

Toward a cashless economy: Exploring Drivers of Mobile Wallets Adoption from Consumers' and Service Providers' Perspectives

Mohamed Yehia Elgazouly ^{a,*} · Gamal Sayed AbdelAziz ^b · Doaa Fathy Abdelgawad ^b

^a Bank Du Caire, Egypt

^b Faculty of Commerce, Cairo University, Giza, Egypt

* *Corresponding author*: mohamedyehiaelgazouly@gmail.com

Abstract

With the global trend of governments transforming their economies into cashless societies, and citizens of several countries actively resist this transformation and prefer cash transactions, especially in developing countries. There has been a need for understanding which drivers would motivate consumers to adopt cashless payments through mobile wallets. To achieve this research objective, the researchers employ qualitative methodology. Thirty interviews with consumers and six interviews with managers representing the main service providers in Egypt were conducted. Convenience and judgmental sampling plans were used respectively. Our findings revealed that there is a promising future for mobile wallets adoption. Factors that affect adoption behavior of mobile wallets in Egypt were grouped into three categories as follows: (1) Technical related factors which includes: perceived ease of use, perceived usefulness, and perceived security, (2) Social factors which includes: social influence and (3) Context related factors which includes: facilitating conditions and perceived regulatory support. Our study revealed a new driver named “regulatory support”. These findings are important to formulate strategies and tactics that can better encourage consumers towards the adoption of mobile wallets.

Keywords

Cashless Society; Mobile Wallets; Adoption Intention; Social Influence; Governmental support

Article history

Received: 10 September 2022 · **Accepted:** 15 November 2022

1. Introduction

As information technology has been developing, there has been a very rapid evolution of smartphones which have become ubiquitous in today's world. Nowadays, smartphones offer more than simply being connected. Technology and smartphones have become a core element of the structure of everyday life (Humbani & Wiese, 2019; Shankar & Datta, 2018; Zhao, 2021; Herget & Krey, 2021; Mew & Millan, 2021; Jaiswal et al., 2022). The mobile wallet offers several benefits for both consumers and businesses. For consumers, it has the potential to eliminate the need for cash on hand while performing financial transactions in a convenient, easy and time saving means (Mew & Millan, 2021). For businesses (e.g., Financial Institutions, Mobile Network Operators, Digital Payments and E-Commerce), it provides additional way for consumer to pay for their utilities, hence paving the way for a new revenue stream, whenever the mobile wallet replaces the use of traditional cash. The future of the retail payment theme is expected to be highly dependent on the mobile wallet which provide a set of benefits such as faster in-store payment using the QR Code, E-storage of receipts, reducing waiting time, paying lower prices and getting value for money due to the promotions through mobile wallets which in return increase customer satisfaction.

The coronavirus pandemic which emerged early in 2020 had massive impact on consumer's lifestyles, habits, and consumption behaviors, therefore, businesses responses must be rapid (Celum et al., 2020). COVID-19 has changed the global mindsets and direction in terms of dealing with mobile payments from both the end-user and the investor perspectives (Gursoy & Chi, 2020). Consumers were persuaded to search for alternatives to cash such as contactless payment to reduce the risk of Covid-19 transmission as a step to reduce the spread of the virus as reported by World health organization (WHO 2021). Mobile payment provided an opportunity to mitigate transmission of this risk due to its technological design which support the social distance concept (Celum et al., 2020).

Despite the noticeable benefits and affordances of mobile wallets, their low usage rates and slow adoption have inspired scholars to conduct research to conceptualize mobile payment and understand consumer's intentions to use it. Researchers have argued that mobile wallets are not readily accepted despite the benefits they provide to users and their capacity for making lives safe and easier during critical times (Celum et al., 2020). Few endeavors have been made to understand consumers' use of such novel innovation (Kaur et al., 2020; Penny et al., 2021). Previous research provide evidence that many customers are skeptical and have a tendency to resist such novel technology (Jahanmir & Lages, 2016), which might lead to failure of such innovations in the future. Heidenreich & Talke (2020) argues this innovation resistance must be understood to facilitate new technology adoption among consumers. Moreover, the lack of governmental support and existence of regulatory barriers to eliminate the cash transactions hindered the way toward a cashless society.

This study has many contributions as follow; first we extend the existing literature on mobile wallet adoption through identifying a new driver, government support.

Second, most previous studies were conducted in developed markets, in our study we extend existing empirical studies to examine practices in Egypt as an emerging market. Third, in our study we incorporate two perspectives: users' perspective and service providers' perspective while most previous studies focus only one perspective. Fourth, as a practical contribution, the research findings would assist service providers such as banks and telecommunication operators to formulate the appropriate marketing decisions to reach customers more effectively. Policymakers could thereby design better rules and regulations that can motivate more mobile payment acceptance to drive a cashless economy based on our findings.

2. Literature Review

Understanding customer intentions and the adoption of mobile wallets have been recently the focus for both scholars and practitioners worldwide. Indeed, by using different approaches and according to various theoretical foundations, scholars gradually attempt to explain how customers formulate their perception, attitude, intention and behavior toward mobile wallet usage in everyday life. (Mahran and Enaba, 2011; Badran, 2016; Humbani and Wiese 2019; Herget and Krey 2021)

2.1 The Emergence of Technology Adoption in Marketing literature.

Technology adoption by consumers has been widely recognized as a key research topic for scholars and of high interest to practitioners alike. Due to lack of concreteness regarding the constituents of 'adoption', a conceptual dilemma has emerged, hence providing limitation in the formation of operational definition of the terms which is vital for scale development (Pandy & Rai, 2021). Group of researchers (Kalish, 1985; Saaksjarvi, 2003; Rogers, 2003; Rogers et al., 2019) have agreed to identify 'consumer adoption' as a process through which a consumer can decide whether or not to adopt an innovation (Pandy & Rai, 2021). In light of conceptualization of the concept, various authors had attempted to define consumer adoption. Rogers et al. (2019) define 'consumer adoption' as sequence of steps in which consumers go through starting from knowledge initiation until they form an attitude toward an innovation. This classic view classified stages to adopt into innovators, early adopters, early majority, late majority and laggards. Warkentin et al. (2002, p.157) defined adoption as "the intention of consumers to get engaged with particular innovation". Deng et al. (2010, p.289) describe technology adoption as "An individual consumer's propensity to accept new technologies and use them in a way that they will find useful". Lee (2012) defined adoption taking into consideration all the evaluations made by consumer toward technology innovation and a commitment to use afterwards on all following occasions. Sun (2014) defines consumer adoption as awareness, embracing and full usage of innovation technology. Kiwanuka (2015) defines adoption as the first time to use a technology. In this study we view adoption as a process following Rogers et al. (2019) definition which reflects a wider perspective of adoption and provides a comprehensive understanding of this concept highlighting the systematic process of adoption.

2.2 Theories of Technology Adoption

There are several theories that scholars have utilized in explaining the behavior of mobile wallet intention to use. Among these theories are the technology acceptance model (TAM) and the unified theory of acceptance and use of technology (UTAUT), which are widely applied theories that can elaborate user intention and acceptance toward adopting new technology. Hence, we will focus on both theories in this section.

2.2.1 The Technology Acceptance Model (TAM)

It was proposed by Davis (1989), as an appropriate tool for predicting technology adoption at work settings. This theory is based on Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1977) and it hypothesizes two variables perceived usefulness and perceived ease of use as main drivers for technology adoption. The theory includes reliable instruments with proven measurement properties and empirical soundness (Humbani and Wiese, 2019).

2.2.2 The Unified Theory on Acceptance and Use of Technology (UTAUT)

The theory was proposed by Venkatesh et al. (2003) and it consists of four determinants: performance expectancy (PE), effort expectancy (EE), social influence (SI) and facilitating conditions (FC) which collectively impact the use intention and behavior. UTAUT was extended to add trust factor which indicated its' significance which influence user attitude toward adopting new technology and intention to use it as well (Alkhowaiter, 2020). Furthermore, UTAUT 2 incorporated three more constructs which are: hedonic motivation, price value, and habit. Perceived security were added afterwards to determine the factors of intention to adopt mobile wallet ((Altuwaijri & Ferrario, 2022).

