



**DETERMINANTS OF ADOPTION OF MOBILE MONEY PAYMENTS TECHNOLOGY IN THE HOSPITALITY INDUSTRY
IN KENYA**

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Nganga, B. M.,^{*1} & Ochiri, G.²

^{*1} Masters Scholar, Jomo Kenyatta University of Agriculture & Technology [JKUAT], Nairobi, Kenya

² PhD., Jomo Kenyatta University of Agriculture & Technology [JKUAT], Nairobi, Kenya

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ABSTRACT

Opportune adoption and suitable use of easily and extensively accessible mobile money payment technology in Kenya is certainly one opportunity that may help the country in achieving the digital opportunities currently available. Despite the fact that new and interesting possibilities have been introduced by mobile phone technology, the unique mobile subscriber penetration and mobile money payment rate in Kenya remains well below the 50% global threshold. Hospitality industry for instance, adoption of mobile money payments technology is perceived as the act of creating and popularizing new or reformed money payments technology which facilitates access to transactions as well as means of payment. This study aimed to establish determinants of adoption of mobile money payments technology among firms in the hospitality industry with focus on Juja Sub County. The study adopted a descriptive survey design. The target population for the study consisted of 42 licensed hotels in Juja Sub County. The findings of the study revealed that various indicators of cost concerns such as reduction in initial investment costs, low intra-transaction costs and costs of servicing, low costs incurred to run the technology as well as reduced cost of complementary gadgets leads to significant improvement in adoption of mobile money payments technology. The study results also indicated that security concerns positively and significantly influences adoption of mobile money payments technology in the hospitality industry. The study recommends that the hospitality businesses in Juja Sub-county should focus on adopting mobile money payment platforms with low initial investment costs, low intra-transaction costs and costs of servicing, low costs incurred to run the technology as well as reduced cost of complementary gadgets. The study also recommends that there is need to ensure that security concerns of the payments technology such as confidentiality authentications, integrity of data, and anonymity of the customers' details, privacy of the customers' details and non-repudiation aspects of the technology.

Key words; Cost concerns, Security Concerns, Technology adoption, Adoption of mobile money payments technology, hospitality industry.

Background of the Study

Adoption of mobile money payments technology is an important phenomenon in any modern economy as it gives firms the chance to adopt new and better processes of performing their operations thereby improving their performance. In the hospitality industry for instance, adoption of mobile money payments technology is perceived as the act of creating and popularizing new or reformed money payments technology which facilitates access to transactions as well as means of payment (Sloan, 2003).

Adopting money payments technology is critical for development and performance of firms and individuals portraying new ideas, quality and convenience. This strategy can be used by firms in the hospitality industry to outshine their competitors thereby becoming an essential means for the firms in the hospitality industry to improve their performance, growth as well as maintaining their effectiveness (BatizLazo & Woldesenbet, 2006). In an environment susceptible to highly turbulent and volatile economic circumstances, successful adoption of mobile money payments technology and creation of a unique competitive position can give a firm a strong competitive advantage over its competitors leading to improved performance (Roberts & Amit, 2003).

However, whether or not a firm can adopt these technologies is highly influenced by a number of factors that determine the ease of adopting mobile money payments technology especially in Kenya. The hospitality industry is very important to all world economies. In 2014, the hospitality industry contributed 10 percent of global GDP with a total value of US\$ 7.6 trillion and accounted for 277 million jobs (WTTC, 2015). Hospitality products include accommodation, transportation, travel agents, guides, taxi drivers, vendors, entertainment,

food and beverages, emporiums and shopping arcades (Andrews, 2007).

Hospitality industries are among the fast expanding industries in the world and are important top foreign earners for Kenya, (RoK, 2010). Despite the fact that hospitality industry is among the fastest expanding industries in the world and important top foreign earners for Kenya, it has been characterized with many challenges ranging from service quality especially with poor money payment technologies and the number of accommodation facilities. This study therefore intends to examine the effect of determinants of adoption of mobile money payments technology.

Statement of the Problem

Adoption of mobile money payments technology is an important phenomenon in any modern economy as it gives firms the chance to adopt new and better processes of performing their operations thereby improving their performance (Lule *et al.*, 2012). Among the benefits derived from adoption of mobile money payment technology are convenience in carrying out business transactions, fast means of making payments, security in financial transactions and reduced or sometimes no charges in carrying out financial transactions (Lule *et al.*, 2012). Mobile money transfer services, Internet and data services enhances the way hospitality firms conduct their business operations.

