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Determinants of Customer Intention to Adopt Mobile Wallet Technology

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Abstract: The primary goal of this paper is to find out what variables in in Saudi Arabia affect people's intentions to utilize m-wallet systems. To account for the characteristics of mobile payment services, a study model was created. Different ideas in the area of technological acceptability were included into this model. Data acquired from 438 users using an online survey questionnaire was used to undertake Structural Equation Modeling (SEM) and Confirmatory Factor Analysis (CFA) to verify the model. According to the results, seven important factors significantly impact in Saudi Arabian consumers' intents to utilize m-wallet services. Factors such as perceived utility, usability, trust, compatibility, subjective standards, trustworthiness, and trainability impact the desire to adopt. Nonetheless, there was no statistically significant relationship between payment behaviors and adoption intention. In addition, the results showed that people's inclination to utilize im-wallets was most affected by perceived utility and least by subjective standards. A little effect of trust on intention was seen.The paper addresses a knowledge vacuum in the existing literature on mobile wallet usage in developing nations by investigating potential motivators and deterrents for consumers to use these services. In addition, it creates and verifies an integrated technology acceptance model that has a 60% explanatory power in non-Western settings, meaning it can explain and forecast prospective users' intents towards technology adoption. Finally, by identifying the relative relevance of the identified contributing elements and giving particular tactics, it provides practical advice for boosting consumers' adoption of m-wallet services in developing nations. In its last section, the study addresses its shortcomings and makes recommendations for more investigation.

Keywords: confirmatory factor analysis, structural equation modelling, Saudi Arabia, payment behaviors

1 Introduction

The rapid advancement of technology in recent years has drastically reshaped the financial services industry, particularly in payment systems. Mobile wallet technology, often referred to as mobile payment or e-wallets, represents one of the most significant innovations in the fintech sector. A mobile wallet enables users to store payment information on their smartphones and conduct financial transactions, such as transferring money or making purchases, without needing physical cash or cards. At the same time, technology is fast evolving and this has changed the way consumers now engage in financial transactions. However, mobile wallet technology has rapidly evolved as a distinctive alternative to traditional modes of payment and has developed in many regions, including the Arab world and developing economies such as Qatar and Saudi Arabia, where consumer-usage behavior is least explored in the academic literature [1,2]. For service providers and policymakers, an understanding of the important area of the determinants of customer intention in adopting this technology for mobile wallet technology services should

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be channelled toward the improvement of financial inclusion and hastening digital transformation. Some of the major determinants, according to past studies, include perceived usefulness, ease of use, and trust in the technology, which together create a conducive environment for acceptance by the customer of mobile payment solutions [2]. Besides, social influence and perceived sense of security act as the main propellers in consumer intention formation since most individuals are motivated by their peers' experiences and behaviors when they make decisions to involve themselves with new financial technologies. Therefore, the technological and sociocultural factors have to be addressed in investigating the adoption of mobile wallets [2,3,4,5].

In addition, COVID-19 has significantly accelerated the pace of digital change in the payment landscape, and an ever-increasing number of clients are gradually recognizing the necessity and convenience of mobile wallets within a contactless world and, hence, more importantly accentuating the relevance of factors that drive their adoption within developing economies [2,4,5]. Initiatives on the uptake of mobile payment technologies include regulatory support and infrastructure development that have been initiated by the Saudi Arabian Monetary Authority, now the Saudi Central Bank. Yet, despite these efforts, consumer adoption rates in the country are still not as robust as those witnessed in other nations, for instance, China and Sweden, which have taken the lead in matters of mobile wallet penetration. The importance of this is that the factors that propel and hinder mobile wallet adoption need to be investigated in this context. A lot of research has been done on the technology adoption behavior of consumers, and several theoretical frameworks will guide on understanding how new technologies are accepted and used. The Technology Acceptance Model (TAM), developed by Davis in 1989, is one of the most widely applied models in which perceived usefulness and perceived ease of use are regarded as two determinants that affect user intention toward new technology adoption. In addition, UTAUT developed by [6] further added factors such as social influence and facilitating conditions that determine technology adoption. Therefore, the application of these models in mobile wallet technology helps understand customer intentions in Saudi Arabia.

This has come from the problem statement that originated from the issue of not having very clear insights as to what propels or hinders the adoption of mobile wallet technology in the state of Saudi Arabia. Although the government has made big strides in issuing statements urging digital payments, there still exists a bridge between the availability of mobile wallet services and the rate at which consumers adopt them. The determinants influencing the adoption of mobile wallets among Saudi consumers can vary in this very distinct socio-cultural and economic environment. Thus, the findings from this research will indicate that the contributions derived will be such that they help the existing knowledge and insights for further policymaking, both for financial institutions and service providers, to drive innovation concerning higher technology adoption in mobile wallets in the country.

This paper focuses on the study of factors that affect customer intention toward the adoption of mobile wallet technology in Saudi Arabia. Many studies have emphasized that performance expectancy, social influence, and perceived information security play crucial roles as the key determinants in the adoption of mobile payment technologies, which are closely aligned with the objectives of this research to discern similar patterns within the Saudi context [2]. Furthermore, the influencing relationship of user perception to perceived usefulness on adoption has been established as a point that can drive mobile wallet technology acceptance especially in the digital transformation and new normal behaviors era, proven by recent research carried out in adjacent countries as regards adoption behavior towards utilization Mobile Payment during COVID-19. The theory of technology acceptance states that enjoyment or perceived ease of use for a mobile wallet should be positively related to the intention to adopt Mobile wallet platforms [2,3,5].

Given the recent emergence of mobile wallets in Saudi Arabia and limited academic research on acceptance, this study seeks to extend our understanding by examining key determinants influencing customer intention towards m-wallets. Survey results from consumers in Saudi Arabia's neighbouring countries, Qatar and the UAE underscore perceived usefulness and ease of use as antecedents to user intentions which might be helpful for research given that these determinants rank high among users there [7], especially at a time when KSA is making great strides forward with its digital transformation sped up by COVID-19 pandemic.

The overall framework that will be applied in this research will encompass several established theories of technology adoption, such as the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), and Theory of Planned Behavior (TPB). The TAM model states that the significant determinants for technology adoption are perceived ease of use and perceived usefulness. The UTAUT model includes social influence and facilitating conditions. Also, there is a need to distinguish individual and contextual factors since these have a greater influence on customers' behaviours when disaggregated by age group and gender, for which differences have been found in how people adopted the new technologies that are specific to the region of interest, such as what studies found for the different Arab consumers in adopting mobile payments.

