

Motivational Factors and Use of Mobile Payment Services in Kenya

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Abstract

The purpose of this study is to investigate the influence of motivational factors on the use of mobile payment services in Kenya. The findings revealed that intrinsic motivation factors, perceived ease of use (PEOU), and perceived enjoyment (PE) influenced consumer intention to use mobile payment services in Kenya; while extrinsic motivation factors such as perceived usefulness (PU) influenced consumer intentions to use mobile payment services in Kenya. The results also suggest that social influence did not affect consumer intention to use mobile payment services while perceived usefulness was the strongest factor. With a huge disparity in the use of mobile payment services globally, a study focusing on Kenya, which according to the latest mobile consumer readiness reports is the global leader in mobile payment use, will help understand the drivers behind this success that may be replicated in other countries.

Key Words: Mobile Payment, Consumer Intention, Intrinsic Motivation, Extrinsic Motivation.

JEL Codes: D12, M31

Introduction

Kenya has one of the world's largest mobile money systems called M-PESA, M for mobile and pesa is money in swahilli. It is within this context that this research seeks to determine the effects of motivational factors on the use of mobile payment services in Kenya. The growth of mobile technology has not only changed the way organizations design and develop their products and services but also how these products and services are delivered to the consumers (Pousttchi & Wiedemann, 2014). Driven by wireless mobile technologies, and the ongoing advancement and development of innovative devices such as smart phones and tablets, mobile commerce has emerged as one of the fastest growing e-commerce models. It is attracting the attention of both researchers and practitioners globally and creating applications that are changing the way financial services are provided to consumers (Chemingui & lallouna, 2013). Studies carried out recently are in agreement that m-commerce has the potential to surpass the success of e-commerce with the adoption of cellular phones estimated to have hit a 3.6 billion by the end of 2014 worldwide (Zeng & Ma, 2015).

Though m-commerce is a relatively wide concept, Hwang (2009) stated that without the transaction of monetary value, m-commerce cannot be achieved. Hence, there are three ways in which the transaction of monetary value can be realized. First, by billing systems of mobile carriers referred to as carrier based transaction; second, the transaction being a direct monetary transaction between accounts or the bill payments; and lastly, m-commerce transactions can use

credit card information stored in mobile devices. A review of recent statistics reveal that while Kenya is the global leader in consumer readiness and use of mobile payment services with 68% over all usage rate and 89% consumer readiness, the global average remains very low at 51% (Mobile Payments Readiness Index, 2015). With recent reports such as Mobile Payments Readiness Index (2015) revealing that mobile phones should have established itself as a successful mode of payment globally by now, but this has been hindered by the absence of large consumer acceptance and thus preventing the market from breaking even. Several aspects of research such as the need to understand the drivers that influence successful use of mobile payment services emerge. Moreover, the influence of motivational factors on the acceptance and use of mobile payment services have not been investigated. As previous research has shown that motivation factor such as perceived enjoyment contributed approximately 58% of actual use of mobile application, Issa & Mamoun (2013). This study therefore investigates and models both extrinsic and intrinsic motivational factors that influence the consumer to use mobile payment services in Kenya. Consumer intention is modeled as the main predictor of actual use based on the previous literature finding (Venkatesh, 2003).

Theoretical Background

There are many documented studies in the literature focusing on technology diffusion either at the individual or organization or government level (Salwani, 2009). According to Alam (2009), the majority of the studies are grounded on the following theoretical frameworks: diffusion of innovation theory (DIT) (Rogers, 1983), technology organizational and environmental model (TOE) (Tornatzky & Fleischer, 1990), resource-based theory (RBV) (Barney, 1991), E-value model (Salwani, 2009), integrated model (Wu & Balasubramanian, 2003), technology acceptance model (1989) (TAM), theory of planned behavior (1975) (TPB), and theory of acceptance and use of technology (UTAUT).