Mobile telephones are also cheaper and more portable than computers which make their adoption much easier (Herbst, 2015). This has successively reduced social-economic disparities within the hospitality industry as well as closing the existing digital divide between the rural and urban hospitality firms. Most hospitality services providers had to travel or use public transport systems to send and exchange documents, access banking facilities or even transact their payments. Higher supplier service levels have a large effect on

suppliers' demand from retailers when supplier service levels are already high: a 1% increase in historical supplier service level is associated with a 13% increase in demand from retailers (Craig, Dehoratius & Raman, 2014).

Despite the fact that new and interesting possibilities have been introduced by mobile phone technology, the unique mobile subscriber penetration and mobile money payment rate in Kenya remains well below the 50% global threshold (Aker & Mbiti, 2015). This therefore implies that Kenya is below the global optimization of mobile phone technology as an engine for financial performance and ultimately as a catalyst for economic growth (RoK, 2010). In the hospitality industry for instance, adoption of mobile money payments technology is perceived as the act of creating and popularizing new or reformed money payments technology which facilitates access to transactions as well as means of payment. However, whether or not a firm can adopt these technologies is highly influenced by a number of factors that determine the ease of adopting mobile money payments technology especially in Kenya (Oduori & Herbst, 2015).

Apparent from the discussion is the fact that a number of technology specific factors including cost, safety, convenience and competition affect the extent of mobile money payment technology adoption for many businesses, hospitality firms being highly affected. This means that the decision to adopt the new mobile of mobile money payment technology is highly dependent on a number of factors (Kim, Mirusmonov & Lee, 2010), and that is why this study sought to establish the determinants of adoption of mobile money payments technology in the hospitality industry.

Research objectives

The general objective of the study was to establish the determinants of adoption of mobile money

payments technology in the hospitality industry. The specific objectives were;

- To examine the effect of cost concerns on adoption of mobile money payments technology in the hospitality industry
- To assess the effects of security concerns on adoption of mobile money payments technology in the hospitality industry

Theoretical Review

The Technology Acceptance Model (TAM)

Davis (1986) proposed the Technology Acceptance Model and particularly examines some of the factors affecting computer acceptance among the end users. This theory postulates that the perceived usefulness and perceived ease of use by an individual affects their behavioral intention to use a system.

Perceived usefulness is construed as the degree to which an individual believes that using the system will improve their performance (Venkatesh & Davis, 2010). On the other hand, perceived ease of use is the extent to which a person believes that using the system will be free from error. The Technology Acceptance Model then theorizes that both beliefs are of principal significance when it comes to computer acceptance components. The adoption of technology is determined by individual differences such as age, gender, and experiences, (Venkatesh, Thong, & Xu, 2012).

According to the model, user behavior varies across a broad range of end-user computing technologies and user populations. The model does incorporate long term accumulated findings of IS research, and therefore well suited particularly for modeling computer acceptance, (Welch & Worthington, 2010). Use of technology is influenced by a number of factors such as social factors and culture of youth which is flamboyant in nature. Technology should be both easy to learn and easy to use meaning that perceived ease of use is expected to have a positive

influence on users' perception of credibility and intention of using internet marketing (Rowley, 2011).

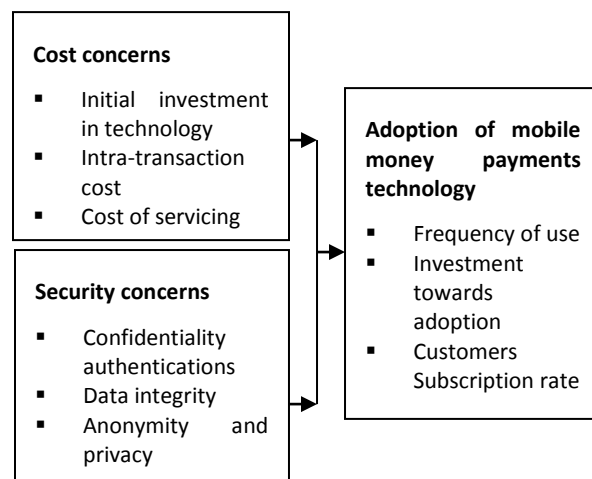
This theory is relevant to the current study as it underlines the specific factors that influence acceptance of mobile money payments technology by hospitality industry through examining the perceived usefulness and perceived ease of use of the new technology.