It is, therefore, the objective of this paper to accept those factors that the consumers in Saudi Arabia perceived as significant for adopting and using mobile wallet technology. The study attempted to measure the objective influence of the subjective criteria, such as trust, compatibility, trialability, perceived value, and ease of

use. The research conducted a confirmatory factor analysis within a structural equation modeling framework to evaluate a proposed model based on established theories of technology acceptance in the hopes of finding a more comprehensive understanding of how the mobile payment system might be adopted. These findings are based on data from 438 respondents, with practical recommendations on how to better encourage wide adoption and support for mobile wallets in Saudi Arabia, particularly in low-income areas, where existing knowledge shows a critical gap. Further, such insights that this study may generate, into similar contexts and circumstances, contribute toward building another stake in the construction of a broader understanding of consumer behavior regarding the emergence of mobile wallet technology in emerging markets. Also, this study tries to fill a research gap and regards determinants that are different from the conventional ones that influence technology acceptance and determine its impact, for instance, on perceived enjoyment and user innovativeness, which have been already established to play a role in adoption decisions, in other contexts, for example the papers done by [4,8].

2 Literature Review

Previous research concerning the adoption of mobile wallet technology within emerging markets and, most importantly, the Gulf Cooperation Council region, has been filtered through various critical parameters that shape consumer intentions and behaviors. According to research, the likelihood of customers embracing mobile wallet technology is essentially influenced by perceived ease of use, trust in the service provider, and user experience factors. It emerges at a time when digital payments have taken center stage following a recent surge attributed to global health crises and consumer behavioral changes.

According to studies carried out in neighbouring countries, in particular, the United Arab Emirates and Qatar, perceived usefulness and perceived ease of use were the main factors for the adoption of mobile payment systems [4,5]. It is also established that social influence and recommendations from peers are key determinants of consumer attitudes towards mobile wallet technology. When one believes that the innovation will be prevalent or approved by people within his/her social circle, he/she will easily adopt the same [9].

In the case of Saudi Arabia, There are very little research effort has been made to understand the exact determinants for mobile wallet adoption [5,10]. It is this lack of in-depth research that creates an opportunity to further investigate the underlying distinctive socio-cultural and economic drivers of consumer behavior in this region. The trends of mobile payment usage among Arab consumers varied across the nine countries, showing differences worthy of exploration for strategies concerning propagation of the mobile wallet technology in this region [1]. In combination with the traditionally established constructs of TAM, including perceived usefulness and perceived ease of use, other factors like trust, compatibility, trialability, and perceived value have been emphasized by recent research in their role in empowering the diffusion of mobile financial services [11].

This growing prominence of mobile wallet technology worldwide has, therefore, led to increased interest in understanding the drivers towards its adoption. In Saudi Arabia, there is a wide adoption going on with respect to mobile wallets, this is mainly impelled by the increased usage of smartphones and an expanding digital payment infrastructure. Hence, backed by how consumer behaviors are changing, the research question guiding this literature review is “What would be the determinants influencing customer intention to adopt mobile wallet technology in Saudi Arabia?” This review is conducted to synthesize available scholarly literature on this topic, identify key determinants, establish the role of cultural and contextual factors particular to Saudi Arabia, and point out gaps that can be addressed in future research. It shows, through the review of global and regional studies, that perceived ease of use, perceived security, social influence, and trust are major determinants for mobile wallet adoption while raising awareness about the design of localized approaches to take into consideration cultural nuances and consumer preferences in Saudi Arabia [3,4,8,12].

The literature identifies trust as one of the major factors influencing customer intention to adopt mobile wallets in Saudi Arabia. The role of trust in consumer behavior is very important when dealing with financial technologies, particularly where there is a perception of the high risk associated with online transactions and digital payments. Research in this regard indicates that trust in the technology, the service provider, and the entire regulatory environment has a significant impact on the willingness to adopt mobile wallet technology by consumers [13]. Building trust in the newer digital payment systems is thus extremely important for the purpose of adoption, especially in a country like Saudi Arabia where traditional systems of banking have been quite well established. Appropriately, it would be seen that various regulatory frameworks set up by the Saudi Arabian Monetary Authority (SAMA) were actually constituted to in still consumer trust and ensure secure transactions, further facilitates the growth of mobile wallet adoption [14].

Another critical determinant is perceived ease of use. If the technology is perceived to be simple, more people will adopt it, especially in Saudi Arabia, with differences in digital literacy among its population. Several researches prove that in case customers find the technology easy and not complicated to use and understand, then they engage more in mobile wallet adoption, even for those less tech-savvy [4]. For example, Alqahtani et al. [15] concluded that in Saudi Arabia, the

ease of use of the interface of a mobile wallet has a positive effect on its adoption, with this effect heightened in the younger population, which is very conversant with smartphone usage. The second is perceived usefulness, where consumers would rather adopt mobile wallet technology when it improves their daily activities, that is to say, offering more convenience and efficiency in transactions compared to the traditional means of payment [16]. Apart from trust, ease of use, and perceived usefulness, concerns about security and privacy have a great influence on the customer's intentions. If customers are concerned about the safety of personal and financial data, this could hamper the mobile wallet adoption process.

Authors like [14] focused on the aspect of security as the major issue in many customers' psyches, with reluctance to adopt mobile wallets due to possible fraudulent activities, identity theft, and data breaches. Such fears are gradually being allayed as providers of mobile wallets improve security through encryption and multi-factor authentication [15]. Another major determinant that cannot be ignored is social influence, more so considering Saudi Arabia's collectivist culture. Research indicates peers' opinions and behaviors as major factors, just like family members' opinions and societal norms impacting the decision to adopt technology such as mobile wallets. Findings by the UTAUT model borrowed in this direction lend support since social influence is one of the key predictors of technology adoption. Word-of-mouth and recommendations from influence figures in a community—the approach that is highly effective in a country like Saudi Arabia, where the structure of society is built upon social structures, family, and kin networks—can quicken the pace for the adoption of mobile wallets [4].

Furthermore, in Saudi Arabia, important cultural factors contribute somehow to complicating the process of accepting mobile wallets because of social norms and values, which are barriers to the positive perception of consumers in regard to digital financial services. They have to be taken into account when designing strategies toward improving mobile wallet adoption in the region [15]. Understanding cultural values about consumer behavior is important because such cultural factors as collectivism and religiosity may greatly influence technology perceptions, which, in their turn, will have an impact on the intention to adopt mobile wallets. In particular, collectivism and religiosity are factors that may significantly change the perception of technology and duly affect the intention to adopt mobile wallets in a context-sensitive manner. If it is structured well to address concerns raised by users through strategically tailored market campaigns that underline the advantages of having a mobile wallet bundled with its security features, this might go a long way in changing perceptions and improving adoption rates.

It would also help empower these consumers, increasing digital literacy and making them more comfortable using mobile wallet technology because of the fact that it is tied to some educative initiative. It might increase the adoption of mobile wallet technology within the different demographic segments of Saudi Arabia's population. As the years unfold, it becomes more imperative to ensure that stakeholders understand and try to influence, within this culturally rich landscape, the unique value drivers that affect customer acceptance of mobile wallet technology, and to ensure that the tips applied are not only effective but locally applicable.

