

“Why do people use a mobile wallet? The case of fintech companies in Jordan”

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WHY DO PEOPLE USE A MOBILE WALLET? THE CASE OF FINTECH COMPANIES IN JORDAN

Abstract

Understanding consumer intentions regarding mobile wallet (m-wallet) adoption is paramount in the mobile commerce landscape, particularly in cash-centric economies like Jordan. Despite efforts to shift toward digital payments, cash transactions remain prevalent, highlighting the need to explore m-wallet service adoption dynamics in Jordan.

This study aims to identify the factors influencing Jordanian consumers' adoption of m-wallet services, focusing on the motivations and barriers. Utilizing the Unified Theory of Acceptance and Use of Technology (UTAUT2) as a theoretical foundation, the research integrates various models to assess technology acceptance. A questionnaire distributed among m-wallet users from fintech companies in Jordan garnered 421 responses, analyzed using the Smart PLS 3 software.

The findings indicate a positive impact of all variables on the propensity for m-wallet adoption in Jordan. Notably, perceived usefulness, ease of use, and facilitating conditions significantly influenced user decisions, evidenced by R-square values of 0.78%, 0.758% and 0.684%, respectively. Meanwhile, perceived value, security, privacy, and social influence had a moderate effect. The attractiveness of alternatives and attitudes towards m-wallet usage showed lesser impact, with R-square values at 26.7% and 22.8%, respectively, illustrating varied influences on adoption rates in determining consumer adoption of m-wallet services in Jordan.

This paper enhances research on mobile commerce in developing economies, focusing on Jordan. It explores the adoption of m-wallet services by fintech users, presenting a detailed model. The study provides valuable insights for advancing digital payment systems in this region.

Keywords

fintech companies, mobile wallet, UTAUT2, intention to use technology, perceived usefulness, ease of use, facilitating conditions, PLS 3, Jordan

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INTRODUCTION

The surge in mobile transactions heightens the competition between traditional banks and fintech players, emphasizing the imperative for comprehensive mobile services via m-wallets. Despite their benefits, m-wallets encounter adoption challenges influenced by factors impacting user interest, notably psychological factors. Research highlights the vital importance of comprehending m-wallet adoption using various models and foundations. Existing studies focus on developed markets, neglecting emerging economies like India, Saudi Arabia, Malaysia, Thailand, Iran, and China, underscoring the need for a broader analysis. M-wallet adoption presents a solution to challenges in developing countries, providing governments with an opportunity to enhance financial inclusion. The cultural and market variations in m-payment adoption emphasize the significance of expanding research to more countries for a thorough understanding of technology adoption.

The slow adoption of mobile payments in Jordan, fueled by a preference for cash, security skepticism, and a sizable unbanked population, poses a significant challenge. Despite measures by the Central Bank, including the creation of the Jordanian Company for Payment and Clearing System, the transformative potential of digital financial services remains underutilized.

1. LITERATURE REVIEW

This section commences with an introduction to prominent theories elucidating technology adoption. Subsequently, the paper examines the factors influencing intentions to use technology, forming the basis for the research hypotheses.

1.1. Theoretical foundations in technology adoption

This section provides a concise overview of the theories and models guiding research on technology adoption, setting the stage for understanding how individuals and organizations embrace new technologies.

Extensive theoretical and empirical research has investigated understanding consumers' motivations for using specific technologies, aiming to uncover the decisive factors influencing their decision-making processes (Ajzen, 1991; Amoroso & Magnier-Watanabe, 2012; Katebi et al., 2022). These investigations encompass diverse perspectives, incorporating social, psychological, and individual elements as integral components of the decision-making process that shapes individual attitudes toward technology. This, in turn, influences the intention to adopt and utilize the technology (Ajzen, 1991; Amoroso & Magnier-Watanabe, 2012; Katebi et al., 2022).

The predominant theoretical paradigms guiding this research domain include the Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), Innovation Diffusion Theory (IDT), Theory of Reasoned Action (TRA), and the Unified Theory of Acceptance and Use of Technology (UTAUT).

The Technology Acceptance Model (TAM) stands out for its simplicity, conciseness, and reliability, identifying perceived usefulness (PU) and perceived ease of use (PEoU) as key drivers influencing an individual's intentions to adopt new technology

(Anouze & Alamro, 2020; Phonthanukitithaworn et al., 2015). TAM has evolved with extensions like TAM2 and TAM3, incorporating additional variables such as social influence. Numerous empirical studies in the realm of m-payment services have developed and tested various TAM variants, enhancing their explanatory and predictive capabilities by the 2010s (Jaradat & Mashaqba, 2014).

Innovation Diffusion Theory (IDT) explains the adoption of innovation over time through specific channels, leading to its adoption in a society (Phonthanukitithaworn et al., 2015). However, the most widely employed paradigm in recent years has been the Unified Theory of Acceptance and Use of Technology (UTAUT) and its variants. UTAUT's main constructs include performance expectancy, PEoU, social influence (SI), facilitating conditions (FC), behavioral intention to use the system (BI), and PU (Khalilzadeh et al., 2017; Singh et al., 2020).