The Transaction Cost Innovation Theory

The Transaction Cost Innovation Theory was advanced by Hicks and Niehans in 1983. They reasoned that the dominant motive behind financial innovation is the reduction of transaction cost, particularly firm response to advancement in technology resulting to transaction cost reduction and therefore improved financial performance. The reduction of transaction cost can stimulate financial innovation and improvement in performance of a firm. This theory studied the financial innovation from the perspective of microscopic economic structure change. It postulates that the motive of technology innovation is to reduce the transaction cost. Differently put, the radical motive of technology innovation is the financial institutes' purpose of earning benefits. According to Yoon (2009), the rate at which new technology is spreading is determined by the costs that involved in adopting it.

This theory is relevant to the study in that it emphasizes on cost reduction for various transactions that are carried out by the hospitality firms leading to better firm as a result of adoption of mobile money payments technology. The theory can therefore be linked to the dependent variable of the study which is Adoption of mobile money payments in the hospitality industry.

Conceptual framework



Independent Variables Dependent Variable

Figure 1: Conceptual Framework

Cost concerns

Perceived cost is defined as the extent to which a person believes that using mobile money transfer will cost money (Luarn & Lin, 2015). The cost may include the transactional cost in the form of bank charges, mobile network charges for sending communication traffic (including SMS or data) and mobile device because huge upfront costs are generally associated with the use or innovation of a new technology. This is generally due to the initial investment, training of workers, marketing and research development of the technology (Machogu, 2012). Firms are willing to invest in new technologies only if they can obtain profits at a later stage to justify the initial investment. For the banked informal trade in Nairobi for instance, if the cost of sending and receiving money through the mobile payment facility is lower than the banking system, the mobile payment option is more viable, and the saving could then be passed onto the user (Mbogo, 2010).

The use of Information and Communication Technology (ICT) in firms is multidimensional, and these uses have different direct and indirect costs

associated to them. Indirect costs can be more significant than direct costs; furthermore, organizational costs can arise from transfer from old to new practices. Initially, at the deployment of the technology, there may be a temporary loss in productivity and more costs may occur once the basic functions of the system are in place (Machogu, 2012).

Other costs may be incurred in the time the management spends leading, planning and organizing the integration of new systems into existing practices. In addition, perceived cost can also be seen as the cost involved in obtaining the new technology as well as the cost saving that will be achieved by the banks and the customers through the use of the technology (Machogu, 2012). Even though cost is a concern as the initial stage of adoption, it has a little influence on usage of the technology.

Security concerns

The use of personal identification numbers and secret codes for transactions increases the security and privacy issues and that the key requirements for electronic financial transactions are confidentiality authentications, data integrity, non-repudiation, anonymity and privacy. Security and perceived privacy are construed as perception of the user in this research. There are reduced security concerns as registered user do not have to be concerned about a third party accessing their account if the mobile phone is lost or stolen (Mbele-Sibotshiwe, 2014). This is extremely important as security and safety are what users are primarily concerned with when it comes to the use of mobile money transfer technology.

Security, in this context, is a threat that creates circumstances, condition or event with the potential to cause economic hardship to data or network resources in the form of destruction, disclosure, modification or data, denial of service

and/or fraud, waste and abuse. Security can be breached through network or data transaction and transmission attacks as well as through unauthorized access to an account by false authentication (Lallamahmood, 2010). Privacy is defined as “the claim of individuals, groups, or institutions to determine when and to what extent, information about them is communicated to others.

It is the users' perception of their protection from security threats and the control of their personal data and information in an online environment. Challenges with security and privacy must first be overcome for users to accept a mobile money transfer technology. In addition, perceived security and privacy is about the extent to which the user believes that the system can securely conclude a transaction and maintain the privacy of his or her personal information (Machogu, 2012).

Competition Effects

Macher, Miller and Osborne (2015) provided an excellent examination of the external forces that affect the firms' decisions to adopt new technologies. An interesting conclusion is that firms which anticipate significant technological improvement in the near future may not invest in the current, state-of-the-art processes. In other words, adoption rates may slow down when the rate of technological change is high and increase when the rate of change slows. The firm will adopt the current best technology if its “technology gap” between current and state-of-the-art technology exceeds a certain threshold. If the pace of technological progress increases, then the “technology gap” that motivates technology adoption also increases, possibly causing a slower rate of adoption

Research has established that there is a relationship between competitive pressures experienced by firms in an economic zone to the adoption of Information Technology. These relationships could

either be financial or market pressure making them bow to pressure in either adopting or not adopting the information technology (Ferguson *et.al* 2013). Identifying the effect of competitive pressure on technology adoption has been a central question in economic research.

