

Determinants of Mobile Wallet Service Usage**Aws Yhya Abed¹ and Anas Al-Haj Hussein²**¹Department of Business and Management, Faculty of Administrative Sciences and Economics,²Department of accounting, Faculty of Administrative Sciences and Economics,

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Abstract:

The advancements in mobile technologies have changed the way that people interact with many aspects of their daily life. People in the Kurdistan Region of Iraq (KRI) are interested in mobile payment services as they support the user's mobility and enhance their ability to pay “whenever and wherever”, moreover, increasing their capability to bypass the financial sanctions imposed against the use of some e-payment services such as PayPal.

This paper stands among the few studies done in the KRI that tackle the Mobile Wallet Service (MWS) and aim to shed light on the current literature related to it, furthermore, the study tries to get an insight into people’s willingness to use such a service in the KRI.

the research has adopted the Unified Theory of Acceptance and Use of Technology (UTAUT) for using the MWS. A questionnaire was designed for the UTAUT was distributed online for access in KRI, for a sample of 203 respondents in which 36.9% responded that they do not use this service because of many reasons, on top of them were the zero-interest level, lack of awareness of the service, and security concerns.

The statistical analysis showed results that the intention of using the Mobile Wallet Service (MWS) was slightly affected by the performance expectancy, effort expectancy, social influence, and the facilitating condition of using this payment service, while the privacy risk had no impact at all which do not come along with other studies conducted in this field and can pave the way to other researchers to investigate deeper and in other factors such as security and readiness.

Keywords: Mobile Wallet Service (MWS), Unified Theory of Acceptance and Use of Technology (UTAUT), Privacy Risk.

Introduction:

With its estimated, 1.17 billion users worldwide in 2020 (Kranjec, 2020) mobile wallets are set to be one of the promising services which help users to move without the burden of carrying cash around and to utilize the potentials of the advancements of mobile technology. In Iraq, many mobile wallet services are available including FastPay, which is provided by Fastlink, one of the leading internet providers in the Kurdistan region of Iraq, and NassWallet, powered by Nasspay a company that offers prepaid cards, ZainCash and AsiaHawala are more options available and

provided by Zain Iraq and Asiacell which are two of the telecommunication companies operating in Iraq. Mobile wallets are slowly getting popular, and people are starting to recognize their potential especially with the rise of the COVID-19 pandemic which escalated the need for such services to cope with the various services which emerged during the lockdown issued by the local governments.

Currently, mobile wallets offer the option to buy both mobile and internet credit from the leading operators, furthermore, a user can pay for limited local stores and online shopping services. Sending and receiving money is also available between wallet users from the same provider. Payment for internet cards (such as google play, iTunes, Xbox, and PlayStation gift cards) is also one of the services which created a way to bypass the sanctions which forbid Iraq from buying from such companies.

Mobile Wallet Service:

Powered by the recent advancements in telecommunication and mobile technology (Yadav, 2016), Mobile wallets (M-wallets) services can be listed among the important inventions of the twenty-first century, as they eliminate the need to carry cash while making payments (Chawla & Himanshu, Role of Mediator in Examining the Influence of Antecedents of Mobile Wallet Adoption on Attitude and Intention, 2020) and carries a high level of usability and financial benefit (Lee, Yun, Lee, & Lee, 2015). The advancements in mobile devices and mobile technology allowed customers to purchase products and use services using such mobile-powered wallets (Lew, Tan, Loh, Hew, & Ooi, 2020).

In M-wallets, the paper money is transformed into an electronic form (Islam & Hossain, 2015). users can utilize the commercial and financial aspect of mobile technology to store their debit or credit card details, make purchases, and request or send money. M-wallets can support multiple business models (Singh & Sinha, 2020) and can store various information such as credit card information, billing and shipping details, owner identification, contact information, and other information which makes it act just like a physical wallet (Lew, Tan, Loh, Hew, & Ooi, 2020). Furthermore, it can replace the need of carrying multiple cards along with the cash itself as it provides many financial and mobile-based offerings (Sunny & George, 2018).

