

# The Relationship Between Mobile Marketing and Customer Perceptions in Jordanian Commercial Banks: The Electronic Quality as A Mediator Variable

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**Abstracts:** This study aims to investigate the factors influencing customer perceptions of Jordanian commercial banks, with a specific focus on the moderating role of electronic quality in mobile marketing. A comprehensive literature review was conducted, leading to the development of a research framework illustrating the research case. The theoretical foundation of this study is grounded in the concept of perceived attributes, which identifies five key factors affecting the rate of adoption. The empirical findings of this research, based on a sample of 400 respondents (N = 400), are presented. The analyses were performed using the statistical technique of Partial Least Squares Structural Equation Modeling (PLS-SEM). The reporting style adheres to the widely accepted practices in PLS-SEM analysis. The findings highlight a significant and robust relationship between mobile marketing and customer perceptions within the context of Jordanian commercial banks, particularly when electronic quality is employed as a moderator variable. Based on these results, we recommend that Jordanian commercial banks strategically integrate electronic quality into their digital marketing operations, with a specific emphasis on mobile marketing.

**Keywords:** Mobile Marketing, Customer Perceptions, Electronic Quality, Jordanian Commercial Banks.

## 1. INTRODUCTION

With the growth of smartphones, it is now possible to see how mobile marketing, a novel marketing strategy that makes use of these devices as a channel between consumers and businesses, is expanding. Businesses today can reach out to customers at any time and create messages that are tailored to their needs and preferences. The method, which identifies potential future scenarios and evaluates the likelihood that they will materialize, to analyze the prospects for mobile marketing. evaluating the potential social effects of the various scenarios that emerged from the analysis [1]. Digital marketing tools produce profitable outcomes. the following media channels are included in what is referred to as "digital marketing," which is broader than internet marketing: social media marketing, digital television, content marketing, e-mail marketing, website optimization, banner ads, mobile marketing, streaming platforms, and digital billboards. It is sufficient to use some, but not all, of the digital communication tools for particular purposes and markets. The following factors are listed as selection criteria for them: marketing budget, marketing strategy goals, audience age, staff skill level, and frequency of use of digital marketing tools. In order to evaluate the performance of digital marketing communications). mobile marketing and quality of electronic service because the majority of research has focused on the impact of digital marketing, including mobile marketing. However, the issue of how to raise the caliber of electronic services and what tools are available to do so confronts every quality researcher. The relationship thus benefits both parties in terms of impact, advancement, and improvement. Mobile marketing is currently the most popular marketing strategy in the world due to the quick development and accessibility of mobile technology, targeting, low operational costs, adaptable ad designs, and the marketer's ability to send multiple marketing signals at once [2]. Given that we fully understand that we live in a digital world, banks must make the most of every opportunity to connect with potential customers

and keep existing ones, which necessitates using a methodology that has a significant impact [3] Regarding Jordan, despite the relatively late adoption of banking technology by banks, the country's banking industry has significantly changed over the past ten years as Jordanian banks have embraced digital banking marketing and banking technology, which includes mobile marketing. Knowing what influences and satisfies the customer helps an organization succeed and compete at the highest levels with other organizations in the same field. To investigate the impact of smartphones on customers' satisfaction at the Jordanian Commercial Bank. that banks pay more attention to activating electronic services, especially for high-end mobile applications, as they play a crucial role in customer satisfaction when considering future studies on the As customer decisions related to electronic services change and evolve over time quickly, conducting a longitudinal analysis on the same subject using a conceptual framework and relying on data collection and analytical data produces impressive results that can be utilized to track the fulfillment of satisfaction and repetitive purchase in the Jordanian commercial banking sector. Due to the fact that most bank customers fall into different demographic categories, which presents its own set of challenges in terms of balancing between all of these groups and the high level of competition, banks face difficulties in retaining and gaining new customers. Given the quality of banking services offered, it is important to research this topic to determine how smartphones affect customer satisfaction [4].