However, there are two main empirical obstacles to correctly identifying the effect of trade liberalization and/or import competition on the adoption of new technologies. First, it is difficult to find an appropriate comparison group in order to identify the effects. Even if there is substantial variation in exposure to a reform across firms or industries, such sources of variation are susceptible to problems of selection and endogeneity. Second, it can be difficult to observe technology adoption and the extent to which a particular technology is adopted within a firm (Ferguson & Olfert, 2015).

Empirical Review

Studies have been conducted by various scholars both globally and regionally to establish the determinants of adoption of mobile money payments technology. This section highlights some of the factors done per variable.

Cost concerns

Otieno, (2016) studied the factors influencing the adoption of agency banking by KCB bank Kenya limited. The study adopted a case study design with a qualitative approach. The data was collected using questionnaires. The data was analyzed descriptively using mean and standard deviation. The findings were presented in table and narrative form. The study findings revealed that there was positive relationship between cost reduction and adoption of agency banking.

Mbogo, (2010) studied the impact of mobile payments on the success and growth of micro-business: the case of M-pesa in Kenya. The study aim was to investigate the success factors

attributable to the use of mobile payments by micro-business operators. The study questionnaires collect data. The study applies the Theory of Technology Acceptance Model (TAM) which was extended to include other factors to help us predict success and growth in micro-businesses. The study findings revealed that the convenience of the money transfer technology plus its costar related to behavioral intention to use and actual usage of the mobile payment services by the micro businesses to enhance their success and growth.

Masinge, (2011) carried a study on factors influencing the adoption of mobile banking services at the Bottom of the Pyramid in South Africa. The study used a descriptive research design and data was collected using the questionnaire. The study used both primary and secondary data. The SPSS version 20 was used to analyze the data. The study findings revealed that cost had a significant effect on the adoption of mobile platform on the Bottom of the Pyramid.

Chitungo, and Munongo (2013) conducted a study on extending the Technology Acceptance Model to mobile banking adoption in rural Zimbabwe. The sought to investigate the applicability of the extension of the renowned framework of Technology Acceptance Model (TAM) in determining factors that influence unbanked rural communities Zimbabwe's intention to adopt mobile banking services. A self-administered questionnaire was developed and distributed in Zaka, Chiredzi, Gutu and Chivi rural districts. The data was subsequently analyzed by the SPSS package. The study findings indicated that the extended TAM can predict consumer intention to use mobile banking, specifically, perceived risks and costs deterred the adoption of the service.

Kazi, and Mannan, (2013) studied the factors affecting adoption of mobile banking in Pakistan. The study used Technology Acceptance

Model (TAM), with additional determinants of perceived cost and social influence. Data was collected by surveying 372 respondents from the two largest cities (Karachi and Hyderabad) of the province Sindh, in Pakistan using judgments sampling method. The study findings concluded that consumers' intention to adopt mobile banking services was significantly influenced by social influence and perceived cost of using it.

Olasina, (2015) carried a study on factors influencing the use of m-banking. The study identified and investigated the factors that influence academics in Nigeria to use m-banking with focus on the evaluation of SMS-based mobile banking. The study model was adopted from the Unified Theory of Acceptance and Use of Technology model (UTAUT). A survey questionnaire was administered to collect data from 150 academic staff and 350 university students of the University of Ilorin, Nigeria. The study results showed a positive correlation between customer service, type of bank and perceived cost and the use of m-banking.

Makanyeza, and Makanyeza, (2017) investigated the determinants of consumers' intention cost to adopt mobile banking services in Zimbabwe. This study adopted descriptive study design and used primary data that was obtained by the use of semi structured questionnaire. The study findings indicated that perceived usefulness, perceived self-efficacy, social influence, relative advantage and perceived compatibility all have a positive effect, whilst perceived risk has a negative effect on behavioural intention to adopt mobile banking services in Zimbabwe. Perceived ease of use was found to positively influence perceived usefulness, while perceived self-efficacy was found to have a positive effect on perceived ease of use. Behavioural intention was found to positively influence usage of mobile banking services in Zimbabwe.

Security concerns

Shin (2012) studied the effects of trust, security and privacy in social networking: a security-based approach to understand the pattern of adoption. The study examined security, trust, and privacy concerns with regard to social networking. The study used both secondary and primary data. The data was analyzed using SPSS version 21. The study finding revealed that perceived security moderates the effect of perceived privacy on trust.

Sathye (2012) studied the adoption of internet banking by Australian consumers. The objective of the study was to quantify the factors affecting the adoption of Internet banking by Australian consumers. The study sample was drawn from individual residents and business firms in Australia. The study findings revealed that security concerns and lack of awareness about Internet banking and its benefits stand out as being the obstacles to the adoption of Internet banking in Australia. The study further suggested that delivery of financial services over the internet should be a part of overall customer service and distribution strategy.

