

Choosing a Mobile Wallet: Motives and Attitudes of Saudi Consumers toward the Adoption of Apple Pay

Najah Salamah¹

¹ King Abdulaziz University, Saudi Arabia

Correspondence: Najah Salamah, King Abdulaziz University, Saudi Arabia.

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Abstract

Purpose: The mobile payment system is widely used globally. However, this notion is not shared by all consumers in Saudi Arabia, and there is still prevailed prejudice or lack of trust among consumers towards using this unorthodox method of paying. Which raises the question of: What are the reasons that are hindering towards usage of mobile wallet method such as ‘Apple pay’ in Saudi Consumers. This study aims to find motives and attitudes of the Saudi consumers toward the adoption of Apple pay.

Methodology: A correlation study design was adopted to answer the research question using a meta-UTAUT method. The study recruited 315 participants through social media to fulfil the questionnaire. Cronbach’s Alpha test was done to test the reliability of the test.

Findings: This study resulted that performance expectancy, effort expectancy, personal innovativeness, trust and anxiety factors influences the attitude of Saudi customers towards adapting Apple pay method (p value > 0.05). Whereas, attitude affects behavioral intentions. Furthermore, performance expectancy and grievance redressal affect user behavior (p value > 0.05). Alternatively, social influence and behavioral condition has no significant relationship with behavioral intentions (p value < 0.05). Similarly, performance expectation is also not influencing user behavior (p value < 0.05). In conclusion, these factors will help the marketers and the manufacturers to understand the user demands of Saudi customers and its attention will ultimately help the consumers.

Originality: This study will help understand the perception and attitude of Saudi consumers toward the adoption of Apple pay.

Keywords: Apple pay, mobile payment, meta-UTAUT, mobile-wallet, Saudi Arabia

1. Introduction

In the 21st century, the payment methods have highly been challenged for security reasons and continuously new and secure methods are being introduced, among the most successful new approach is payment through mobile devices. This has completely changed the dynamics to a mobile based virtual environment from that of physical one for conducting routine fixed activities (Thakur and Srivastava, 2014). The World Payments Report (WPR) 2019, the cashless transactions have increased from 10 billion in 2014 to 17.1 billion in 2019 in the region of Middle east and Africa. Apparently, it shows increase in non-cash payments in this region, however, it is only contributing to 2.4% of global cashless transactions, far less from 34.3% Asian, 30.4% European, 25.3% northern America and 7.4% Latin America global transactions (Capgemini Research Institute, 2019).

The Near-field Communications (NFC) technologies and advancement of smartphones have transformed this cashless transaction on mobile phones through introducing technologies like V.me, Masterpass and Apple’s iPay (Agarwal *et al.*, 2019). These payment systems are called mobile wallets that provide consumers the ease to pay through their mobile phones, therefore, decreasing the need to physically carry multiple cards and making it more convenient to shop. Mobile wallets have opened transforming opportunities for mobile marketing as through it the marketers can reach potential clients and market and deliver their services in an extremely customized way (Agarwal *et al.*, 2019). However, this potential benefit for consumers and marketers is dependent on its wide and rapid adaptation.

The current market is trending towards new payment methods to ease purchases and make it secure, easy and private. While making a purchase, “Apple Pay” uses a device-specific number and a unique transaction code,

making it a safer and a more private option for e-pay. However, this notion is not shared by all consumers in Saudi Arabia, and there is still prevailed prejudice or lack of trust among consumers towards using this unorthodox method of paying. Which raises the question of: What are the reasons that are hindering towards usage of 'Apple pay' in Saudi Consumers? This study aims to find motives and attitudes of the Saudi consumers toward the adoption of Apple pay. The objectives include to study the attitudes of Saudi consumer towards using their personal data in "Apple Pay" payment, and to study the attitudes of Saudi consumer towards using the devices (I-phone, I-pad or Apple Watch) in "Apple Pay" payment.