M-wallets utilize passwords, face ID, and other biometric validations to authenticate the operation which allows the information to move from one wallet to another in a secured way, in addition, M-wallets employ quick response (QR) codes to give a more convenient way of such authentications and transitions (Jin, Seong, & Khin, 2020) (Megadewandanu, Suyoto, & Pranowo, 2016). M-wallets can be recharged with money by a credit/debit card or internet banking, and it can be utilized to do offline and online payments. Various transactions from the customer side, such as customer to customer, to business, to machine or to online are all possible through the M-wallet (Chawla & Joshi, 2019).

The Unified Theory of Acceptance and Use of Technology (UTAUT) and Privacy Concerns:

Before reaching the UTAUT many theories have been developed and validated. Reviewing the literature related to the goal of the study has revealed such theories and if we list the most important ones, we start with the theory of reasoned action (TRA) developed by (Flanders, Fishbein, & Ajzen, 1975), followed by the technology acceptance model (TAM) which was delivered to us by Davis (1989), Tornatzky & Fleischer (1990) presented the technology-organization and environment (TOE) framework, and Ajzen (1991) came with the theory of planned behavior (TPB), the diffusion of innovations (DOI) theory is also one of the notable theories in the field (Rogers, 1995). All the above-mentioned theories and frameworks paved the way for Venkatesh, Morris, Davis, & Davis (2003) to develop the unified theory of acceptance and use of technology (UTAUT).

Developing the (UTAUT) was done by Venkatesh et al, (2003) through a comprehensive analysis and review of the main models in the technology adoption field. The aim was to spot any plurality issues in the models and omit the similar/redundant constructs. UTAUT is considered as an important model as it covered multiple theories and real-world data set were used for testing (Im, Hong, & Kang, 2011).

Through their analysis, Venkatesh et al, (2003) came with four factors which build their model by the analyses of eight of the previous models, these factors can be used to measure the acceptance of technology for employees in an organizational manner. The four factors can be listed as performance expectancy, effort expectancy, social influence, and facilitating conditions (Oye, Lahad, & Rahim, 2014). In comparison to TAM which consists of the perceived usefulness (PU) and the perceived ease-of-use (PEOU). In relation to the TAM model, perceived usefulness is related to a great extent to UTAUT's performance expectancy, which refers to how much the user believes in the performance will be improved when using the new system. While the perceived ease of use is matching with the effort expectancy which can be defined as how easy using the system is. The third factor (social influence) refers to the extent to which the user is aware of the belief that key people in his or her immediate environment should use the new technology. lastly facilitating conditions are the levels of confidence in a system's ability to facilitate the usage of a new system methodically and technically (Lee, Lee, & Rha, 2019).

TAM and UTAUT have been improved in terms of their predictive ability by introducing TAM2 (Venkatesh & Davis, 2000) and UTAUT2 (Venkatesh, Thong, & Xu, 2012) which can be considered as two of the major frameworks which have been employed to explain the intention and adoption of using technology (Raajj & Schepers, 2008) .

the UTAUT model is frequently utilized and validated by most of the empirical studies which aim to measure the acceptance and adoption of new technology (Koenig-Lewis, Marquet, Palmer, & Zhao, 2015). But its most significant issue is its inability to consider the impact of culture in the adoption of new technologies. Such limitations paved the way for the previously mentioned extensions. (Yadav, 2016).

The UTAUT model has been used and validated by many studies in the finance and technology field, such as mobile banking, mobile payments, mobile cards, and mobile wallets (Slade, Dwivedi,

Piercy, & Williams, 2015) (Teo, Tan, Ooi, & Lin, 2016) (Lee, Yun, Lee, & Lee, 2015). Therefore, the study proposed the below set of hypotheses to examine how each factor in the UTAUT model affect the intention to use M-wallet services:

H1. Performance expectancy has a positive effect on the intention to use M-wallet services.

H2. Effort expectancy has a positive effect on the intention to use M-wallet services.

H3. Social influence has a positive effect on the intention to use M-wallet services.

H4. Facilitating conditions have a positive effect on the intention to use M-wallet services.