Lease (2011) carried a study on factors influencing the adoption of biometric security technologies by decision making information technology and security managers. The study objective was to offer the offers an understanding of the reasons why information technology and information assurance managers choose to recommend or not to recommend particular technologies, specifically biometric security, to their organizations. The study questions became the basis of the study's stated hypotheses for examining managers' perceptions of the security effectiveness, need, reliability, and cost-effectiveness of biometrics. The study findings indicated that positive perceptions of security effectiveness, need, reliability, and cost-effectiveness correlate with IT/IA managers'

willingness to recommend biometric security technologies.

Lun, Wong, and Cheng (2010), carried a study on the adoption of technology for security enhancement by organizations in a container transport chain has become a necessity for enhancing container transport security. The study paper explored the implications of the different types of institutional isomorphism, namely coercion, mimesis and norms, from both the perspectives of organizations that have taken the initiative to adopt technology for container transport security enhancement and those that have followed other organizations to adopt technology. The study results revealed that different types of institutional isomorphism can help managers better understand the institutional pressures that they put on, and the institutional pressures that drive them to adapt to their container transport chain partners; in particular, the possible problems and compliance requirements they may face in the course of adopting technology for enhancing container transport security.

The study by Masinge (2010) showed that security and privacy had no significant effect in the adoption of mobile platform at the Bottom of the Pyramid in South Africa. This study adopted descriptive study design and used primary data that was obtained by the use of semi structured questionnaire. Descriptive statistics that were used were mean and standard deviation while inferential statistics of correlation and regression established that security and privacy had no significant effect in the adoption of mobile platform.

Lee (2009) conducted a study on perceived risk in the context of Internet (online) banking adoption. The perceived risk was divided into five facets (performance risk, social risk, financial risk, time risk and security risk), which provided a more in-depth understanding of the characteristics of risks

regarding Internet banking. The findings of the study revealed a positive significant relationship between perceived risk and online banking.

Bélanger, and Carter, (2013) conducted a study on citizen confidence in government and technology is imperative to the wide-spread adoption of e-government. The study analyzed the impact of trust and risk perceptions on one's willingness to use e-government services. The study proposed a model of e-government trust composed of disposition to trust, trust of the Internet (TOI), trust of the government (TOG) and perceived risk. The study results from a citizen survey indicated that disposition to trust positively affects TOI and TOG, which in turn affect intentions to use an e-government service.

RESEARCH METHODOLOGY

The study adopted a descriptive survey design. The study employed a descriptive survey design and was based on a survey of firms in the hospitality industry in Juja Sub County. Descriptive design was used because it focuses on complex analysis to determine the association between the variables. The target population for the study consisted of 42 licensed hotels in Juja Sub County according to the Kiambu County Report (2016). The unit of observation was 84 operations and IT managers, from each of the 42 licensed hotels in Juja Sub County. Therefore, the study targeted 84 hotel managers. The unit of analysis was the licensed hotels in the Juja Sub County.

The study adopted a census survey with regard to the unit of analysis since the population of the study was small. Therefore, the sample size consisted of 84 operations managers of the licensed hotels in Juja Sub County. Primary data was collected by administering the questionnaires to the managers. The study used a semi structured questionnaire so as to capture both open and closed ended responses. Approval from the

university was obtained to conduct the study. The questionnaires were distributed and collected later to increase the return rate. The study used quantitative techniques in analyzing the data. Descriptive analysis was employed; which include mean, standard deviations and frequencies/percentages. Inferential statistics such as correlation and regression analysis were used.

RESEARCH FINDINGS AND DISCUSSION

These 84 questionnaires were administered to operations managers from the licensed hotels. Of these, a total of 59 questionnaires were duly filled and returned representing a statistically justifiable overall response rate of 70.45%. To measure the internal consistency of the questionnaire, Cronbach's Alpha was used items to determine whether these items measure the same construct. The results of reliability using Cronbach Alpha value of 0.7 as the threshold for reliability revealed that the study variables had Cronbach Alpha values above 0.7 implying that the data was reliable for statistical analysis with an aim of making statistical inferences.

Effect of cost concerns on adoption of mobile money payments technology

The findings on the various statements on the effect of cost concerns on adoption of mobile money payments technology in the hospitality industry revealed that majority of the study respondents, 40.3% and mean value 4.13, strongly agreed that the initial investment in adoption of technology affects decision to adopt the technology with a further 39.5% of the study respondents agreeing and only 7.3% of the study respondents disagreeing that the initial investment in adoption of technology affects decision to adopt the technology. The standard deviation value of 0.9 shows low variation in terms of responses by the respondents on the statement.