If it is structured well to address concerns raised by users through strategically tailored market campaigns that underline the advantages of having a mobile wallet bundled with its security features, this might go a long way in changing perceptions and improving adoption rates. It would also help empower these consumers, increasing digital literacy and making them more comfortable using mobile wallet technology because it is tied to some educative initiative. It might increase the adoption of mobile wallet technology within the different demographic segments of Saudi Arabia's population. As the years unfold, it becomes more imperative to ensure that stakeholders understand and try to influence, within this culturally rich landscape, the unique value drivers that affect customer acceptance of mobile wallet technology, and to ensure that the tips applied are not only effective but locally applicable. Moreover, the rise in the number of fintech players and competition has pushed traditional banks to innovate their offerings. At this point, mobile wallet adoption from traditional banks institutions will become very favorable with these innovations that will be more in line with consumer expectations and preferences in the mainstream [17].

Hence, building collaboration among financial institutions, FinTech startups, and regulatory bodies will be of prime necessity in framing a robust setting that will promote the growth and acceptance of mobile wallet technology in the Saudi market. This will increase aggregate consumer confidence and drive broader adoption across diverse demographic segments. Considering such dynamics, it becomes of paramount importance to systematically investigate the determinants affecting customer intentions to adopt mobile wallet technology in closing the research gap that exists toward developing effective strategies that would foster the upsurge of adoption in the region [15]. The complex interplay among the changing behaviour of customers and new technologies will call for comprehensive understanding in order to come up with frameworks that can keep pace with the rapidly changing landscape in digital finance. Hence, there is a continuous need for research and analyses in this area so that stakeholders are properly equipped with insights to drive sustainable mobile wallet adoption in Saudi Arabia. Determinants of this nature hence create a clear understanding of how to go about effectively marketing mobile wallet services to consumers. This helps in bridging the gap between technology and user acceptance in a manner that

conforms to local expectations and norms [17]. It will not only increase the chances of successful adoption, but this approach will help build a user-centric ecosystem where unique cultural and social dimensions are respected and integrated, leading to respect and a more robust framework of adoption for mobile wallet technology in this region [18]. Such comprehensive understanding would enable businesses to tailor their offerings and marketing strategies effectively in a manner that will ensure it resonates well with the potential users while fostering a sense of security and trust around mobile wallet technologies [15]. In spite of all this progress, there still exist some critical gaps in literature on mobile wallet adoption in Saudi Arabia. One gap relates to the long-term behavioral intentions of consumers. Whereas much research is focused on the first adoption of mobile wallets, little is known about what drives continued use over time. Moreover, more empirical studies are required that examine the influence of concrete government policies and initiatives on mobile wallet adoption. Moreover, cultural factors interacting with technology adoption in a Saudi context have not been well researched, in particular concerning how deeply entrenched societal values impact consumer attitudes toward digital payment technologies.

This paper, therefore, embarks on an attempt to determine the major factors influencing consumer adoption of mobile wallet technology in Saudi Arabia. The study is modelled around eight distinct hypotheses, all of which are put forward toward discovering the different determinants for mobile wallet adoption intention in the Saudi context. Figure 1 below shows this.

H1: It is hypothesized that if the perceived utility, which is the degree to which consumers feel that mobile wallets will improve finance transactions and daily life in general, is high, then their intention to adopt this technology will be positive.

H2: suggests that perceived usability, or how much ease consumers experience in navigating and using mobile wallet applications, also positively influences their adoption intention.

H3: Consumer trust in mobile wallet technology, in terms of the security and reliability of the service has a positive effect on their adoption decisions.

H4: Consumer intention to adopt mobile wallet technology is positively influenced if it is perceived as being compatible with their prevailing technologies, devices, and way of life.

H5: Highlights this very compelling effect of subjective standards, or social influence. In such a collectivist society like Saudi Arabia, the actions and opinions of members of extended family, friends, and other trusted people within a community might be expected to be significant drivers of individual consumer decisions about whether to adopt a mobile wallet.

H6: If consumers consider any mobile wallet service to be the most trustworthy in terms of perceived reliability and integrity of the provider, then this helps arouse positive adoption intentions.

H7: The ease of use of all technologies is hypothesized to be positively related. It also assumes that the trainability or the degree to which trainees find it easy to learn and adopt the technology has an influence on their intention to use mobile wallets.

H8: suggests that the existing consumers' payment behaviors, including their habits and preferences in making financial transactions, do not have any statistically significant impact on their intention to adopt mobile wallet technology in the Saudi market.

Normalized residuals, quadratic multiple relationships, modification indexes, and standardized linear weights were used to fine-tune the originally developed measurement model. Figure 2 shows the measurement model that resulted from the improvements made to increase the model's adequacy.

3 Methods

3.1 Sampling Demography and Intended Use

All participants in this study had to fulfill these three requirements: There are a lot of considerations that go into choosing a sample size, such as how large the population is and which statistical analysis techniques would work best with that size. The researcher made sure there was a sufficient number of participants to do two sophisticated statistical analyses, structural equation modeling (SEM) and confirmatory factor analysis (CFA). Research suggests that compared to other multivariate approaches, CFA and SEM benefit from a larger sample size. A sample size of 100–400 observations is sufficient for assessing any numerical information set using these approaches. With 384 participants, the present research had an adequate sample size.

Figure 3 denotes components relevant to the validity and reliability where the evaluation shifts with inquiry. It ensures the construction of connections based on the possible aspects. Figure 3 deals with the model structure where the software is evaluated and developed by empirical data. The subsequent values determine the obtained data with relation to the fit-goodness.

Figure 4 defines the factors relating to the intention with the new technology based on the behavior of payments. The trainability, trustworthiness, standard subjective, compatibility, trust, usability, and perceived utility with the factors. The technology set to adopt intention was directly contributed by the elements with these aspects. The use of technology is easy with the focused usability with the expectations on societal based standard subject. The technology is based on the learned users easily through the behaviors based on the significance.