2.3 Mobile Payment Service

In the early 1994, first online purchase was performed using E-payment (Yang et al., 2022). Coca-Cola Company introduced a first example of mobile payment in 1997, when they provide number of vending machines to make mobile purchases possible. The consumer was able to send a text message to the machine, then it dispensed the product (Dahlberg et al., 2015). Since that moment, mobile payment research started to evolve. Paypal online payment system was introduced in 1998 to let consumers use their mobile phones to buy movie tickets in many countries. Other developments were launched such as Bitcoin in 2008, Google wallet in 2011, Apple Pay in 2014 and later Android and Samsung Pay in 2015 (Yang et al., 2022). Recently, the recurrent topic has become mobile wallets and mobile payment and particularly in developing countries (León, 2021). This is because the progressive increase for the demand of basic financial banking service, normal service payments and money transfer are not fully met yet.

The main actors in the market for mobile payment services are mainly mobile payment service providers such as (financial institutions and mobile network operators) and their consumers, vendors of mobile phones, software, network, and many other

technologies could also be involved (Dahlberg et al., 2008). As every research is conducted within a unique situation, it is important to emphasize context of research. Consequently, for readers to clearly comprehend the research and mitigate confusion. we have compiled various definitions of mobile payment services in the table below (see table 1).

Table 1 Various definitions of mobile payment service	
Definition	Source
“Any payment where a mobile device is used in order to initiate, activate, and/or confirm this payment can be considered a mobile payment”	Karnouskos (2004)
“MP is the wireless transactions of a monetary value from one party to another using a mobile device whose physical form can vary from a mobile phone to any wireless enabled device (e.g., PDA, laptop, key ring, watch) which are capable of securely processing a financial transaction over a wireless network.”	(Chang et al., 2020)
“Defined m-payments as payments for goods, services and bills with a mobile device (such as a mobile phone, smartphone, or PDA).”	Tiwari et al. (2006)
Developed to be “Payments for goods, services, and bills with a mobile device (such as a mobile phone, smart-phone or personal digital assistant (PDA)) by taking advantage of wireless and other communication technologies.”	Dahlberg et al. (2008)
“ Mobile Payment refers to making payments using mobile devices including wireless handsets , Personal Digital Assistants (PDA), Radio Frequency (RF) devices and Near- Field Communication (NFC) based devices.”	Chen (2008)
“Any payment where a mobile device is used to initiate, authorize and confirm an exchange of financial value in return for goods & services”.	Au and Kauffman (2008)
“MP is a range of mobile commerce services that entail initiated or confirmed payment transactions by means of a mobile phone.”	Weber and Darbellay (2010)
“MP means that users adopt mobile terminals to conduct payment at anytime from anywhere.”	Zhou (2013)
“MP is defined as any payment in which a mobile device, such as a mobile phone or any other device capable of connecting to mobile communication networks, is utilized to initiate, authorize, and confirm a commercial transaction. A mobile wallet is a type of electronic wallet which carries out transactions using a mobile device, and the former is an evolution of the latter.”	Amoroso and Magnier- Watanabe (2012)
“MP is the transfer of funds in return for a good or service, where the mobile phone is involved in both the initiation and confirmation of the payment.”	Dennehy and Sammon (2015)
“MP, which is a particular form of e- payment, utilizes communication technology by enabling mobile users to make payment using Internet connected mobile devices.”	Ting et al. (2016)
“MP is considered by many experts as one of the applications with the greatest potential in this sector, even referring to it as the future “star” or “killer” application in mobile communications. Mobile payment can be defined as any type of individual or business activity involving an electronic device connected to a mobile network thus enabling the successful completion of an economic transaction”	(Liébana-Cabanillas et al., 2020); Ghezzi, Renga, and Balocco (2010)

All the above mobile payment definitions capture the monetary value transfer within the main entities: mobile service provider (Financial Institutions and Mobile Network Operators), mobile payment vendor (Merchant) and the mobile technology in use (Platform). For our research purpose, a wider view was adopted for mobile payment service, in which we will examine all types of payments that could be done for goods and services starting from initiation until authorization using a mobile phone. This definition proposed by Dennehy and Sammon (2015) gives a holistic view of mobile payment and provides a comprehensive understanding of this concept highlighting the four categories of mobile payment that include (consumer payment, merchant payment, person to person payment and institutional payment).

Mobile payment has many qualities: first, it is characterized as ubiquitous payment system that allow consumers to perform payment anytime and anywhere (Jia et al., 2014). Second, mobile phones are closer to people's hands which facilitate usage as a payment instrument (Mallet & Vignoli, 2007). Third, low value transactions could be easily managed by mobile network operators billing system same as phone calls and mobile data (Mallet & Vignoli, 2007). Finally, the early success of mobile content services such as buying a ring tone propose that consumers can use mobile phones to make payment (Dahlberg et al., 2008).

2.4 Mobile payment and its utilization under the COVID-19 pandemic

COVID-19 pandemic has significantly influenced people's daily lives and the world economy as well. World health organization (WHO) has advised people to use contactless payments which is one of mobile payment characteristics, instead of cash to reduce the risk of COVID-19 transmission to protect and maintain users' experience in transactions (Zhao, 2021). Moreover, due to the restrictions imposed by the Governments to avoid direct contact and maintain social distancing during the COVID-19 pandemic, mobile payment as one of the payment options had been widely adopted for its contactless feature and trustworthy performance which could be an opportunity to turn people to mobile payment service as a step to stem the spread of the virus. Particularly under pandemic condition, new business atmosphere has been formulated by mobile payment wide adoption in which financial transaction can be performed anytime, anywhere and by anyone due to its convenient and secure features (Luna et al., 2021).

2.5 Previous empirical studies of mobile wallets adoption

This section provides summary of previous studies about different factors affecting mobile wallet adoption assembled in the following table.

Table 2: Review of drivers of mobile wallet adoption

Author/Year	Independent Variable	Dependent Variable	Results
Ariffin et al., (2021)	<ul style="list-style-type: none"> - Perceived ease of use - Perceived usefulness - Subjective norms - Attitude - Disconfirmation - Perceived Value - Perceived Behavioral Control - User Satisfaction 	Intention to Continuous Use	<ul style="list-style-type: none"> - The constructs used in the technology acceptance model (TAM), the theory of planned behavior (TPB) next to the user satisfaction affect mobile wallet intention to use. - Perceived Value hasn't significant effect on either user satisfaction or mobile wallet usage intention.
(Altuwaijri & Ferrario, 2022)	<ul style="list-style-type: none"> - Perceived ease of use - Perceived usefulness - Security - Trust - Facilitating conditions - Lifestyle compatibility - Attitude 	Intention to Use	<ul style="list-style-type: none"> - User attitude and intention to use mobile wallet are positively affected by the independent Variable. - Lifestyle compatibility which is considered significant to mobile wallet adoption. - 26% of the respondent adopted mobile wallet because of the COVID-19.
Mew and Millan (2021)	<ul style="list-style-type: none"> - Personal innovativeness in information technology - Perceived usefulness - Attitude - Social influence - Perceived security - Trust - Perceived relative advantage - Attitude 	Behavioral intention to adopt mobile wallet	<ul style="list-style-type: none"> - All the variables were significant to behavioral intention except for Consumer innovativeness does not affect directly behavioral intention.
Singh et al. (2020)	<ul style="list-style-type: none"> - Ease of use - Usefulness - Perceived risk - Attitude - Innovativeness - Satisfaction - Stress to use - Social influence 	User's intention	<ul style="list-style-type: none"> - The variables ease of use, usefulness, perceived risk and attitude have significant effect on user's intention. - Identified important factor that affect user's decision which is stress to use and perceived satisfaction.
Mombeuil, (2020)	<ul style="list-style-type: none"> - -Convenience - Relative advantage - Perceived privacy - Perceived security 	Renewed adoption	<ul style="list-style-type: none"> - The variables (relative advantage and perceived security) are found to be the best predictors of renewed adoption intention for mobile wallets. - Users are highly concerned with the level of security due to the illegal financial transactions.
Lew et al. (2020)	<ul style="list-style-type: none"> - Usefulness - Ease of Use - Perceived critical mass 	Behavioral Intention	<ul style="list-style-type: none"> - The results confirmed that customers are willing to use the mobile wallet in the hospitality

	<ul style="list-style-type: none"> - Perceived Enjoyment - Mobile Self-efficacy - Technology Self-efficacy 		<p>industry due to the easiness in learning and related advantages.</p> <ul style="list-style-type: none"> - Perceived critical mass & Technology self-efficacy doesn't have a significant relationship with behavioral intention. - Other variables are found to be significant.
Okonkwo et al. (2022)	<ul style="list-style-type: none"> - Compatibility - Image - Relative Advantage - Perceived ease of use - Perceive usefulness - Information quality - System quality - Service quality 	Adoption in cash-based economy	<ul style="list-style-type: none"> - Compatibility has no significant impact on mobile wallet adoption with justification that mobile wallet designs to be by everyone. - Perceived ease of use has no significant influence on both mobile wallet adoption and perceived usefulness with justification that mobile wallet designs to perform financial transactions. Therefore, it requires stronger security to protect the user information than being simple to use.
Shin and Lee (2021)	<ul style="list-style-type: none"> - Performance Expectancy - Effort Expectancy - Social influence - Credibility - Service Smartness - Habit 	Behavioral intention	<ul style="list-style-type: none"> - All variables are significant with customer's behavioral intention except for social influence.