According to Zhou T. (2012), we can define Privacy concern as the concern of users on the disclosure of their personal data. Smith, Milberg, & S. J. Burke, (1996) argues that unauthorized access, secondary access, collection, and errors can be considered as types of privacy concern. for new services such as M-Wallet, de Sena Abrahão, Moriguchi, & Andrade (2016) argue that consumers demand more security and privacy. To consumers, many new products/services are risky by default. In the case of e-commerce adoption, non-adapters have raised a lot of security and privacy concerns (Slade, Williams, Dwivedi, & Piercy, 2015).

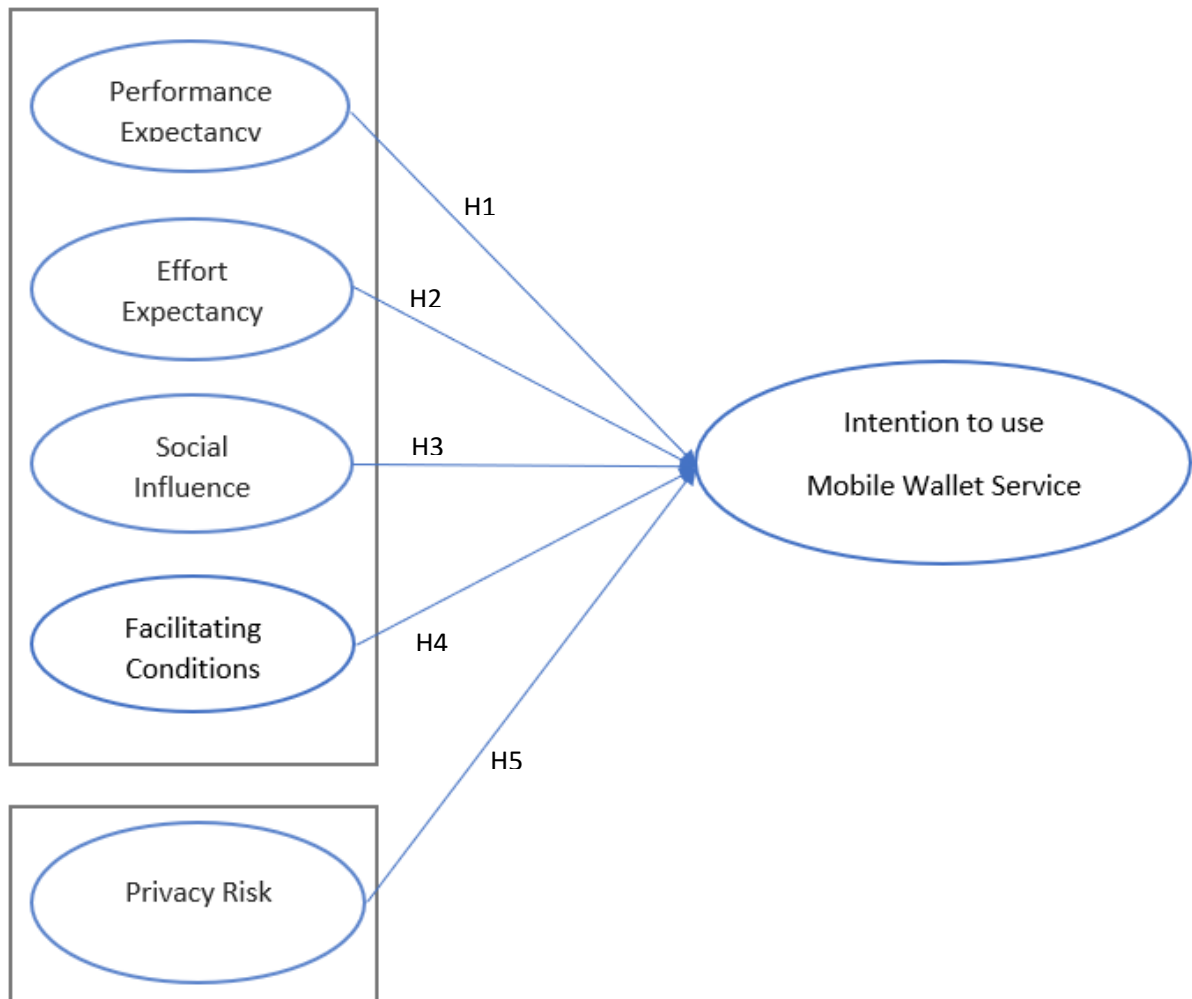
(Zhou, Lu, & Wang, 2010) did a study to examine the relationship between privacy risk and the UTAUT model to get insight on the adoption of the m-wallet and to investigate the reason behind the low use among users in China. Zhou's study concluded that the intention to use was tied with the enabling conditions, risk, and performance expectations. Lee, Lee, & Rha (2019) did another study that tackled the privacy risk with the moderating effect of gender and reported that the privacy risk does not affect on males but decreases the intention to use for females. (Reith, Buck, Eymann, & Lis, 2020)emphasize that there is a lack of studies conducted about the information system which collects sensitive data in which combines the acceptance of technology and the privacy factor.

