

Ajina, Ahmed S.; Joudeh, Jamal M. M.; Ali, Nafez N.; Zamil, Ahmad M.; Hashem, Tareq N.

## Article

# The effect of mobile-wallet service dimensions on customer satisfaction and loyalty: An empirical study

Cogent Business & Management

## Provided in Cooperation with:

Taylor & Francis Group

*Suggested Citation:* Ajina, Ahmed S.; Joudeh, Jamal M. M.; Ali, Nafez N.; Zamil, Ahmad M.; Hashem, Tareq N. (2023) : The effect of mobile-wallet service dimensions on customer satisfaction and loyalty: An empirical study, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 10, Iss. 2, pp. 1-18,  
<https://doi.org/10.1080/23311975.2023.2229544>

This Version is available at:

<https://hdl.handle.net/10419/294518>

### Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

### Terms of use:

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by/4.0/>

# The effect of mobile-wallet service dimensions on customer satisfaction and loyalty: An empirical study

Ahmed S. Ajina, Jamal M. M. Joudeh, Nafez N. Ali, Ahmad M. Zamil & Tareq N. Hashem

To cite this article: Ahmed S. Ajina, Jamal M. M. Joudeh, Nafez N. Ali, Ahmad M. Zamil & Tareq N. Hashem (2023) The effect of mobile-wallet service dimensions on customer satisfaction and loyalty: An empirical study, *Cogent Business & Management*, 10:2, 2229544, DOI: [10.1080/23311975.2023.2229544](https://doi.org/10.1080/23311975.2023.2229544)

To link to this article: <https://doi.org/10.1080/23311975.2023.2229544>



© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



Published online: 09 Jul 2023.



Submit your article to this journal [↗](#)



Article views: 5654



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 3 View citing articles [↗](#)



Received: 13 April 2023  
Accepted: 21 June 2023

\*Corresponding author: Ahmed S. Ajina, Marketing Department, College of Business Administration, Prince Sattam Bin Abdulaziz University, Al-Kharj 11942, Saudi Arabia  
E-mail: [a.ajina@psau.edu.sa](mailto:a.ajina@psau.edu.sa)

Reviewing editor:  
Heerah Jose, GITAM - Bengaluru Campus: Gandhi Institute of Technology and Management - Bengaluru Campus, India

Additional information is available at the end of the article

## MARKETING | RESEARCH ARTICLE

# The effect of mobile-wallet service dimensions on customer satisfaction and loyalty: An empirical study

Ahmed S. Ajina<sup>1\*</sup>, Jamal M. M. Joudeh<sup>2</sup>, Nafez N. Ali<sup>3</sup>, Ahmad M. Zamil<sup>1</sup> and Tareq N. Hashem<sup>4</sup>

**Abstract:** Electronic payment options have mostly superseded traditional cash payment methods. The growth of digital wallets, e-commerce, mobile payments, and other unusual payment methods has moved the global economy one step closer to a cashless society. Therefore, this study aims to understand how mobile-wallet service quality dimensions affect customer satisfaction and loyalty, as well as to explore users' experiences with these wallets. The dimensions of the mobile wallet adopted were service quality, ease of use, usefulness, cost, and security. A quantitative approach was used, and a questionnaire was utilized and distributed based on a convenience sample of 557 respondents who were located in Jordan. The statistical techniques of AMOS and SPSS have been applied. The analysis results supported all the main hypotheses, arguing that mobile-wallet service quality leads to customer satisfaction and loyalty. Additionally, mobile wallet service dimensions have an impact on customer loyalty through customer satisfaction. Furthermore, it found that the perceived ease of use, perceived usefulness, and perceived security dimensions have no impact on customer satisfaction. Moreover, perceived ease of use and perceived security dimensions have no impact on customer loyalty. The study recommended the need for m-wallet providers to support m-wallets and other electronic services to enhance the possibility of good control over their technological tools to improve service quality, reduce costs, improve security, develop the relationship between the organization and its customers, and learn more about their desires and aspirations.



Ahmed S. Ajina

## ABOUT THE AUTHOR

Ahmed S. Ajina, Associate Professor, Marketing Department, College of Business Administration, Prince Sattam Bin Abdulaziz University, Al-Kharj, 11942, Saudi Arabia. E-mail: [a.ajina@psau.edu.sa](mailto:a.ajina@psau.edu.sa). ORCID ID: <https://orcid.org/0000-0001-8839-5358>

**Subjects: Consumer Behaviour; Internet / Digital Marketing / e-Marketing; Services Marketing; Management of Technology & Innovation; Service Industries;**

**Keywords: Mobile-wallets; Service quality; Ease of use; Usefulness; Cost; Security**

## 1. Introduction

The advancement of information and communication technology in this period of globalization has had an influence on people's lives in the social, economic, and cultural fields. The more sophisticated technology of facilities and infrastructure that supports every activity in fulfilling human needs distinguishes it and makes it easier for us to communicate, discover information, and use the internet. Rapid technological advancement has significantly influenced the production and delivery of services to individuals (Haikal et al., 2020). Technology advancements fueled the innovation that happened at the heart of many services, beginning with the modern, electronic, automated methods used in service provision and continuing with the wireless communication technology revolution (Kaur et al., 2020). According to Conforto (2019), these advancements prompted organizations to go to considerable lengths to deliver high-quality services to beneficiaries. Furthermore, organizations are becoming increasingly focused on providing customers with high-quality service to increase their chances of obtaining customer satisfaction and confidence (Taherdoost, 2018).

Cashless societies are becoming common in many countries because of technological innovation. M-wallets are the most recent breakthrough in the recent wireless communication technology revolution. It has increased consumer payment options (Agarwal & Chua, 2020). According to Qu et al. (2022), mobile wallets are one of the most important and commonly used kinds of electronic payments. The COVID-19 epidemic, the growth of the concept of digital currencies, people's increasing reliance on electronic payment systems, and other factors all contributed to the development of what is now known as an m-wallet. Mobile wallets refer to the use of mobile phones and other electronic devices for internet payment rather than computer interfaces (Chen et al., 2023). According to Phan et al. (2020), an m-wallet does not require consumers to open bank accounts or carry cash but only requires a phone and ID numbers. Karnouskos and Fraunhofer (2004) define m-wallets as transactions between two people using a mobile phone as a payment method via mobile browsers and mobile applications. Individuals may use m-wallets to send and receive money simply and securely. M-wallets can also pay bills and fees, perform transactions, make travel and hotel reservations, and fill up their accounts (Aji & Adawiyah, 2021).

Several previous studies investigated the effect of mobile service quality on customer satisfaction and loyalty. Yadav (2017), in his study, found that quality of service, risk, usefulness, cost, usefulness, and trust influenced the intentions of customers to use mobile wallets. Singh et al. (2017) conducted a study to determine consumer satisfaction with m-wallet use and its variables (ease of use, trust, security, self-efficacy, usefulness, and hedonism), and the study discovered that customer satisfaction with the services provided is associated with ease of use and trust, as well as the level of benefit that the customer receives from using m-wallets. Other studies, such as those conducted by Mamo (2018) and Demir (2019), discovered that service quality dimensions have a significant impact on customer satisfaction and that there is a gap between what customers expect and the services provided by the organization, which resulted in the customer's attitude towards the organization's services being positive but insufficient to reach the loyalty stage. Hijazi et al. (2022) found that the quality of m-payment services and self-efficacy have a significant impact on continuous intention. According to a study conducted by Hidayah et al. (2021); Al-Gasawneh et al. (2022); and Nusairat et al. (2022), the reasons for the decline in customer satisfaction and loyalty to the m-wallet are its poor degree of efficiency, satisfaction, and privacy. Maulani (2021) carried out a study to discover the reasons for the increase in the use of m-wallets during the COVID-19 pandemic period. The study discovered that the dimensions of service play an

important role in the adoption of m-wallets, but the brand image was the biggest motivator for their use of m-wallets and provides better services as well as consumer satisfaction and loyalty.