An analysis of the prior studies indicates that these models differ in their focus and are designed to examine different aspects of technology adoption (Peixin & Wei, 2012). Theoretical literature based on the individual usage of technology reveal that technology acceptance model (TAM), unified theory of acceptance and use of technology model (UTAUT), theory of planned behavior (TPB) and extended TAM by Venkatesh & Davis (2000) are some of the models that have widely been used in the previous studies (Chan & Chong, 2013; Issa & Mamoun, 2013; Njuguna, Ritho, & Olweny, 2012; Safeeni & Kamani, 2011; Teoh, Chong, & Lin, 2014).

For the purpose of this research, the theoretical foundation was based on the unified theory of acceptance and use of technology (UTAUT) developed by Venkatesh (2003). The model included other variables such as social influence and demographic profile to improve on the original TAM model variables; which included perceive ease of use (PEOU) and perceived usefulness (PEOU). Chan & Chong (2013) argued that the technology acceptance model (TAM) as a model has its own limitations based on the fact that previous studies have clearly tested and shown without doubt that the two variables (PEOU) and (PU) will have a direct relationship on the intention to adopt any technology. So there is a need to extend the model.

Conceptual Model and Research Hypotheses

The conceptual framework in this research endeavor indicates the relationship between independent variables, which are both intrinsic and extrinsic motivation factors, and their influence on the dependent variable of consumer intention to use the mobile payment system amongst Kenya's consumers.

Extrinsic Motivation Factors and Consumer Intention

Previous literature have defined extrinsic motivation as those factors which reinforce an activity to be performed driven by the outcome of the activity (Chan & Chong, 2013). Previous studies have included both social influence and perceived usefulness in this category as evidenced by Chan & Chong (2013), Chin & Ahmad (2015) and Zhou (2014). Based on their strength in determining the use of mobile commerce in the previous studies, (Issa & Mamoun (2013). Zhou (2014), it is important to understand whether these results prevail in Kenya. The following two hypotheses are therefore formulated:

- H1:** *Perceived usefulness significantly influences consumer intention to use mobile payment services in Kenya.*
- H2:** *Social influence has no significant influence on consumer intention to use Mobile payment services in Kenya.*

Intrinsic Motivation Factors and Consumer Behavior Intention

According to Chan & Chong (2013) and Chin & Ahmad (2015) intrinsic motivation occurs when a person performs a given activity without any support rather than performing that activity. Perceived ease of use and perceived enjoyment are the most widely studied intrinsic motivation factors that influence the using of mobile technology and it is important to know whether users are influenced by how easy and enjoyable the technology is to use the mobile payment services in Kenya. In view of this, the following additional two hypothesis are made:

- H3:** *Perceived ease of use has significant influence on consumer intention to use mobile payment services in Kenya.*
- H4:** *Perceived enjoyment has significant influence on consumer intention to use mobile payment services in Kenya.*

The four postulated hypotheses of this research are schematically summarized in Figure 1.