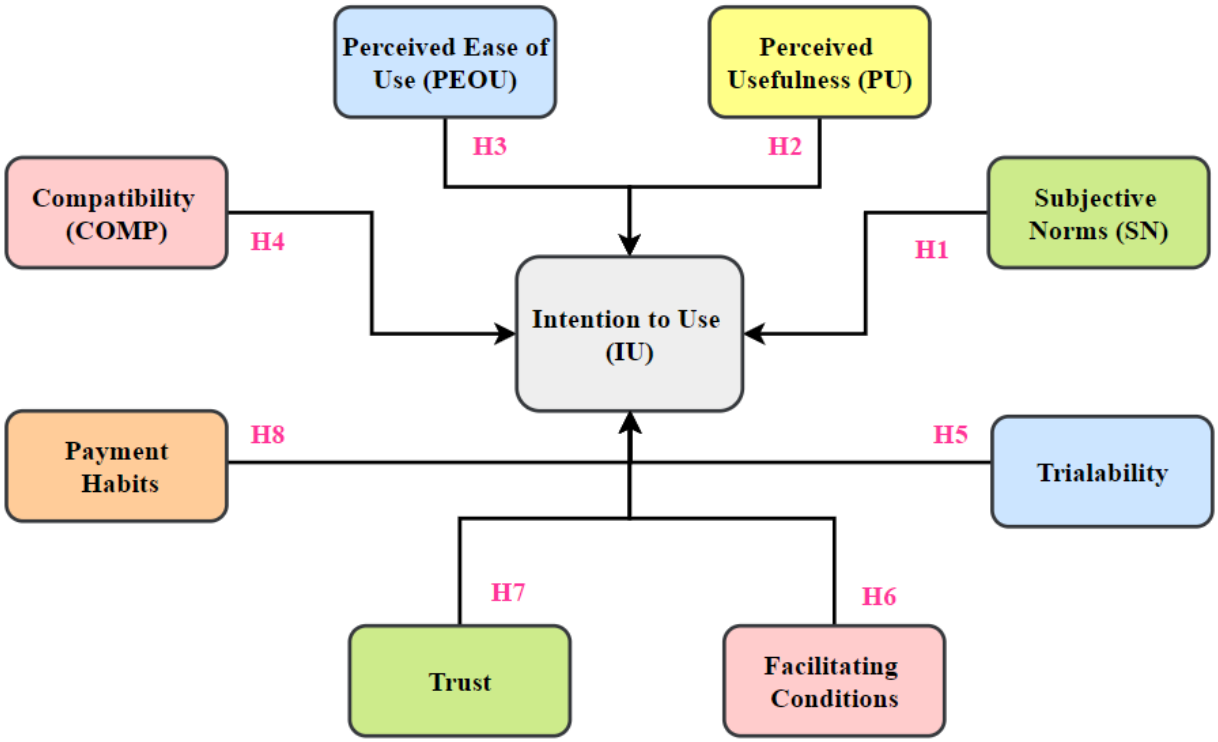

Fig. 1: Research Hypotheses and the Study Model

3.2 Collecting Data

The primary aim of this research was to gather numerical information from a minimum of 384 participants. The researcher made sure they had enough data from this group to conclude the overall study population. The most efficient way for the researcher to collect statistical information from this huge sample is via self-administered and online polls because of the time and money restrictions. Consequently, to get the required quantitative data for this study, the researcher selected survey questions. Researchers often use well-designed and validated questionnaires to efficiently collect ideas and opinions from many people at little cost. The researcher noticed that it is typical practice for researchers in the area to utilize already confirmed measuring scales when it comes to the questionnaire employed for this study. After analyzing existing literature linked to technology diffusion, the researcher found it typical for researchers to use established measuring instruments to provide more valid and dependable research results. Thus, prior research in the area of technology acceptability was used to verify the particular measurement scales produced by amalgamating equipment, and these scales were then used to design the focus group for this study.

The technology adoption is set to understanding based on the framework's holistic functions with the proposed system. The intentions of the user are influenced based on the key factors. The diverse aspects are incorporated by the potential adoption of facilitators and barriers. Satisfaction and user engagement are enhanced with the newer technology with success and acceptance.

4 Result

Given this is the focus of the analysis, it will look at the factors affecting Saudi Arabian mobile wallet usage. Among the aspects assigned specific weight are reliability, usability, usefulness, and compatibility. The recommended model was confirmed by means of SEM and CFA on the data acquired from 438 users. The primary goal of the analysis was to clarify the key factors motivating users of mobile wallet technology.

4.1 CR and AVE Results

Table 1 shows the estimated CR and AVE for every construct. The table displays the discriminant validity should the average variance extracted (AVE) values be

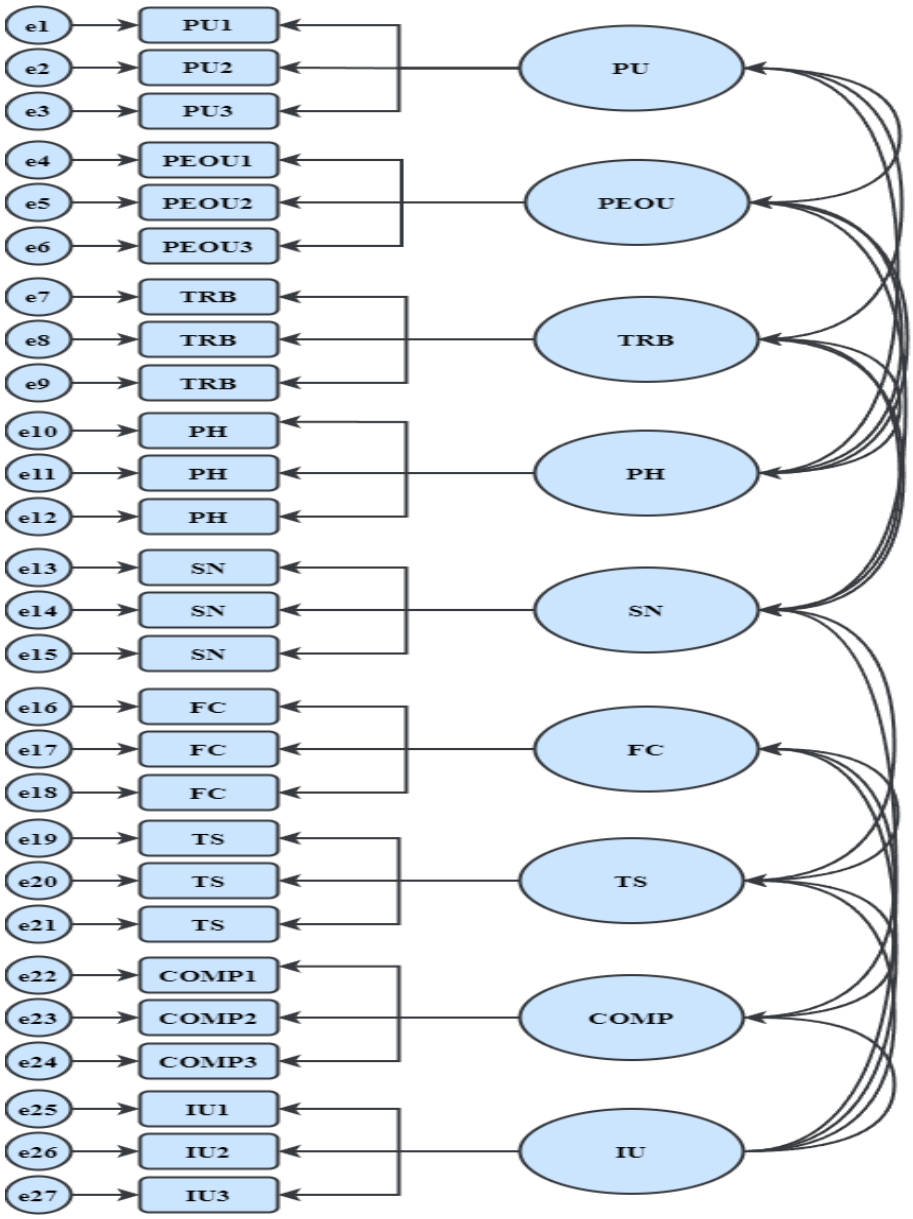

Fig. 2: Model Measurement

Table 1: CR and AVE results

Construct	Items	Loadings	AVE	Composite Reliability
Perceived usefulness	3	0.791-0.883	0.690	0.869
Perceived ease of use	3	0.837-0.906	0.755	0.902
Subjective norms	3	0.764-0.825	0.625	0.833
Compatibility	3	0.728-0.840	0.631	0.836
Trialability	3	0.765-0.878	0.665	0.856
Facilitating conditions	3	0.807-0.871	0.696	0.873
Trust	4	0.715-0.876	0.622	0.867
Payment habits	3	0.742-0.893	0.646	0.845
Intention to use	3	0.774-0.837	0.653	0.849