3. Drivers to mobile wallets adoption

Drawing on Technology Acceptance Model (TAM), as well as the Unified Theory of Acceptance and Use of Technology (UTAUT), the following drivers of mobile payment adoption are revealed.

3.1 Social influences

While assessing the acceptance of technological innovation, the social factor cannot be disregarded. Social influence is defined as the degree to which an individual perceives if others, particularly the important ones, believe he or she should apply the new technologically innovation (Venkatesh et al. 2003). Venkatesh et al. (2003) acknowledged the importance of social influence in the adoption of technology in his study. The importance of social pressure in terms of attitude has positively been recognized in the context of mobile application (Nysveen et al., 2005), in mobile payment service (Mahran & Enaba, 2011; Schierz et al., 2010). On the other hand, Nysveen et al. (2005) argues that social pressure directly affects behavioral intention, irrespective of the attitude. Although a person may have a negative or neutral attitude towards using the technology, he/she may also have the intention to use it. Conclusively, seeking opinions and advice of central peers and society plays a key role

in explaining user's adoption of mobile payment service during the coronavirus (COVID-19) pandemic (Rafdinal and Senalasar, 2021). It is worth noting that during the COVID-19 outbreak, individuals were eagerly deliberating recommendations, suggestions, advice, and opinions from important peers and relatives in such mandatory situations which could affect the individual's perceptions and actions consequently.

3.2 Perceived Usefulness

Perceived usefulness is defined as "the degree to which an individual believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 26). This determinant has been known with different names such as utility expectancy or performance expectancy to adapt with technological application (Mahran & Enaba, 2011; Qingfeietal,2008; Venkatesh et al., 2003). Perceived usefulness of mobile payment service is affected by several variables such as rapidity and convenience in dealing with mobile payment service compared with other available payment method are considered to be the most effective (Dewan & Chen, 2005).

Drawing on TAM, perceived usefulness has a direct correlation to intention to use as a result of extrinsic motive such as achieving a certain goal or gaining a reward (Davis, 1989; Venkatesh et al., 2003, 2012). Prior research provide empirical evidence in China, Singapore, United states, South Africa, Indonesia, India, Malaysia, Europe ((Altuwajri & Ferrario, 2022) on the impact of perceived usefulness and perceived ease of use on adoption of new technologies innovation such as online services, mobile phones, e-finance, and mobile payments (Lew et al., 2020; Singh et al., 2020; Chawla & Joshi, 2019; Singh & Sinha, 2020; Schmidhuber et al., 2020; Altuwajri & Ferrario, 2022; Jaiswal et al., 2022). There is a wide agreement that TAM has propelled to the forefront in investigations of individual's acceptance of newly emerging technologies. Empirical research has also proven that consumers will use mobile payment service for practical reasons, that is, for the relative advantage those systems deliver in performing financial transactions (Kim & Kim, 2020).

The importance of perceived usefulness has been recognized in improving the way a consumer completes his/her tasks or goals. Mobile payment offers several useful functions to its customers such as (consumer payment, merchant payment, person to person payment and institutional payment). In addition, during Covid-19 mobile wallets provided customers a risk-free payment solution. As the TAM (Davis, 1989) illustrated, perceived usefulness is positively associated with consumer's attitude toward specific novel technology.

3.3 Perceived Ease of Use

Moving onto the other element in TAM, the perceived ease of use was defined as "the degree to which an individual believes that using a particular system would be free of physical or mental effort" (Davis, 1989, p. 26). Although most people are familiar with using mobile phones, they may be new to mobile payment service especially when

it comes to financial transaction. Features such as performing a financial transaction through a mobile might be a difficult task for a new user. Therefore, perceived ease of use is a factor that determines the intention to use it (Lew et al., 2020; Singh et al., 2020; Chawla & Joshi, 2019; Singh & Sinha, 2020; Schmidhuber et al., 2020; Altuwajri & Ferrario, 2022; Jaiswal et al., 2022). Therefore, the perceived ease of use has been an essential factor in accepting new technology such as mobile.

3.4 Perceived Behavioural Control

Perceived behavioral control plays an important role on adoption theory and in mobile payment service (Rao & Troshani, 2007). It is defined as “people’s perception of the ease or difficulty of performing the behavior of interest” (Ajzen, 1991, p. 183). In the context of mobile services adoption, this refers to the individual perception of how easy or difficult it is to get mobile services which also includes the individual’s ability to afford the costs associated with mobile services (Akanlisikum Akanferi et al., 2022). Perceived behavioral control consists of elements of the individual limitations related to the user’s economy, experience and skill in using a service (i.e. mobile wallet) service in our study. Previous studies (Ting et al., 2016; Liao et al., 2007; Khatimah and Halim, 2016) as cited by (Ariffin et al., 2021) identified the impact of perceived behaviour control considering user’s knowledge ability has a positive effect on attitude toward using the service. Further, the existence of positive attitude associated with absence of usage know how and high costs leads to decrease the intention to use (Nysveen et al., 2005). Generally, this determinant disseminated a positive effect on the intention to use the technology, particularly in the field of information systems (Sharma et al., 2018; Ariffin et al., 2021).

3.5 Perceived Trust

Since TAM and UTAUT does not take into consideration the role of trust and perceived security in using such technology, those constructs are added to extend our research model. Previous studies have examined trust and its importance as determinants in adoption and continuance of usage (Alalwan et al., 2018; Gao et al., 2015; Khalilzadeh, et al., 2017). Trust can be defined as “the willingness to be loyal to a service provider expecting a positive outcome regarding the service provider’s future behaviour” (Zhou, 2013). People use their phone in their daily life, they provide personal and financial information in which they don’t have a direct control over the actions of vendors. Lack of trust may be a reason for customers to disengage in mobile payment transactions over the wallet. Trust was found to be significant factors in the intention to use mobile wallets and mobile payment service (Seetharaman, Kumar, Palaniappan, & Weber, 2017).

3.6. Perceived security

Perception of risk and security is always accompanied by introduction of new technology. Perceived security is defined as “the degree to which a customer believes that using a particular mobile payment procedure will be secure” (Shin, 2009). People want to feel secure while performing daily financial transactions to eliminate any associated concerns. Service providers should exert more efforts to minimize these concerns and create an environment more conducive to customer confidence (Thakur & Srivastava, 2014) for mobile payment promotion. One of the key factors contributing to the unfavourable and slow growth rate of user acceptance mobile payment is security risk (Siau & Shen, 2003). Information security concerns make buyers sceptical and it is generally a major barrier to e-commerce adoption (Hoffman, Novak, & Peralta, 1999; George and Sunny, 2020). Furthermore, an empirical study conducted in India showed that perceived security has a significant effect on intention to use mobile wallet services (Shah & Rathod, 2022).