Jordan saw the first release of what is now known as an e-wallet or m-wallet in 2014, and Jordan Payments and Clearing Company is the main provider of electronic wallets in Jordan. This service appeared as a response to the market's need for the facilitation and acceleration of electronic payment services through computers and smartphones (Abushamleh et al., 2021). With the emergence of e-government services in Jordan and the reliance of many parties on m-wallets in the conduct of payment operations for citizens—social security, income and sales tax, municipality services, and many others—the need for m-wallets has increased to reduce the burden of citizens' visits to offices and government departments Alkailani and Nusairat (2022). The services of m-wallets in Jordan included the following: transfer of money from one wallet to another, payment through points of sale through NFC technology, deposits and withdrawals of cash from an ATM, paying bills such as water, electricity, tax, and fines, and recharging prepaid phones (Daragmeh et al., 2021; J. M. Joudeh et al., 2023).

### **1.1. The importance of the study**

In 2020, as a result of the COVID-19 virus outbreak, which disrupted the country's economic system and led to job losses all over the country, the importance of m-wallets was proven, as was their benefit in facilitating payment operations. To stop the spread of COVID-19 during this deadly outbreak, the Jordanian government has encouraged people to use m-wallets and supported the use of cashless payment transactions to pay for services and receive government aid, following the World Health Organization's advice that governments should encourage their people to engage in e-wallet payment (Al-Okaily et al., 2020; Hammouri et al., 2021). According to Abushamleh et al. (2021), Jordan had 443,095 electronic wallets in 2020, but by the end of 2022, Jordan had 1.91 million mobile wallets (Jordan News, 2022). As a result, the study's importance stems from the novelty of mobile wallets, which are one of the new electronic payment systems on the list of national and international targets for scientific research. This study is one among the few on the topic after the COVID-19 outbreak.

### **1.2. Questions of the study**

Considering the above explanation, the present study's concern relates to customers and m-wallet companies. Customers, for example, are more concerned with receiving higher-quality service from these companies. M-wallet companies strive to provide customers with high-quality services that leave them satisfied. As a result, the current study was conducted to provide answers to the following questions:

**RQ1:** Is the m-wallet service provided to customers considered adequate and able to fulfill their 'needs'?

**RQ2:** How do m-wallet service dimensions such as service quality, ease of use, usefulness, cost, and security affect customer satisfaction?

**RQ3:** How do m-wallet service dimensions such as service quality, ease of use, usefulness, cost, and security affect customer loyalty?

**RQ4:** Is there any mediation effect of customer satisfaction between m-wallet service and customer loyalty?

### **1.3. Objectives of the study**

Following the aforementioned research questions, the study aimed to achieve the following objectives:

**RO1:** Find out whether there is an impact of m-wallet service on customer satisfaction and loyalty provided by financial organizations from the perspective of users.

**RO2:** Determine the effect of m-wallet service on customer satisfaction.

**RO3:** To assess the impact of m-wallet services on customer loyalty.

**RO4:** Evaluate the impact of m-wallet services on customer loyalty via customer satisfaction.

## 2. Literature review

### 2.1. M-wallet service dimensions

Service quality refers to the level to which the customer is satisfied with the service. This service should provide substantial benefits that will improve the customer's quality of life now or in the future. Service quality may represent how much a certain service improves the business's satisfaction and loyalty and how satisfied its customers feel depending on its services. In this study, we considered the following dimensions to evaluate the quality of the m-wallet service, which can be more detailed and diverse:

#### 2.1.1. Perceived Service Quality (PSQ)

Perceived service quality is seen as the level of service provided by the organization to the customer, and this service should include certain benefits that can improve the individual's life in the moment or the future. Also, perceived service quality can indicate the extent to which a particular service increases customer satisfaction and loyalty for the organization and that customers are satisfied with relying on its services without its competitors. SERVEQUL theory pioneers, A. Parasuraman et al (1985, 1988), defined perceived service quality as a global judgment or attitude linked to the superiority of the service. According to Grönroos (1984, 2017), the developer of the Technical and Functional Quality Model, perceived service quality results from an evaluation process in which customers compare their expectations with the service they received, and we evaluate service quality from the customer's perspective. As a result, customers always evaluate the service quality they get by comparing it to what is expected or desired (Eresia-Eke et al., 2019; Kleisari & Markaki, 2020).

**H1.1:** Perceived service quality positively affects customer satisfaction.

**H2.1:** Perceived service quality positively affects customer loyalty.

#### 2.1.2. Perceived Ease Of Use (PEOU)

Performance expectancy is another term for perceived usefulness (Koenig Lewis et al., 2015). The perceived ease of use in this study refers to the usability of an application or system. It is one of the most essential aspects influencing how an electronic service's quality is evaluated (Abdallah et al., 2020; Gonu et al., 2022; Liébana-Cabanillas et al., 2014). The founders of the Technology Acceptance Model (TAM), Davis (1989), and Davis et al. (1989), define perceived ease of use as the belief that an application or system is easy to understand, simple to use, and manageable by anyone without physical or mental effort. It also describes how quickly and simply you can navigate through its pages without getting lost or needing help. According to Pikkarainen et al. (2004), ease of use is widely believed to improve performance, and customers are more likely to adopt an application or system when they believe it is simple to learn and use. In contrast to sophisticated systems and apps that users avoid due to their complexity and limitations.

**H1.2:** Perceived ease of use positively affects customer satisfaction.

**H2.2:** Perceived ease of use positively affects customer loyalty.

### 2.1.3. *Perceived Usefulness (PU)*

One of the challenges to system adoption is the lack of evident advantages and benefits. When a user finds a system or application beneficial and it offers him various benefits, he develops a favorable attitude towards it and uses it with the assumption that he is receiving something valuable out of it. Davis et al. (1989) defined perceived usefulness as the level of confidence with which customers feel that using a certain system would improve their performance. Therefore, perceived usefulness is seen as an important factor in the usage of technological systems or applications (Chuah et al., 2016; Wilson et al., 2018). According to Venkatesh and Bala (2008) and Beldad and Hegner (2017), perceived usefulness is a strong predictor of m-wallet desire, and it is essential to determine why customers embrace a particular application or service.

**H1.3:** Perceived usefulness positively affects customer satisfaction.

**H2.3:** Perceived usefulness positively affects customer loyalty.

### 2.1.4. *Perceived Cost (PC)*

The perceived cost is a significant aspect in selecting whether to use a specific technology, technical product, or service, as well as the extent to which the cost is acceptable in comparison to the value of the service obtained. According to Venkatesh et al. (2012); Wiardi et al. (2020), pricing value is regarded as positive when the benefits of using e-technology are perceived to be greater than the expenditures involved (Khraiwish et al., 2022). Contend that the value of a service provided by the organization should be fair and commensurate with the individual's income and ability to pay for it. According to Ericsson (2018), one-third of non-users cited that they were hesitant to purchase due to the high cost of the technology. Furthermore, Shin (2010) found in his study that high costs had a negative influence on consumers' adoption of mobile technology. Therefore, service providers should control their service costs to influence their customers' overall satisfaction (Abu-Salim et al., 2017).

**H1.4:** Perceived cost positively affects customer satisfaction.

**H2.4:** Perceived cost positively affects customer loyalty.

### 2.1.5. *Perceived Security (PS)*

Along with the perceived benefits, new technologies usually pose some risks (Schierz et al., 2010). The security dimension relates to a customer's understanding that using the service to share private and confidential information is safe. When using electronic services, particularly financial services, it may be essential to request sensitive personal and financial information (Hermawan, 2022; Xu et al., 2011). As a result, the degree to which the consumer feels secure while using the service determines their satisfaction and loyalty, which in turn influence the quality of the service. Mobile wallets may include dangers and unpredictable possibilities since they may be related to criminal activities such as theft, account takeover, fraudulent transactions, and data breaches (Leong et al., 2020). In general, it pointed out that perceived security has a detrimental impact on customer behavior (Marafon et al., 2018).