UTAUT2, developed by Venkatesh et al. (2012), represents an integration of various models to assess human behavior in the context of technology acceptance. Khalilzadeh et al. (2017) further enhanced this by combining the Theory of Reasoned Action (TRA), the motivational model, the model of PC utilization (MPCU), TAM (Davis, 1989), the combined TAM and Theory of Planned Behavior (TPB) model (Ajzen, 1991), Innovation Diffusion Theory (IDT) (Ly et al., 2022), and Social Cognitive Theory (Compeau et al., 1999). Recent contributions by Singh et al. (2020) introduced three additional factors: hedonic motivation, price, and habit.

The influential role of social influence (SI) in shaping users' behavioral intention (BI) to adopt mobile payments (m-payments) was unveiled by Tan and Ooi (2018). Madan and Yadav's (2016) findings emphasized the significance of performance expectancy, social influence (SI), facilitating conditions (FC), perceived risk, and perceived value (PV) as substantial factors in predicting the be-

havioral intention (BI) to adopt m-wallet solutions. Additionally, Jaradat and Mashaqba (2014) investigated factors based on TAM3, discovering that aspects like “image, output quality, perceived ease of use (PEoU), perceptions of external control, playfulness, perceived usefulness (PU), self-efficacy, and subjective norms” significantly influenced students’ adoption and use of m-payment services.

In exploring consumer attitudes toward m-payments, Kaur et al. (2020) utilized the Diffusion of Innovation (DOI) framework. Their findings highlighted that factors such as “compatibility, complexity, observability, and relative advantage” were pivotal in shaping consumers’ behavioral intentions (BI) and their inclination to recommend m-wallets. A separate study by Alswaigh and Aloud (2021) focused on identifying m-payment adoption factors in Saudi Arabia. Their model, grounded in technology acceptance and psychological considerations, drew from the TAM and UTAUT models. The study involved distributing a questionnaire to 394 Saudi citizens, with the subsequent data analysis revealing that perceived usefulness (PU), perceived ease of use (PEoU), lifestyle compatibility, and facilitating conditions (FC) exerted a positive influence on the intention to adopt m-payments.

In their efforts to boost the adoption of m-payments, Pal and Team (2021) crafted an intervention policy by analyzing factors influencing both current and future usage. Employing the Technology Affordances and Constraints Theory (TACT), they distributed a questionnaire to 551 citizens across four Indian cities. The study yielded noteworthy findings, indicating diverse effects on actual use and future use across dimensions such as convenience, reflection, and security. Additionally, the results emphasized the role of factors like “security, risk, and digital literacy” in guiding the development of new policies to foster and enhance m-payment usage.

In India, Kaur et al. (2020) investigated variables affecting the prevalence of e-wallets. By surveying 1,256 smartphone users, they sought to uncover the reasons behind consumer choices and recommendations. The theoretical foundation of this study rested on the Diffusion of Innovation (DOI) theory. The findings highlighted significant

impacts of relative advantage, compatibility, complexity, and observability on participants’ motives regarding m-wallet usage, with “trialability” showing no influence on behavioral intention (BI) or recommendations.

Addressing the adoption of m-wallets in the UK, Mew and Millan (2021) employed a mixed-method research design to identify key drivers. Through focus groups and online surveys, they aimed for more accurate and in-depth insights compared to previous studies. The results revealed both direct and indirect impacts of the studied variables on the intention to use m-wallets, providing valuable foresight for service providers to encourage widespread m-payment adoption.

UTAUT2 is a unique model since it facilitates a better explanation of various constructs to measure behavior actual use, and to examine a wide range of innovative technologies, such as m-wallet, for better understanding of technology adoption behavior. It was chosen as a theoretical foundation for this study due to its demonstrable conceptual and practical efficacy in studying m-wallet adoption behavior (Singh et al., 2020).

1.2. Factors influencing technology use intentions

Figure 1 illustrates the hypothetical framework model of the study emphasizing the factors that affect intentions to use technology for people.

The first factor is the perceived ease of use (PEoU), which refers to users’ perceptions of the likely physical and mental effort required to use a particular system or tool (Amoroso & Magnier-Watanabe, 2012; Davis, 1989; Venkatesh et al., 2003). Some researchers have used the DOI’s complexity dimension with the TAM’s ease of use (Anouze & Alamro, 2020; Davis, 1989; Kaur et al., 2020). Kaur et al. (2020) found that low complexity (i.e., PEoU) was associated with greater BI in the m-wallet context. Consumers are not attracted to using m-wallet for payment if they expect greater difficulty than using existing payment methods (Amoroso & Magnier-Watanabe, 2012). PEoU is positively related to IU for m-coupons (Davis, 1989), wireless mobile technology (June et al., 2005), m-wallets (Lew et al., 2020; Shin, 2009; Singh et al., 2020),

and e-banking services (Anouze & Alamro, 2020). It is a very important consideration for companies seeking to offer easy-to-use instruments and procedures to execute financial processes. The effect of PEOU on IU for new technology is usually positive, whether the relation is direct (Jaradat & Mashaqba, 2014; Jayasingh & Eze, 2009) or indirect (Katebi et al., 2022). Nevertheless, Phonthanukitithaworn et al. (2015) reported that there was no direct impact of BI on m-payment adoption. The paper expected that if Jordanian participants perceive that m-wallets are easy to use to complete their transactions with greater convenience and speed, they would be more likely to use them.