3.7 Price Value

Price value was introduced by the UTAUT2 as extension of earlier UTAUT model (Venkatesh et al., 2012). It incorporates the value (or trade-off) between perceived benefits of mobile payment service and the monetary cost of usage (Venkatesh et al., 2012). The price value is positive when the perceived benefits of using mobile payment service are greater than the monetary cost and such price value has a positive impact on intention to use it. Hoang and Le (2020) observed that promotions and offers didn't receive a considerable attention especially for technology adoption. However, this short-term marketing tactics is believed to have a great impact on the long run as it creates awareness and interest in the service. Shin and Lee (2021) claimed that price value wasn't one of the primary motivators for user to accept mobile wallet, while Penney et al. (2021) believed that price value is more concerned with wallet acceptance. We believe that reason for such difference is that consumer behaviors is different across countries. Ghana mobile wallet users showed higher preference toward price compared to USA counterparts. In relation to mobile wallet, more values could be provided to users by wallet service providers such as offering discounts, cash back on transaction, loyalty rewards to transact (Ariffin et al., 2021). Mobile wallet users might be motivated and continue using the wallet when their service provider deliver higher value than other competitors in the market. (Zhu et al., 2017; Liu et al., 2020). Based on the above, researchers believe that price value can be a predictor of behavioral intention to use mobile payment service.

4. Research Context

Mobile Payment also known as mobile wallet service was introduced to the Egyptian market in April 2013. The service is expected to become an important channel for performing financial transactions because of its convenience and timeliness. Mobile money was initially made popular by four launched mobile wallets; VodafoneCash,

MobiCash, Flous and PhoneCash. The wallet is installed on the SIM cards of customers works on all handsets brands and provided free of charge. In Egypt, the Central Bank of Egypt (CBE) and the National Telecommunications Regulatory Authority (NTRA) are both involved in licencing mobile financial services. The Central Bank of Egypt (CBE) license banks while the National Telecommunications Regulatory Authority (NTRA) licenses the mobile network operators. Mobile money system followed a “bank led model”, in which the Central Bank of Egypt (CBE) is fully responsible for setting and coordinating monetary and banking policies. By law, each mobile network operators (wallet providers) have to partner with a bank. However, wallet users don’t need to have a bank account to use the mobile money service. That’s why a partnership between a bank and a mobile network operator (MNO) is a must. Egypt saw currently a total of 20 million user of mobile wallet, with the value of transactions on these wallets growing a whopping 300% in 2020 to EGP 100 billion, according to the Central Bank of Egypt (CBE) & the National Telecommunications Regulatory Authority (NTRA). The service is carrying enormous potential following the Financial Regulatory Authority (FRA) new regulations which mandates all non-banking financial service providers such as Microfinance loans institutions use non-cash methods (mobile wallet) when making or receiving payments exceeding the EGP 500 threshold.

5. Methodology

To explore the main factors that affect the adoption of mobile wallet in Egyptian banking market, interviews were conducted with consumers from different demographic profiles (age, gender & academic qualification). Employing a convenience sample with 30 respondents (72.5% of participant have mobile wallet) to clarify what motivated them/would motivate them to adopt mobile wallets. Further, six interviews were conducted following a judgmental sampling technique where participants were selected carefully to represent different mobile wallet management teams who headed the Mobile Money department in different fields (Digital Payments, E-Commerce, Mobile Network Operators, Financial Institutions & Schemes). All interviews were recorded, then the transcription was completed. The analysis of qualitative data was performed using content analysis techniques.

6. Qualitative Data Analysis

Analysis of qualitative data revealed important insights for mobile wallets adoption as clarified by consumers and service providers.

6.1. Consumer perspective

For several consumers, cash is still seen as the most comfortable use for small purchases. Additionally, older consumers, the unbanked and lower income consumers are very conservative for digital payment different methods. Those group of consumers could be currently excluded from non-cash payment solutions. Believing a more

physical connection to their monetary value is habitually cited to help some consumers budget and manage debt (Weimert & Saiag, 2020).

Asking users about the reasons for using mobile wallets to conduct payments revealed that almost 88% of participants agree that mobile wallet is “*easy to interact with*”, “*user friendly*” and “*comfortable*” due to its simplicity which clarifies the perceived ease of use factor. 70% of participants believe that mobile wallets “*facilitate*” their daily financial transactions management because it is “*entirely within control*” that it can be used “*anytime*” and “*anywhere*”. However, others believe it is not under control due to the need for “*internet connectivity*” or unexpectedly repeated “*network distortion*”.

6.2. Service providers’ perspective

Industry professionals provided insights about the impact of COVID-19 crisis. Mobile wallet usage is a growing trend that has “*increased massively*” during last two years accelerating adoption rates.

“We are going to cashless society; therefore, mobile wallet will prevail the market” (manager 2)

“General framework for a transition to a less cash-based society” (manager5)

In general, there is a “promising future” for mobile wallets and customers may have high demand for the non-traditional payment services such as Mobile wallet, Money transfer and QR code payment.

“Such unprecedented demand for non-cash payment methods since pandemic will eclipse the need for cash endlessly” (manager 3).

In a cashless society, financial transactions are performed electronically, a trend which has accelerated recently. A few years ago, a cashless society was a dream or something you would only read about it in books or articles. As the saying goes, necessity is the mother of invention. The COVID-19 pandemic accelerated an already increasing trend to favor digital payments over cash payments. The Egyptian government is set to become 100% digital according to Egypt vision 2030. According to the National Payments Council’, traditional cash transactions accounted for 77%. Therefore, the government is already moving toward this digital transformation through limiting cash transactions, especially since both the consumers and government bodies are keen on that trend.

7. Study Findings

The below figure illustrates the data structure and development of themes. Following Gioia, et al.’s (2013), we read the transcripts to gain a comprehensive view of the data. Then, open coding was conducted to develop first-order or core categories from each individual transcript. Next, the first-order codes were regrouped into second-order categories or preliminary concepts. Further, we used axial coding to group and

establish relations among the preliminary concepts (or the second-order categories) (Locke, 2001).