## **2. RESEARCH PROBLEM**

the Bank should conduct periodic studies to assess the efficiency of electronic banking services, guarantee customer satisfaction, keep up with ongoing technological advancements, and ensure that customers feel comfortable using banking services consistently. The Bank should also solicit feedback from customers regarding any difficulties they may encounter. Study revealed that the requirement of embracing mobile apps by the marketing teams of Jordanian commercial banks due to their technical benefits in terms of ease of access for customers, speed of offering banking products and services, concern for the privacy of customers' money transfers, ease of achieving customers' needs anywhere at the time, and ease of targeting the others for customer segments, which has a significant role in enhancing the marketing. The need to create an electronic technical support unit at Jordanian commercial banks is based on the electronic quality support for customers using smartphone applications to facilitate the smooth flow of banking services without complications or problems that prevent customers from using these applications to reach positive customer perceptions. The study revealed customer satisfaction with Jordanian commercial banks' banking services fluctuates, particularly in light of the country's rapid technological advancement, the study recommends that banks pay more attention to activating electronic services that can be improved via mobile applications [5]. Jordanian commercial banks should engage in more extensive mobile marketing efforts to raise customer awareness of the features, advantages, and benefits of electronic banking services because they are unable to satisfy customers through digital marketing and fail to inform customers about the advantages of Jordanian commercial banks. Financial institutions should focus their efforts on privacy issues and offer customers more private and secure digital services. Jordanian banks ought to create a more user-friendly mobile app to entice customers to utilize their digital services [6]. The provision of banking services and customer satisfaction with them are both problematic and inconsistent, according to the 2016 guide for banking services, products, and solutions offered by commercial banks in Jordan. The use of more technological tools, it was noted, contributes to greater customer satisfaction with banking services [7].

## **3. LITERATURE REVIEW**

### **3.1. Mobile Marketing**

[8]: This study viewed mobile marketing as a revolution in contemporary marketing tools and communication technology, which has an impact on marketing communications that is significant and effective because it enables constant customer communication under all conditions. Modern developments in mobile marketing enable strategic and efficient communication with clients, particularly teenagers. Young consumers are not a homogeneous group for mobile marketing because of how much their trends and buying habits are influenced by their level of social and technological culture. This study's main goal is to examine how contemporary mobile marketing services affect young consumers' attitudes toward and purchasing behaviors. The explanatory research design was used in this study along with a quantitative approach to investigate the specific research objective. 130 Sri Jayewardenepura

University undergraduate students made up the study's sample size. A structured questionnaire was used as a data collection tool along with the survey method of data collection. The results of multiple regression analysis showed a statistical connection between mobile marketing tools and consumer purchasing behavior. According to the findings of the regression-based pathway analysis, the relationship between mobile app marketing and purchasing behavior is mediated by consumer trends and patterns. There is no mediating effect on customer attitudes, according to a path analysis of text message marketing, customer trends, and customer purchasing behavior. [9]: This study showed the value of mobile marketing tools for marketing communications. Personal characteristics like attachment, privacy concerns, need for permission, and risk aversion affects how well mobile marketing is received in multicultural societies. The research was cited in the study to identify culturally relevant influence tactics that shed light on market distinctions. The study looks at how personally recognizable cultural values in two important markets—the United States and China—affect those markets. The findings demonstrate that important preconditions for the adoption of mobile marketing are the avoidance of uncertainty and strategic direction. The research demonstrated the importance of personal benefits, mitigating risk, and allowing a favorable influence on trends toward mobile marketing in both markets. [10]: Through a random review of the literature, this study sought to clarify the mobile marketing strategies that were used. It covers issues such as the cost of paid downloads versus free downloads, the influence of app content on consumers' intent to buy, rewards for using branded apps, and factors that affect the use of mobile devices, such as logins to retail websites for customer satisfaction. It also covers the effects of converting developers between paid downloads versus free downloads. It also aimed to make clear that consumers' levels of social bonding and physical contact with one another have a big impact on how they react to mobile promotional and advertising campaigns and application download engines.

### **3.2. The Electronic Quality**

[11]: In order to boost customer loyalty and the effectiveness of e-service, advertisers have introduced cutting-edge self-service technology to consumers (e-SQ). The researchers attempt to compare similarities and differences between top e-retailers based on consumer experience grounded in seven dimensions of e-SQ using data from an important emerging market. In order to create an overall perceptual map of the e-retailers, the multi-Dimensional scaling (MDS) methodology was used to evaluate the respondents' decisions regarding similarity. However, because customers place a higher priority on them, the researchers advise online retailers to enhance their service recovery dimensions. The researchers also examined how the top two online retailers—Amazon India and Flipkart—are utilizing cutting-edge technology to improve delivery and communication—two essential aspects of managing e-SQ. [12]: This study examines the role of shopping satisfaction in mediating the association between the caliber of electronic logistics service and the intention to repurchase. This article also examines how gender, payment preferences, and experiences with refunds or replacements affect the relationship between e-LSQ and shopping satisfaction (and repurchase intention). A structural equation simulation method based on covariance is used to examine 640 online Indian shoppers' empirical data. The results showed that the most significant e-LSQ dimension is shipping status and that the relationship between this dimension and shopping satisfaction depends on factors such as payment methods, gender, and return history. The poor condition of the shipment may have contributed to returns in Indian e-commerce. The findings would help e-tail managers build a strong logistics network to attract dissatisfied customers. [13]: According to the literature, providing high-quality electronic services through websites is a critical component of success. In order to provide superior service efficiency, organizations with Web presences must first consider how consumers build online customer satisfaction. Knowledge on this topic is limited, coming from both scholarly and practitioner sources; however, it should be investigated in a variety of contexts using various e-SQ measurements. This study employs a systematic review methodology to review and synthesize the literature on electronic service efficiency and its effects on e-satisfaction, e-trust, e-shopping, and e-loyalty. It demonstrates what is known about the topic and provides a set of guidelines and research directions for the future. There was also a discussion about how artificial intelligence technologies guided e-services on online shopping sites.