The second important factor is perceived usefulness (PU), which is the degree to which individuals believe that using a particular system will enhance their performance (Amoroso & Magnier-Watanabe, 2012; Davis, 1989). Researchers have equated DOI's relative advantage with TAM's PU (Anouze & Alamro, 2020; Kaur et al., 2020). Kaur et al. (2020) suggested that customers perceive m-wallets to have PU when they experience advantages like convenience, efficiency, and effectiveness. The positive effect of PU on IU was found also in using public transport (Amoroso & Magnier-Watanabe, 2012), m-coupons (Davis, 1989; Jayasingh & Eze, 2009), online shopping (Koufari, 2002), wireless mobile technology (June et al., 2005), internet banking and telebanking adoption (Alalwan et al., 2016; Anouze & Alamro, 2020), and m-wallets (Lew et al., 2020; Shin, 2009; Singh et al., 2020; Singh & Sinha, 2020). Employee performance can also be enhanced by m-payment systems, including e-banking (Anouze & Alamro, 2020) and educational management (Cigdem & Topcu, 2015). As the relation of PU and BM proved to be positive in research relative to mobile-based services and internet products and services, and as m-wallets are also mobile-based, it can be anticipated that PU will be positively associated with the BM to use m-wallets.

The factor attitude toward using m-wallet (ATTD) refers to an individual's positive or negative feeling upon which they base a mindful plan to perform specific future behavior (Amoroso & Magnier-Watanabe, 2012; Khalilzadeh et al., 2017; Shin, 2009). Models including the UTAUT, TRA, TAM, and TPB assumed that attitude is a major predictor of BI (Khalilzadeh et

al., 2017). A positive attitude can be created through a supportive environment that increases the IU system, including mobile penetration and internet infrastructure (Amoroso & Magnier-Watanabe, 2012). The paper expected that if Jordanian participants' attitudes toward m-wallets are positive, they will have higher usage.

Facilitating conditions (FC) comprises users' beliefs about the accessibility to prerequisite resources necessary to facilitate system use, such as hardware, software, and internet connectivity (Amoroso & Magnier-Watanabe, 2012; Khalilzadeh et al., 2017; Venkatesh et al., 2003). E-banking can be particularly hampered by FC shortfalls (Anouze & Alamro, 2020). Consequently, low m-wallet adoption among Jordanians is likely to be linked to relatively limited computer and/ or internet access,

Perceived value (PV) is the trade-off between what customers receive, such as quality, benefits, and utilities, and what they sacrifice, such as price, opportunity cost, time, and effort (Amoroso & Magnier-Watanabe, 2012; Keeney, 1999). PV has a positive effect on m-internet adoption intention, as users evaluate a trade-off between benefits and sacrifice factors and thus formulate their IU for a particular service (Kim et al., 2007; Kuo et al., 2009). Cognitive Evaluation Theory classifies motivations into extrinsic and intrinsic subsystems. Extrinsic benefits like usefulness relate to customers' cognitive assessments of the excellence or superiority of products, while intrinsic benefits pertain to personal pleasure or enjoyment derived from using technology. Both extrinsic and intrinsic factors have been found to influence BI (Keeney, 1999), particularly in modern m-payment contexts due to great PV among consumers (Amoroso & Magnier-Watanabe, 2012).

PV, as it pertains to financial costs, encompasses direct product/service costs, and ancillary ones (e.g., for internet access). Cheong et al. (2004) found an important effect of cost on switching from credit card payment to m-payment. Anouze and Alamro (2020) observed that internet usage in Jordan is artificially high due to fiscal policies affecting telecommunications providers, which significantly undermines IU with regard to e-banking. Generally low discretionary financial resources among Jordanian consumers make it prohibitively expensive to use the internet casually, such

as for m-shopping purposes. Organizations can seek to mitigate this by reducing costs incurred by their consumers as much as possible.

Financial costs such as service charges negatively affect IU and are particularly associated with a preference for credit card payments rather than m-payments (Cheong et al., 2004). PV ultimately reflects consumers' net evaluation of the required sacrifices and expected benefits of using a product (Kim et al., 2007; Madan & Yadav, 2016). Non-monetary issues affecting PV include general usability issues like the reliability of a system (i.e., low error occurrence; reliable connectivity and speed, accessibility, and performance; and data security). Accordingly, the paper expected that the cost-benefit analysis undertaken by consumers would be instrumental in their attitudes towards using m-wallets.

The perceived security and privacy (PSP) is the extent to which the user perceives that their use of the system will not expose them to insecurity and threats, which fundamentally affects BI (Amoroso & Magnier-Watanabe, 2012; Anouze & Alamro, 2020). Security and trust are important in users' IU for new mobile-based technologies like m-wallets (Shin, 2009), m-banking (Luo et al., 2010), and e-banking (Anouze & Alamro, 2020). Users may perceive security and risk in terms of threats to their financial, social, psychological, physical, or time dimensions; the degree of that security or risk will affect their IU for m-payments (De Sena Abrahão et al., 2016).