In line with the above mentioned, the following hypothesis is proposed:

H5. Perceived privacy risks have a negative effect on the intention to use MPS.

Study Model:

The researchers implemented the Unified Theory of Acceptance and Use of Technology (UTAUT) model and adjusted it by adding another factor which is the “privacy risk” and the following graph shows the study model of this research with the related hypotheses.



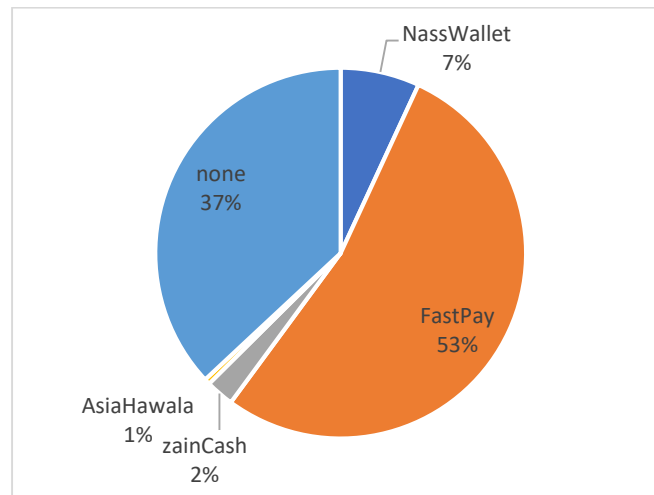
Methodology

1. Data collection tool

The model adopted in this study includes six variables, each of them was measured using several statements, which were adapted from different research and tailored for MWS. Each of these statements was scaled using a five-point Likert scale, with a range from “strongly agree” to “strongly disagree”. The questionnaire used in this study is adapted from the study of (Lee, Lee, & Rha, Determinants of Mobile Payment usage and the moderating effect of Gender: extending the UTAUT Model with privacy risk, 2019) where four variables were measured using the UTAUT model and measured by twelve statements, in addition to four statements to measure privacy risks and three statements to measure the intention to use MWS.

2. Sample and data collection

The sample represents consumers from KRI, where four MWS providers are operating “FastPay, NassWallet, ZainCash, AsiaHawala”, Data were collected via an online questionnaire during March and April 2021. The data were collected from 203 respondents, where 75 (36.9%) of them answered that they do not use this service, which makes the sample size of this study 128.



3. Analysis Methodology

The researchers used SPSS for the hypothesis testing which included reliability test, correlation, and regression analysis. The regression analysis was conducted in two steps: linear regression analysis for each independent variable and a multiple linear regression analysis.

Results:

1. Validity and reliability results

The researchers used the Cronbach's alpha coefficient to measure the internal consistency of the variables, the result came with a value of 0.854 as in table (1), which indicates that variables used in this model are reliable since the coefficient is above 0.70, according to (Nunnally & Bernstein, 1994). KMO and Bartlett's Test was used to check the validity of the scales and as seen in the table (2) the KMO index shows 0.847 with a significant value ($p < .05$), which means that the scales are valid and the sample is adequate (Vogt & Johnson, 2015).