### **3.3. Customer Perceptions**

[14]: The banking industry is increasingly adopting e-banking as a cost-effective and appropriate method of customer satisfaction. To provide customers with faster and more secure services, traditional banks recommend online banking as a standard option. Due to rapid technological advancement, clients were able to perform their

banking transactions via e-banking. The main issue with e-banking is keeping customers who have switched to online banking. Customer loyalty is critical to a bank's ability to maintain its competitive edge. As a result, the purpose of this research is to investigate the factors that influence customer perceptions across e-banking services. [15]: Mobile banking is a new banking service that allows customers to deposit money using their mobile devices. As a result, the purpose of this research is to determine the impact of innovations and internet payments on customer satisfaction, as well as the factors influencing customer satisfaction. The author proposes a model after reviewing the literature and using data from 269 participants who used online media to explain the model's accuracy. They investigate the above relationships using the partial least squares (PLS)-structural equation modeling (SEM) methodology. Their findings show that there is a significant relationship between customer loyalty and innovation (I) and mobile banking (MB). [16]: This study uses structural equation modeling to assess 508 prospective property development first-time homebuyers to investigate the role of Marketing 4.0 components in optimizing consumer loyalty and shaping purchasing decisions. Customers' loyalty and purchasing intent are influenced by brand name and brand value, according to the findings. The subjects of the study (Gen-Z/Millennial next homeowners) and the study's global context (the northern Indian real estate industry) provide valuable insights into emerging international markets and their primary potential target market. Furthermore, this study suggests that a Marketing 4.0 strategy that focuses on marketing strategy and appearance will affect consumer loyalty, which will improve purchasing intentions.

#### **4. RESEARCH METHODOLOGY**

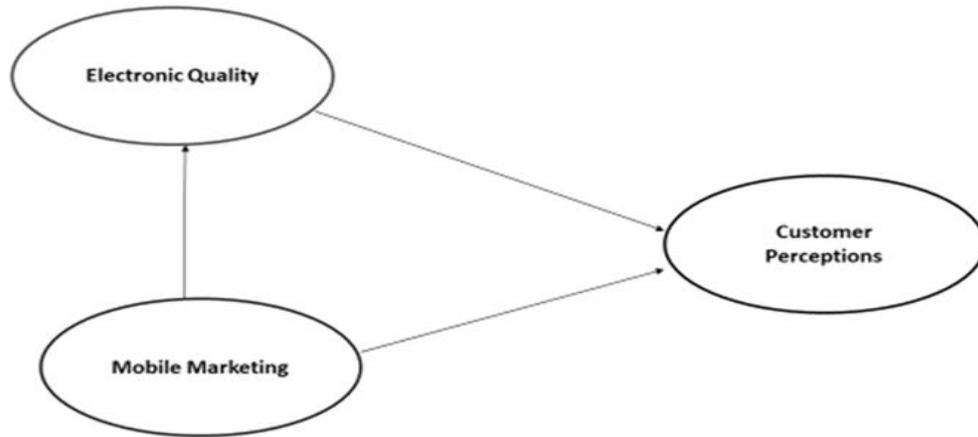
This research methodology is founded on quantitative research, which collects data numerically. According to [17], the research design is a framework and master plan for achieving research goals and objectives that is based on a variety of factors, data collection, and measurement methods. A cross-sectional research strategy is used in this research. The design of a cross-sectional study is based on observational research. A cross-sectional correlation study was devised. used to investigate the link between mobile marketing and customer perceptions by providing e-services quality from the standpoint of Jordanian commercial bank customers.

Jordan is divided into 12 governorates and three regions: Central Region, North Region, and Southern Region. This study was conducted in Amman, Jordan's capital (Central Region), because Jordan's population in 2021 was 10,923,393, and the population in Amman was 4547023. (Jordanian Department of Statistics, 2021). There are 13 Jordanian commercial banks in Amman. There are a total of 378 branches [18]. Every commercial bank has a mobile banking app.

Because research methods and designs are roughly orthogonal to data collection techniques, any data collection technique could theoretically be used for any research approach. During data collection, many methods such as probe data, case data collection, and prediction data are used. Continuous data collection, also known as trial-by-trial data collection, necessitates that the interventionist collects data on a regular basis. The current study will collect data from both secondary and primary sources. The main objective of using multiple data collection methods is to achieve the expected goals and add value to the field of study.