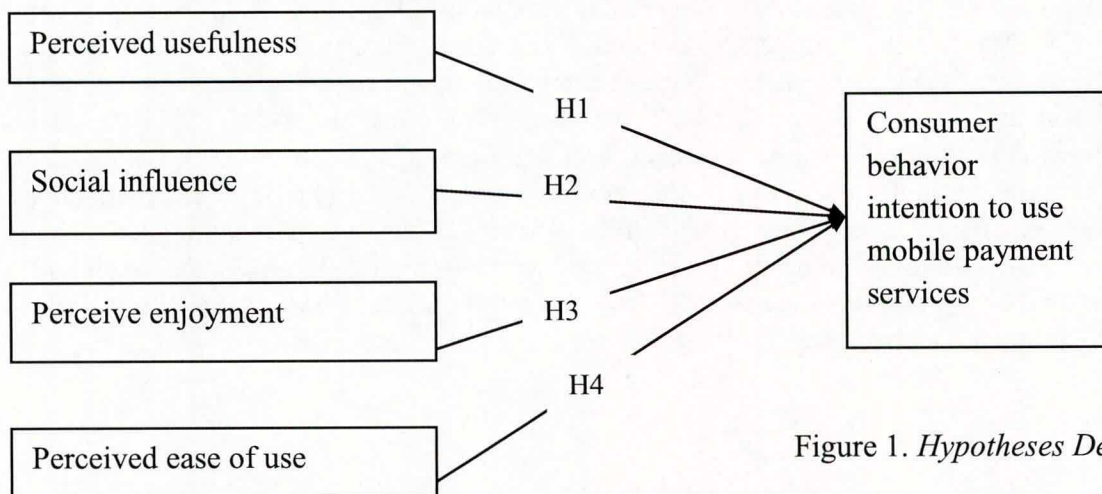


Figure 1. *Hypotheses Development*

Research Methodology

This research employs a descriptive survey research design and the targeted population of the study was consumers who frequented the customer care centers of the leading mobile operators in Kenya. The research design was chosen based on its definition and use in previous studies as Chan & Chong (2013), Issa & Mamoun (2013), and Zhou (2014). The operators were sampled because it accounted for approximately 77% of the mobile payment market share in Kenya, CAK (2014). To avoid any bias in data correction, consumers were sampled from four major towns in Kenya. These towns are Nairobi, Nakuru, Kisumu, and Eldoret. These towns were selected based on the number of customer care centers that were available. A sample of 680 respondents was selected based on Krejcie & Morgan's (1970) formula of calculating sample size and systematic random sampling was adopted as the sampling technique. This technique was adopted to avoid bias while selecting a sample for the study due to the large number of consumers who frequented the customer care centers. This data correction technique was also used in previous studies such as Chan & Chong (2013). The measurement items were adopted from the previous studies of Chan & Chong (2013), Hwang (2009), Teoh et al. (2014), and Zhou (2014); while a structured questionnaire was used as an instrument for data collection.

Reliability and Validity Test

To test the reliability and validity of the data collection instrument, a pilot study was carried out where 60 questionnaires were distributed to consumers in three randomly selected customer care centers, these centers were not included in the final study. The reliability test was supposed to test the internal consistency of the items in the questionnaire while the content validity test was carried out to determine whether the questions were clear and accurate and understandable. Table 1 shows the Cronbach alpha (α) of 0.8563 that was realized after the reliability test was carried out. This test was used to determine the reliability of the construct's measurement in similar studies, Chan & Chong (2013) and Teoh et al. (2014). According to Hair (1998) a Cronbach alpha value of 0.7 is considered acceptable.

Table 1. *Cronbach's Alpha*

Alpha based on standardized items	Number of items
0.8563	60

Empirical Analyses

Descriptive Statistics

Out of 680 questionnaires that were issued, 527 questionnaires forms were filled-in and returned indicating a response rate of approximately 77%. This response rate was considered adequate based on Saunders & Lewis (2012) recommendations that a response rate of 60% is acceptable. Forty three questionnaires were found to be incomplete and were discarded; while 484

questionnaires were considered acceptable for analysis. Forty eight percent of the respondents were male, 52% of the were female, 90% were below the age of 40 years, 9% between the ages of 41 and 50 years, and 1% of the respondents were above the age of fifty. Thirty-one percent of the respondents had attained a secondary qualification, 48% a college education, 7% a primary education, and 15% a university education. Sixty-four percent of the respondents were not married and 36% were married. Lastly, 78% of the respondents had an income range of 50,000 Kenyan shillings (KSh) and below, 15% between 50,000 KSh and 100,000 KSh, and 7% had an income of over 100,000 KSh.

Inferential Analyses

Kaiser-Meyer-Olkin (KMO) measure of sample adequacy was carried out to measure sample adequacy while Barlett test of sphericity tested the null hypothesis that the correlation matrix is an identity matrix. The KMO test value was 0.827, which was well beyond 0.5. According to Field, (2013), a KMO test value that is decidedly beyond 0.5 is recommended. This means that the patterns of correlations were compact and that factor analyses would yield reliable factors. Factor analyses were carried out and all the factors were found to have a value beyond 0.5.