This study will help understand the perception and attitude of Saudi consumers toward the adoption of Apple pay. It will also help in identifying factors which will contribute towards emphasizing adoption of mobile wallet. It will consequently help companies who are making products similar to 'Apple pay' to rationalize using this type of payment method while strategizing its marketing. It will also help the companies to understand the importance of providing safety payment method like "Apple pay" for consumers. It will be done by conducting a survey among Saudi population to find their perception regarding Apple pay.

2. Literature Review

Theoretical framework

Literature review of the studies conducted mostly in developed countries posits that there are several situational factors that lead to the usage or omission of mobile banking (Thakur and Srivastava, 2014; Crowe *et al.*, 2010; Garrett *et al.*, 2014; Morosan and DeFranco, 2016; De Kerviler *et al.*, 2016; Slade *et al.*, 2015; Mallat *et al.*, 2007). Urgency or unavailability of other options were the most commonly identified factors that compel customers to use mobile banking. Whereas, perceived risks, lacking of critical mass, complexity and premium pricing are the factors that act as barriers in mobile banking usage. Comparatively, in developing countries, the major issues identified as a barrier in mobile payment were lack of trust and technicality issues (Zhou, 2014). According to studies, adoption of mobile as a payment mode is hindered by the stereotyping of mobile as a device which is used only for communication and not for e-commerce, for which internet is the stereotyped vehicle (Ho *et al.*, 2008; Pal *et al.*, 2020). Therefore, for better implementation of mobile payment, it is important to understand the factors which are posing as a barrier in mobile payment, especially in the developing countries.

Conceptual framework and hypotheses development

Throughout the literature on mobile technologies, various studies have used the Unified Theory of Acceptance and Use of Technology (UTAUT) and Technology Acceptance Model (TAM) frameworks to investigate adoption of technology (Patil *et al.*, 2020; Chhonker *et al.*, 2018; Slade *et al.*, 2015). Therefore, it is important to understand the limitations and benefits of these models. The consumers who use mobile payment also use the mobile technology and the usage of technology takes preference over the user's behavior towards mobile payments (Thakur and Srivastava, 2014). Majority of the studies on mobile payment adoption were previously done using the TAM model (Liñana-Cabanillas *et al.*, 2014; Chandra *et al.*, 2010; Tan *et al.*, 2014; Shaw *et al.*, 2014). Even though for technology adoption, TAM is a valid and reliable model, it has limitations such as, without constraints it assumes that usage is volitional, it does not consider characteristic of consumers for determining the approach and it does not present specific knowledge about individuals' opinion (McMaster and Wastell, 2005). Due to criticism on the TAM, another model i.e. UTAUT was developed after reviewing adoption models of eight users (Venkatesh *et al.*, 2012). This model suggests that behavior intention is affected by social influence, effort expectancy and performance expectancy. Where, behavioral intention combined with facilitating conditions influences use behavior. This model has been increasingly used in recent researches studying user behavior (Patil *et al.*, 2020; Slade *et al.*, 2015; Williams *et al.*, 2011). This UTAUT model was revised to be less complicated, more comprehensive and incorporate attitude as an arbitrating variable (Patil *et al.*, 2020). Therefore, meta-UTAUT model was used as theoretical framework for this study.

Performance expectancy

Performance expectancy (PE) is characterized as the level to which a data framework or innovation will offer advantages to shoppers in performing explicit exercises (Baabdullah *et al.*, 2019). Various investigations (Alaeddin *et al.*, 2018; Wulandari, 2017; Bailey *et al.*, 2017) worldwide within mobile payment settings have announced the noteworthy relationship of PE or its proxy construct(s) on shopper attitude. Perceived usefulness of systems of mobile payment s or the advantages that the mobile payment systems offers can likewise support the adopters or the current shoppers toward improved utilization of the system (Patil *et al.*, 2020). In light of existing discoveries and thinking about apparent handiness as perhaps the most grounded substitute of PE, the following hypothesis are suggested in this study:

H1. For using Apple pay system, the consumer's attitude is positively affected by Performance expectancy.