The questionnaire was sent to six experts (they included the authors of the models and questionnaires developed) for feedback on the items' importance to the questionnaire's intent, potential terminology and comprehension issues, and the guidelines. Around the same time, three members of a target population were invited to be engaged in an informal think-aloud session to test the research instrument. Phrasing and contextual issues were addressed, and further suggestions were solicited to ensure that all appropriate measures for the target population were covered. Many great improvements were implemented as a result of the content validity search, the most notable of which were the elimination of redundant objects, the collapse of similar sentences, and the correction of a variety of wording issues. The content validity of the questionnaire was an essential step in its growth [19]. The validation of data collection methods is a critical phase in science, but it is often only mentioned briefly in research studies. At this stage, the initial draft of the search tool was submitted, which was previously developed, to 6 targeted experts. They have experience in different areas ranging from e-marketing to e-quality and consumer behavior. They were selected not only because of their academic backgrounds but also have a deep knowledge of working life. Two experts were selected. Experts were asked to sort and validate items including suggestions and views on content and words for comprehensive feedback on the search tool. The significance of A PRE-TEST

usually refers to a small-scale trial of particular research components [20].



**Figure 1.** Conceptual model of the study.

**Source:** Prepared by the authors (2023).

H1: There is a significant impact of mobile marketing on customer perceptions.

H2: There is a significant impact of mobile marketing on electronic quality.

H3: There is a significant impact of electronic quality on customer perceptions.

H4: There is a mediating impact of electronic quality on the relationship between mobile marketing and customer perceptions.

## 5. DATA ANALYSIS AND RESULTS

This section presents the empirical results of this research. To conduct the analyses, the statistical method is used. This section follows the accepted PLS-SEM reporting style recommended by previous studies [21]. Before proceeding with the structural equation modeling procedures, the data sets are screened for multivariate assumptions to ensure conformity. This is followed by a model quality evaluation.

### 5.1. Profile of Respondents

**Table 1.** Profile of respondents (N=400).

Variable	Category	Frequency	Percent (100%)
Gender	Male	230	57
	Female	170	43
Age	18-27	70	18
	28-37	152	37
	38-47	80	20
	48-57	58	15
	58-67	30	8
	68-over	10	2

Educational Level	High school	15	3
	Diploma	5	2
	Bachelor	240	61
	Master	30	34
	PH. D	10	

### 5.2. Multicollinearity Test

Using SPSS version 25, the researchers did two types of tests for multicollinearity between variables: tolerance value and variance inflation factor (VIF). According to the multiple regression analysis data shown in Table 4.8, the tolerance value for the independent variable was .810, and the variance inflation factor (VIF) value was 2.304. Given that the tolerance value is significantly greater than 0.10 and the VIF value is less than 10, it can be concluded that variable multicollinearity is not a problem.

**Table 2.** Result of skewness and kurtosis for the test of normality (N= 400).

Variable	Collinearity Statistics	
	Tolerance	VIF
Electronic Quality	.810	2.304
Customer Perceptions	.810	2.304

### 5.3. Measurement Model Assessment

#### 5.3.1. Internal Consistency Reliability

The purpose of construct validity is to determine how well the results obtained from the use of a measure match the theories on which the test is based. Construct validity, in a nutshell, is concerned with answering the question, "Does the adapted instrument measure what it is supposed to measure as theorized?" To conduct the validity analysis, the researcher subjected the measurement scales to three rigorous validity tests: validity, convergent validity, and discriminant validity [22]. The extent to which the indicators or scale items represent the domain of the concepts under study is measured by content validity.

**Table 3.** Internal consistency reliability analysis.

Dimension	Cronbach's Alpha	Composite Reliability	AVE
<b>Mobile Marketing</b>	0.870	0.891	0.390
Consumer wants and needs	0.870	0.900	0.783
Cost to satisfy	0.904	0.929	0.687
Convenience to buy	0.891	0.912	0.724
Communication	0.882	0.910	0.785

<b>Electronic Quality</b>	0.864	0.899	0.481
System Availability	0.871	0.904	0.794
Efficiency	0.913	0.914	0.801
Fulfillment	0.881	0.930	0.798
Privacy	0.862	0.887	0.801
<b>Customer Perceptions</b>	0.861	0.900	0.490
Live Chat	0.848	0.917	0.840
Follow-Up Surveys	0.914	0.909	0.790
Marketing Emails	0.880	0.903	0.786