Security is an important factor in itself, and it is affected by ancillary socio-economic and cultural factors, such as news stories undermining e-banking's perceived trustworthiness, whereby banks need to respond efficiently to adverse events in order to restore customer trust. This entails continuous enhancement of security and communication of the security of services, to enhance users' perceptions of e-banking services as secured and private systems (Anouze & Alamro, 2020), which directly addresses financial aspects like the beliefs about the security of a specific payment procedure within the system (Khalilzadeh et al., 2017).

Anouze and Alamro (2020) reported that not trusting financial transactions on the Internet is the underlying reason for low BI for e-banking services among Jordanians. This may be condi-

tioned by government controls over the Internet and regional political considerations. The paper anticipated that Jordanian participants who perceive that m-wallets maintain their privacy and secure their transactions will be predisposed to usage.

Social influence (SI) has been integrated into several theories to explain IU behavior, including the UTAUT, TRA, TPB, TAM, and TAM2 models. SI is the degree to which an individual perceives certain social motivations like subjective norms, image, and others' beliefs in relation to their potential use of a new system (Amoroso & Magnier-Watanabe, 2012; De Sena Abrahão et al., 2016; Khalilzadeh et al., 2017; Lu et al., 2005; Venkatesh & Davis, 2000). Consumers are likely to disseminate word of mouth concerning their purchases to their social networks, who will thus be positively or negatively predisposed to possible benefits and risks, in this case with m-wallets (Amoroso & Magnier-Watanabe, 2012). Studies have revealed strong relationships between the SIs and IU (June et al., 2005; Madan & Yadav, 2016; Tan & Ooi, 2018). The paper expected that Jordanian participants will follow their peers who use m-wallets, and hence have higher usage.

The attractiveness of alternatives (ATALT) is about alternative products and services in the market and how attractive they are to target consumers (Amoroso & Magnier-Watanabe, 2012). Cheong et al. (2004) found that attractive alternatives in the marketplace will negatively affect m-payment adoption and switching from using credit card payments. In the case of Japan, Amoroso and Magnier-Watanabe (2012) found that as stores in train stations accepted only m-payment systems and not credit cards, this obliged users to preferably use m-payment and leave other less attractive alternatives. The paper expected that if Jordanian participants do not have attractive alternatives to m-wallets, they would have higher usage.

This study aims to investigate the adoption of mobile wallet (m-wallet) services by Jordanian consumers, focusing on factors such as perceived ease of use (PEoU), perceived usefulness (PU), attitude towards using m-wallet, facilitating conditions (FC), perceived value (PV), perceived security and privacy (PSP), social influence (SI), and the attrac-

tiveness of alternatives (ATALT). The hypotheses guide the research, suggesting that PEOU, PU, attitude, FC, PV, PSP, SI, and ATALT significantly impact Jordanian consumers' m-wallet behavioral intention (BI).

By utilizing the Unified Theory of Acceptance and Use of Technology (UTAUT2) as a theoretical foundation and integrating various models, this study aims to contribute valuable insights into the dynamics of m-wallet adoption in Jordan, specifically examining the proposed hypotheses and their implications for advancing digital payment systems in the Jordan and other similar countries in the region or worldwide.

Hence, according to the literature, the paper puts forward the following hypotheses:

- H1: PEOU positively affects Jordanian consumers' m-wallet BI.
- H2: PU positively affects Jordanian consumers' m-wallet BI.
- H3: Attitude towards using m-wallet positively affects Jordanian consumers' m-wallet BI.

H4: FC positively affects Jordanian consumers' m-wallet BI.

H5: PV (benefit/ sacrifices) positively affects Jordanian consumers' m-wallet BI.

H6: PSP positively affects Jordanian consumers' m-wallet BI.

H7: SI positively affects Jordanian consumers' m-wallet BI.

H8: ATALT negatively affects Jordanian consumers' m-wallet BI.

2. METHODS

This section consists of three key parts: Instrument Development, Data Collection, and Measurement Model Analysis. Instrument Development focuses on crafting a robust survey, Data Collection outlines strategies for gathering empirical evidence, and Measurement Model Analysis evaluates the measurement instrument's psychometric properties. These components ensure a rigorous and effective research approach.