Table (1)

Reliability Statistics

Cronbach's Alpha	N of Items
.854	19

Table (2)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.847
Bartlett's Test of Sphericity	Approx. Chi-Square
	248.012
	df
	15
	Sig.
	.000

2. Model testing

For the testing the UTAUT model the researchers conducted a linear regression test for the following correlations and regression tests for each of the following hypothesis

H1: Performance Expectancy has a significant effect on the Intention To Use The MWS

Table (3) shows a moderate positive correlation of 0.581, where the R^2 is 0.338 which that 33.8% of the intention to use MWS can be explained by performance expectancy, and the ANOVA table shows a significance level of 0.000 and that indicates that there is a significant medium correlation but with a little effect for performance expectancy on the intention to use MWS.

While table (5) shows how to predict the performance expectancy from the intention of users to use MWS, which can be expressed as the following equation:

$$\text{Intention to use mobile wallet Service} = 1.361 + 0.639 (\text{performance expectancy})$$

Table (3)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.581 ^a	.338	.333	.74390

a. Predictors: (Constant), Performance Expectancy

Table (4)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.598	1	35.598	64.327	.000 ^b
	Residual	69.728	126	.553		
	Total	105.326	127			

a. Dependent Variable: Intention to use Mobile Wallet Service

b. Predictors: (Constant), Performance Expectancy

Table (5)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.361	.316		4.305	.000
	Performance Expectancy	.639	.080	.581	8.020	.000

a. Dependent Variable: Intention to use Mobile Wallet Service

H2: Effort Expectancy has a significant effect on the Intention To Use The MWS.

Table (6) shows a moderate positive correlation of 0.583, where the R^2 is 0.339 which that 33.9% of the intention to use MWS can be explained by effort expectancy, and the ANOVA table shows a significance level of 0.000 and that indicates that there is a significant medium correlation but with a little effect for effort expectancy on the intention to use MWS.

While table (8) shows how to predict the effort expectancy from the intention of users to use MWS, which can be expressed as the following equation:

$$\text{Intention to use mobile wallet Service} = 1.919 + 0.484 (\text{effort expectancy})$$

Table (6)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.583 ^a	.339	.334	.74307

a. Predictors: (Constant), Effort expectancy

Table (7)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.755	1	35.755	64.756	.000 ^b
	Residual	69.571	126	.552		
	Total	105.326	127			

a. Dependent Variable: Intention to use Mobile Wallet Service

b. Predictors: (Constant), Effort expectancy

Table (8)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.919	.248		7.745	.000
	Effort expectancy	.484	.060	.583	8.047	.000

a. Dependent Variable: Intention to use Mobile Wallet Service

H3: Social Influence has a significant effect on the Intention To Use The MWS.

Table (9) shows a moderate positive correlation of 0.538, where the R^2 is 0.290 which that 29% of the intention to use MWS can be explained by Social Influence, and the ANOVA table shows a significance level of 0.000 and that indicates that there is a significant medium correlation but with a little effect for Social Influence on the intention to use MWS.

While table (11) shows how to predict the Social Influence from the intention of users to use MWS, which can be expressed as the following equation:

$$\text{Intention to use mobile wallet Service} = 2.087 + 0.503 (\text{Social Influence})$$

Table (9)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.538 ^a	.290	.284	.77052

a. Predictors: (Constant), Social influence

Table (10)

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.520	1	30.520	51.406	.000 ^b
	Residual	74.806	126	.594		
	Total	105.326	127			

a. Dependent Variable: Intention to use Mobile Wallet Service

b. Predictors: (Constant), Social influence

Table (11)

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.087	.254		8.221	.000
	Social influence	.503	.070	.538	7.170	.000

a. Dependent Variable: Intention to use Mobile Wallet Service

H4: Facilitating Conditions have a significant effect on The Intention To Use The MWS.