### 5.3.2. Convergent Validity

In order to establish convergent validity, the convention requires that the factor loading, average variance extracted (AVE), and composite reliability (CR). As suggested by Hair [23], factor loadings, composite reliability, and average variance extracted (AVE) are the three key assessors of convergence validity. According to Hair et al., (2010) a researcher can simply conclude that the measurement scale is valid when items/indicators load highly (i.e., > 0.5) on their related constructions. For this study, forty-two items (42) comply and load highly on their constructs and have equally exceeded the recommended threshold value of 0.5 [24]. the results of AVE with coefficients that range from 0.625 to 0.826. This designates the establishment of convergence validity for all the constructs. Additionally, the table also shows composite reliability with values that range between 0.890 and 0.940. Composite reliability is commonly used by contemporary researchers instead of Cronbach's alpha which makes an equality assumption among all the indicators because it is sensitive to a number of items in the scale and therefore underestimates the internal consistency reliability. Cronbach's alpha, on the other hand, is equally represented in Table 4, with the lowest value of 0.801 and the highest value of 0.909. Based on the determination of convergence validity, which determines item loadings that meet satisfactory criteria, satisfactory AVE, and composite reliability, it is possible to conclude that the items represent their respective constructs, thereby establishing their convergence validity.

**Table 4.** Convergent validity analysis.

Variable		Items	Loadings	Cronbach's Alpha	Composite Reliability	AVE
<b>Mobile Marketing</b>	<b>Consumer wants and needs</b>	<b>CWN1</b>	<b>0.859</b>	<b>0.900</b>	<b>0.924</b>	<b>0.789</b>
		<b>CWN 2</b>	<b>0.890</b>			
		<b>CWN 3</b>	<b>0.879</b>			
		<b>CWN 4</b>	<b>0.809</b>			
		<b>CWN5</b>	<b>0.887</b>			
	<b>Cost to satisfy</b>	<b>CS1</b>	<b>0.891</b>	<b>0.910</b>	<b>0.930</b>	<b>0.740</b>
		<b>CS2</b>	<b>0.871</b>			
		<b>CS3</b>	<b>0.877</b>			

		<b>CS4</b>	<b>0.850</b>			
	<b>Convenience to buy</b>	<b>CB1</b>	<b>0.803</b>	<b>0.912</b>	<b>0.940</b>	<b>0.730</b>
		<b>CB 2</b>	<b>0.871</b>			
		<b>CB 3</b>	<b>0.841</b>			
		<b>CB 4</b>	<b>0.836</b>			
		<b>CB 5</b>	<b>0.872</b>			
		<b>CB 6</b>	<b>0.880</b>			
	<b>Communication</b>	<b>CO1</b>	<b>0.876</b>	<b>0.874</b>	<b>0.901</b>	<b>0.797</b>
		<b>CO 2</b>	<b>0.888</b>			
		<b>CO 3</b>	<b>0.820</b>			
<b>Electronic Quality</b>	<b>System Availability</b>	<b>SA1</b>	<b>0.897</b>	<b>0.880</b>	<b>0.910</b>	<b>0.741</b>
		<b>SA2</b>	<b>0.828</b>			
		<b>SA3</b>	<b>0.801</b>			
		<b>SA4</b>	<b>0.848</b>			
	<b>Efficiency</b>	<b>EF1</b>	<b>0.874</b>	<b>0.903</b>	<b>0.914</b>	<b>0.730</b>
		<b>EF 2</b>	<b>0.859</b>			
		<b>EF 3</b>	<b>0.901</b>			
		<b>EF 4</b>	<b>0.880</b>			
	<b>Fulfillment</b>	<b>FU1</b>	<b>0.897</b>	<b>0.801</b>	<b>0.890</b>	<b>0.743</b>
		<b>FU 2</b>	<b>0.874</b>			
		<b>FU 3</b>	<b>0.851</b>			
	<b>Privacy</b>	<b>PR1</b>	<b>0.894</b>	<b>0.890</b>	<b>0.917</b>	<b>0.781</b>
		<b>PR 2</b>	<b>0.882</b>			
		<b>PR 3</b>	<b>0.837</b>			
		<b>PR 4</b>	<b>0.891</b>			
	<b>Customer Perceptions</b>	<b>Live Chat</b>	<b>LC1</b>	<b>0.863</b>	<b>0.890</b>	<b>0.921</b>
<b>LC2</b>			<b>0.905</b>			
<b>LC3</b>			<b>0.906</b>			
<b>Follow-Up Surveys</b>		<b>FUS1</b>	<b>0.920</b>	<b>0.903</b>	<b>0.924</b>	<b>0.800</b>
		<b>FUS 2</b>	<b>0.901</b>			
		<b>FUS 3</b>	<b>0.894</b>			

	<b>Marketing Emails</b>	<b>ME1</b>	<b>0.891</b>	<b>0.884</b>	<b>0.902</b>	<b>0.795</b>
		<b>ME2</b>	<b>0.815</b>			
		<b>ME3</b>	<b>0.930</b>			

**5.3.3. Discriminant Validity**

In order to evaluate the discriminant validity of this research, a comparison of the indicator loading with other variable cross-loading was conducted. This can be determined by the observation of higher values of the indicator’s loading in contrast to its cross-loadings with other variables (or indicators) [25]. The result displays a comparison of the indicator loading with other reflective indicators. All accessible indicators are greater than cross-loading, which deduces that the condition of discriminating validity has been satisfied.