The descriptive results on cost concerns also revealed that majority of the study respondents, 80.6% and mean 4.61, strongly agreed that the intra-transaction costs affects decision to adopt mobile technology with a further 12.9% of the study respondents also moderately agreeing and none of the respondents disagreed that the intra-transaction costs affects decision to adopt mobile technology. The small standard deviation value of 0.79 indicates low variation in terms of responses on whether the intra-transaction costs affects decision to adopt mobile technology.

The results further revealed that majority of the study respondents, 87.1%, strongly agreed that the cost of servicing affects the decision to adopt mobile technology with a further 12.9% of the study respondents agreeing with the statement. Significantly, none of the study respondents disagreed that the cost of servicing affects the decision to adopt mobile technology and as indicated by the low standard deviation value of 0.34, there was low variation in terms of responses on this statement. The findings also revealed that majority of the study respondents, 41.1%, moderately agreed that the costs used to run the technology affects decision to adopt it, 14.5% of the study respondents strongly agreed and 26.6% of the respondents agreed that the costs used to run the technology affects decision to adopt it. Only 10.5% of the respondents strongly disagreed that the costs used to run the technology affects decision to adopt it supported by 7.3% of the respondents who disagreed. The standard deviation value of 1.13 indicates a relatively high variation in terms of respondents' responses on this statement.

Finally, the descriptive results on cost concerns also revealed that majority of the study respondents, 33.1% and mean 3.1, agreed that the cost of complementary gadgets affect decision to adopt mobile technology and a further 11.3% strongly agreeing that the cost of complementary gadgets

affect decision to adopt mobile technology. Only 13.7% of the study respondents strongly disagreed that the cost of complementary gadgets affect decision to adopt mobile technology and as can be seen from the standard deviation value of 1.23, there was a relatively high variation in terms of the responses on whether the cost of complementary gadgets affects decision to adopt mobile technology. On average therefore, majority of the study respondents, mean 4.00, agreed that cost concerns affect the adoption of mobile money

payments technology with the average low standard deviation value of 0.88 indicating low variation in terms of responses on various statements regarding the effect of cost concerns on the adoption of mobile money payments technology. These findings are consistent with the findings by Masinge, (2011) whose study results revealed that cost had a significant effect on the adoption of mobile platform on the Bottom of the Pyramid.

Table 1: Cost Concerns and Adoption of Mobile Money Payments Technology

Statement	SD	D	MA	A	SA	Mean	Std Dev
The initial investment in adoption of technology affects decision to adopt	0.00%	7.30%	12.90%	39.50%	40.30%	4.13	0.90
The intra-transaction costs affects decision to adopt mobile technology	0.00%	0.00%	19.40%	0.00%	80.60%	4.61	0.79
The cost of servicing affects the decision to adopt mobile technology	0.00%	0.00%	0.00%	12.90%	87.10%	4.87	0.34
The costs used to run the technology affects decision to adopt it	10.50%	7.30%	41.10%	26.60%	14.50%	3.27	1.13
The cost of complementary gadgets affect decision to adopt mobile technology	13.70%	17.70%	24.20%	33.10%	11.30%	3.10	1.23
Average						4.00	0.88

Key: SD =Strongly Disagree, D =Disagree, MA = Moderately Agree, A =Agree, SA =Strongly Agree.

Effects of security concerns on adoption of mobile money payments technology

The findings on the various statements on the effect of security concerns on adoption of mobile money payments technology in the hospitality industry revealed that majority of the study respondents, 79% and mean 4.56, strongly agreed that confidentiality authentications affect the decision to adopt mobile technology with 20.2% moderately agreeing and only 0.8% of the study respondents strongly disagreeing that confidentiality

authentications affect the decision to adopt mobile technology. The relatively small standard deviation value of 0.87 indicates low variation in terms of responses on this statement. The results also revealed that majority of the study respondents, 99.2% strongly agreed that data integrity of the customers affect the decision to adopt mobile technology with a further 0.8% of the study respondents moderately agreeing and none of the respondents disagreed that data integrity of the customers affect the decision to adopt mobile

technology while the standard deviation value of 0.18 indicating low variation in responses on whether data integrity of the customers affect the decision to adopt mobile technology.