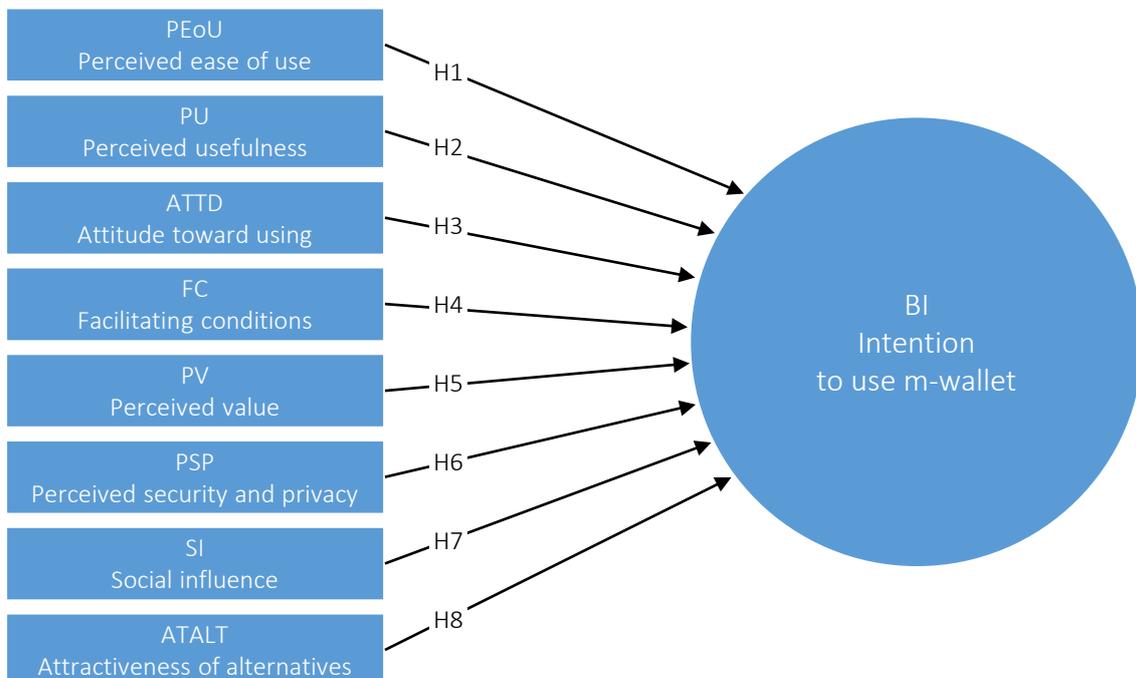


Figure 1. Hypothetical framework model

2.1. Instrument development

In this investigation, a questionnaire was meticulously developed to encompass eight constructs. Respondents provided their responses using a five-point Likert scale, indicating their level of agreement with statements – a methodology consistent with similar prior studies (Alalwan et al., 2017; Anouze & Alamro, 2020; Kaur et al., 2020; Pal et al., 2021; Singh et al., 2020; Venkatesh et al., 2003). The initial segment of the questionnaire focused on collecting demographic information, encompassing inquiries about users' age, gender, and education level. Detailed questions, along with their respective constructs, are available in Appendix A.

To ensure content validity and precision in question-wording, the questionnaire underwent a rigorous revision process, benefiting from the insights of 17 experts, including managers from research and development departments, experts, and IT officers within the banking and fintech sectors. This approach aligns with the methodology employed by Venkatesh et al. (2003). The questionnaire, initially crafted in English, was then translated into Arabic to enhance respondent comprehension. Before widespread distribution, a pilot test involving 50 m-wallet users was conducted to assess the questionnaire's acceptance, scalability, reliability, and validity of the proposed behavioral scales. Following this pilot phase, the questionnaire underwent verification, editing, and finalization.

2.2. Data collection

The research team participated in collaborative discussions with key decision-makers from the eight fintech companies in Jordan providing m-wallet services. During these meetings, the team outlined the essential cooperation needed for the distribution of an online questionnaire linked to the companies' active clients. This strategic approach aimed to guarantee that the participants who responded to the questionnaire were authentic users of m-wallets, thereby avoiding any potential confusion with users of other mobile applications.

Following negotiations with personnel from each fintech company, an agreement was reached regarding the questionnaire's distribution mecha-

nism, aligned with the respective policies and regulations of each company. A Google Form questionnaire link was subsequently disseminated through the eight companies to their clients, ensuring strict adherence to data privacy and confidentiality protocols. Participants were informed of the suggested maximum completion time of 15 minutes. The questionnaire targeted individuals utilizing m-wallet services provided by fintech companies operating in Jordan during the period between January and March 2022. A total of 421 valid responses were collected and utilized for the study.

2.3. Measurement model analysis

This study employs Partial Least Square-Structure Equation Modeling (PLS-SEM) for data analysis, a method known for its capability to delineate relationships between independent and dependent variables. Recognized for its predictive accuracy, PLS-SEM is adaptable to studying diverse phenomena, whether complex or straightforward, even with a small sample size (Chin, 1998). Notably suitable for non-normally distributed data (Boßow-Thies & Albers, 2010), PLS analysis involves both measurement and structural models. The measurement model evaluates the construct validity of the proposed model in terms of convergent and discriminant validity, while the structural model assesses hypotheses through the examination of path coefficients and their significance.

Hair et al. (2010) introduced three criteria to evaluate convergent validity, gauging the compatibility of items measuring the same concept: factor loadings, composite reliability, and average variance extracted (AVE). Utilizing the PLS algorithm function in Smart PLS 3, the results are presented in Table 1. Notably, the outer loading values for each construct item surpass the 0.70 cut-off, meeting satisfactory standards. High outer loadings indicate a significant commonality among associated indicators captured by the construct.