An alternative procedure for discriminant validity test is the heterotrait-monotrait (HTMT). The introduction of HTMT was established because of the criticisms regarding the Fornell-Larcker criterion. The introduction of HTMT eradicates the shortcoming of the Fornell-Larcker criterion, which possesses an unsatisfactorily low sensitivity and is incapable of detecting the lack of discriminant validity [26].

**Table 5.** Discriminant validity based on HTMT ratio of correlations.

<b>Heterotrait-Monotrait Ratio (HTMT)</b>			
	<b>Mobile Marketing</b>	<b>Electronic Quality</b>	<b>Customer Perceptions</b>
Mobile Marketing			
Electronic Quality	0.421		
Customer Perceptions	0.368	0.310	

**5.4. Structural Model Assessment**

**5.4.1. R-Square (R2)**

The R2 value measures the extent to which the independent variables explain the observed variability in the dependent variables. A higher R2 value indicates a stronger predictive capacity of the structural model. In this study, the researchers employed the bootstrapping method, generating 5000 samples from a dataset of 385 respondents. The resulting R2 value was 0.387, which is considered acceptable. The R2 value indicates how much variance in dependent variables is explained by the independent variables. As a result, a higher R2 value improves the structural model's predictive ability. In this study, the R2 values are obtained using the SmartPLS algorithm function, while the t- statistics, P value, UL and LL values are generated using the SmartPLS bootstrapping function. The bootstrapping method yielded 5000 samples from 400 cases for this research.

**Table 6.** R<sup>2</sup> values for the endogenous latent variables.

<b>Endogenous Variable</b>	<b>R<sup>2</sup></b>	<b>Predictive Relevance</b>
Electronic Quality	0.385	
Customer Perceptions	0.673	

### 5.4.2. Effect Size (F<sup>2</sup>)

The effect size (f<sup>2</sup>) is the complementary test to R<sup>2</sup>, whereby changes in the R<sup>2</sup> is observed with the omission of any selected exogenous variable from the model. To calculate the f<sup>2</sup>, the researcher must estimate two PLS path models (with and without the latent variable inclusion). The rule of thumb is the value of effect sizes, the omitted construct for particular endogenous construct can be determined such as 0.02, 0.15 and 0.35 to illustrate small, medium, and large effects respectively [27].

**Table 7.** Effect sizes (f<sup>2</sup>) of the latent variables.

Variable	Endogenous Variable	f <sup>2</sup>	Effect Size Rating
Mobile Marketing	Electronic Quality	0.157	Medium
	Customer Perceptions	0.118	Medium
Electronic Quality	Customer Perceptions	0.367	Large

### 5.4.3. Q-Square (Q<sup>2</sup>)

In addition to effect size, the researchers also conducted the predictive relevance of the model (Q<sup>2</sup>). This can be assessed by cross-validated redundancy measure that is obtained through PLS blindfolding technique for all the endogenous constructs. As a rule, the value of cross-validated redundancy should be greater than zero [28], as obtained in this study and as shown in Table 7.

**Table 8.** The Q<sup>2</sup> values for the endogenous latent variables.

Endogenous Variable	SSO	SSE	Q <sup>2</sup> (1-SSE/SSO)
Electronic Quality	7370.000	7401.173	0.140
Customer Perceptions	3656.000	3388.231	0.187

### 5.4.4. Path Coefficients Testing

In Table 4.17, the findings illustrate the testing of H1, which proposes a significant relationship between mobile marketing on customer perceptions. The total effect of mobile marketing on customer perceptions was significant ( $\beta = 0.341$ ,  $t = 5.989$ ,  $p < 0.001$ ), meaning that there is a significant relationship between mobile marketing and customer perceptions. Therefore, the hypothesis 1 is fully supported.

Next H2 which proposes a significant effect between mobile marketing and electronic quality. The finding of the analysis showed a significant impact on the relationship ( $\beta = 0.270$ ,  $t = 5.289$ ,  $p < 0.001$ ), thus supporting H2. This finding indicates that the mobile marketing initiative by Jordanian banks has a significant impact on the banks' electronic quality. Further, the empirical result shows H3, which proposes a significant relationship between electronic quality on customers' satisfaction. The result shows that the total effect of electronic service quality on customers' satisfaction was significant ( $\beta = 0.370$ ,  $t = 7.489$ ,  $p < 0.001$ ), which therefore supports Hypothesis 3. It is indicated that the electronic service quality of Jordanian banks significantly impacts their customer perceptions.