The findings of the study also revealed that majority of the study respondents, 66.1%, strongly agreed that anonymity of the customers details affect the decision to adopt mobile technology, 16.1% of the study respondents agreed with the statement and 5.6% of the respondents moderately agreed that anonymity of the customers details affect the decision to adopt mobile technology while Only 4.8% of the study respondents strongly agreed that anonymity of the customers details affect the decision to adopt mobile technology supported by a further 7.3% who disagreed with this statement. The standard deviation value of 1.16 indicates high variation in terms of responses on whether anonymity of the customers' details affect the decision to adopt mobile technology. Further, descriptive results revealed that majority of the study respondents, 40.3%, strongly agreed that privacy of the customers' details affect the decision to adopt mobile technology, 14.5% of the respondents agreed and 25% of the study respondents moderately agreed that privacy of the customers' details affect the decision to adopt mobile technology. Only 9.7% of the study respondents strongly disagreed that privacy of the customers' details affect the decision to adopt

mobile technology supported by a further 10.5% who also disagreed with the statement. The standard deviation value of 1.36 indicates high variation in terms of respondents' responses on the statement.

The results finally revealed that majority of the study respondents, 60.5%, agreed that non-repudiation properties of the technology affect the decision to adopt mobile technology, with a further 15.3% of the study respondents also strongly agreeing with the statement. Only 4.8% of the respondents strongly disagreed that non-repudiation properties of the technology affect the decision to adopt mobile technology supported by 0.8% who disagreed while those who moderately agreed that non-repudiation properties of the technology affect the decision to adopt mobile technology were 18.5%. On average therefore, majority of the study respondents, mean 4.26, agreed that security concerns affect adoption of mobile money payments technology with the relatively small standard deviation value of 0.88 indicating low variation in terms of responses regarding the effects of security concerns on adoption of mobile money payments technology. These findings are consistent with the argument by Sathye, (2012) that security concerns and lack of awareness about Internet banking and its benefits stand out as being the obstacles to the adoption of Internet banking in Australia.

Table 2: Security Concerns and Adoption of Mobile Money Payments Technology

Statement	SD	D	MA	A	SA	Mean	Std Dev
Confidentiality authentications affect the decision to adopt mobile technology	0.80%	0.00%	20.20%	0.00%	79.00%	4.56	0.87
Data integrity of the customers affect the decision to adopt mobile technology	0.00%	0.00%	0.80%	0.00%	99.20%	4.98	0.18
Anonymity of the customers details	4.80%	7.30%	5.60%	16.10%	66.10%		

affect the decision to adopt mobile technology						4.31	1.16
Privacy of the customers details affect the decision to adopt mobile technology	9.70%	10.50%	25.00%	14.50%	40.30%	3.65	1.36
Non-repudiation properties of the technology affect the decision to adopt mobile technology	4.80%	0.80%	18.50%	60.50%	15.30%	3.81	0.88
Average						4.26	0.89

Key: SD =Strongly Disagree, D =Disagree, MA = Moderately Agree, A =Agree, SA =Strongly Agree.

Correlation Analysis

The study conducted a correlation analysis to establish the association among the variables used in the study. According to Mugenda and Mugenda (2003), in order to establish the direction in one variable if another variable change, correlation analysis can be conducted. As for this study,

Pearson correlation coefficient was computed to determine the connection among the study variables. Accordingly, a positive Pearson correlation value indicates a positive correlation while a negative Pearson correlation value indicates negative correlation. The study results are as presented in Table 3.

Table 3: Correlation Analysis

Correlations		Cost concerns	Security concerns
Cost concerns	Pearson Correlation	1	
Security concerns	Pearson Correlation	.212*	1
Adoption of mobile payments technology	Pearson Correlation	.415**	.430**
	Sig. (2-tailed)	.000	.000
	N	59	59

*** Correlation is significant at the 0.05 level (2-tailed).**

It was established that a positive and significant relationship between cost concerns and adoption of mobile money payments technology in the hospitality industry in Kenya exists as shown by a Pearson correlation value of .415 and significance value less than 0.05. The implication of the result is that an improvement in various indicators of cost concerns such as reduction in initial investment costs, low intra-transaction costs and costs of servicing, low costs incurred to run the technology as well as reduced cost of complementary gadgets will improve adoption of mobile money payments technology in the hospitality industry within Juja

Sub-county. This finding is consistent with the argument of Masinge, (2011) that cost has a significant effect on the adoption of mobile platform on the Bottom of the Pyramid.

It was further determined that a positive and significant relationship between security concerns and adoption of mobile money payments technology in the hospitality industry in Kenya exists as shown by a Pearson correlation value of .430 and significance value less than 0.05. The implication of the result is that an improvement in security concerns such as confidentiality

authentications, integrity of data, anonymity of the customers' details, privacy of the customers' details and non-repudiation aspects of the technology will improve adoption of mobile money payments technology in the hospitality industry. This result is consistent with the argument of Sathye, (2012) that security concerns and lack of awareness about Internet banking and its benefits stand out as being the obstacles to the adoption of Internet banking in Australia.