Reliability testing was undertaken using Cronbach's alpha coefficient and composite reliability (CR). The Cronbach's alpha values for each construct item exceed the cut-off of 0.70, indicat-

Table 1. Measurement model results

Constructs (variables)	Item	Loading	AVE	CR	Cronbach alpha (α)
Behavioral intention to use m-wallet BI	BI1	0.809	0.635	0.874	0.944
	BI2	0.839			
	BI3	0.741			
	BI4	0.794			
Perceived usefulness PU	PU1	0.880	0.678	0.924	0.944
	PU2	0.790			
	PU3	0.856			
	PU4	0.761			
Perceived ease of use PEoU	PEoU1	0.928	0.858	0.893	0.944
	PEoU2	0.925			
Attitude toward using ATTD	ATTD1	0.866	0.655	0.791	0.945
	ATTD2	0.749			
Social influence SI	SI1	0.863	0.628	0.770	0.944
	SI2	0.715			
Perceived security and privacy PSP	PSP1	0.884	0.779	0.876	0.944
	PSP2	0.881			
Attractiveness of alternatives ATALT	ATALT1	0.890	0.826	0.905	0.945
	ATALT2	0.928			
Perceived value PV	PV1	0.858	0.801	0.941	0.944
	PV2	0.898			
	PV3	0.898			
	PV4	0.925			
Facilitating conditions FC	FC1	0.815	0.674	0.892	0.944
	FC2	0.771			
	FC3	0.829			
	FC4	0.867			

Note: CR is composite reliability, AVE is average variance extracted.

ing higher levels of reliability. This result indicates that there is a high internal consistency among the variables, and they are reliable measures. The CR values exceed the cut-off of 0.70, which is the threshold for satisfaction, indicating that the studied variables have sufficient internal consistency and are suitable to measure the phenomena of interest. The AVE values for each factor exceed the cut-off of 0.5, indicating that the constructs (variables) are highly correlated to the items (factors). Thus, the reliability is internally consistent.

The final measurement is the discriminant validity, which examines the relationships between the latent variables using a popular technique called the Fornell-Larker criterion. The results shown in Table 2 indicate that the value of each construct's square roots of AVE exceeds the correlation coefficient of any other construct in the model, which indicates the presence of discriminant validity. All the results have confirmed that the construct measure is reliable and valid; therefore, the paper can transfer to the next step, the structural model analysis.

Table 2. Fornell-Larcker criterion

	ATTD	ATALT	FC	BI	PU	PSP	SI	PEoU	PV
ATTD	0.809								
ATALT	0.448	0.909							
FC	0.528	0.519	0.827						
BI	0.477	0.517	0.821	0.883					
PU	0.441	0.589	0.741	0.797	0.926				
PSP	0.476	0.359	0.686	0.684	0.605	0.882			
SI	0.453	0.298	0.575	0.607	0.461	0.651	0.793		
PEoU	0.460	0.616	0.821	0.871	0.844	0.564	0.484	0.823	
PV	0.449	0.458	0.742	0.698	0.593	0.536	0.386	0.696	0.895

Note: Square roots of AVE are in bold.

3. RESULTS

Table 3 displays the demographic characteristics of the sample. 41% of the respondents were females. The largest cohort (45.9%) was aged 18-27 years, while the smallest (12.3%) was aged 48-57. Almost half (49.2%) were undergraduates.

Table 3. Participants' demographic characteristics

Variable	Categories	Percent
Gender	Male	59%
	Female	41%
Age (years)	18-27	45.9%
	28-37	20.5%
	38-47	22.1%
	48-57	12.3%
Education	High school or less	5.7%
	Diploma	7.4%
	Undergraduate Postgraduate	49.2%
	Graduate	29.5%
	Still study for bachelor degree	10.7%

Hair et al. (2010) proposed five criteria for structural model analysis: h-coefficient (hypotheses test); coefficient of determination (R^2), to analyze the relevance of constructs in explaining selected endogenous constructs; effect size (f^2), to evaluate if the omitted construct has a substantive impact on the endogenous construct; predictive relevance (Q^2); and goodness of fit (GOF).

The path analysis is used to investigate and confirm intricate causal relationships within their models. Table 4 shows that all hypotheses are supported, with t-values ranging from 11.843 to 76.444: ATTD ($\beta = 0.477$; $p < 0.01$), ATALT ($\beta = 0.715$; $p < 0.01$), FC ($\beta = 0.728$; $p < 0.01$), PU ($\beta = 0.0.883$; $p < 0.01$), PSP ($\beta = 0.684$; $p < 0.01$), SI ($\beta = 0.607$; $p < 0.01$), PEoU ($\beta = 0.871$; $p < 0.01$), PV ($\beta = 0.698$; $p < 0.01$). As a result, the eight hypoth-

Table 4. Hypothesis testing results

Hypothesis	Relationship	Standard beta	t-value	P values	Decision	R square	R square adjusted
H1	BI → ATTD	0.477	12.58	0	Supported	0.228	0.226
H2	BI → ATALT	0.517	11.843	0	Supported	0.267	0.265
H3	BI → FC	0.827	42.76	0	Supported	0.684	0.683
H4	BI → PU	0.883	76.444	0	Supported	0.78	0.78
H5	BI → PSP	0.684	22.071	0	Supported	0.469	0.467
H6	BI → SI	0.607	16.681	0	Supported	0.369	0.367
H7	BI → PEoU	0.871	57.921	0	Supported	0.758	0.757
H8	BI → PV	0.698	19.871	0	Supported	0.487	0.485

eses are accepted. Thus, this study confirms that consumers' BI for m-wallets in Jordan is positively influenced by PEoU, PU, ATTD, FC, PV, PSP, SI, and ATALT.