Table (12) shows a moderate positive correlation of 0.511, where the R² is 0.261 which that 26.1% of the intention to use MWS can be explained by Facilitating Conditions, and the ANOVA table shows a significance level of 0.000 and that indicates that there is a significant medium correlation but with a little effect for Facilitating Conditions on the intention to use MWS.

While table (14) shows how to predict the Facilitating Conditions from the intention of users to use MWS, which can be expressed as the following equation:

$$\text{Intention to use mobile wallet Service} = 1.848 + 0.523 (\text{Facilitating Conditions})$$

Table (12)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.511 ^a	.261	.255	.78596

a. Predictors: (Constant), Facilitating conditions

Table (13)

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.492	1	27.492	44.504	.000 ^b
	Residual	77.834	126	.618		
	Total	105.326	127			

a. Dependent Variable: Intention to use Mobile Wallet Service

b. Predictors: (Constant), Facilitating conditions

Table (14)

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.848	.307		6.027	.000
	Facilitating conditions	.523	.078	.511	6.671	.000

a. Dependent Variable: Intention to use Mobile Wallet Service

H5: Perceived Privacy risks have a significant effect on the Intention To Use The MWS.

Table (15) shows a moderate positive correlation of 0.538, where the R^2 is 0.290 which that 29% of the intention to use MWS can be explained by Privacy Risk, and the ANOVA table shows a significance level of 0.000 and that indicates that there is a significant medium correlation but with a little effect for Privacy Risk on the intention to use MWS.

While table (17) shows how to predict the Privacy Risk from the intention of users to use MWS, which can be expressed as the following equation:

$$\text{Intention to use mobile wallet Service} = 1.919 + 0.503 (\text{Privacy Risk})$$

Table (15)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.538 ^a	.290	-.007	.91398

a. Predictors: (Constant), Privacy Risk

Table (16)

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.070	1	.070	.084	.773
	Residual	105.256	126	.835		
	Total	105.326	127			

a. Dependent Variable: Intention to use Mobile Wallet Service

b. Predictors: (Constant), Privacy Risk

Table (17)

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.906	.237		16.449	.000
	Privacy Risk	-.021	.073	-.026	-.289	.773

a. Dependent Variable: Intention to use Mobile Wallet Service

Findings

According to the previous analysis we can summarize the findings in the following table

Table (18)

Structural Path	R	R Square	sig	Result	Impact equation
H1. PE → IU	.581	.338	.000	Accepted	IU = 1.361 + 0.639 PE
H2. EE → IU	.583	.339	.000	Accepted	IU = 1.919 + 0.484 EE
H3. SI → IU	.538	.290	.000	Accepted	IU = 2.087 + 0.503 SI
H4. FC → IU	.511	.261	.000	Accepted	IU = 1.848 + 0.523 FC
H5. PR → IU	.026	.001	.773	Not accepted	IU = 1.919 + 0.503 PR

Conclusion:

As technology is forcing itself in every aspect of our lives, the usage of modern e-payments technologies is keeping to increase. The study showed that several factors are affecting the intention to use the mobile wallet service to pay for different kinds of products and services that vary from one operator to another.

The impact on the intention of using the mobile wallet services in KRI is basically the result of a mild effect of four factors, these factors are performance expectancy, effort expectancy, social influence, and the facilitating conditions of the service. While privacy risk of using the service has no impact at all.

The mild effect of the above-mentioned factors could be the reason for the new emerging economy of KRI or the conservative habits of closing the deals (like cash, cheques, ETF ... etc.); however, the researchers asked the respondents who have been excluded from the sample, 75 out of the total of 203, for the reasons they do not use the Mobile Wallet Service, and their answers varied to three reasons: security/privacy concerns, lack of interest, and lack of awareness of the service.

Recommendation:

Following the findings and the results of this study, the researchers believe that MWS providers in KRG should improve their marketing schemes with emphasizes on raiding the awareness of the community about the quality of this service. Moreover, the MWS providers should also pay attention to the privacy concerns of the customers either by improving it or promoting how secure it is. Moreover, the researchers believe that more research should be conducted using the ATUAT2 module which examines the user behavior in addition to the intention to use the service.

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