**Table 9.** Results of Structural Model.

No.	Hypotheses	Beta	SE	T-Value	P-Value	Decision
<b>H1</b>	MM→CP	0.341	0.048	5.989	0.000	Supported***
<b>H2</b>	MM→EQ	0.270	0.052	5.289	0.000	Supported***
<b>H3</b>	EQ→CP	0.370	0.049	7.489	0.000	Supported***

### 5.4.5. The Mediating Relationship Testing

The indirect effects of mobile marketing on customer satisfaction through electronic services quality are significant ( $\beta = 0.119$ ,  $t = 4.990$ ,  $LL = 0.102$ ,  $UL = 0.230$ ,  $p < 0.001$ ). Thus, hypotheses H4 was confirmed. Electronic services quality was found to partially mediate the relationship between mobile marketing and customer satisfaction. Table 10 presents the result of hypotheses 4.

**Table 10.** Results of mediating effects.

No	Hypothesis	B	Standard Error	T-value	P-value	Confidence Interval	
						95% LL	95% UL
H4	MM→EQ→CP	0.119	0.023	4.990	0.000***	0.102	0.230

## 6 DISCUSSION

The current study's findings are operationally important for all decision makers and boards of directors in the banking sector and financial institutions related to the national economy. The use of mobile marketing and electronic quality contribute to the advancement of this sector and play an important role in the national economy's development. Mobile marketing is important for reaching customers anywhere and at any time, without the limitations of traditional marketing. The electronic quality. services also play an important role in achieving the confidence and customer perceptions that have been attained, allowing this sector to compete and gain a larger and more stable market share. Based on previous research, data collection, and statistical analysis, it was discovered that mobile marketing, as an independent variable, and electronic quality play a significant role in reaching customer perceptions in Jordanian commercial banks. The following were the study's major contributions to the Jordanian commercial banking sector. Providing the Jordanian commercial banking sector with a thorough understanding of mobile marketing issues and the use of electronic service quality to increase customer confidence and satisfaction. The current study's dimensions have technical and administrative depth and provide an integrated map for the Jordanian commercial banking sector in how to manage mobile marketing and electronic service quality. Assisting Jordanian commercial banks in maintaining customer communication and marketing banking products and services. Providing vital information on customer behavior trends and patterns to Jordanian commercial banks. Business continuity ensures that banking products and services are of adequate electronic quality at all times and are not dependent on specific dates. How to target new customers, as the bank was unable to do so in advance due to geographical or demographic factors. Based on information available on bank clients, visibility of the non-profit relationship between banks and customers is achieved through interest in them, such as the social responsibility of banks and attention to their public and private events. Obtaining customer satisfaction and the consequences in terms of strengthening the bank's brand, increasing profits, and competing on a local, regional, and international scale.

## 7 CONCLUSIONS

This study is to explore factors affecting customer perceptions of Jordanian commercial banks. In mobile marketing, electronic quality is a moderator variable. The literature has been reviewed, a framework illustrating the research case has been provided.

The researcher recommended that Jordanian commercial banks use electronic quality in their digital marketing operations, particularly mobile marketing. Jordanian commercial banks should engage in more extensive mobile marketing efforts to raise customer awareness of the features, advantages, and benefits of electronic banking services because they are unable to satisfy customers through digital marketing and fail to inform customers about the advantages of Jordanian commercial banks. Financial institutions should focus their efforts on privacy issues and offer customers more private and secure digital services.

More research is needed to gain an understanding of the role of mobile marketing and digital quality in achieving

customer satisfaction in Jordanian commercial banks. It would also be interesting to expand the current study to other Middle Eastern or emerging countries to focus on the role of mobile marketing and digital quality in this sector.

There are several ways to expand the current study, and the research findings indicated new areas of future research that may have significant implications. To begin, future research may be beneficial if more variables and better procedures are incorporated into future studies to enrich the outcomes. Other factors must be considered in this regard.