H2. For using Apple pay system, the consumers use behavior is positively affected by Performance expectancy.

Effort expectancy

The amount of facility provided by the use of any technology is called effort expectancy (EE) (Venkatesh *et al.*, 2012). Ease of use, complexity and perceived ease of use are the three constructs of EE (Venkatesh *et al.*, 2003). Influence of EE on the variables of use behavior and attitude have been found significance (Bailey *et al.*, 2017; Schierz *et al.*, 2010; Wulandari, 2017) and insignificance (Aslam *et al.*, 2017) on various research outcomes. It can be argued that despite having a large quantity of mobile phone users in Saudi Arabia, there are limited number of users who use it for payment. Therefore, it is estimated that EE will be significant here with the attitude variable, hence the following statement is hypothesized:

H3. For using Apple pay system, the consumers' attitude is positively affected by effort expectancy.

Social Influence

The amount by which the close people in a person's life effect their decision, in this case, the use of a specific mobile system is known as social influence (Baishya and Samalia, 2020). Image, social factors and subjective norms are the three factors that constituent social influence (Venkatesh *et al.*, 2012). According to a study in UK (Slade *et al.*, 2015), among the non-adopters to use remote mobile payment the social influence was the strongest predictor of their behavioral intention to use it. Therefore, the following hypothesis is suggested:

H4. For using Apple pay system, the consumers' intention to adopt it is positively affected by social influence.

Facilitating Conditions

Based on the customers' belief, the support and resources provided to a consumer to perform a behavior is referred as facilitating conditions (Venkatesh *et al.*, 2012). It is estimated that the behavioral intension of the customer to adopt mobile payment can be enhanced by providing facilities and operational infrastructure (Sivathanu, 2019). Furthermore, the facilitating conditions have also found to be influencing the perceived ease of use i.e. effort expectancy (Stefi, 2015). Based on the discussion above, the following hypothesis are given:

H5. For using Apple pay system, the consumers' intention to adopt it is positively affected by facilitating conditions.

H6. For using Apple pay system, the consumers' effort expectancy is positively affected by facilitating conditions.

Personal innovativeness

Market practitioners contemplate the degree by which an individual is comfortable and open to try out new and novel technologies or a specific product is called personal innovativeness in IT sector (Aroean and Michaelidou, 2014). It was one of the limitations of UTAUT model that it did not provided individual's perceived adoption, and it is the extension of meta-UTAUT model (Dwivedi *et al.*, 2019). It has been found in earlier studies that it plays a vital role in enhancing or preventing to adopt mobile payment system (Patil *et al.*, 2020). Therefore, the following hypothesis is suggested:

H7. For using Apple pay system, the consumers' intention to adopt it is positively affected by personal innovativeness.

Anxiety

The anxiety while using a technology for various reasons such as for losing data, or making an error or fear of repetition of any past bad experience while using a technology all lead to have a negative impact on a person's adoption, attitude and behavioral intentions. Therefore, the study hypotheses that:

H8. For using Apple pay system, the consumers' attitude is negatively affected by anxiety

Trust in Apple pay system

Trust alludes to emotional conviction that a participant will satisfy their commitments and assumes a significant function in electronic monetary exchanges, where clients are presented to bigger dangers because of vulnerability of the environment and feeling of lost control (Zhou, 2013). Analysts have consistently thought that it was hard to characterize 'trust' generally and found its construct as both a unitary and a multi-dimensional idea (McKnight *et al.*, 2002). However, for the mobile payment system, trust has increased critical help as a unitary construct (Lu *et al.*, 2011). Understanding the expanding importance of trust with regards to mobile payment and the contemporary studies exhibiting how trust in the frameworks of mobile payment could positively improve

buyers' attitude towards using it for transaction, this exploration proposes the following hypothesis:

H9. For using Apple pay system, the consumers' attitude is positively affected by trust.