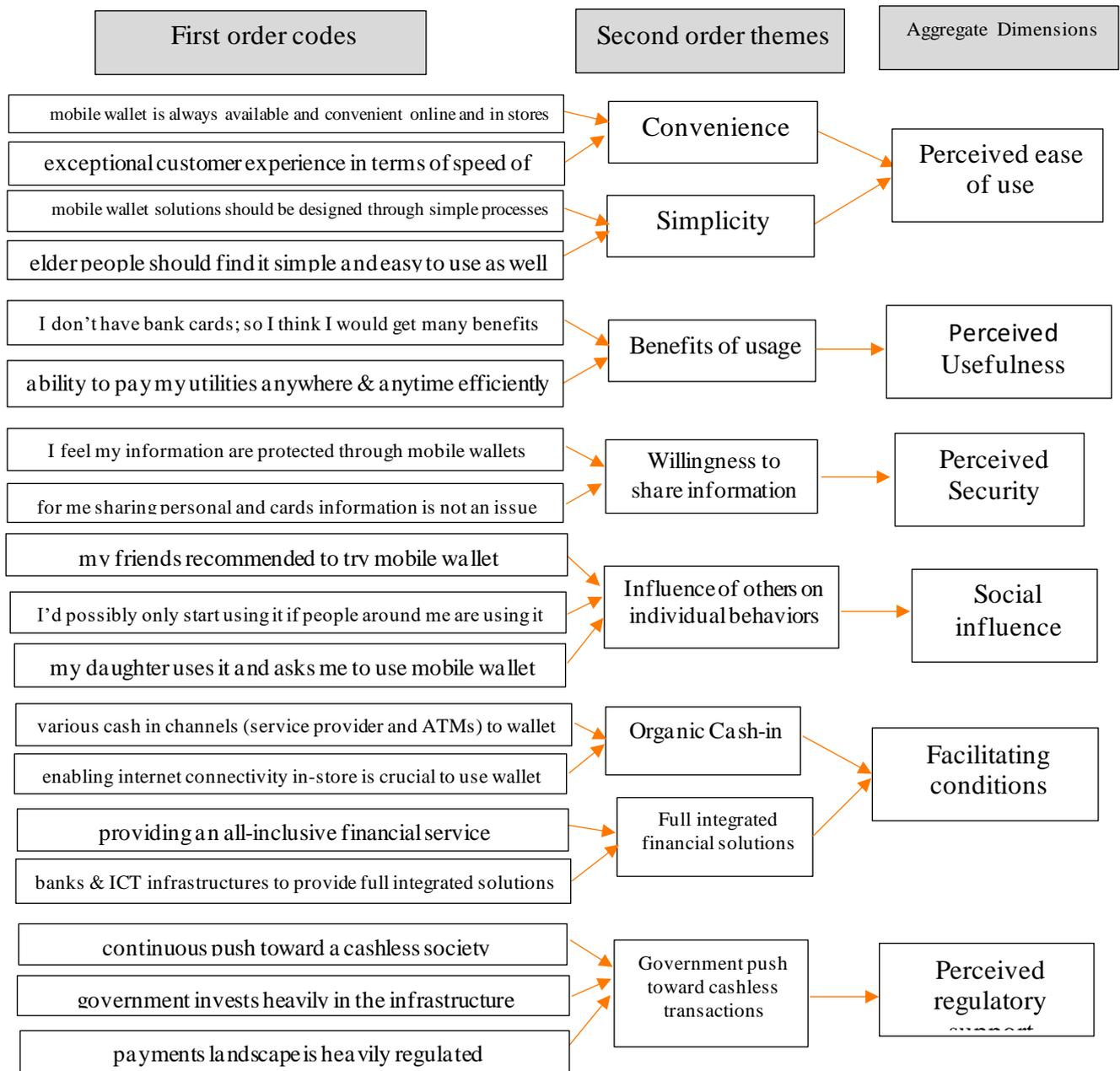


Figure 1: Data structure

7.1 Drivers of mobile wallets adoption

This section discusses the themes developed from consumers and industry professionals' interviews.

7.1.1 Perceived ease of use

Consumers' desire for a user-friendly interface and simple payment transactions revealed as an important driver for mobile wallets adoption.

7.1.1.1 Convenience

“No cash or coins are needed as mobile wallet is always available and convenient online and in stores” (manager4)

“Customer experience should be exceptional in terms of speed of transactions from the beginning till the end” (manager1)

A consumer desire for “*convenience*” is satisfied through mobile wallets that allow “*purchase in stores, online, and within applications*” with required “*service speed*” which would encourage consumers’ preferences for mobile wallet payments.

7.1.1.2 Simplicity

“Mobile wallet solutions must be built on unfulfilled identified needs through simple payment process” (manager3)

As banks and telecom operators contemplate extending payments to mobile wallets, they would be wise to keep processes simple to boost and encourage more adoption. They are focusing on building adoption from very “*specific-use cases*” like paying monthly utilities (Gas, electricity and water) to even “*minor purchases such as buying a cup of coffee*”.

7.1.2 Perceived usefulness

Consumers mentioned many benefits that they get from mobile wallet usage such as paying bills, instore purchases, sending money to others, and performing online payments anywhere and anytime with one click even without having bank accounts.

“I don’t have bank cards; so, I think I am getting many benefits” (Consumer 26)

“Ability to pay my utilities anywhere & anytime efficiently” (Consumer 11)

When consumers perceive that they are being provided a set of benefits and values from using mobile wallets, this is believed to encourage their adoption of mobile wallets.

7.1.3 Perceived security

Consumers’ willingness to share personal information through mobile wallets reflect their perceived security and safety as illustrated in below statements;

“I feel my information are protected through mobile wallets” (Consumer 20)

“For me sharing personal and cards information is not an issue. I believe my information would be safe there” (Consumer 22)

Consumers believe that their personal information and financial cards information are “*protected*” and “*safe*” over mobile wallets. This is believed to encourage them to use and adopt mobile wallets.

7.1.4 Social Influence

Influence of others on individual behaviors is crucial in technology adoption as highlighted in the following statements:

“My friends recommended to try mobile wallet” (Consumer 2)

“I’d possibly only start using it if people around me are using it” (Consumer 7)

“My daughter uses it and asks me to use mobile wallet” (Consumer 14)

In regard to social perspective, participants mentioned some words such as “*everyone is using*”, “*I know many people are using it*”, “*my friends recommended to try*” which reflect the social influence driver. There has been a wide consensus among participants that mobile wallets are “*useful*” and “*beneficial*” (even non-users).

7.1.5 Facilitating conditions

7.1.5.1 Organic Cash-in

Consumers believe that facilitating conditions is very important as illustrated by the following phrases:

“Many technical issues might happen while performing the payment, such as the system going down, service provider’s server going down, the speed of performing the transaction slowing might affect the transaction to be done.” (Consumer 16)

“What shall happen if I lose network connection while performing the transaction? My concern is that money will be deducted from my wallet balance without getting the service” (Consumer 7)

Technical and facilitating conditions are crucial for encouraging adoption in terms of “service performance”, “speed of transactions” and “enabling connectivity” over time.

“Mobile wallet or account loading is available anytime and anywhere through service providers branches, ATMs and aggregators” (manager1)

Managers also have same view regarding facilitating all the support in place to the implementation action of the financial transaction between “*service providers, consumers and merchant*”. Because mobile internet must be used for mobile payment transactions, it is important to enable the “*internet connectivity in-store*” that facilitate the transaction between merchants on-site or online to accept payments done by consumers.

7.1.5.2 Offering full integrated financial solutions

“Mobile wallet solution incorporating new technology may require substantial behavioral change” (manager1)

“This is one crucial factor, in my view, as there is a definite mutual need for banking and ICT infrastructures to work together to provide full integrated solutions” (manager5)

As digital technologies, mobile data, and mobile communications become more integrated with the financial services industry, “*financial transaction modes*” and “*service models*” are evolving.

Therefore, government should call the global leaders in providing “*mobility solutions to develop integrated financial solutions*” (including mobile wallets, mobile payment, and micro and small business financing platforms) to “*fuel the growth of inclusive financial services*” and “*boost the digitization*” of financial institutions and mobile service providers.

7.1.6 Perceived regulatory support

Government push toward cashless transactions revealed as a new driver for mobile wallets adoption as illustrated by consumers and industry professionals.

“I will accept mobile wallet; I don’t understand the point of it but if the government and central bank says it is a must then I will do so” (Consumer 8)

“I already trust bank enough than mobile service providers” (Consumer 29)

Interestingly, many participants believe that “*government support*” for mobile wallets adoption and “*governmental efforts*” to publicize for importance of cashless transactions plays a crucial role in encouraging consumers to try conducting financial payments through new means and adopt mobile wallets.

“Government projects are excellent examples of working with the private sector on the payment front” (manager5)

“One important thing we need to consider is that payments landscape is heavily regulated.” (manager5)

With the official launch of instant payment network “Instapay”, that will allow bank customers to carry out money transfer instantly at any time. Government marks “a key milestone on its roadmap for the national payment landscape” to achieve the sovereignty of payments in Egypt, promote the National Payments Council’s vision of altering the society towards less dependency on Cash and enabling convenient, secure and affordable digital financial transactions for all Egyptians.

Interestingly in alignment with consumers perspective, “*government support*” and “*continuous push to cashless society*” was revealed as an important driver to facilitate consumers’ adoption process of mobile wallets.

8. Conceptual Framework

Based on the content analysis of quotes extracted from the interviews besides the literature review of previous studies, the following conceptual framework is developed. Factors that affect adoption behavior of mobile wallets in Egypt were grouped into three categories as follows: (1) Technical related factors which includes: perceived ease of use, perceived usefulness, and perceived security, (2) Social factors which includes: social influence and (3) Context related factors which includes: facilitating conditions and perceived regulatory support.