**H1.5:** Perceived security positively affects customer satisfaction.

**H2.5:** Perceived security positively affects customer loyalty.

### **2.2. Customer satisfaction**

There is no common definition of consumer satisfaction among researchers. It is a subjective concept. This is related to a variety of general conceptions and interpretations of customer satisfaction. Oliver (1999) defines consumer satisfaction as pleasurable fulfillment. Chang et al. (2009) defined customer satisfaction as the psychological feeling of satisfaction or disappointment formed by comparing the perceived results with consumer expectations. According to Freihat et al. (2020), satisfaction is the degree of customer awareness of the organization's effectiveness in offering products and services that meet needs and desires. While Otto et al. (2020) claimed that satisfaction is a result of perceived and expected performance, if the performance fails to match expectations, the customer is dissatisfied or disappointed and will not engage with the organization again. Customer satisfaction, according to Nambiar et al. (2019), is paramount to a favorable perception of service quality. Zameer et al. (2015); Jamal and Naser (2003); J. M. M. Joudeh et al. (2021); and Dandis et al. (2021), found that customer satisfaction depends on the quality of the organization's product or service, and evaluating the actual degree of customer satisfaction is essential for maintaining long-term success.

**H1:** Perceived m-wallet dimensions positively affect customer satisfaction.

### **2.3. Customer loyalty**

Thakur (2016) defined customer loyalty as the process of purchasing a sustainable product resulting from the customer's commitment to the product. In other words, loyalty indicates customers' preference to buy specific products from an organization over others (Haralayya, 2021). Moreover, customer loyalty is the tendency of customers to constantly choose the products and services of a particular organization despite the presence of competitors in the market; in this case, the customer is loyal to this organization and is not affected by the offers and prices of other organizations (J. M. Joudeh et al., 2023; Khairawati, 2020). According to Boateng (2019) and Santouridis and Trivellas (2010), customer loyalty is often examined from a behavioral point of view by measuring items such as the number of repeat purchases or purchase frequency. By creating and maintaining customer loyalty, the organization develops a long-term, mutually beneficial relationship with its customers (Pan & Zhang, 2011). Customer loyalty is a purchasing behavior that periodically and systematically benefits an organization compared to its competitors in the same field (Watson et al., 2015). Customer loyalty helps the organization grow through more profits, a good reputation, an improved mental image of the product or service, and the establishment of new production lines, which leads to the acquisition of new customers for the organization (J. M. Joudeh et al., 2022). According to Budur and Poturak (2021), customer loyalty is the cornerstone of the success of any organization and its integration with the rest of the other dimensions, as the process of customer retention is a very difficult issue due to changes in the psychology and behaviour of customers.

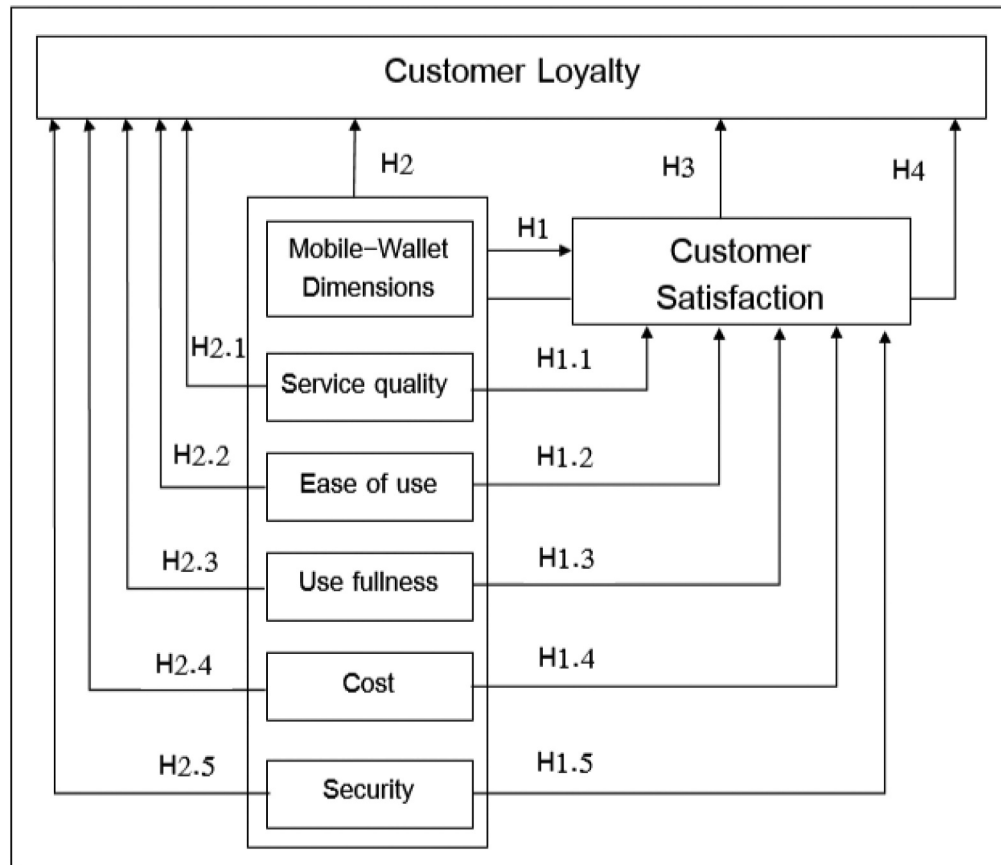
**H2:** Perceived m-wallet dimensions positively affect customer loyalty.

**H3:** Perceived m-wallet dimensions positively affect customer satisfaction.

**H4:** Perceived m-wallet dimensions positively affect customer loyalty via customer satisfaction.



Figure 1. Study model.



Based on hypotheses in the previous section and launching from the main study, researchers were able to develop the following study model (See Figure 1):

### 3. Methodology

#### 3.1. Data collection

The current study was launched to achieve its goal by relying on the quantitative approach, and the quantitative approach is an efficient research method to reach the largest number of samples and collect primary data so that the phenomenon under study is explained. The instrument of the current study is the questionnaire, which was built based on previous studies and modified to be suitable for this study. The questionnaire was divided into two parts: the first one dealt with the demographic data of the sample members (gender, age, educational level, and monthly income), while the second part provided paragraphs to measure the study variables.

#### 3.2. Study population and sampling

The study population comprised Jordanian consumers who use m-wallets, and after administering the questionnaire to the sample members, 557 questionnaires were collected and found to be valid for statistical analysis.

#### 3.3. Data analysis

SPSS and AMOS were used to analyze the collected data. The descriptive data were analyzed with SPSS. The alpha test was used to determine the research tool's reliability and consistency.

Frequencies, percentages, means, standard deviations, and multicollinearity tests were among the other statistical tests used. The structural equation model was performed using the AMOS software.

### **3.4. Respondent characteristics**

Table 1 showed the results of analyzing the demographics of respondents to the questionnaire. It appeared that the majority of respondents (62.2%) were males who were less than 35 years old, consisting of 49.7% of the total sample, and were older than 35 years old, consisting of 51.3% of the total sample. Regarding educational qualifications, it appeared that the majority (39.7%) held high secondary school or less, and those who held BA degrees comprised 34.6% of the sample. When asked about their monthly incomes, it was seen that most of them had a monthly income of less than 500 JD, or 74.7%. As for when they started using m-wallets, most of them (77.7%) agreed that they started using m-wallets less than 3 years ago, which means that they used m-wallets during COVID-19.