## REFERENCES

- [1] Aichner, T., Coletti, P., & Lombardo, P. (2020). Il futuro del mobile marketing in Italia: uno studio con il metodo Delphi. *Micro & Macro Marketing*, 29(1), 95-121.
- [2] Daoud, M. K., & Saadon, M. S. B. (2022). The Impact of Mobile Marketing 4Ss Mix on Electronic Service Quality and Customer Satisfaction the Perspective Customers of Jordanian Commercial Banks. *International Journal of Economics and Management Systems*, 7.
- [3] Štefko, R., Fedorko, R., & Bačík, R. (2015). The role of e-marketing tools in constructing the image of a higher education institution. *Procedia-Social and Behavioral Sciences*, 175, 431-438.
- [4] Ahmed, E. (2021). A Survey of the Role of Smartphone in Satisfaction Jordanian Commercial Banks Clients: The Influence of Electronic Applications. *Saudi Journal of Business and Management Studies*, 6(7), 205-209.
- [5] Azzam, Z., Ali, M. W., LShaikh, M., Khanfar, I., & Ismai, A. R. (2021, December). Factors Affecting the Use of Electronic Banking Services Provided by Jordanian Commercial Banks from Customers' Point of View. A Case Study: Jordan Ahli Bank in Northern Region/Jordan. In 2021 22nd International Arab Conference on Information Technology (ACIT) (pp. 1-12). IEEE.
- [6] Rawwash, H., Masad, F., Enaizan, O., Eneizan, B., Adailleh, M., Saleh, A., & Almestarihi, R. (2020). Factors affecting Jordanian electronic banking services. *Management Science Letters*, 10(4), 915-922.
- [7] Association of Banks in Jordan. <https://www.abj.org.jo/EN/Pages/Studies>
- [8] Shahina, F., & Sachitra, V. (2021). Mobile Marketing Initiatives on Consumer Attitudes and Buying Behaviour of Young Consumers in Sri Lanka. *Asian Journal of Advanced Research and Reports*, 54-67.
- [9] Pierce, M., & Jiang, P. (2021). Exploring cultural influences on mobile marketing acceptance. *International Journal of Internet Marketing and Advertising*, 15(1), 1-28.
- [10] Dinsmore, J., Swani, K., Goodrich, K., & Konus, U. (2021). Introduction: Advancing understanding of mobile applications in marketing.
- [11] Kalia, P., & Paul, J. (2021). E-service quality and e-retailers: Attribute-based multi-dimensional scaling. *Computers in Human Behavior*, 115, 106608.
- [12] Jain, N. K., Gajjar, H., & Shah, B. J. (2021). Electronic logistics service quality and repurchase intention in e-tailing: catalytic role of shopping satisfaction, payment options, gender and returning experience. *Journal of Retailing and Consumer Services*, 59, 102360.
- [13] Al-Khayyal, A., Alshurideh, M., Al Kurdi, B., & Salloum, S. A. (2021). Factors Influencing Electronic Service Quality on Electronic Loyalty in Online Shopping Context: Data Analysis Approach. In *Enabling AI Applications in Data Science* (pp. 367-378). Springer, Cham.
- [14] Li, F., Lu, H., Hou, M., Cui, K., & Darbandi, M. (2021). Customer satisfaction with bank services: The role of cloud services, security, e-learning and service quality. *Technology in Society*, 64, 101487.
- [15] Moudud-Ul-Huq, S. (2021). Innovation, M-Banking, and Customer Satisfaction: An Empirical Evidence from Bangladesh. *International Journal of Corporate Finance and Accounting (IJCFA)*, 8(1), 47-64.
- [16] Dash, G., Kiefer, K., & Paul, J. (2021). Marketing-to-Millennials: Marketing 4.0, customer satisfaction and purchase intention. *Journal of Business Research*, 122, 608-620.
- [17] SMITH, P. R. & CHAFFEY, D. (2005), *E-Marketing excellence: at the heart of eBusiness*, Oxford, UK, Butterworth Heinemann.
- [18] Annual Report, Central Bank of Jordan, June 2020. <https://www.cbj.gov.jo/>
- [19] Petrić, B., & Czár, B. (2003). Validating a writing strategy questionnaire. *System*, 31(2), 187-215.
- [20] Gale H. Roid and Tom M. Haladyna (1982), *A Technology for Test-Item Writing* (Orlando, FL: Academic Press.
- [21] Chin, W. W. (2010a). Handbook of Partial Least Squares. In *Handbook of Partial Least Squares*. <https://doi.org/10.1007/978-3-540-32827>.
- [22] Sekaran, U., & Bougie, R. (2013). *Research methods for business: A skill-building approach* (6 (thth ed). West Sussex: JohnWiley & Sons Ltd.
- [23] Hair, Joseph F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A Primer on Partial least squares structural equation modeling (PLS-SEM)*. In *European Business Review* (Vol. 26, Issue 2). SAGE Publications Inc. <https://doi.org/10.1108/EBR-10-2013-0128>.
- [24] Hair, Joe F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, 109(December 2019), 101–110. <https://doi.org/10.1016/j.jbusres.2019.11.069>.
- [25] Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern Methods for Business Research*, 295(2), 295–336.
- [26] Henseler, Jörg, Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>.
- [27] Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Routledge. Diamantopoulos, A., & Siguaw, J. A. (2006). Formative versus reflective indicators in organizational measure development: A comparison and empirical illustration.
- [28] Fornell, C. G., & Cha, J. (1994). Partial least squares. In R. P. Bagozzi (Ed.), *Advanced methods of marketing research* (pp. 52–78). Oxford: Blackwell

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