Table 4 also shows that the model explained 22.8% of the variation in ATTD, 26.7% in ATALT, 68.4% in FC, 0.78% in PU, 46.9% in PSP, 36.9% in SI, 75.8% in PEoU, and 48.7% in PV for Jordanian consumers' BI in regard to m-wallet. All R^2 values satisfied the minimum acceptable level (0.10) (Falk & Miller, 1992).

According to Cohen (1988), f^2 values above 0.35 are considered to indicate a large effect; from 0.15-0.35 indicates a medium effect; from 0.02-0.15 indicates a small effect; and less than 0.02 indicates no substantive effect. Table 5 shows the effect size (f^2) results; all the constructs have f^2 values greater than 0.35 except the first construct ($f^2=0.295$), which means that ATALT, FC, PU, PSP, SI, PEoU, and PV have a large effect size, whereas the ATTD had a moderate effect size.

Table 5 also shows the construct cross-validated redundancy results. It can be seen that all of the Q^2 values are greater than zero, showing that the model has predictive relevance (Fornell & Cha, 1994). It shows the GOF values, all of which are greater than 0.36, which means the GOF model of this study is large enough to be considered sufficient for PLS model validity (Wetzels et al., 2009).

4. DISCUSSION

H1 examined the potential role of ease of use as a motivating factor behind the adoption of m-wallets. Outcomes substantiated the formulated hypothesis, aligning with the majority of prior

Table 5. F square results

Constructs	f ²	Results	SSO	SSE	Q ² (=1-SSE/SSO)	GOF
ATTD	0.295	Medium	642	552.734	0.139	0.386445
ATALT	0.365	Large effect	642	505.566	0.213	0.469619
FC	2.168	Large effect	1284	700.904	0.454	0.678982
PU	3.555	Large effect	642	214.938	0.665	0.818071
PSP	0.882	Large effect	642	410.316	0.361	0.604443
SI	0.584	Large effect	642	498.028	0.224	0.481386
PEoU	3.132	Large effect	1284	638.584	0.503	0.716885
PV	0.949	Large effect	1284	795.482	0.38	0.624569

investigations (Anouze & Alamro, 2020; Lew et al., 2020; Shin, 2009; Singh et al., 2020). Findings indicated a noticeable consensus among m-wallet users that ease of use technology as a major reason for their adoption and utilization of m-wallets.

H2 investigated the role of advantages and benefits as drivers for the adoption of m-wallets. The results provided strong support for the formulated hypothesis, which is consistent with the findings of several previous studies (Alalwan et al., 2016; Anouze & Alamro, 2020; Lew et al., 2020; Shin, 2009; Singh et al., 2020; Singh & Sinha, 2020). The outcomes indicated a clear consensus among users of m-wallets, with a firm belief that the perceived benefits and merits associated with their usage significantly influenced their decision to adopt and employ m-wallet services.

H3 investigated the influence of positive attitudes towards the usage of m-wallets in society as a motivating factor. The results strongly supported the hypothesis, which aligns with the findings of previous studies (Amoroso & Magnier-Watanabe, 2012; Khalilzadeh et al., 2017). The findings indicated a clear consensus among m-wallet users, highlighting their firm belief that positive attitudes towards m-wallets played a significant role in encouraging their adoption and usage.

H4 explored the impact of facilitating conditions on the adoption of m-wallets, and the findings yielded substantial evidence in support of the formulated hypothesis, corroborating the results reported in prior research (Anouze & Alamro, 2020). The outcomes of the analysis indicated a widespread consensus among m-wallet users, who firmly believe that facilitating conditions significantly contributes to the motivation and acceptance of m-wallet adoption.

H5 investigated whether m-wallet users perceive the benefits of using m-wallets to outweigh the associated costs. The findings provided strong support for the formulated hypothesis, aligning with the outcomes of various studies (Anouze & Alamro, 2020; Kim et al., 2007; Madan & Yadav, 2016). The results indicated that wallet users hold a distinct belief that the positive perceived value (cost/benefit ratio) serves as a motivating factor in encouraging them to adopt and utilize m-wallets.

H6 examined the influence of security and privacy on users' adoption of m-wallets. Findings supported the hypothesis, corroborating previous studies (Anouze & Alamro, 2020; Khalilzadeh et al., 2017). Users clearly believed that the presence of robust security measures and privacy provisions encouraged them to use m-wallets.

H7 explored the influence of word of mouth and peer experiences on the adoption of m-wallets by users. The findings provided substantial support for the hypothesis, which aligns with the outcomes of several studies (June et al., 2005; Madan & Yadav, 2016; Tan & Ooi, 2018). Wallet users expressed a clear belief that positive word of mouth and favorable experiences shared by their peers played a significant role in encouraging them to adopt and utilize m-wallets, highlighting the impact of social influence, as in De Sena Abrahão et al. (2016).