### **3.5. Questionnaire analysis**

In Table 2, the attitudes of respondents regarding statements were analyzed, and it appeared that their attitudes were positive given that all variables scored higher than the mean scale of 3.00. The highest mean scored by the variable of perceived usefulness was 3.99/5.00, and the variable of perceived cost was the least but still had a positive mean of 3.72/5.00.

### **3.6. Internal consistency and validation of study**

Cronbach's alpha was used to test the reliability of variables. The reliability scores varied from 0.878 to 0.935, as indicated in Table 2, and This implies that Cronbach's alpha coefficient falls within the acceptable range. Table 6 also shows that the variance inflation factor values are less than 10 indicating a lack of multicollinearity between the independent variables as recommended by Belsley et al. (2005). Furthermore, the convergent validity suggests that the CR (0.625–0.827) and AVE (0.638–0.817) were above the suggested scores of 0.6 (Bagozzi & Yi, 2012), and therefore within acceptable limits (Table 2). The factor loadings for each variable were all more than 0.4, as indicated by Hair et al. (2010), hence the data was declared suitable for use in the structural educational model. Also, before testing the major hypotheses, the suggested research model must be validated using a set of indicators to confirm that it is acceptable for this study's aim. A goodness-of-fit model was used for this purpose. Based on the results in Table 3, the chi-square/degree of freedom ( $\chi^2/df$ ) value was 3.21, which was less than the recommended value of 5. The adjusted goodness-of-fit index (AGFI) is 0.828, which exceeds the recommended value of >0.8. The root-mean-square error of approximation (RMSEA)=0.092, which is less than the recommended level of 0.10. Furthermore, the normed fit index (NFI)=0.917, the comparative fit index (CFI)=0.928, and the goodness-of-fit index (GFI)=0.937 are all higher than 0.90. As a result, Table 3 showed that the aforesaid indicators were enough for the study.

## **4. Results**

The multiple regression test and PLS-SEM tests were carried out as follows:

### **4.1. Sub-hypotheses testing**

The regression test is used to ascertain the effect of independent variables on one dependent variable. As illustrated in Tables 4 and 5, the independent variables (m-wallet dimensions) are perceived service quality, perceived ease of use, perceived usefulness, perceived cost, and perceived security, whereas the dependent variables are customer satisfaction and customer loyalty.

As shown in Table 4, two of the m-wallet dimensions of the independent variables, including perceived service quality ( $P = .000$ ;  $\beta = .201$ ) and perceived cost ( $P = .000$ ;  $\beta = .393$ ), were found to significantly and positively impact customer satisfaction. While perceived ease of use ( $P = .700$ ;  $\beta = -.012$ ), perceived usefulness ( $P = .079$ ;  $\beta = .081$ ), and perceived security ( $P = .253$ ;  $\beta = .066$ ) were found to have an insignificant effect on customer satisfaction, the correlation coefficients of ( $R$

**Table 1. Respondent characteristics**

		<b>F</b>	<b>%</b>
<b>Gender</b>			
	Male	346	62.2
	Female	211	38.8
<b>Age</b>			
	Less than 25	135	24.2
	25–35	141	25.3
	36–45	112	20.1
	More than 46	169	30.3
<b>Education</b>			
	High School and less	221	39.7
	Diploma	87	15.6
	BA	193	34.6
	Postgraduates	56	10.1
<b>Monthly income/JD/(1 USD = 0.71 JD)</b>			
	Less than 500	317	74.7
	501–1000	109	19.6
	1001–1500	87	15.6
	More than 1501	44	7.8
<b>How long have you been using m-wallet?</b>			
	Less than 1 year	107	19.2
	1–3 years	326	58.5
	3–6 years	78	14.2
	More than 6 years	46	8.1
	<b>Total</b>	<b>557</b>	<b>100.0</b>

= .731) and (adjusted  $R^2 = .722$ ) indicated that m-wallet dimensions were strongly and positively correlated with customer satisfaction.

As displayed in Table 5, three of the m-wallet dimensions of the independent variables, including perceived service quality ( $P = .000$ ;  $\beta = .150$ ), perceived usefulness ( $P = .004$ ;  $\beta = .122$ ), and perceived cost ( $P = .000$ ;  $\beta = .387$ ), were found to significantly and positively impact customer loyalty. While the dimensions of perceived ease of use ( $P = .103$ ;  $\beta = -.064$ ) and perceived security ( $P = .752$ ;  $\beta = -.015$ ) were found to be insignificant to customer loyalty, the correlation coefficients of  $R = .787$  and adjusted  $R^2 = .766$  indicated that m-wallet dimensions were strongly and positively correlated with customer loyalty.

#### 4.2. Main hypotheses testing

Table 6 and Figure 2 show the direct and indirect effects between latent variables. There are direct and indirect impacts in the given data, all of which are significant at  $P \leq 0.05$ . The following are the findings for direct and indirect effects:

H1 results demonstrate that ( $\beta = 0.908$ ;  $P \leq .05$ ;  $=.000$ ), indicating that the service quality of m-wallet influences customer satisfaction. The H2 result shows that ( $\beta = 0.561$ ;  $P \leq .05$ ;  $=.000$ ), indicating that the quality of the m-wallet service influences customer loyalty. Also, the H3 result shows that ( $\beta = 0.349$ ;  $P \leq .05$ ;  $=.000$ ), indicating that customer satisfaction influences customer loyalty. Furthermore, the H4 result reveals that ( $\beta = 0.310$ ;  $P \leq .05$ ;  $=.022$ ), indicating that the

<b>Table 2. Variables' analysis</b>				
<b>Variable</b>	<b>Factor Loading</b>	<b>AVE</b>	<b>CR</b>	<b>Cronbach alpha</b>
<b>Service quality</b>				
M-Wallet offers professional services.	.734	0.732	0.783	0.935
M-Wallet offers customized services.	.761			
M-Wallet has a quick connection service.	.825			
M-Wallet provides a wide variety of payment options.	.662			
<b>Ease of use</b>				
M-wallet is easy to use.	.816	0.638	0.811	0.909
M-wallet does not require much effort.	.783			
M-wallet needs a few steps to complete my payment.	.716			
Payment information is easily obtained.	.676			
<b>Usefulness</b>				
M-Wallet helped me finish payments more quickly.	.811	0.724	0.625	0.929
M-Wallet is useful for doing my payments.	.732			
M-Wallet saves time.	.609			
M-Wallet is useful for managing payments.	.727			
<b>Cost</b>				
The M-Wallet fee is reasonably priced.	.831	0.817	0.649	0.898
M-Wallet provides a competitive price for payments.	.754			
M-Wallet is good value for money.	.689			
<b>Security</b>				

(Continued)

Variable	Factor Loading	AVE	CR	Cronbach alpha
M-Wallet is a safe tool for payments.	.832	0.762	0.827	0.913
M-Wallet is guaranteed by the government.	.746			
M-Wallet protects personal information.	.738			
M-Wallet ensures protection against fraud and financial risks.	.688			
<b>Satisfaction</b>				
M-Wallet met my expectations	.742	0.738	0.743	0.878
Payments through my m-wallet satisfied me.	.802			
I am delighted with using an M-Wallet.	.594			
<b>Loyalty</b>				
In the future, I intend to use the M-Wallet.	.811	0.809	0.763	0.931
I will advise my friends to use the M-Wallet.	.841			
I will say good things about M-Wallet.	.798			

**Table 3. Goodness of fit model**

	AGFI	$\chi^2/df$	GFI	RMSEA	CFI	NFI
Recommended	>.80	<5	>.90	$\leq$ .10	>.90	>.90
References	(Miles & Shevlin, 1998).	(Tabachnick & Fidell, 2007)	(Miles & Shevlin, 1998).	(MacCallum et al., 1996)	(Hu & Bentler, 1999).	(Hu & Bentler, 1999).
Study model	.828	3.21	.937	.092	.928	.917

dimensions of m-wallets affect customer loyalty via customer satisfaction. As a result, hypothesis (4) is accepted.