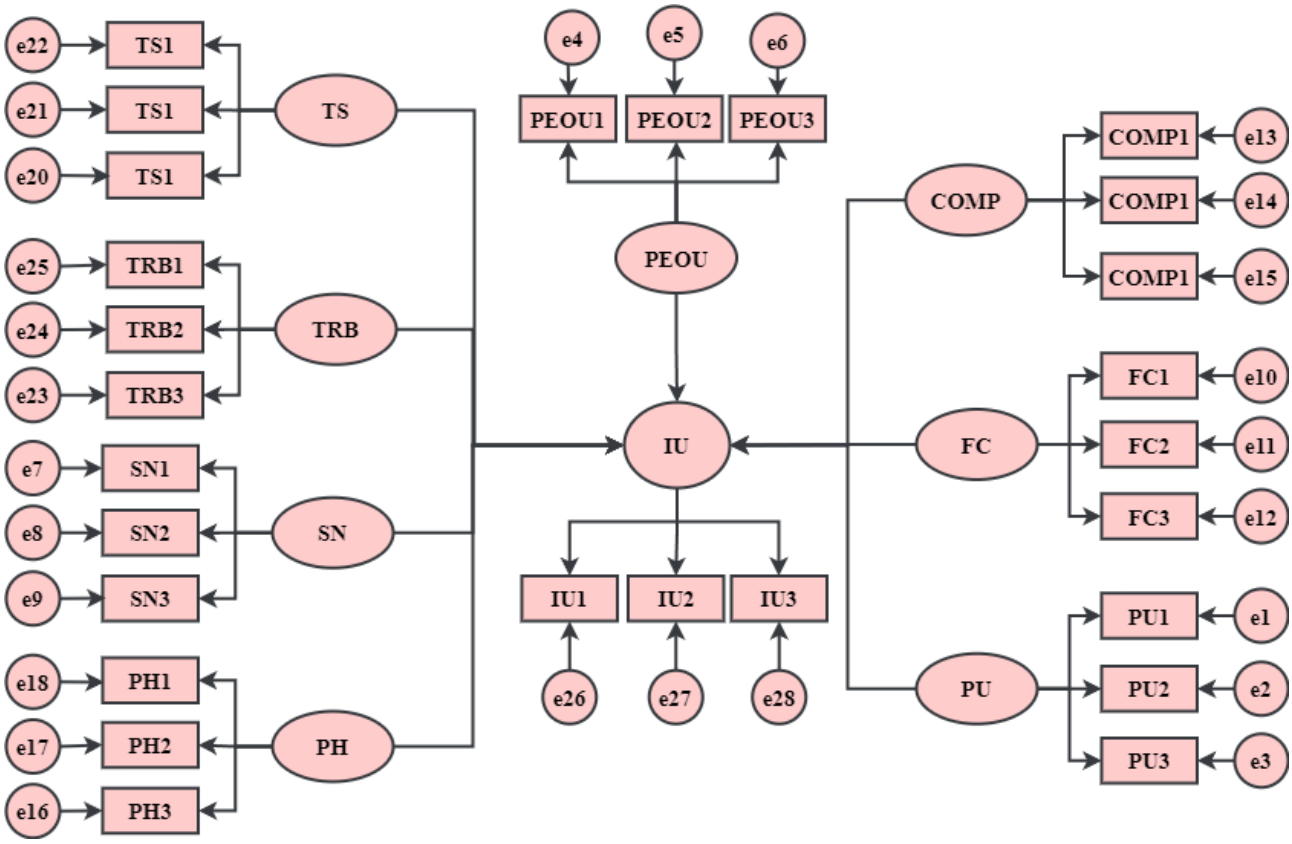

Fig. 3: Model Structure

more than the squared correlations between the same constructs, and the correlations between different constructs be less than 0.85. Table 2 was designed to evaluate the measurement precision. The diagonal components of the table show, for each construct, the Average Variance Extracted (AVE) values. Whereas the items under the diagonal show the correlations among constructs, the elements above the diagonal show the squared inter-construct correlation.

4.2 Discriminant Validity Results

The Table 2 statistics amply illustrate how low the inter-construct correlation coefficients were, less than 0.85. Table 2 presents the discriminant validity results for various constructs in the study. The table displays correlations between constructs, with values along the diagonal representing the square root of average variance extracted (AVE) for each construct. The diagonal values indicate strong internal consistency, with the highest value for Perceived Ease of Use (PEOU) at 0.869. Off-diagonal values show correlations between different constructs, reflecting varying degrees of association. For example, the correlation between Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) is relatively low at 0.395, suggesting good discriminant validity. This indicates that each construct is distinct from the others.

4.3 Path Coefficient Results

Table 3 lists all expected cause-and-effect correlations in the structural model. Apart from H8, which looked at PH and IU, all correlations were statistically significant at the 0.05 level. The results of hypothesis testing reveal that the influence of this assumption is not statistically significant with a path coefficient of 0.058 and a critical ratio of 1.008 at a significance level of p = 0.828. This outcome, therefore, provides proof in favor of the null hypothesis, meaning that customers' tendency to use m-wallets in Saudi Arabia is not affected by their payment methods. It consequently dismisses hypothesis H8 as insignificant.