Grievance redressal

Grievance redressal is one of the instruments zeroed in on tending to purchasers' problems, grievances and trying to get them settled by the mobile payment service providers. If a customer is able to resolve his issues after payment without much difficulty, then it positively affects their use behavior and they are most likely to adopt to it (Rana *et al.*, 2016). Therefore, the following hypothesis is suggested:

H10. For using Apple pay system, the consumers use behavior is positively affected by grievance redressal.

Attitude towards usage of Apple pay system

The meta UTAUT model of mobile payment suggests that a person's attitude towards using a particular system determines their intention to use it and could help in understanding their use of technology (Dwivedi *et al.*, 2019; Wulandari, 2017). Therefore, following hypothesis is postulated:

H11. For using Apple pay system, the consumers' intention to use it is significantly and positively affected by the attitude towards its usage.

Behavioral intentions to use Apple pay systems

The degree by which a person puts effort to perform a particular behavior is called behavior intention. In the meta-UTAUT model, a significant relationship is found between the use behavior and the behavioral intention (Wulandari, 2017; Alaeddin *et al.*, 2018). Therefore, this path is also analyzed in this study using the following hypothesis:

H12. For using Apple pay system, the consumer's use behavior is significantly and positively affected by the attitude towards its behavioral intention.

3. Methodology

Study Design and Ethical Considerations

A correlation study design was adopted to answer the research question. Ethical approval was taken from the institute where the study took place. All the participants had to read informed sheet and sign informed consent before taking part in the study.

Sampling

The sample size was collected using RoSoft which resulted in sample size of 315

Data Collection Approach

The data was collected through social media. A link to questionnaire generated on SurveyMonkey was uploaded on the Twitter and Facebook. Here, the Saudi people were requested to participate in the study and a brief intro was given regarding the study 'abouts'. To promote response rate, a gift voucher was awarded to five random respondents.

Instrument

A self-designed questionnaire was created after reviewing literature. A close ended questionnaire was used on the basis of meta-UTAUT model. The questionnaire was divided into two sections. Section 1 was to collect demographic factors such as age, gender, employability status, handset, and usage of apple pay. Section 2 were questions regarding user behavior, performance expectancy, effort expectancy, social influence, facilitating conditions, behavioral intentions, attitude, trust, anxiety, perceived innovativeness and grievance regarding Apple pay.

Reliability and Validity

To test the reliability of data Cronbach's Alpha test was done to make sure it has demonstrated to meet the benchmark value of Cronbach's Alpha, which should be more than 0.5. The factor analysis test was also done to test the reliability of the data using Kaiser Meyer Olkin Measure of Sampling Adequacy and Rotated Component Matrix. All the calculations were done using SPSS software version 25.

Statistical Analysis

Structural Equational Modelling (SEM) test using AMOS software was applied to test the hypothesis.

4. Results

Reliability Analysis

The Sample data of 312 participants for reliability has been verified by applying the reliability test through SPSS. The reliability of data has been demonstrated to meet the benchmark of the value of Cronbach's Alpha, which should be more than 0.5 mean 50%. The overall Cronbach Alpha value of this study is 0.612 consist of 55 items which is fair and acceptable. The value of Cronbach of each variable is appended below, which clearly indicates that data is reliable to perform further analysis

Table I. Reliability Statistic

Variable	No. of Item	Cronbach's Alpha
User behavior	4	0.716
Performance expectancy	4	0.63
Effort expectancy	5	0.78
Social influence	2	0.68
Facilitating conditions	4	0.55
Behavioral intention	3	0.665
Attitude	5	0.62
Trust	3	0.89
Anxiety	4	0.848
Perceived innovativeness	4	0.514
Grievance	3	0.828

Factor Analysis

After reliability analysis, the factor analysis test is being demonstrated on the data, to conclude that the data is reliable for further study and items of variables which are used in the data collection instrument are proper and fit to produce the required result. For this purpose, Kaiser Meyer Olkin Measure of Sampling Adequacy and Rotated Component Matrix have been applied which showed the positive and acceptable results, which are appended below.