### 5. Discussion

The purpose of this study was to shed light on the influence of m-wallet service on customer satisfaction and loyalty, as well as the impact of m-wallet dimensions on customer loyalty via customer satisfaction as a mediator. For collecting primary data from customers, a quantitative method was employed, and an administered questionnaire was used. Following the application, a total of 557 respondents completed the questionnaire, and SPSS and AMOS were used to test and analyze the primary data.

**Table 4. The impact of m-wallet dimensions on customer satisfaction**

M-wallet dimensions	Unstandardized coefficients		Standardized coefficients	T	Sig.
	B	Std. error	$\beta$		
Perceived service quality	.230	.052	.201	3.912	.000
Perceived ease of use	-.014	.049	-.012	-.249	.700
Perceived usefulness	.089	.056	.081	1.802	.079
Perceived cost	.438	.052	.393	7.978	.000
Perceived security	.073	.063	.066	1.213	.253

Dependent variable: customer satisfaction;  $R = 0.731$ ; adjusted  $R^2 = 0.722$

The research analysis discovered that customers appeared to have an appropriate awareness of m-wallets and how to use them; they also appeared to be aware of security risks and focused more on the source of m-wallets than the services supplied. The study's main hypotheses were accepted, and the findings showed that the m-wallet service influenced customer satisfaction and loyalty. Furthermore, the results revealed that the m-wallet service influences loyalty by acting as a mediator through customer satisfaction. The attitudes of customers towards the m-wallet service's ease of use, usefulness, and security dimensions have no impact on their satisfaction. Furthermore, it discovered that the ease of use and security dimensions had no impact on consumer loyalty. The concept of m-wallets has been known for a while in Jordan, but it gained popularity during the COVID-19 outbreak. According to the finding, the usage of m-wallets grew during the COVID-19 outbreak, and the majority of m-wallet users are young, low-income customers. This means that customers in Jordan have become more reliant on m-wallets.

The study proved that the m-wallet service has a substantial influence on customer satisfaction and loyalty. Regarding the m-wallet service and customer satisfaction with it, customers are more likely to use the service if they believe it to be of overall high quality. Naturally, a customer would not want to engage with an organization that offered him services that were regarded as low quality, difficult to use, and unsafe. This result supports earlier research by Yadav (2017), Singh et al. (2017), Mamo (2018), Marafon et al. (2018), and Demir (2019), which found that service dimensions influence m-wallet adoption as a payment method.

Reaching customer satisfaction by improving service quality, specifically the m-wallet service, contributes significantly to enhancing the customer's confidence in the service and its provider and increases the possibility of the customer adopting other similar services from the same organization based on the idea that the services provided by another organization are of high quality, so the adoption of other similar services will not pose a risk to the customer due to the level of security in the service. This follows from the fact that the level of security is important as one of the dimensions of perceived service quality, as security here refers to the applications or m-wallet service's dependence on passwords and the ease with which they can be changed securely. It also included a service policy declaration, the customer's rights and obligations, and the choice of data encryption and preventing unauthorized access. This finding supports earlier results by Zameer et al. (2015), Nambiar et al. (2019), Freihat et al. (2020), and Dandis et al. (2021), all of which revealed that a high-quality m-wallet service influences increasing customer satisfaction.

**Table 5. The impact of m-wallet dimensions on customer loyalty**

M-wallet dimensions	Unstandardized coefficients		Std. error	Standardized coefficients		T	Sig.	VIF
	B			$\beta$				
Perceived service quality	.160		.046	.150		3.668	.000	3.178
Perceived ease of use	.069		.045	.064		1.582	.103	2.712
Perceived usefulness	.141		.044	.122		2.896	.004	3.032
Perceived cost	.421		.047	.387		9.547	.000	3.010
Perceived security	-.018		.056	-.015		-.421	.752	4.102

Dependent variable: customer loyalty; R = 0.787; adjusted R<sup>2</sup> = 0.766



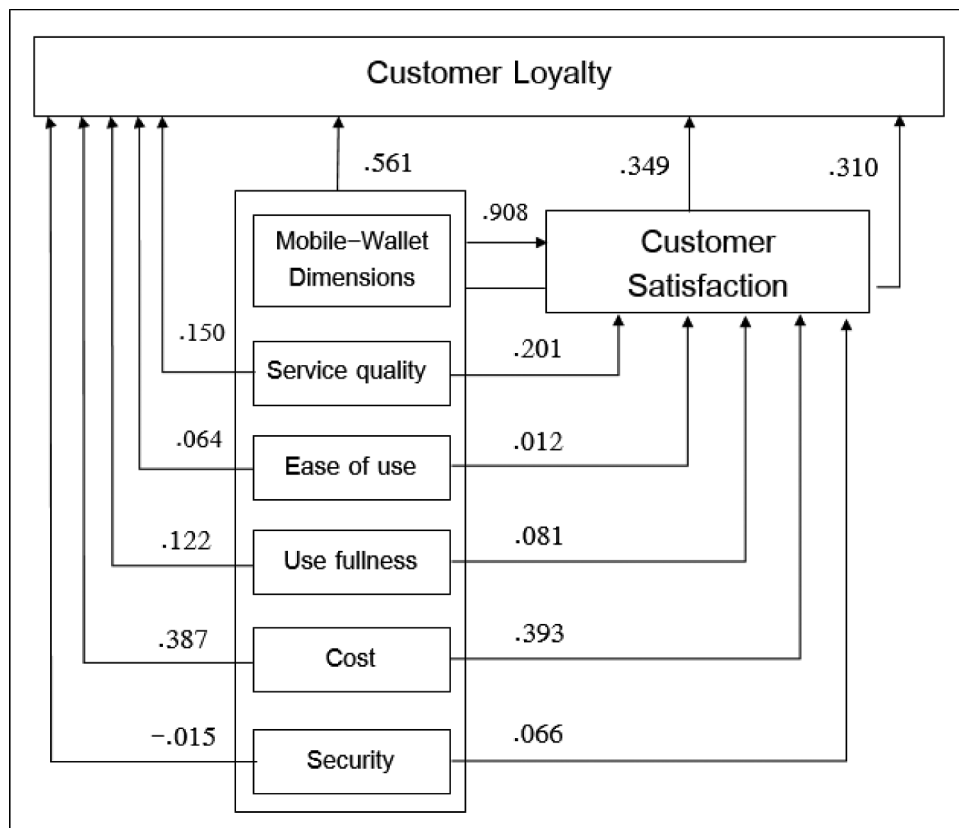
**Table 6. Results of main hypotheses**

Main hypotheses			Direct impact	Indirect impact	T-value	P	Result
M-wallet service	→	Customer satisfaction	0.908	0.31	24.867	.000	Accepted
M-wallet service	→	Customer loyalty	0.561		7.146	.000	Accepted
Customer satisfaction	→	Customer loyalty	0.349		4.711	.000	Accepted

The study revealed the relationship between the m-wallet service and the achievement of customer loyalty, and the findings from the current study indicate that improving the quality of the m-wallet service will enhance customer loyalty. Furthermore, the study shows that the relationship between the m-wallet service and customer loyalty is essentially displayed through the mediating impact of the customer satisfaction variable. This finding is consistent with previous research by Khairawati (2020); Haralaya (2021); Budur and Poturak (2021); J. M. Joudeh et al. (2022); and J. M. Joudeh et al. (2023), which found that m-wallet service and customer satisfaction influence customer loyalty and that m-wallet service influences customer loyalty through customer satisfaction as a mediator. Mamo (2018) and Demir (2019) confirmed the opposite.

Referring to the main objective of the study, a set of m-wallet service variables was referred to, which included perceived service quality, perceived ease of use, perceived usefulness, perceived

**Figure 2. Results of the proposed model.**



cost, and perceived security, and how achieving them would lead to customer satisfaction and customer loyalty.