H8 investigated whether m-wallet users perceive the distinctiveness and exclusive services offered by their chosen provider as a significant factor in adopting m-wallets. The findings strongly supported the hypothesis, aligning with Kaur et al. (2020). The results indicated a clear consensus among wallet users, indicating their belief that the unique advantages and services provided, which

are not readily available from competitors, served as a motivating factor for their adoption and usage of m-wallets.

The findings support all the study hypotheses, indicating varying levels of impact among the variables examined. Three variables (PU, PEOU,

and FC) had a high effect, while three variables (PV, PSP, and SI) had a moderate effect on the adoption of m-wallets. Two variables (ATALT and ATTD) had a low effect. This emphasizes the significance of perceived usefulness, ease of use, and facilitating conditions in driving m-wallet adoption.

CONCLUSION

The study successfully constructed a robust model, ensuring good reliability and validity of the construct measures employed. The goodness-of-fit (GOF) model indicated the validity of the model for further analysis. Notably, all variables included in the study exhibited a statistically significant positive impact on the intention to use m-wallets, emphasizing the significance of understanding consumer intentions in the adoption of mobile wallet services.

The major findings revealed a positive impact of perceived usefulness, ease of use, and facilitating conditions on user decisions, with significant R-square values of 0.78%, 75.8%, and 68.4%, respectively. Additionally, perceived value, security, privacy, and social influence demonstrated a moderate effect, while the attractiveness of alternatives and attitudes towards m-wallet usage showed lesser impact.

This study enriches the existing body of knowledge on mobile commerce in developing economies, particularly in Jordan, offering a detailed model that contributes valuable insights for the advancement of digital payment systems. The identified factors influencing m-wallet adoption provide a foundation for addressing challenges and promoting financial inclusion in Jordan.

The slow adoption of mobile payments in Jordan, characterized by a preference for cash and security skepticism, poses a significant challenge that hinders the transformative potential of digital financial services. Despite efforts by the Central Bank, including the establishment of the Jordanian Company for Payment and Clearing System, this study underscores the importance of exploring and understanding factors influencing m-wallet adoption. The focus on insights from fintech companies provides a unique perspective, offering valuable insights to enhance digital financial inclusion in the country. This study contributes to the broader understanding of technology adoption dynamics in emerging economies, offering practical implications for policymakers, financial institutions, and fintech companies in promoting m-wallet adoption and advancing digital payment systems.

AUTHOR CONTRIBUTIONS

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Formal analysis: Ohoud Khasawneh, Rana AlBahsh.

Funding acquisition: Ohoud Khasawneh.

Investigation: Ohoud Khasawneh.

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APPENDIX A

Table A1. Questionnaire

Constructs (variables)	Item	Question	References
Behavior motives for using m-wallet BI	BI1	I advise others to deal with m-wallets	Anouze and Alamro (2020), Kaur et al. (2020)
	BI2	I feel very comfortable using m-wallets	
	BI3	I had little problems when I used m-wallets	
	BI4	Employees treat kindness and helpfulness while providing the service	
Perceived usefulness PU	PU1	using an m-wallet would be more convenient when making purchases	Anouze and Alamro (2020)
	PU2	My choice for this service is to avoid congestion in banks	
	PU3	using an m-wallet is compatible with all aspects of my life style	
	PU4	I think m-wallet is very useful to meet my different needs	
Perceived ease of use PEoU	PEoU1	One of the advantages of using an m-wallet is its ease of use and speed in implementation	Kaur et al. (2020)
	PEoU2	I don't need help to use the services provided by m-wallets, whether from the service provider or a friend	Venkatesh et al. (2003), Anouze and Alamro (2020)
Attitude toward using ATTD	ATTD1	I think that using m-Wallets is a good idea	Anouze and Alamro (2020)
	ATTD2	I like to try everything new, so I was the first user of this service	
Social influence SI	SI1	For religious reasons, I don't want to deal with commercial banks and I think m-wallets are a good alternative	Alalwan et al. (2017)
	SI2	Most people around me use m-wallets, so I find it necessary to be one of them	Sigli et al. (2020)
Perceived security and privacy PSP	PSP1	the financial transaction are safe through the m-wallets	Pal et al. (2021)
	PSP2	The main reason for using m-wallet is a security and confidentiality	
Attractiveness of alternatives ATALT	ATALT1	I think using m-wallets is better than other payment methods such as the Internet or cash	Cheong et al. (2004)
	ATALT2	M-wallets offer services that are not provided by commercial banks	Amoroso and Magnier-Watanabe (2012)
Perceived value PV	PV1	Commissions and fees were determine before using m-wallets	Anouze and Alamro (2020)
	PV2	Before using m-wallet, I got enough information regarding how the electronic application of the wallet was used by the provider	Pal et al. (2021)
	PV3	Before using e-wallet, I got enough and clear information about the contracts and terms of dealing	
	PV4	Before using m-wallet, I obtained sufficient information regarding the services provided by the provider	
Facilitating conditions FC	FC1	The main reason for using m- wallet is the availability of many agents and centers everywhere that provide this service	
	FC2	The quality and speed of the Internet is suitable for dealing with m-wallets	Alalwan et al. (2017)
	FC3	my wallet is accepted as a mean of payment in all the places I frequent	Khalilzadeh et al. (2017)
	FC4	I have all the necessary requirements to use the -wallet such as smartphone and internet	