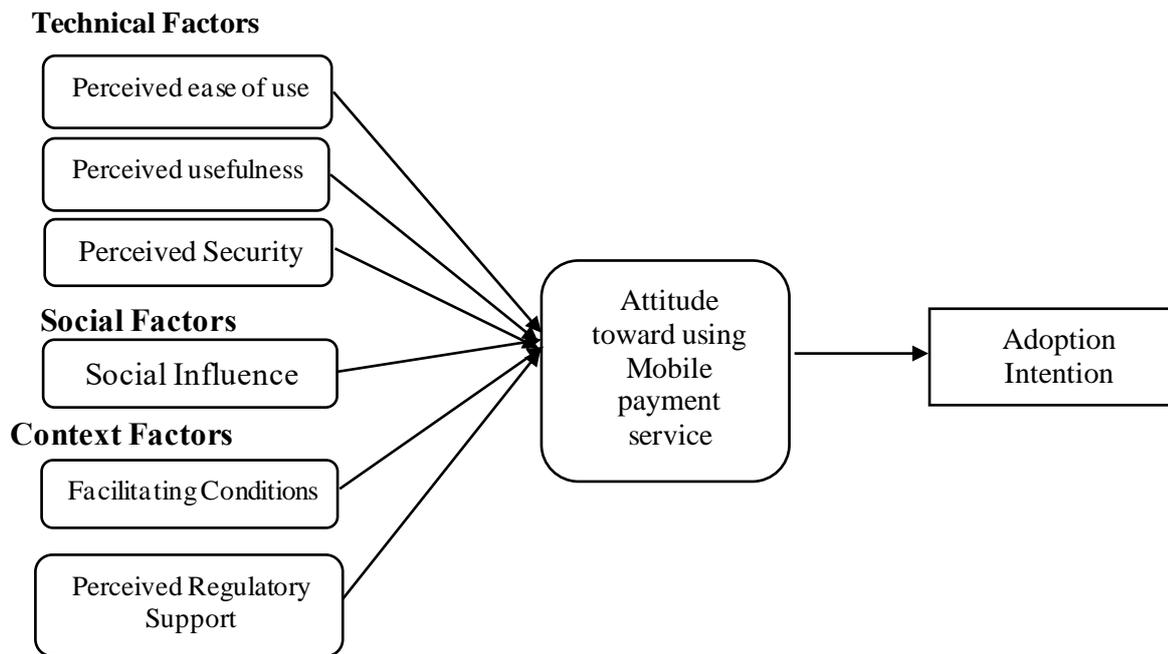


Figure 2: Proposed Conceptual Framework

9. Implications

In this section both theoretical and professional implications are discussed.

9.1 Theoretical implications

This research contributes to the literature in many ways. First, it provides holistic view of mobile wallets adoption in Egypt including both perspectives of consumers and service providers. Second, extending existing literature on mobile wallet adoption through identifying a new driver, regulatory support. Third, most of previous studies were conducted in developed markets, in our study we extended existing empirical studies to examine practices in Egypt as an emerging market. Finally, the research gives a thorough deeper understanding of the drivers affecting mobile wallets adoption through adopting qualitative techniques.

9.2 Professional implications

The key difficulty faced by the service providers such as banks and mobile network operators while actively promoting mobile payment services, is how to encourage consumers to use mobile payment service and introducing a more personalized mobile payment services to the consumers in Egypt. The research estimate that the user experience is very poor in technological perspective. Almost all the mobile wallets in the Egyptian market failed to achieve the main objective of mobile wallets as a tool for financial inclusion that is acquiring unbanked customers and include them to the digital financial services. By introducing an easy user interface to generate good user experience, which is a factor for encouraging customer to use the mobile wallet. The response of mobile wallet to customer purchasing or transfer orders

is another factor affecting user experience where the response of mobile wallet to the orders is translated to the time gap between purchasing or transfer orders and successful transaction. The bigger the time-gap the worse experience is for the customers, which leads to reluctance to accept the mobile wallet concept. However, the response time for a successful transaction depends on other factors that are related to payments process.

Mobile payment system should operate more efficiently to help customers and retailers use it any time without any limitations. On time customer support when any difficult situation is faces, builds up trust on the customer's end. In addition, the operating system should be robust enough to deliver around the clock (24/7) service availability to users. In the Egyptian market, while processing the transaction using mobile wallet, the security steps of identifying the transaction's maker are very long. Each time a new transaction is made, customers need to use a personal pin-code to identify the wallet then while doing the transaction; they should receive OTP (one-time password) which is unique for each transaction and limited by time expiry. In case of wrong entry, the customer is required to repeat all the steps again.

In the midst of the COVID-19 pandemic, perceived security extends to include health and personal safety in which many people have begun to re-evaluate their lifestyles and focus on general health safety which led to behavioural change. The adoption of E-wallets expedites social distancing by helping customer pay their utilities via mobile wallet and thereby slowing the spread of the COVID-19 virus. Considering this newly prominent consumer need, this could become a post-pandemic trend for service providers embodied in banks & telecommunication operators and Fin-tech companies.

Researchers estimate that price value will follow a conscious or unconscious trade-off between expected value derived from mobile wallet's monetary costs (Venkatesh et al., 2012). By researching the majority of customers' usage, they found to be low ticket value users. The transaction average across different services is 1300EGP, 45% of users are withdrawing less than 2000 EGP per month and 62% of ATM withdrawal transactions are below 2000EGP. (CBE, 2021).

Service providers are recommended to propose promotional offers short-term to enhance the effectiveness of mobile wallet usage efforts to cost sensitive consumers. Cash back offers, discounts and tie ups with mobile payment are some of the ways by which customers are lured towards mobile wallets. As Egyptians have the tendency to save money, they are easily attracted by the coupons, discounts or cash backs that allow them to spend less. Most of the mobile wallet service providers in Egypt offer users with cash backs or discounts which can be availed at online as well as offline stores. This coupled with the ever-increasing mobile payment tie-ups helps them to expand their customer base.

10. Limitations and Future Research

Our research has some limitations which provide room for future research. First, our findings are relevant to Egyptian banking sector. So future studies are recommended

to test our findings in other contexts. Second, our research is limited to exploring drivers of mobile wallets adoption. Future studies might focus on studying consequences of adopting mobile wallets which would give an understanding of benefits of usage on different levels: customers, service providers and government. Finally, we adopted a qualitative research technique, therefore, future studies are recommended to validate our revealed drivers through quantitative techniques.

References

- Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, 84(5), 888–918. <https://doi.org/10.1037/0033-2909.84.5.888>
- Akanlisikum Akanferi, A., Asampana, I., Henry Matey, A., & Ayaba Tanye, H. (2022). Adoption of mobile commerce and Mobile Payments in Ghana: An examination of factors influencing public servants. *Interdisciplinary Journal of Information, Knowledge, and Management*, 17, 287–313. <https://doi.org/10.28945/4981>
- Alalwan, A. A., Baabdullah, A. M., Rana, N. P., Tamilmani, K., & Dwivedi, Y. K. (2018). Examining adoption of mobile internet in Saudi Arabia: Extending Tam with perceived enjoyment, innovativeness and trust. *Technology in Society*, 55, 100–110. <https://doi.org/10.1016/j.techsoc.2018.06.007>
- Alkhowaiter, W. A. (2020). Digital Payment and banking adoption research in Gulf Countries: A systematic literature review. *International Journal of Information Management*, 53, 102102. <https://doi.org/10.1016/j.ijinfomgt.2020.102102>
- Altuwaijri, F. S., & Ferrario, M. A. (2022). Factors affecting agile adoption: An industry research study of the mobile app sector in Saudi Arabia. *Journal of Systems and Software*, 190, 111347. <https://doi.org/10.1016/j.jss.2022.111347>
- Amoroso, D. L., & Magnier-Watanabe, R. (2012). Building a research model for mobile wallet consumer adoption: The case of Mobile Suica in Japan. *Journal of Theoretical and Applied Electronic Commerce Research*, 7(1), 13–14. <https://doi.org/10.4067/s0718-18762012000100008>
- Ariffin, S. K., Abd Rahman, M. F., Muhammad, A. M., & Zhang, Q. (2021). Understanding the consumer's intention to use the e-wallet services. *Spanish Journal of Marketing - ESIC*, 25(3), 446–461. <https://doi.org/10.1108/sjme-07-2021-0138>
- Au, Y. A., & Kauffman, R. J. (2008). The economics of mobile payments: Understanding stakeholder issues for an emerging financial technology application. *Electronic Commerce Research and Applications*, 7(2), 141–164. <https://doi.org/10.1016/j.ele rap.2006.12.004>
- Beck, L., & Ajzen, I. (1991). Predicting dishonest actions using the theory of planned behavior. *Journal of Research in Personality*, 25(3), 285–301. [https://doi.org/10.1016/0092-6566\(91\)90021-h](https://doi.org/10.1016/0092-6566(91)90021-h)
- Celum, C., Barnabas, R., Cohen, M. S., Collier, A., El-Sadr, W., Holmes, K. K., Johnston, C., & Piot, P. (2020). Covid-19, ebola, and HIV — leveraging lessons to maximize impact. *New England Journal of Medicine*, 383(19). <https://doi.org/10.1056/nejmp2022269>
- Central Bank of Egypt. (n.d.). Retrieved September 9, 2022, from <https://www.cbe.org/en/Pages/default.aspx>
- Chang, H. Y., Shih, K. H., Wang, Y. H., & Chien, L. J. (2020). An analysis on market reaction to mobile payment adoption: Comparison between financial and non-financial industry. *International Journal of Mobile Communications*, 18(1), 83. <https://doi.org/10.1504/ijmc.2020.104430>