## 6. Conclusion and recommendations

Mobile wallets are a special form of mobile payment, that has garnered much attention in the markets which use the internet to process money transactions and payments for products and services. Moreover, m-wallets are designed to offer customers substantial benefits that will improve the customer's quality of life. These m-wallets have benefits in terms of time, effort, security, economy, and convenience. Despite these benefits, usage intentions and adoption of m-wallets in most emerging markets have been low, and they have not received widespread acceptance which involves uncertainty and risks due to the vulnerable nature of mobile networks.

In recent years, electronic services, including mobile wallets, have led most organizations to change their businesses from traditional forms to electronic ones. Today, it is simple to conduct operations, get a lot of information, receive orders, and create a strong relationship between the organization and its customers all at once. To ensure customer satisfaction and loyalty, the organization should ensure the quality of the m-wallet service provided and improve the specifications and quality of services. This will ultimately result in a higher market share, greater competitive capabilities, and an opportunity to grow the customer base.

In practice, this study provides the business sectors involved in electronic service payments with information before the launch of the referred service, allowing them to build their respective marketing plans and strategies based on an understanding of the dimensions that affect mobile-wallet service acceptance. According to the study's findings, all the main hypotheses regarding perceived service quality, perceived ease of use, perceived utility, perceived cost, and perceived security had a favourable influence on customer satisfaction and loyalty. However, the study's findings showed that the sub-hypotheses had varied effects on both customer satisfaction and loyalty. In terms of customer satisfaction, the findings revealed that perceived ease of use, perceived usefulness, and perceived security had no influence, however, perceived service quality and perceived cost had a positive impact. Perceived ease of use and perceived security had no effect on customer loyalty, although perceived service quality, perceived usefulness, and perceived cost did.

Based on the findings and analyses, the study suggests that businesses can promote m-wallets by educating customers on how to establish an m-wallet, set a password, delete it, protect it, and how m-wallets may save time and money. To utilize the service and ensure that there are no gaps in it, it is essential to benefit from the experiences of developed countries regarding payment channels and electronic financial transactions. Organizations that offer m-wallets and other electronic services need to enhance their capacity to manage the technology they have in order to improve service efficiency, cut costs, build relationships with customers, and discover more about their wants and desires. Particular attention should be given to the m-wallet's weak dimensions of ease of use, usefulness, cost, and security.

### Funding

This study is supported via funding from Prince Sattam bin Abdulaziz University project number [PSAU/2023/R/1444]

### Author details

Ahmed S. Ajina<sup>1</sup>

E-mail: [a.ajina@psau.edu.sa](mailto:a.ajina@psau.edu.sa)

ORCID ID: <http://orcid.org/0000-0001-8839-5358>

Jamal M. M. Joudeh<sup>2</sup>

ORCID ID: <http://orcid.org/0000-0003-2746-2160>

Nafez N. Ali<sup>3</sup>

ORCID ID: <http://orcid.org/0000-0001-8855-6422>

Ahmad M. Zamil<sup>1</sup>

ORCID ID: <http://orcid.org/0000-0002-3700-8458>

Tareq N. Hashem<sup>4</sup>

ORCID ID: <http://orcid.org/0000-0001-9564-931X>

<sup>1</sup> Marketing Department, College of Business Administration, Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia.

<sup>2</sup> Marketing Department, Faculty of Business, Applied Science Private University; MEU Research Unit, Amman, Jordan.

<sup>3</sup> Marketing Department, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan.

<sup>4</sup> Marketing Department, Business Faculty, Isra University, Amman, Jordan.

#### Disclosure statement

No potential conflict of interest was reported by the author(s).

#### Correction

This article has been corrected with minor changes. These changes do not impact the academic content of the article.

#### Citation information

Cite this article as: The effect of mobile-wallet service dimensions on customer satisfaction and loyalty: An empirical study, Ahmed S. Ajina, Jamal M. M. Joudeh, Nafez N. Ali, Ahmad M. Zamil & Tareq N. Hashem, *Cogent Business & Management* (2023), 10: 2229544.

#### References

- Abdallah, N., Iqbal, H., Alkhazaleh, H., Ibrahim, A., Zeki, T., Habli, M., & Abdallah, O. (2020). Determinants of m-commerce adoption: An empirical study. *Journal of Theoretical & Applied Information Technology*, 98(9), 1480–1488.
- Abu-Salim, T., Onyia, O. P., Harrison, T., & Lindsay, V. (2017). Effects of perceived cost, service quality, and customer satisfaction on health insurance service continuance. *Journal of Financial Services Marketing*, 22(4), 173–186. <https://doi.org/10.1057/s41264-017-0035-4>
- Abushamleh, H., Al-Hiyari, N., & Qusef, A. (2021). The intention to use e-wallet during the COVID-19 pandemic in a developing country. In 2021, 12th *International Conference on Information and Communication Systems (ICICS)*, 310–316. IEEE. <https://doi.org/10.1109/ICICS52457.2021.9464554>
- Agarwal, S., & Chua, Y. H. (2020). Fintech and household finance: A review of the empirical literature. *China Finance Review International*, 10(4), 361–376. <https://doi.org/10.1108/CFRI-03-2020-0024>
- Aji, H. M., & Adawiyah, W. R. (2021). How e-wallets encourage excessive spending behavior among young adult consumers? *Journal of Asia Business Studies*, 16(6), 868–884. <https://doi.org/10.1108/JABS-01-2021-0025>
- Al-Gasawneh, J. A., Alzubi, K. N., Hasan, M., Joudeh, M. M. J., Ahmad, A. M., & Ngah, A. H. (2022). Impact of privacy on the marketing performance. *Seybold*, 17(12), 884–893. <https://doi.org/10.5281/zenodo.7451025>
- Alkailani, M., & Nusairat, N. (2022). What motivates Jordanians to adopt mobile commerce? An empirical study of the most relevant factors. *International Journal of Data & Network Science*, 6(2), 487–496. <https://doi.org/10.5267/j.ijdns.2021.12.005>
- Al-Okaily, M., Lutfi, A., Alsaad, A., Taamneh, A., & Alsyouf, A. (2020). The determinants of digital payment systems' acceptance under cultural orientation differences: The case of uncertainty avoidance. *Technology in Society*, 63, 63. <https://doi.org/10.1016/j.techsoc.2020.101367>
- Bagozzi, R. P., & Yi, Y. (2012). Specification, evaluation, and interpretation of structural equation model. *Journal of the Academy of Marketing Science*, 40(1), 8–34. <https://doi.org/10.1007/s11747-011-0278-x>
- Beldad, A. D., & Hegner, S. M. (2017). Expanding the technology acceptance model with the inclusion of trust, social influence, and health valuation to determine the predictors of German users' willingness to continue using a fitness app: A structural equation modeling approach. *International Journal of Human-Computer Interaction*, 34(9), 882–893. <https://doi.org/10.1080/10447318.2017.1403220>
- Belsley, D. A., Kuh, E., & Welsch, R. E. (2005). *Regression diagnostics: Identifying influential data and sources of collinearity*. Wiley. <https://doi.org/10.1002/0471725153>
- Boateng, S. L. (2019). Online relationship marketing and customer loyalty: A signaling theory perspective. *International Journal of Bank Marketing*, 37(1), 226–240. <https://doi.org/10.1108/IJBM-01-2018-0009>
- Budur, T., & Poturak, M. (2021). Employee performance and customer loyalty: Mediation effect of customer satisfaction. *Middle East Journal of Management*, 8(5), 453–474. <https://doi.org/10.1504/MEJM.2021.117510>
- Chang, H. H., Wang, Y. H., & Yang, W. Y. (2009). The impact of e-service quality, customer satisfaction and loyalty on e-marketing: Moderating effect of perceived value. *Total Quality Management & Business Excellence*, 20(4), 423–443. <https://doi.org/10.1080/14783360902781923>
- Chen, F., Jiang, G., & Xiao, J. J. (2023). Mobile payment use and payment satisfaction: An empirical and moderation analyses. *International Journal of Bank Marketing*, 41(4), 727–748. <https://doi.org/10.1108/IJBM-09-2022-0406>
- Chuah, S. H., Rauschnabel, P. A., Krey, N., Nguyen, B., Ramayah, T., & Lade, S. (2016). Wearable technologies: The role of usefulness and visibility in smart-watch adoption. *Computers in Human Behavior*, 65, 276–284. <https://doi.org/10.1016/j.chb.2016.07.047>
- Conforto, R. (2019). WSX-European waste services exchange, an instrument to start the transition towards a circular economy. *Procedia Environmental Science, Engineering and Management*, 6(1), 61–71.
- Dandis, A. O., Wright, L. T., Wallace-Williams, D. M., Mukattash, I., Eid, M. A., & Cai, H. (2021). Enhancing consumers' self-reported loyalty intentions in Islamic banks: The relationship between service quality and the mediating role of customer satisfaction. *Cogent Business & Management*, 8(1), 1. <https://doi.org/10.1080/23311975.2021.1892256>
- Daragmeh, A., Sági, J., & Zéman, Z. (2021). Continuous intention to use e-wallet in the context of the COVID-19 pandemic: Integrating the health belief model (HBM) and technology continuous theory (TCT). *Journal of Open Innovation: Technology, Market, and Complexity*, 7(2), 132. <https://doi.org/10.3390/joitmc7020132>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982–1003. <https://doi.org/10.1287/mnsc.35.8.982>
- Demir, A. (2019). A benchmarking of service quality in telecommunication services: A case study in Kurdistan region of Iraq. *International Journal of Social Sciences & Educational Studies*, 5(3), 216–231. <https://doi.org/10.23918/ijsses.v5i3p216>
- Eresia-Eke, C. E., Jamine, C., & Locke, C. (2019). Towards customer satisfaction and loyalty: What cuts it in a hair salon? *The Southern African Journal of Entrepreneurship and Small Business Management*, 11(1), 1–7. <https://doi.org/10.4102/sajesbm.v11i1.215>
- Ericsson. (2018). *Wearable technology and the IoT*. Retrieved from [www.ericsson.com/en/trends-and-insights/consumerlab/consumer](http://www.ericsson.com/en/trends-and-insights/consumerlab/consumer)
- Freihat, S., Homsli, D., & Hashem, T. (2020). Innovative marketing and its impact on customers' value creation in orange Jordan telecom. *Academic Journal of Interdisciplinary Studies*, 9(5), 265–281. <https://doi.org/10.36941/ajis-2020-0103>