Table II. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.719
Bartlett's Test of Sphericity	Approx. Chi-Square	3153.307
	df	780
	Sig.	.000

The minimum criteria of KMO and Bartlett test are the value of alpha which should be more than 0.5 for the instrument and data accuracy. The above-mentioned value of the alpha for this sample data is 0.719 which is fair and acceptable in this test to product relevant and required result.

Table III. Rotated Component Matrix

	Component											
	1	2	3	4	5	6	7	8	9	10	11	12
User behavior 1		.806										
User behavior 2		.821										
User behavior 3		.730										
User behavior 4		.635										
Performance expectancy 1											.813	
Performance expectancy 2											.672	
Performance expectancy 3											.632	
Effort expectancy 1							.858					
Effort expectancy 2							.864					
Social influence 1												.844
Social influence 2												.829
Facilitating condition 1						.494						
Facilitating condition 2						.755						
Facilitating condition 3						.667						

Facilitating condition 4		.575		
Behavioral intention 1			.742	
Behavioral intention 1			.783	
Behavioral intention 1			.699	
Attitude 1	.853			
Attitude 2	.880			
Attitude 3	.836			
Trust 1	.859			
Trust 2	.836			
Trust 3	.864			
Anxiety 1		.847		
Anxiety 2		.840		
Anxiety 3		.816		
Perceived innovativeness 1			.666	
Perceived innovativeness 2			.812	
Perceived innovativeness 3			.751	
Grievance 1				.508
Grievance 2				.798
Grievance 3				.813

The Rotated component matrix explains the correlation in the independent variables to the dependent variables. The variable which has the highest values of correlation shows the highest level of relationship to the dependent variable. The result of rotated component matrix makes the group of each variable.

Confirmatory Analysis (CFA)

As it is demonstrated by reliability and exploratory analysis that data and data instrument is reliable and accurate to perform further test. So, now Confirmatory analysis is to be performed to check the psychometric properties of study variables. Attached are the results of CFA Analysis showing the values of Model fitness, CFI and RMSEA.

Table IV. Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	186	795.451	674	.001	1.180
Saturated model	860	.000	0		
Independence model	80	3368.247	780	.000	4.318

Table V. Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.764	.727	.955	.946	.953
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Table VI. RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.028	.019	.036	1.000
Independence model	.122	.118	.127	.000

The result of this analysis showed overall the model is acceptable. It has chi-square value 795.451 with degree of freedom 674; the value of P CMIN/DF is 1.18 which is less than 3. It perfectly meets the criteria of model fitness. So, unlike other cases, in which null hypothesis is rejected. In this case, null hypotheses are certainly accepted as the model is a good fit. The CFI values are more than 0.953 which is more than 0.95 and the values of RMSEA is less than 0.7 which is 0.028. These values indicate the model is fit to represent required result

Path Analysis

Path Analysis showed that variables path is significant or insignificant. Table 7 below showed the path and their significance. Their significance decides that to support the hypothesis or reject the hypothesis.