4.4 Analysis of Reliability

Aiming the reliability analysis, the degree of consistency of the survey instrument was evaluated using Cronbach's Alpha. This statistic aims to find if the factors impacting

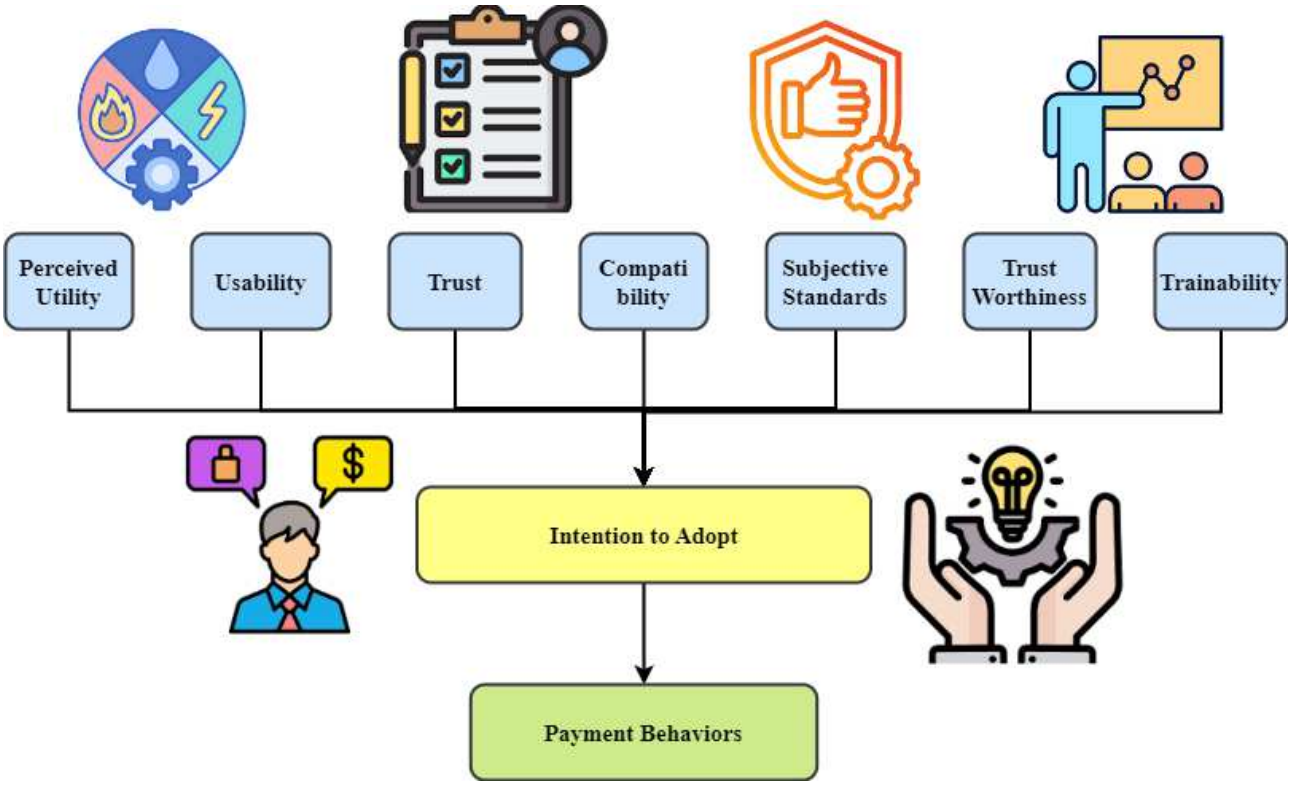

Fig. 4: Behavioural Patterns

Table 2: Discriminant validity results

Construct	PU	PEOU	SN	COMP	TRB	FC	TS	PH	IU
Perceived usefulness (PU)	**0.813**								
Perceived ease of use (PEOU)	0.395	**0.869**							
Subjective norms (SN)	0.352	0.426	**0.790**						
Compatibility (COMP)	0.418	0.362	0.442	**0.794**					
Trialability (TRB)	0.352	0.409	0.422	0.371	**0.815**				
Facilitating conditions (FC)	0.385	0.472	0.327	0.411	0.439	**0.834**			
Trust (TS)	0.430	0.384	0.366	0.429	0.401	0.447	**0.788**		
Payment habits (PH)	0.492	0.514	0.458	0.388	0.337	0.429	0.464	**0.804**	
Intention to use (IU)	0.482	0.358	0.394	0.335	0.428	0.469	0.481	0.320	**0.808**

Table 3: Path Coefficient results

Code.	Independent	Dependent	B	C.R	P−Value	Result
H1	Subjective norms	Intention to use	0.095	2.103	0.025	Accepted
H2	Perceived usefulness	Intention to use	0.322	8.712	0.000	Accepted
H3	Perceived ease of use	Intention to use	0.264	3.868	0.000	Accepted
H4	Compatibility	Intention to use	0.121	3.186	0.004	Accepted
H5	Trialability	Intention to use	0.255	5.172	0.000	Accepted
H6	Facilitating conditions	Intention to use	0.191	7.025	0.000	Accepted
H7	Trust	Intention to use	0.064	2.053	0.041	Accepted
H8	Payment habits	Intention to use	0.058	1.008	0.828	Rejected

mobile wallet adoption interact in a complementary manner. This metric will enable us to ensure that the components of every factor consistently and accurately evaluate the same underlying construct. The analysis's findings showed that every construct had dependability coefficients much beyond the permissible threshold.