- Gonu, E., Agyei, P. M., Richard, O. K., & Asare Larb, M. (2022). Customer orientation, service quality and customer satisfaction interplay in the banking sector: An emerging market perspective. *Cogent Business & Management*, 10(1), 2163797. (2023). <https://doi.org/10.1080/23311975.2022.2163797>
- Grönroos, C. (1984). A service quality model and its marketing implications. *European Journal of Marketing*, 18(4), 36–44. <https://doi.org/10.1108/EUM000000004784>
- Grönroos, C. (2017). On value and value creation in service: A management perspective. *Journal of Creating Value*, 3(2), 125–141. <https://doi.org/10.1177/2394964317727196>
- Haikal, E. K., Freihat, S. M., Homsy, D. M., Joudeh, J. M. M., & Hashem, T. N. (2020). The role of supply chain strategy and affiliate marketing in increasing the demand for e-commerce – social media POV. *International Journal of Supply Chain Management*, 9(1), 832–844.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2010). *Multivariate data analysis*. Pearson Prentice Hall, Pearson Education.
- Hammouri, Q. M., Abu-Shanab, E. A., & Nusairat, N. M. (2021). Attitudes toward implementing e-government in health insurance administration. *International Journal of Electronic Government Research*, 17(2), 1–18. <https://doi.org/10.4018/IJEGR.2021040101>
- Haralayya, B. (2021). Customer satisfaction at M/S Sindol Bajaj Bidar. *Iconic Research and Engineering Journals*, 4(12), 157–169. <https://doi.org/10.13140/RG.2.2.16421.22242>
- Hermawan, D. (2022). The effects of web quality, perceived benefits, security, and data privacy on behavioral intention and e-WOM of online travel agencies. *International Journal of Data & Network Science*, 6(3), 1005–1012. <https://doi.org/10.5267/j.ijdns.2022.1.011>
- Hidayah, N. A., Kusumaningtyas, R. H., & Zalia, A. A. (2021, September). Analysis of the effect of service quality on loyalty behavior of DANA e-wallet users using the E-SQUAL extended model. *Proceedings of the 2021 9th International Conference on Cyber and IT Service Management (CITSM)*, 22 – 23 September 2021, Bengkulu, Indonesia (pp. 1–4). IEEE.
- Hijazi, R., Abu Daabes, A., & Al-Ajlouni, M. I. A. (2022). Mobile payment service quality: A new approach for continuance intention. *International Journal of Quality & Reliability Management*. <https://doi.org/10.1108/IJQRM-05-2022-0151>
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Jamal, A., & Naser, K. (2003). Factors influencing customer satisfaction in the retail banking sector in Pakistan. *International Journal of Commerce & Management*, 13(2), 29–53. <https://doi.org/10.1108/eb047465>
- Jordan News. (2022, October 17). *E-wallet payments down 8.7%, CliQ up 9.2%*. Retrieved from <https://www.jordannews.jo/Section-109/News/E-wallet-payments-down-8-7-CliQ-up-9-2-23290>
- Joudeh, J. M., Al-Gasawneh, J. A., Joudeh, A. M., Aljabri, M. A., & Khader, J. A. (2023). The impact of marketing mix of financial services on customer satisfaction and competitive advantage of money exchange companies from the customers' perspective. *Seybold*, 18(2), 1–16. <https://doi.org/10.17605/OSF.IO/VKZ6F>
- Joudeh, J. M., Allan, M., Zamil, A. M., Alfityani, A., Dandis, A. O., Nusairat, N. M., & Al-Gasawneh, J. A. (2022). The impact of marketing strategy on the marketing innovation and the marketing comparative advantage in the Jordanian furniture industry. *Journal of Southwest Jiaotong University*, 57(6), 395–412. <https://doi.org/10.35741/issn.0258-2724.57.6.38>
- Joudeh, J. M. M., Khraiwish, A., Ali, N. N., Abu-Loghod, N. A., & Joudeh, A. M. (2021). Evaluating attitudes and intention to use of personal protective equipment (PPE) during the COVID-19 pandemic. *Academy of Strategic Management Journal*, 20(6), 1–15.
- Karnouskos, S., & Fraunhofer, F. (2004). Mobile payment: A journey through existing procedures and standard initiatives. *IEEE Communication Surveys & Tutorials*, 6(4), 44–66. <https://doi.org/10.1109/COMST.2004.5342298>
- Kaur, B., Kaur, J., Pandey, S. K., & Joshi, S. (2020). E-service quality: Development and validation of the scale. *Global Business Review*, 097215092092045. <https://doi.org/10.1177/0972150920920452>
- Khairawati, S. (2020). Effect of customer loyalty program on customer satisfaction and its impact on customer loyalty. *International Journal of Research in Business and Social Science*, 9(1), 15–23. <https://doi.org/10.20525/ijrbs.v9i1.603>
- Khraiwish, A., Al-Gasawneh, J. A., Joudeh, J. M. M., Nusairat, N. M., & Alabdi, Y. F. (2022). The differential impacts of customer commitment dimensions on loyalty in the banking sector in Jordan: Moderating the effect of e-service quality. *International Journal of Data & Network Science*, 6(2), 315–324. <https://doi.org/10.5267/j.ijdns.2022.1.006>
- Kleisari, L., & Markaki, E. N. (2020). The impact of the perceived service quality on revisit intention in the tourism industry: A conceptual framework of strategic approach and analysis. *European Journal of Interdisciplinary Studies*, 6(2), 84–100.
- Koenig Lewis, N., Morgan, M., Palmer, A., & Zhao, A. (2015). Enjoyment and social influence: Predicting mobile payment adoption. *The Service Industries Journal*, 35(10), 537–554. <https://doi.org/10.1080/02642069.2015.1043278>
- Leong, L., Hew, T., Ooi, K., Chong, A. Y., & Lee, V. (2020). Understanding trust in ms-commerce: The roles of reported experience, linguistic style, profile photo, emotional, and cognitive trust. *Information & Management*, 58(2), 103416. <https://doi.org/10.1016/j.im.2020.103416>
- Liébana-Cabanillas, F., Sánchez-Fernández, J., & Muñoz-Leiva, F. (2014). Antecedents of the adoption of the new mobile payment systems: The moderating effect of age. *Computers in Human Behavior*, 35, 464–478. <https://doi.org/10.1016/j.chb.2014.03.022>
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, 1(2), 130–149. <https://doi.org/10.1037/1082-989X.1.2.130>
- Mamo, G. S. (2018). Assessment of the factors that affect customer satisfaction on service quality: A case study in Ethio telecom Dawro Zone. *Arabian Journal of Business and Management Review*, 8(1), 1–5.
- Marafon, D. L., Basso, K., Espartel, L. B., de Barcellos, M. D., & Rech, E. (2018). Perceived risk and intention to use internet banking: The effects of self-confidence and risk acceptance. *International Journal of Bank Marketing*, 36(2), 277–289. <https://doi.org/10.1108/IJBM-11-2016-0166>