Table 2. *Principal Component Analysis Test Statistics (Communalities)*

Variables	Initial	Extraction
PEOU5	1.000	.737
PE5	1.000	.798
SOCI	1.000	.661
PU5	1.000	.847
PERC4	1.000	.659

Table 2 above shows that all the variables had a factor analyses value of more than 0.5 which according to Hair (1995) is recommended if the researcher is to proceed to hypothesis testing. To test the hypotheses proposed in the study, all the variables were selected and entered in SPSS in order to determine the correlation with the dependent variable. A summary of multiple regression analyses was carried out where the four variables being tested were entered into the SPSS as independent variables while the consumer behavior intention was entered as the dependent variable. This tests the influence of these four variables on the consumer behavior intention variable to use mobile payment services in Kenya.

Table 3 reports the regression results. The R^2 , the coefficient of determination, and adjusted R^2 are 0.426 and 0.421, respectively. This means that 42.1% of the variation of consumer behavior intention to use mobile payment services was explained by the four independent variables. The coefficient of determination has a range from zero to one, the closer the value is to one, the better the “fit” of the model.

Table 3. Regression Analyses Result: Model Summary

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	.653(a)	.426	.421	1.57091

Table 4 reports the results for the analysis of variance (ANOVA). The results for overall statistical significance of the regression model is given by a “goodness of fit” metric known as the *F*-statistic. It has a value of 88.965 and is statistically significant at the one percent level.

Table 4. ANOVA

Model		Sum of Squares	d.f.	Mean Square	F-Statistic	Significance
1	Regression	878.177	4	219.544	88.965	.000(a)
	Residual	1182.063	479	2.468		
	Total	2060.240	483			

Table 5 reports the unstandardized beta coefficients for the model. These coefficients show that the perceived ease of use β has a value of 0.249, perceived enjoyment β has a value of 0.201, and perceived usefulness β has a value of 0.395; all three variables are statistically significant at conventional levels. In contrast, the social influence β has a value of 0.051 and is statistically insignificant.

Table 5. Unstandardized Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.625	.588		4.466	.000
	Perceived ease of use	.192	.031	.249	6.131	.000***
	Perceived enjoyment	.114	.024	.201	4.799	.000***
	Perceived usefulness	.320	.031	.395	10.190	.000***
	Social influence	-.020	.014	-.051	-1.435	.152

Statistical significant: *P = 0.01, **P = 0.05, and *** P = 0.001.

Discussion and Implications

For extrinsic motivation factors, **H1** was found to be significant with the study results revealing that perceived usefulness (PU) had a strong influence on the use of mobile payment services in Kenya. This result is consistent with previous studies that found that perceived usefulness is a strong predictor in the use of mobile commerce applications, Chin & Ahmad (2015), Teoh et al. (2014), Venkatesh & Davis (2000), and Zhou (2014). **H2** was found to be insignificant revealing that social influence (SI) did not influence the use of mobile payment system in Kenya. This result is not consistent with findings of previous studies that concluded that social influence was an important factor in determining the use of mobile commerce applications. These studies are Hwang (2009), Issa & Mamoun (2013) Mardikyan, Beşiroğlu, & Uzmaya (2012) and Venkatesh (2003). However, Chan & Chong (2013) found that social influence did not influence the use of transaction based mobile applications.

The influence of intrinsic motivation factors perceived ease of use and perceived enjoyment **H3** and **H4** is confirmed with both hypotheses having a significant influence on the consumer intention to use mobile payment services in Kenya. This result is similar to previous studies findings which revealed that PEOU and PE were important drivers in the use of mobile commerce applications; for example, Chan & Chong (2013), Chin & Ahmad (2015) Issa & Mamoun (2013), Safeeni & Kamani (2011), and Zhou (2014).