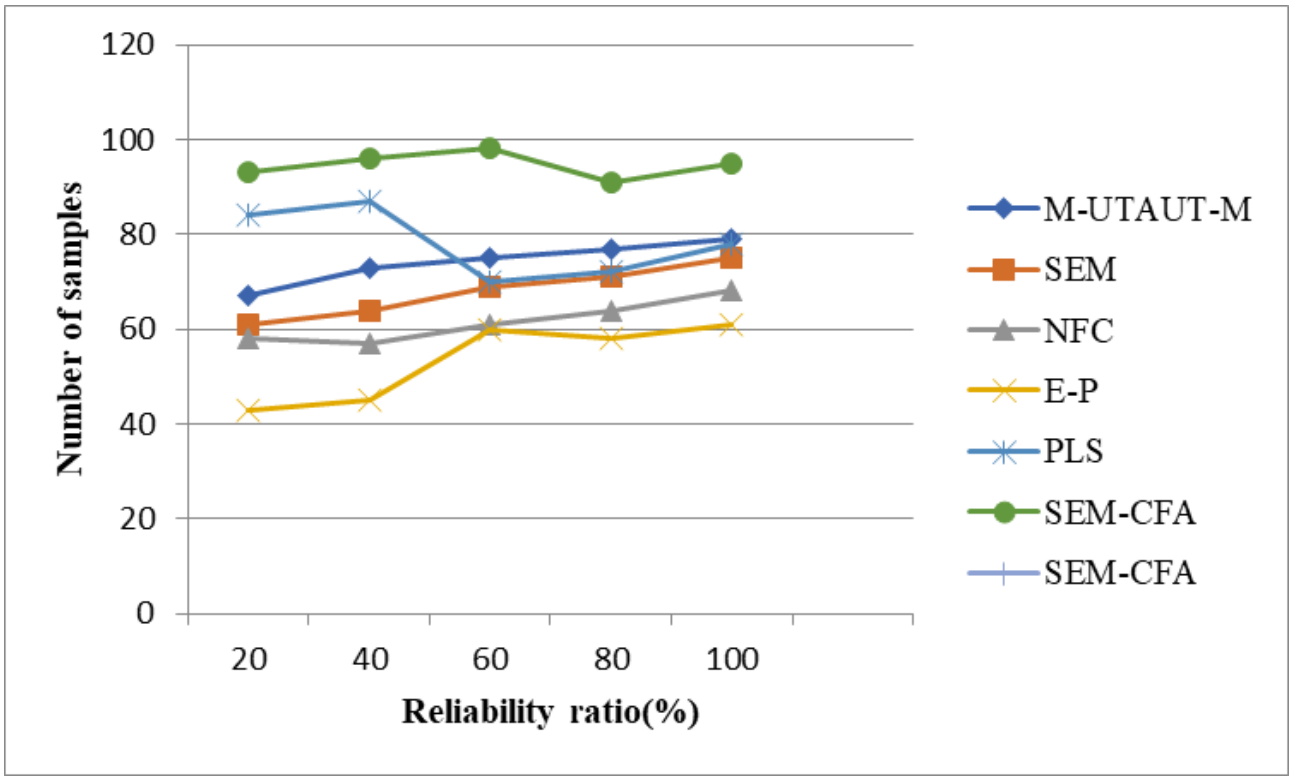

Fig. 5: Analysis of Reliability

Therefore, one may conclude that the collected data is reliable as the survey questions adequately represented the objectives. Analysis of reliability is shown in Figure 5, and the value is obtained by 98% using this proposed method.

4.5 Analysis of Validity Results

To ensure the structures really measured the actions they were meant to, a validity study using a CFA was conducted as shown in Figure 6. The model exhibits convergent validity as both the factor loadings above the specified threshold and the Average Variance Extracted (AVE) values show consistency. With the statistical importance of the factor loadings, one should fairly anticipate the model to be somewhat convergent. It was found that the AVE of every construct surpassed the correlations with other constructs, thereby validating the hypothesis of discriminant validation. This revealed proper construction of the discriminant. This allows one to differentiate the variables from one another using a novel technique. Using this proposed method, validity results are obtained by 96.71%, which is higher than the existing method.

Analysis indicates that perceived value and wallet simplicity of use are two of the most critical elements influencing mobile wallet uptake in Saudi Arabia. Payment behavior and adoption intention revealed no notable link; furthermore, the effects of trust and subjective criteria turned out to be less than predicted. The analysis presents potential subjects for further investigation and provides specific suggestions for increasing mobile wallet usage, therefore enabling the closure of a knowledge vacuum in underdeveloped countries.

5 Discussion

This paper evaluated the elements and causal linkages affecting Saudi Arabiaian customers' adoption of mobile wallets (m-Wallet). It sought for an analysis of payment patterns, compatibility, perceived benefit, subjective norms, trust, and ease of use the intentions of prospective m-Wallet users. Additional results from hypothesis testing show that Saudi Arabia's m-wallet use is substantially impacted by subjective norm. The social context in which customers find themselves determines whether or not they choose to use m-wallets. Moreover stressing the development of important connection and subjective criteria are the quick advancement of mobile communication technology and the great use of virtual social networks. Those who have important people in the

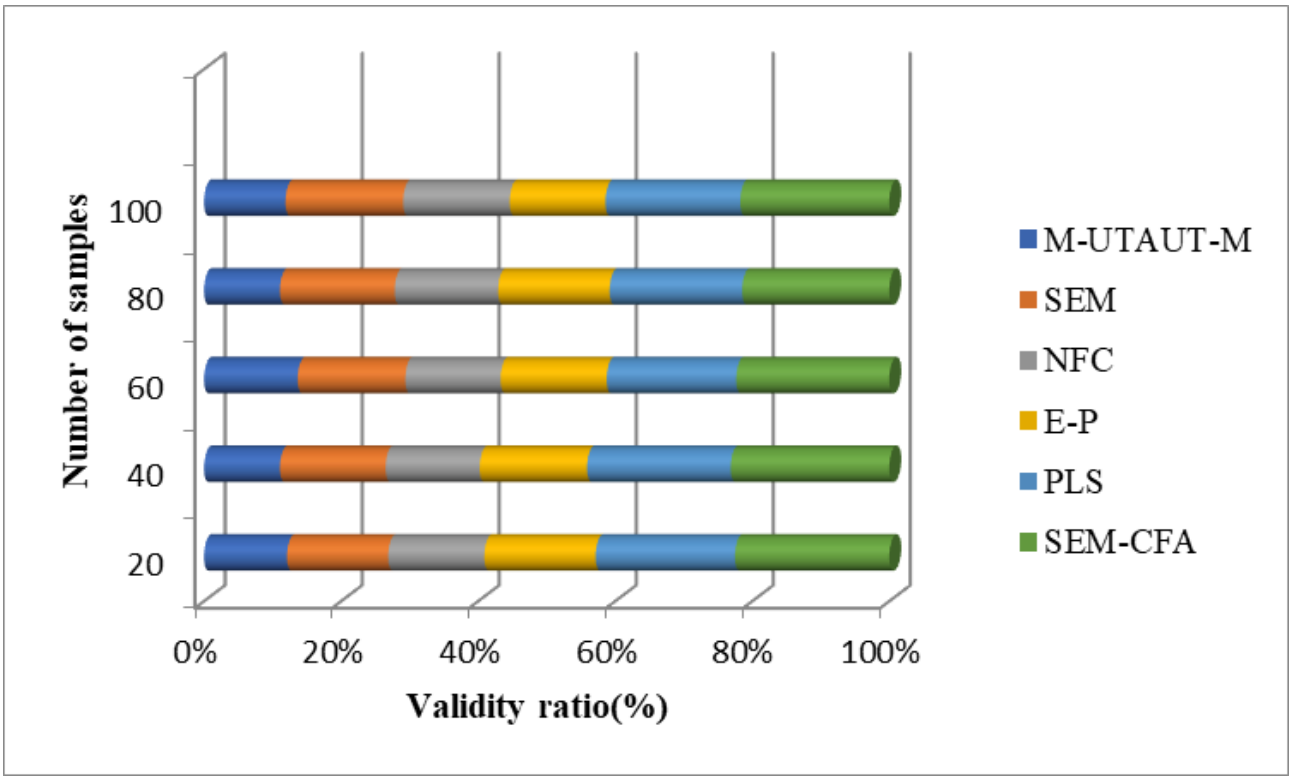

Fig. 6: Analysis of Validity Ratio

picture should have consumer views heard. Businesses are advised to use social networks for virtual and real electronic payments as well as to engage in data exchange. Subjective factors also emphasize the need of selecting famous individuals to influence consumer behavior modification and educating customers on the increasing quantity of mobile payments.