- Maulani, T. S. (2021). The differentiation of digital products to enhance brand image and its impact on intention to used e-wallets during the COVID-19 pandemic. *South East Asia Journal of Contemporary Business, Economics and Law*, 24(6), 1–14.
- Miles, J., & Shevlin, M. (1998). Effects of sample size, model specification and factor loadings on the GFI in confirmatory factor analysis. *Personality, and Individual Differences*, 25(1), 85–90. [https://doi.org/10.1016/S0191-8869\(98\)00055-5](https://doi.org/10.1016/S0191-8869(98)00055-5)
- Nambiar, B. K., Ramanathan, H. N., Rana, S., & Prashar, S. (2019). Perceived service quality and customer satisfaction: A missing link in Indian banking sector. *Vision: The Journal of Business Perspective*, 23(1), 44–55. <https://doi.org/10.1177/0972262918821228>
- Nusairat, N. M., Al-Gasawneh, J., Al-Quran, A. Z., Al-Dweeri, R. M., Joudeh, J. M., Anuar, M. M., & Al-Hammouri, Q. (2022). THE implications of service quality for hotels market share: Managers' perspective. *Journal of Southwest Jiaotong University*, 57(6), 1132–1142. <https://doi.org/10.35741/issn.0258-2724.57.1>
- Oliver, R. L. (1999). Whence consumer loyalty? *Journal of Marketing*, 63(4\_suppl1), 33–44. <https://doi.org/10.2307/1252099>
- Otto, A. S., Szymanski, D. M., & Varadarajan, R. (2020). Customer satisfaction and firm performance: Insights from over a quarter century of empirical research. *Journal of the Academy of Marketing Science*, 48(3), 543–564. <https://doi.org/10.1007/s11747-019-00657-7>
- Pan, Y., & Zhang, J. Q. (2011). Born unequal: A study of the helpfulness of user-generated product reviews. *Journal of Retailing*, 87(4), 598–612. <https://doi.org/10.1016/j.jretai.2011.05.002>
- Parasuraman, A. P., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12–40.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(4), 41–50. <https://doi.org/10.1177/002224298504900403>
- Phan, T. N., Ho, T. V., & Le-Hoang, P. V. (2020). Factors affecting the behavioral intention and behavior of using e-wallets of youth in Vietnam. *The Journal of Asian Finance, Economics & Business*, 7(10), 295–302. <https://doi.org/10.13106/jafeb.2020.vol7.n10.295>
- Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., & Pahnla, S. (2004). Consumer acceptance of online banking: An extension of the technology acceptance model. *Internet Research*, 14(3), 224–235. <https://doi.org/10.1108/10662240410542652>
- Qu, B., Wei, L., & Zhang, Y. (2022). Factors affecting consumer acceptance of electronic cash in China: An empirical study. *Financial Innovation*, 8(9). <https://doi.org/10.1186/s40854-021-00312-7>
- Santouridis, I., & Trivellas, P. (2010). Investigating the impact of service quality and customer satisfaction on customer loyalty in mobile telephony in Greece. *The TQM Journal*, 22(3), 330–343. <https://doi.org/10.1108/17542731011035550>
- 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>
- Shin, D. (2010). MVNO services: Policy implications for promoting MVNO diffusion. *Telecommunications Policy*, 34(10), 616–632. <https://doi.org/10.1016/j.telpol.2010.07.001>
- Singh, N., Srivastava, S., & Sinha, N. (2017). Consumer preference and satisfaction of m-wallets: A study on North Indian consumers. *International Journal of Bank Marketing*, 35(6), 944–965. <https://doi.org/10.1108/IJBM-06-2016-0086>
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Allyn and Bacon.
- Taherdoost, H. (2018). Development of an adoption model to assess user acceptance of e-service technology: E-service technology acceptance model. *Behaviour and Information Technology*, 37(2), 173–197. <https://doi.org/10.1080/0144929X.2018.1427793>
- Thakur, R. (2016). Understanding customer engagement and loyalty: A case of mobile devices for shopping. *Journal of Retailing and Customer Services*, 32, 151–163. <https://doi.org/10.1016/j.jretconser.2016.06.004>
- Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, 39(2), 273–315. <https://doi.org/10.1111/j.1540-5915.2008.00192.x>
- Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157–178. <https://doi.org/10.2307/41410412>
- Watson, G. F., Beck, J. T., Henderson, C. M., & Palmatier, R. W. (2015). Building, measuring, and profiting from customer loyalty. *Journal of the Academy of Marketing Science*, 43(6), 790–825. <https://doi.org/10.1007/s11747-015-0439-4>
- Wiardi, A. H., Hadi, E. D., & Novrianda, H. (2020). Perceived value, store image, and satisfaction as antecedents of store loyalty moderated by procedural switching costs. *Media Ekonomi Dan Manajemen*, 35(1), 34–51. <https://doi.org/10.24856/mem.v35i1.1175>
- Wilson, N., Kenib, K., & Tanc, P. H. P. (2018). The role of perceived usefulness and perceived ease of use toward satisfaction and trust which influence computer consumers' loyalty in China. *Gadjah Mada International Journal of Business*, 23(3), 262–294. <https://doi.org/10.22146/gamaijb.32106>
- Xu, H., Luo, X. R., Carroll, J. M., & Rosson, M. B. (2011). The personalization privacy paradox: An exploratory study of decision-making process for location-aware marketing. *Decision Support Systems*, 51(1), 42–52. <https://doi.org/10.1016/j.dss.2010.11.017>
- Yadav, P. (2017). Active determinants for adoption of mobile wallet. *I-Manager's Journal on Management*, 12(1), 7–14. <https://doi.org/10.26634/jmgt.12.1.13565>
- Zameer, H., Tara, A., Kausar, U., & Mohsin, A. (2015). Impact of service quality, corporate image and customer satisfaction towards customers' perceived value in the banking sector in Pakistan. *International Journal of Bank Marketing*, 33(4), 442–456. <https://doi.org/10.1108/IJBM-01-2014-0015>