- Chang, Y. P., Dong, X. B., & Sun, W. (2014). Influence of characteristics of the internet of things on consumer purchase intention. *Social Behavior and Personality: an International Journal*, 42(2), 321–330. <https://doi.org/10.2224/sbp.2014.42.2.321>
- Chawla, D., & Joshi, H. (2019). Consumer attitude and intention to adopt Mobile Wallet in India – an empirical study. *International Journal of Bank Marketing*, 37(7), 1590–1618. <https://doi.org/10.1108/ijbm-09-2018-0256>
- Chen, L. da. (2008). A model of consumer acceptance of Mobile Payment. *International Journal of Mobile Communications*, 6(1), 32. <https://doi.org/10.1504/ijmc.2008.015997>
- Dahlberg, T., Guo, J., & Ondrus, J. (2015). A critical review of mobile payment research. *Electronic Commerce Research and Applications*, 14(5), 265–284. <https://doi.org/10.1016/j.elerap.2015.07.006>
- Dahlberg, T., Mallat, N., Ondrus, J., & Zmijewska, A. (2008). Past, present and future of Mobile Payments Research: A literature review. *Electronic Commerce Research and Applications*, 7(2), 165–181. <https://doi.org/10.1016/j.elerap.2007.02.001>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of Information Technology. *MIS Quarterly*, 13(3), 319. <https://doi.org/10.2307/249008>
- Deng, Z., Lu, Y., Wei, K. K., & Zhang, J. (2010). Understanding customer satisfaction and loyalty: An empirical study of mobile instant messages in China. *International Journal of Information Management*, 30(4), 289–300. <https://doi.org/10.1016/j.ijinfomgt.2009.10.001>
- Dennehy, D., & Sammon, D. (2015). Trends in mobile payments research: A literature review. *Journal of Innovation Management*, 3(1), 49–61. https://doi.org/10.24840/2183-0606_003.001_0006
- Dewan, S. G., & Chen, L.-da. (2005). Mobile payment adoption in the US: A cross-industry, Crossplatform Solution. *Journal of Information Privacy and Security*, 1(2), 4–28. <https://doi.org/10.1080/15536548.2005.10855765>
- Gioia, D.A., Corley, K.G., & Hamilton, A.L. (2013). Seeking qualitative rigor in inductive research: Notes on the gioia methodology. *Organizational Research Methods*, 16(1), 15–31.
- Gao, L., Waechter, K. A., & Bai, X. (2015). Understanding consumers' continuance intention towards Mobile Purchase: A theoretical framework and empirical study – a case of China. *Computers in Human Behavior*, 53, 249–262. <https://doi.org/10.1016/j.chb.2015.07.014>
- George, A., & Sunny, P. (2020). Developing a research model for mobile wallet adoption and usage. *IIM Kozhikode Society & Management Review*, 10(1), 82–98. <https://doi.org/10.1177/2277975220965354>
- Gerpott, T. J., & Kornmeier, K. (2009). Determinants of customer acceptance of Mobile Payment Systems. *International Journal of Electronic Finance*, 3(1), 1. <https://doi.org/10.1504/ijef.2009.024267>
- Gursoy, D., & Chi, C. G. (2020). Effects of covid-19 pandemic on hospitality industry: Review of the current situations and a research agenda. *Journal of Hospitality Marketing & Management*, 29(5), 527–529. <https://doi.org/10.1080/19368623.2020.1788231>
- Heidenreich, S., & Talke, K. (2020). Consequences of mandated usage of innovations in organizations: Developing an innovation decision model of symbolic and forced adoption. *AMS Review*, 10(3-4), 279–298. <https://doi.org/10.1007/s13162-020-00164-x>
- Humbani, M., & Wiese, M. (2019). An integrated framework for the adoption and continuance intention to use mobile payment apps. *International Journal of Bank Marketing*, 37(2), 646–664. <https://doi.org/10.1108/ijbm-03-2018-0072>
- Jahanmir, S. F., & Lages, L. F. (2016). The late-adopter scale: A measure of late adopters of Technological Innovations. *Journal of Business Research*, 69(5), 1701–1706. <https://doi.org/10.1016/j.jbusres.2015.10.041>
- Jaiswal, D., Kaushal, V., Mohan, A., & Thaichon, P. (2022). Mobile wallets adoption: Pre- and post-adoption dynamics of mobile wallets usage. *Marketing Intelligence & Planning*, 40(5), 573–588. <https://doi.org/10.1108/mip-12-2021-0466>

- Kalish, S. (1985). A new product adoption model with Price, advertising, and uncertainty. *Management Science*, 31(12), 1569–1585. <https://doi.org/10.1287/mnsc.31.12.1569>
- Karnouskos, S. (2004). Mobile payment: A journey through existing procedures and standardization initiatives. *IEEE Communications Surveys & Tutorials*, 6(4), 44–66. <https://doi.org/10.1109/comst.2004.5342298>
- Kaur, P., Dhir, A., Singh, N., Sahu, G., & Almotairi, M. (2020). An innovation resistance theory perspective on mobile payment solutions. *Journal of Retailing and Consumer Services*, 55, 102059. <https://doi.org/10.1016/j.jretconser.2020.102059>
- Khalilzadeh, J., Ozturk, A. B., & Bilgihan, A. (2017). Security-related factors in extended UTAUT model for NFC based mobile payment in the restaurant industry. *Computers in Human Behavior*, 70, 460–474. <https://doi.org/10.1016/j.chb.2017.01.001>
- Kim, S., & Kim, S. (2020). Analysis of the impact of health beliefs and resource factors on preventive behaviors against the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, 17(22), 8666. <https://doi.org/10.3390/ijerph17228666>
- Kiwanuka, A. (2015). Acceptance Process: The Missing Link between UTAUT and Diffusion of Innovation Theory. *American Journal of Information Systems*, 3(2), 40-44.
- Lee, B. C. Y. (2012). The determinants of consumer attitude toward service innovation – the evidence of ETC system in Taiwan. *Journal of Services Marketing*, 26(1), 9–19. <https://doi.org/10.1108/08876041211199689>
- Lew, S., Tan, G. W.-H., Loh, X.-M., Hew, J.-J., & Ooi, K.-B. (2020). The disruptive mobile wallet in the hospitality industry: An Extended Mobile Technology Acceptance Model. *Technology in Society*, 63, 101430. <https://doi.org/10.1016/j.techsoc.2020.101430>
- León, C. (2021). The adoption of a mobile payment system: The user perspective. *Latin American Journal of Central Banking*, 2(4), 100042. <https://doi.org/10.1016/j.lacsb.2021.100042>
- Liu, F., Lim, E. T. K., Li, H., Tan, C.-W., & Cyr, D. (2020). Disentangling utilitarian and hedonic consumption behavior in online shopping: An expectation disconfirmation perspective. *Information & Management*, 57(3), 103199. <https://doi.org/10.1016/j.im.2019.103199>
- Liébana-Cabanillas, F., García-Maroto, I., Muñoz-Leiva, F., & Ramos-de-Luna, I. (2020). Mobile payment adoption in the age of Digital Transformation: The case of apple pay. *Sustainability*, 12(13), 5443. <https://doi.org/10.3390/su12135443>
- Locke, K. (2001). *Grounded theory in management research*. London; Thousand Oaks, California: Sage Publications.
- Mahran, A. F., & Enaba, H. M. (2011). Exploring determinants influencing the intention to use Mobile Payment Service. *International Journal of Customer Relationship Marketing and Management*, 2(4), 17–37. <https://doi.org/10.4018/jcrmm.2011100102>
- Mallet, P., & Vignoli, E. (2007). Intensity seeking and novelty seeking: Their relationship to adolescent risk behavior and occupational interests. *Personality and Individual Differences*, 43(8), 2011–2021. <https://doi.org/10.1016/j.paid.2007.06.018>
- Mew, J., & Millan, E. (2021). Mobile wallets: Key drivers and deterrents of consumers' intention to adopt. *The International Review of Retail, Distribution and Consumer Research*, 31(2), 182–210. <https://doi.org/10.1080/09593969.2021.1879208>
- Mombeuil, C. (2020). An exploratory investigation of factors affecting and best predicting the renewed adoption of Mobile wallets. *Journal of Retailing and Consumer Services*, 55, 102127. <https://doi.org/10.1016/j.jretconser.2020.102127>
- Nysveen, H., Pedersen, P. E., & Thorbjørnsen, H. (2005). Explaining intention to use mobile chat services: Moderating effects of gender. *Journal of Consumer Marketing*, 22(5), 247–256. <https://doi.org/10.1108/07363760510611671>
- Okonkwo, C. W., Amusa, L. B., Twinomurizi, H., & Fosso Wamba, S. (2022). Mobile wallets in cash-based economies during COVID-19. *Industrial Management & Data Systems*. <https://doi.org/10.1108/imds-01-2022-0029>

