#### V. DISCUSSION OF FINDING

# A. Demographic Profile

The sample illustrates the responses from University teachers in Erbil Province, which were prepared 99 samples in total. However, a total of 99 vailed data were analyzed, including gender, age, educational level, and academic ranking, as shown in table below:

The demographic profile of our 90 respondents is depicted in Table I and Fig. 2. Most of our respondents are males, while the proportion of female respondents is in the minority. There were a total of 90 respondents, and 76.7% of them were male (69 respondents). Another 35.6% of respondents are female (21 respondents), making the total number of respondents 90. The ages of those who responded are shown in Table II and Fig. 3 below. The majority of respondents are between the ages of 35 and 39. This age range accounts for 40% of all respondents, and we collected this information using the questionnaire survey sent to high schools and universities. There are 5.6% of the respondents aged under 29, 32.2% of the respondents are aged between 30 and 34, 13.3% of respondents are aged between 40 and 44, 6.7% of the respondents are aged between 45 and 49, 2.2% of the respondents are aged 50-54, and 0 % respondent are aged 55-59 and above. From the result, we can conclude that majority of the respondents are aged between 35 and 39, which represents 40% of 100%.

For the qualification of the study's respondents, we have three categories. Starting from high diploma is the majority which represents 62 %, Master's 35.6 %, PHD 2.2 %. This shows the result in Table II.

# B. E-Wallet Usage

In this study, we found the majority of Fastpay users using Fastpay wallet for 1.3 years which is the highest volume of the survey that's we respondents, representing 73% which respondents were 66, less than 1 month respondents two which represents 2.2%, 1–3 month were respondents four which represents 4.4%, 4–9 month were respondents 17 which represents 18.9%, and the last one 4 years above which represents only 1.1% of the total of the respondents: result Table II and Fig. 3.

Among the 90 respondents, it can be seen that most have used Fastpay once per month, 59 respondents, representing 65.6%. According to the result, we will understand they do not use Fastpay e-wallet daily and do not accept FastPay as part of their lives. The majority use 1 time per month, and the others, never used 0 respondents, which represents 0%, once per month, 59 respondents, which represents 65.6%, a few times

TABLE I RESPONDENT PROFILE

Profile	Frequency	Percent	
Gender			
Male	69	69.4	
Female	30	29.6	
Age			
25–30 years	5	5,6	
31–35 years	29	32.2	
36–40 years	36	40	
41–45 years	12	13.3	
46–50 years	6	6.7	
51–55 years	2	2.2	
56–60 years	5	5.5	
Over 60 years	4	3.3	
Education			
High diploma	9	9.09	
Master	68	68.68	
PhD	22	22.22	
Academic ranking			
Assistance lecturer	48	48.49	
Lecturer	36	36.36	
Assistance professor	12	12.12	
Professor	3	3.3	

TABLE II FASTPAY FREQUENCY USAGE

Measure	No. of respondents	Percentage				
How long have you been using FastPay respondents						
Less than a month	2	2.2				
1–3 month	4	4.4				
4–9 month	17	18.9				
1–3 years	66	73.3				
4 years above	1	1.1				
How often do you use FastPay						
Never used	0	0				
Once per month	59	65.6				
Few times per month	17	18.9				
Once per week	12	13.3				
Few times per week	2	2.2				
Every day	0	0				
How often do you use FastPay for	r transferring money					
Never used	54	60				
Once per month	23	25.6				
Few times per month	8	8.9				
Once per week	4	4.4				
Few times per week	1	1.1				
Every day	0	0				

TABLE III Hypotheses Testing Results

Hypotheses	Beta	SM	SD	T	P-value	Decision
Perceived ease of use ->E-wallet usage	0.135	0.145	0.057	2.375	0.018	Accept
Perceived security - >E-wallet usage	0.159	0.166	0.063	2.499	0.013	Accept
Perceived trust - >E-wallet usage	0.347	0.325	0.089	3.875	0.000	Accept
Perceived usefulness ->E-wallet usage	0.388	0.395	0.075	5.189	0.000	Accept

SM: Sample Mean, SD: Standard deviation, T: T-statistics, P: P value

per month, 17 respondents, which represents 18.9%, once per week 12 respondents which represent 13.3%, few times per week 2 respondents which consist of 2.2%, and the last one everyday which has 0 respondents and represents 0%, only a small number of respondents using Fastpay e-wallet weekly not even daily. Results are presented in Table II and Fig. 3.

In this study, among the total of 90 respondents in our survey, we found that most of the Fastpay users do not use Fastpay for transferring money. The majority who chose never to use Fastpay for transferring money were 54 respondents, which represents 60% of the total, 23 respondents used ones per month which represented 25.6 %, few times per month respondents eight, which represents 8.9, once per week, 4 respondents which represents 4.4%, few times per week only one respondent which represents 1 %, and the last one every day which has no respondents, as a result, according to our survey, high level educational of community do not use Fastpay wallet for transferring money. Table II and Fig. 3 consist of data analyzed.