The structural validity analysis shows that the concept used to assess perceived value is quite valid and consistent. As the last point of the essay makes abundantly evident, perceived value has a major effect on customers' inclination to use m-wallets in Saudi Arabia. It observe the SEM hypothesis testing a good association between the third hypothesis that of consumers in Saudi Arabia desiring to use mobile wallets—and their simplicity of use. This paper analysis the relationship between customers' degree of physical activity and predilection for m-wallets. Results reveal that consumers' decision to use m-wallets depends on how well they meet their needs, lifestyle, and degree of understanding. Customized M-wallets for every customer will fulfill their preferences, views, and way of life. Moreover, analyses show that Saudi Arabiaians are more inclined to use mobile wallets if they are trialable. Testing products allows customers' worry about adopting new technologies to be lowered, hence reducing their possibilities of usage given the ease of use. Those who use electronic wallets will therefore be more comfortable with respect to security issues. Users will then be able to see improved system security. Given e-wallet providers' major effect on Saudi Arabiaians' views of m-wallet security, this article suggests that trialability be given substantial relevance. M-wallet providers should provide Saudi Arabiaian customers the choice to test their goods with a few purchases before they commit. Since m-wallets are already known to be secure, late adopters are more inclined to accept them.

6 Contributions and Directions for Future Research

However can additionally observe its drawbacks, this analysis enables us to better understand the motivation behind adopting mobile wallets. Initially, it should be underlined that the outcomes of the analysis, which was carried out in a developing country, may not fairly depict the level of m-wallet use in other countries. Making broad conclusions from these results calls for utmost care therefore.

The academic community might consider doing nation-wide analysis to boost the generalizability of the results. Furthermore, it uses a basic sampling technique based on web-based surveys; so, the sample could suffer

from selection bias and does not ensure the whole generalizing of the results. Further analyses using a random sampling technique might make use of the proposed model, therefore producing a more representative sample that would help to formulate more accurate outcomes.

Following that, it is crucial to underline that even if it effectively reveals a surprising 60% of the variance in the willingness to use m-wallet, there are other factors not taken into account in this analysis. Future studies might broaden the model by include perceived privacy and security and exclude the non-significant variation of payment methods. Moreover adding unique elements such demographics, self-efficacy, and personal creativity would help to provide more accurate analysis of mobile wallet acceptance. Furthermore, the mixed-method approach which mixes qualitative and quantitative approaches helps users to better grasp human behavior in the acceptance of technology.

7 Conclusion

Analysis in this paper revealed significant elements impacting Saudi Arabia's adoption of mobile wallets. Its results reveal that among drivers, perceived utility and usability score highest; trust and subjective criteria rank lowest. The results reveal that use of mobile wallets is still restricted even with a strong technical infrastructure. Most of this comes from people's lack of conviction that mobile wallets are worth much and their difficulty utilizing them. It closes a knowledge gap on the prevalence of mobile wallets in developing countries, especially in environments differing from Western norms. It meets this need and therefore adds a considerable value to the corpus of information already available. With a sixty percent explanatory power, the created model provides a strong basis for estimating consumer intentions on the adoption of mobile wallets. This is so true as the model provides a solid foundation for estimating user intention. Analysis is still needed on elements such demographics, perceived security, and privacy. The drawbacks of the analysis, which rely on self-reported data and focus on one nation, call for greater research going forward. This will help to make the model more desirable and clear how mobile wallets are perceived on the market. Additionally benefiting both of these fields will be this.

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References

[1] R. Ramadan, J. Aita. A model of mobile payment usage among Arab consumers. *International Journal of Bank Marketing*,**36**, 1213-1234 (2018).

[2] A. Musa, H.U. Khan, A. AlShare. Factors influence consumers' adoption of mobile payment devices in Qatar. *International journal of mobile communications*,**13**, 670-689 (2015).

[3] F. Aldhaban, T. Daim, R. Harmon, N. Basoglu. Technology adoption in emerging regions: Case of the smartphone in Saudi Arabia. *International Journal of Innovation and Technology Management*,**17**, 2050003 (2020).

[4] A. Alalwan, A.M. Baabdullah, N.P. Rana, K. Tamilmani, Y. Dwivedi. Examining adoption of mobile internet in Saudi Arabia: Extending TAM with perceived enjoyment, innovativeness and trust. *Technology in Society*,**55**, 100-110 (2018).

[5] A.A. Al-Qudah, M. Al-Okaily, G. Alqudah, A. Ghazlat. Mobile payment adoption in the time of the COVID-19 pandemic. *Electronic Commerce Research*,**24**, 427-451 (2024).

[6] V. Venkatesh, M.G. Morris, G.B. Davis, F,D, Davis. User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478 (2003).

[7] T.H. Alaskar, A.K. Alsadi. Drivers of mobile commerce adoption intention by Saudi SMEs during the COVID-19 pandemic. *Future Business Journal*,**9**, 12 (2023).

[8] T. Alkhalifah. A structural equation modelling of governing factors influencing patient acceptance of mobile health in Saudi Arabia: a modified UTAUT model. *International Journal of E-Services and Mobile Applications*,**14**, 1-17 (2022).

[9] N.M. Napis, N. Daud. Factors Influencing Adoption of E-Wallet Among Malaysian Young. *International Journal of Academic Research in Business and Social Sciences*,**13**, 338-355 (2023).

[10] P. Kaur, A. Dhir, R. Bodhi, T. Singh, M. Almotairi. Why do people use and recommend m-wallets?. *Journal of Retailing and Consumer Services*,**56**, 102091 (2020).

[11] T. Oliveira, M. Faria, M. Thomas, A. Popovič. Extending the understanding of mobile banking adoption: When UTAUT meets TTF and ITM. *International journal of information management*,**34**, 689-703 (2014).

[12] S.S. Al-Gahtani. Modeling the electronic transactions acceptance using an extended technology acceptance model. *Applied computing and informatics*,**9**, 47-77 (2011).

[13] A. Shuhaiber, H. Lehmann. Exploring customer trust in B2C mobile payments–a qualitative study. World Academy of Science, *Engineering and Technology*,**7**, 1128-1135 (2013).

[14] R. Alabdan, M.M. Sulphey. Understanding proximity mobile payment acceptance among Saudi individuals: An exploratory study. *International Journal of Advanced Computer Science and Applications*,**11**(4), 264-270 (2020).

[15] M.A. Alqahtani, R.S. Alroobaea, P.J. Mayhew. Building a conceptual framework for mobile transaction in Saudi Arabia: A user's perspective. In *2014 science and information conference* (pp. 967-973). IEEE (2014).

[16] N. Singh, S. Srivastava, N. Sinha. Consumer preference and satisfaction of M-wallets: a study on North Indian consumers. *International Journal of Bank Marketing*,**35**, 944-965 (2017).

[17] A. Alzahrani, N. Beloff, M. White. IMMBA–An Integrative Model for Mobile Banking Adoption: The Case of Saudi Arabia. In *2021 3rd International Congress on Human-Computer Interaction, Optimization and Robotic Applications (HORA)* (pp. 1-7). IEEE (2021).

[18] W. AlBalawi I. Hidayat-ur-Rehman. The impacts of m-commerce on saudi banks. *Journal of Management and Strategy*,**7**, 1-8 (2016).

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