- Pandey, P., & Rai, A. K. (2021). *Consumer Adoption in Technological Context: Conceptualization, Scale Development & Validation*, 13(2). Retrieved September 9, 2022, from <https://journals.smsvaranasi.com/index.php/purushartha/article/view/818>.
- Penney, E. K., Agyei, J., Boadi, E. K., Abrokwah, E., & Ofori-Boafo, R. (2021). Understanding factors that influence consumer intention to use mobile money services: An application of UTAUT2 with perceived risk and trust. *SAGE Open*, 11(3), 215824402110231. <https://doi.org/10.1177/21582440211023188>
- Rafdinal, W., & Senalasar, W. (2021). Predicting the adoption of mobile payment applications during the COVID-19 pandemic. *International Journal of Bank Marketing*, 39(6), 984–1002. <https://doi.org/10.1108/ijbm-10-2020-0532>
- Rao, S., & Troshani, I. (2007). A conceptual framework and propositions for the acceptance of mobile services. *Journal of Theoretical and Applied Electronic Commerce Research*, 2(2), 61–73. <https://doi.org/10.3390/jtaer2020014>
- Rogers, E. M., Singhal, A., & Quinlan, M. M. (2019). Diffusion of innovations 1. *An Integrated Approach to Communication Theory and Research*, 415–434. <https://doi.org/10.4324/9780203710753-35>
- Rogers, E.M. (2003), “Elements of diffusion”, *Diffusion of Innovations*, Vol. 5, pp. 1-38.
- Saaksjarvi, M. (2003). Consumer adoption of Technological Innovations. *European Journal of Innovation Management*, 6(2), 90–100. <https://doi.org/10.1108/14601060310475246>
- Schierz, P. G., Schilke, O., & Wirtz, B. W. (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic Commerce Research and Applications*, 9(3), 209–216. <https://doi.org/10.1016/j.elerap.2009.07.005>
- Schmidhuber, L., Maresch, D., & Ginner, M. (2020). Disruptive Technologies and abundance in the service sector - toward a refined technology acceptance model. *Technological Forecasting and Social Change*, 155, 119328. <https://doi.org/10.1016/j.techfore.2018.06.017>
- Shah, S., & Rathod, K. (2022). A study on consumer perception on E-WALLET in Ahmedabad. *International Journal of Management, Public Policy and Research*, 1(2), 56–60. <https://doi.org/10.55829/ijmpr.v1i2.47>
- Shankar, A., & Datta, B. (2018). Factors affecting mobile payment adoption intention: An Indian perspective. *Global Business Review*, 19(3_suppl). <https://doi.org/10.1177/0972150918757870>
- Sharma, S. K., Mangla, S. K., Luthra, S., & Al-Salti, Z. (2018). Mobile Wallet inhibitors: Developing a comprehensive theory using an integrated model. *Journal of Retailing and Consumer Services*, 45, 52–63. <https://doi.org/10.1016/j.jretconser.2018.08.008>
- Shin, S., & Lee, W.-J. (2021). Factors affecting user acceptance for NFC Mobile Wallets in the U.S. and Korea. *Innovation & Management Review*, 18(4), 417–433. <https://doi.org/10.1108/inmr-02-2020-0018>
- Siau, K., & Shen, Z. (2003). Building Customer Trust in mobile commerce. *Communications of the ACM*, 46(4), 91–94. <https://doi.org/10.1145/641205.641211>
- Singh, N., & Sinha, N. (2020). How perceived trust mediates merchant's intention to use a mobile wallet technology. *Journal of Retailing and Consumer Services*, 52, 101894. <https://doi.org/10.1016/j.jretconser.2019.101894>
- Singh, N., Sinha, N., & Liébana-Cabanillas, F. J. (2020). Determining factors in the adoption and recommendation of Mobile Wallet Services in India: Analysis of the effect of innovativeness, stress to use and social influence. *International Journal of Information Management*, 50, 191–205. <https://doi.org/10.1016/j.ijinfomgt.2019.05.022>
- Thakur, R., & Srivastava, M. (2014). Adoption readiness, personal innovativeness, perceived risk and usage intention across customer groups for mobile payment services in India. *Internet Research*, 24(3), 369–392. <https://doi.org/10.1108/intr-12-2012-0244>
- Ting, H., Yacob, Y., Liew, L., & Lau, W. M. (2016). Intention to use mobile payment system: A case of developing market by ethnicity. *Procedia - Social and Behavioral Sciences*, 224, 368–375. <https://doi.org/10.1016/j.sbspro.2016.05.390>

- Tiwari, R., S. Buse, and C. Herstatt (2006): "Mobile Banking as Business Strategy: Impact of Mobile Technologies on Customer Behaviour and its Implications for Banks", in: *Technology Management for the Global Future - Proceedings of PICMET '06*, July 8 – 13, 2006, Istanbul, pp. 1935 – 1946.
- Venkatesh, Morris, Davis, & Davis. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425. <https://doi.org/10.2307/30036540>
- Venkatesh, Thong, & Xu. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of Technology. *MIS Quarterly*, 36(1), 157. <https://doi.org/10.2307/41410412>
- Warkentin, M., Gefen, D., Pavlou, P. A., & Rose, G. M. (2002). Encouraging citizen adoption of e-government by Building Trust. *Electronic Markets*, 12(3), 157–162. <https://doi.org/10.1080/101967802320245929>
- Weber, R. H., & Darbellay, A. (2010). Legal issues in Mobile banking. *Journal of Banking Regulation*, 11(2), 129–145. <https://doi.org/10.1057/jbr.2009.16>
- Weimert, M., & Saiag, A. (n.d.). *Covid-19 and European retail payments*. Covid-19 And European Retail Payments. Retrieved September 9, 2022, from <https://www.oliverwyman.com/our-expertise/insights/2020/jun/covid-19-and-european-retail-payments.html>
- World Health Organization. (n.d.). *Coronavirus*. World Health Organization. Retrieved September 9, 2022, from <https://www.who.int/health-topics/coronavirus>
- Yang, L., Xu, M., & Xing, L. (2022). Exploring the core factors of online purchase decisions by building an E-Commerce Network Evolution model. *Journal of Retailing and Consumer Services*, 64, 102784. <https://doi.org/10.1016/j.jretconser.2021.102784>
- Zhao, Y., & Bacao, F. (2021). How does the pandemic facilitate mobile payment? an investigation on users' perspective under the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, 18(3), 1016. <https://doi.org/10.3390/ijerph18031016>
- Zhou, T. (2013). An empirical examination of continuance intention of mobile payment services. *Decision Support Systems*, 54(2), 1085–1091. <https://doi.org/10.1016/j.dss.2012.10.034>
- Zhu, D.H., Lan, L.Y., & Chang, Y.P. (2017). Understanding the Intention to Continue Use of a Mobile Payment Provider: An Examination of Alipay Wallet in China. *The International Journal of Business and Information*, 12, 369