The present study concludes that most Fastpay users use the Fastpay wallet only to buy mobile cards or internet cards. As it can be noted in Fig 3 that 92.2% of the respondents using e-Wallet for purchasing internet cards, and 46.7% of the respondents using it for purchasing mobile cards per month. The results can be interpreted that the respondents of our survey are teachers at universities and schools as they need internet and mobile card rather than the other options e-Wallet provided

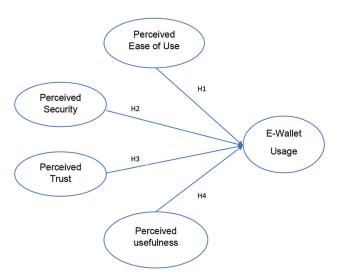


Fig. 2: Research model.

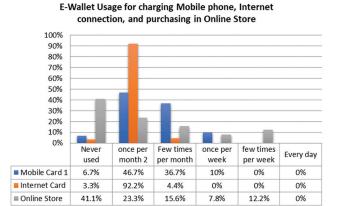


Fig. 3: E-wallet usage.

#### C. Research Model Assessment

Before evaluating, the measurement model, reliability, convergent, and discriminant validity should all be validated. In this study, internal consistency reliability was evaluated using Cronbach's Alpha and composite reliability, and there value was higher than 0.7, as shown in Table II. The research proposed factor loading and average variance extracted (AVE) for determining convergent validity for assessment. As a result, both measures were ascertained, as the factor loading was all over the required value of 0.7 and the AVE values were more than 0.5, as shown in Table IV.

#### D. Measuring Discriminant Validity

According to Hair et al. (2013), discriminant validity distinguishes one construct from others. Fornell-Larcker, one of the methods for determining discriminate validity, suggests that the square root of AVE should be greater than its connection with other variables. The square root of AVE is given, and the relationships are shown in Table V. The square root of AVE was larger in each diagonal value than the comparable correlations, indicating that the discriminant was achieved.

TABLE IV

Internal Consistency and Convergence Validity Results

Constructs	Items	FL	CA	CR	AVE
E-wallet usage	EWU1	0.751	0.816	0.872	0.710
	EWU2	0.792			
	EWU3	0.770			
	EWU4	0.724			
	EWU5	0.755			
Perceived ease of use	PEOU1	0.783	0.814	0.870	0.576
	PEOU2	0.674			
	PEOU3	0.845			
	PEOU4	0.686			
	PEOU5	0.785			
Perceived security	PS1	0.703	0.807	0.865	0.573
	PS2	0.716			
	PS3	0.809			
	PS4	0.732			
	PS5	0.783			
Perceived trust	PT1	0.931	0.891	0.923	0.562
	PT2	0.933			
	PT3	0.676			
	PT4	0.706			
	PT5	0.927			
Perceived usefulness	PU1	0.722	0.773	0.845	0.523
	PU2	0.766			
	PU3	0.712			
	PU4	0.693			
	PU5	0.719			

CR: Composite reliability; CA: Cronbach's alpha; AVE: Average variance extracted

TABLE V
DISCRIMINANT VALIDITY – FORNELL AND LACKER CRITERION

Constructs	E-wallet	Perceived	Perceived	Perceived	Perceived
	usage	ease of	security	trust	usefulness
		use			
E-wallet usage	0.759				
Perceived ease of use	0.753	0.757			
Perceived security	0.674	0.609	0.750		
Perceived trust	0.707	0.762	0.626	0.843	
Perceived usefulness	0.697	0.661	0.556	0.666	0.723

# E. Structural Model Assessment

The structural model deals with how the latent variables relate to one another. Two methods are proposed to evaluate the structural model: hypothesis testing and coefficient of determination (R2). First, the coefficient of determination (R2) is used to assess the structural model's predictive ability. The model has the predictive ability to determine 0.798 of the variation in the use of e-wallet, as shown in Fig. 1.

Second, the finding hypothesis testing is shown in Table III, as a result showed that perceived ease of use ( $\beta = 0.135$ , t = 2.375, P = 0.018), perceived security ( $\beta = 0.159$ , t = 2.499, P = 0.013), perceived trust ( $\beta = 0.347$ , t = 3.875, P = 0.000), and perceived usefulness ( $\beta = 0.388$ , t = 5.189, P = 0.000) influenced e-wallet usage and revved that all of the proposed hypothesis (H1, H2, H3, and H4) are accepted.

#### VI. CONCLUSION

This research is being conducted in the Kurdistan Region of Iraq to determine the factors that influence the use of electronic wallets in that region. In addition, this research suggests an electronic wallet adoption model regarding technology usage models so that individual patterns regarding electronic wallet apps can be identified. The empirical findings also suggested that a higher degree of perceived usefulness and simplicity will likely attract more consumers to adopt e-wallets. Interestingly, another finding of this paper was that the perception of safety and trust strongly impacted the use of electronic wallet services. This study does have several shortcomings, which need to be pointed up. The sample size needs to be raised before the findings can be generalized, and on top of that, the data were only collected from a single place of business. Future research could be preferred to use the same topic concerning the accounting view.

#### VII. RECOMMENDATION

The present study comes up with the following recommendations to increase the level of e-wallet usage in the Kurdistan Region.

- 1. The study strongly recommends e-wallet application in Iraq to add more options into their system to attract more people, such as providing cashback and discounts.
- 2. The study suggests that e-wallet applications contract with the government to facilitate the payment method of electricity and water bills payment for citizens.
- 3. The researcher recommended that e-wallet applications provide rewards and offer to their users every 2 or 3 months to increase the level of usage.
- The last recommendation to the e-wallet companies in the Kurdistan region is to increase the security and privacy of their e-wallet application.

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