Evidence from the previous studies indicate that limited studies have been undertaken on the drivers influencing consumer intention and use of mobile payment services particularly in a developing country context. A study focusing on Kenya being the global leader in mobile money usage may serve to provide important information on the drivers of this success to other emerging markets and developed economies struggling to implement mobile innovations successfully. This study demonstrates a solid theoretical base of unified theory of acceptance and use of (UTAUT) as a useful framework for identifying the factors that influence consumer intention and use mobile payment, an area that seems to be understudied in the innovation literature. These results resonate with Issa & Mamoun (2013), Venkatesh & Davis (2000), and Zhou (2014); findings which revealed that UTAUT was a strong and suitable theoretical model for testing mobile commerce usage.

This study investigated the influence of extrinsic motivation factors, social influence and perceived usefulness, and intrinsic motivation factors, perceived ease of use and perceived enjoyment, influencing consumer intention and use of mobile payment services. First, unlike the existing studies that focused on whether the user will or will not adopt mobile payment service, this study explored the influence of the adoption factors on consumer intention towards actual use of mobile payment services. As such, mobile payment services providers will be able to understand the drivers that may lead to full utilization of their services after adoption. The significant effect of perceived usefulness, perceived ease of use and perceived enjoyment on consumer intention to use mobile payment services in Kenya is confirmed. This outcomes are similar to the previous studies findings; Beng & Eze (2010), Chan & Chong (2013), Jayshree & Mohd (2010), Mardikyan et al. (2012) Omwansa, Lule, & Waema (2015), Pousttchi & Wiedemann (2014), Teoh et al. (2014) and Arvidsson (2014). The findings implications are that for a consumer to continue using mobile payment services in Kenya, they must perceive them to be useful, easy to use, and enjoyable.

Second, intrinsic motivation factors play an important role in user engagement with mobile payment services. It was interesting to find out that both perceived ease of use (PEOU) and perceived enjoyment (PE) had a strong influence on mobile payment use in Kenya while only perceived usefulness (PU) was the influential factor among the extrinsic motivation factors. The implication about this result to the mobile operators is that when designing mobile payment applications the designer should make sure that the end product is user friendly, useful, and exciting to use. These findings will enable m-payment developers to better understand what to focus on while designing their applications and the features to include in the applications in case they want to personalize the service. This finding also confirms the importance of emotional aspects such as enjoyment while developing mobile payment services in Kenya.

Third, this study revealed that social influences, social image and subjective norm, did not influence consumer intention to use mobile payment service. The implication of this finding is that social influences is not much of an issue in mobile payment use in Kenya probably because of low banking penetration in the country making this mode of payment a necessity to a majority of the users. Moreover, existence of a single dominant mobile provider may also serve as a valid reason behind these results due to lack of a large variety of trusted services in the market.

Conclusions, Limitations, Further Research

This study investigated the motivational factors that influence the use of mobile payment services in Kenya. The regression results show that three variables significantly influence consumer intention to use mobile payment services in Kenya. These variables are: perceived usefulness (PU), perceived ease of use (PEOU), and perceived enjoyment (PE). Interestingly, social influence had no significant effect on consumer intention, it does not influence the actual use of mobile payment services in Kenya. This study contributes to the body of knowledge by advancing the main literature on mobile payment use especially from a country regarded as the global leader in its use. The results give a leeway to those countries that are still struggling with the adoption and use of mobile payment applications to learn from successful cases.

Based on the limitations encountered during this study, the researchers recommend the following for of future studies. Firstly, the focus of this study was on the usage of mobile payment by the consumers in Kenya. Future studies should focus on other entities such as the government or business usage and also use the model to study other mobile technologies that were not included in this study. Secondly, the study focused only on the consumers and mobile payment services available in Kenya. It would be interesting to observe the findings of a similar study if this model was replicated in other developing and developed countries. Thirdly, the finding from the studied factors only explained 42% of the consumer intention to use mobile payment services. The remaining 57% may be explained by the factors that were not included in this study; future research should include other variables that were not tested in this study. Lastly, as technology is dynamic and this study used a cross-sectional approach future researchers should consider studying diffusion of m-payment use across time or using a longitudinal approach.

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