Table VII. Path Analysis

S.NO	Hypothesis	P-Value	Result
H1	Performance expectancy =>Attitude	Significant Less than 0.005	Supported
H2	Performance expectancy =>User Behavior	Significant Less than 0.005	Supported
H3	Effort Expectancy => Attitude	Significant Less than 0.005	Supported
H4	Social influence => Behavioral Intention	Insignificant Greater than 0.005	Unsupported
H5	Facilitating Condition => Behavioral Intention	Insignificant Greater than 0.005	Unsupported
H6	Facilitating Condition => Effort Expectancy	Insignificant Greater than 0.005	Unsupported
H7	Personal Innovativeness=> Attitude	Significant Less than 0.005	Supported
H8	Anxiety => Attitude	Significant Less than 0.005	Supported
H9	Trust=> Attitude	Significant Less than 0.005	Supported
H10	Attitude => Behavioral Intention	Significant Less than 0.005	Supported
H11	Grievance redressal => User Behavior	Significant Less than 0.005	Supported
H12	Behavioral Intention => User Behavior	Significant Less than 0.005	Supported

5. Discussion

The study aimed to find the motives and attitudes of the Saudi consumers toward the adoption of Apple pay. For the adoption decision, the predicting model meta-UTAUT was calculated to be significantly valid. Four endogenous model variable (such as use behavior, behavioral intentions, attitude and effort expectancy) and seven exogenous model variables such as (grievance redressal, trust, anxiety, personal innovativeness, facilitating conditions, social influence and performance expectancy) constituted this model which were related through twelve path associations i.e. H1 to H12. The SEM statistical analysis of the data helped in accepting hypothesis that performance expectancy, effort expectancy, personal innovativeness, trust and anxiety factors influenced the attitude of Saudi customers towards adapting Apple pay method. Whereas, attitude affects behavioral intentions, performance expectancy and grievance redressal affect user behavior.

Alternatively, social influence and behavioral condition has no significant relationship with behavioral intentions. Similarly, performance expectation is also not significantly affecting user behavior. Therefore, the study accepted Hypothesis H1-H3 and H7-H12, whereas, it rejected H4-H6.

The findings of this study were different from a previous study on Indian population which used meta-UTAUT model to assess factors affecting mobile payment in India, where all these exogenous variables had relationship paths with the endogenous variables and were influencing them significantly (Patil *et al.*, 2020).

These results have the practical implementation, as it provides a holistic approach to understand the factors influencing Saudi consumers towards mobile payment, particularly Apple pay. Such as, this study proved that performance expectancy influences the behavior and attitude of Saudi consumers, therefore, future advertisements targeting the usefulness of a mobile payment method would be more successful in achieving its objectives (Bailey *et al.*, 2017). Similarly, the manufacturers should pay attention to develop the system that adds value to its use along with making it efficient (Schierz *et al.*, 2010). As the effort expectancy was significant with the attitude, there is need to incorporate systems that are user friendly (Bailey *et al.*, 2017). As the social influence was not significantly related the behavioral intention, it suggests that Saudi consumers more rely on their own experience rather than that of their peer. Therefore, grievance redressal had a significant effect on the user behavior. Which suggests that a good customer support system is more likely to influence Saudi consumers towards mobile payment system.

This study has the following limitations. First, it was only a quantitative study, due to time constraints a mixed method approach to include quantitative and an in-depth qualitative analysis was not done. Second, the survey was conducted in English language, however, the national language of the Saudi Arabia is Arabic, therefore, and

it is possible that some of the meaning had been misinterpreted by the user. This study only focused on Apple pay as it assumed it to be the most popular method. There have been other mobile wallet systems that might have given different results.

Furthermore, this study does not endorse any payment method.

6. Conclusion

In conclusion, this examination is expected to analyze different elements influencing Saudi consumer's appropriation and utilization of Apple payment using meta-UTAUT model. This study resulted that performance expectancy, effort expectancy, personal innovativeness, trust and anxiety factors influences the attitude of Saudi customers towards adapting Apple pay method. Whereas, attitude affects behavioral intention and behavioral intentions, performance expectancy and grievance redressal affect use behavior. Alternatively, social influence and behavioral condition has no significant relationship with behavioral intentions. Similarly, performance expectation is also not influencing user behavior. This study also gave several suggestions for practical implementation that will be beneficial in promoting a mobile wallet system in Saudi consumers.

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