Regression analysis

The study adopted the following regression model to establish the determinants of adoption of mobile money payments technology in the hospitality industry focusing in Juja sub-county:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon$$

Where; Y = Adoption of mobile money payments technology,

X1 = cost concerns, X2= security concerns. The summary of this model presented in Table 4

Table 4: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.732	.536	.525	.2904

The F statistic indicating the overall significance of the model is significant at 5% (Sig < 0.000). This showed that the model is significant. The F calculated statistic of 16.1478 > F (2, 56) critical value of 3.16186 confirming that the model was also significant.

Table 5: ANOVA (Model Significance)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	3.714	2	1.857	16.1478	.000
Residual	6.44	56	0.115		
Total	10.154	58			

Table 6 shows results that cost concerns is positively and significantly and thus it influences adoption of mobile money payments technology in the hospitality industry in Juja Sub-county (Beta = 0.285, Sig < 0.05). This implies that a unit increase in

showed that the two independent variables (cost concerns and security concerns) had a strong positive influence on adoption of mobile money payments technology in the hospitality industry as shown by a joint Pearson correlation of 0.732. This therefore shows that an improvement in cost concerns, security concerns will result to a strong positive improvement in the adoption of mobile money payments technology in the hospitality industry.

The coefficient of determination (R-square) was 0.536 implying that the two variables of cost concerns and security concerns had jointly accounted for up to 53.6% of the variation in adoption of mobile money payments technology in the hospitality industry in Juja Sub-county. And thus, the remaining of the variation in adoption of mobile money payments technology in the hospitality industry in Juja Sub-county is accounted for by other factors not covered in the model is 46.4%.

various indicators of cost concerns such as reduction in initial investment costs, low intra-transaction costs and costs of servicing, low costs incurred to run the technology as well as reduced cost of complementary gadgets will result to a

0.285 unit effect in adoption of mobile money payments technology in the hospitality industry in Juja Sub-county. The results are consistent with the argument of Masinge, (2011) that cost has a significant effect on the adoption of mobile platform on the Bottom of the Pyramid.

Security concerns are positively and significantly. It influences adoption of mobile money payments technology in the hospitality industry in Juja Sub-county (Beta = 0.286, Sig <0.05). This implies that an improvement in security concerns such as

confidentiality authentications, integrity of data, anonymity of the customers' details, privacy of the customers' details and non-repudiation aspects of the technology will lead to a 0.286 unit positive and significant improvement in adoption of mobile money payments technology in the hospitality industry in Juja Sub-county. Accordingly, the findings of the study are consistent with the argument by Sathye, (2012) that security concerns and lack of awareness about Internet banking and its benefits stand out as being the obstacles to the adoption of Internet banking.

Table 6: Regression Coefficients

	Unstandardized Coefficients		Standardized	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.372	0.472		2.907	0.004
Cost concerns	0.285	0.065	0.341	4.414	0.000
Security concerns	0.286	0.06	0.363	4.751	0.000

The optimal regression model is presented as

Adoption of mobile Money Payments Technology = 1.372 + 0.285 Cost concerns + 0.286 Security concerns. The most significant is the one with the highest t. Starting with the highest - Security concerns and cost concerns.

The study also concludes that improvement in security concerns such as confidentiality authentications, integrity of data, and anonymity of the customers' details, privacy of the customers' details and non-repudiation aspects of the technology leads to improvement in adoption of mobile money payments technology in the hospitality industry in Juja Sub-county.

CONCLUSION AND RECOMMENDATIONS

Conclusions

The study concluded that various indicators of cost concerns such as reduction in initial investment costs, low intra-transaction costs and costs of servicing, low costs incurred to run the technology as well as reduced cost of complementary gadgets leads to significant improvement in adoption of mobile money payments technology in the hospitality industry in Juja Sub-county.

Recommendations of the Study

Based on the conclusions derived, the study recommends that in order for the hospitality businesses in Juja Sub-county to improve adoption of mobile money payments technology, there is need for the hospitality businesses to focus on adopting mobile money payment platforms with low initial investment costs, low intra-transaction costs and costs of servicing, low costs incurred to run the technology as well as reduced cost of

complementary gadgets. This will enhance a high rate of adoption of mobile money payments technology within these businesses.

The study also recommends that in order for the hospitality businesses in Juja Sub-county to improve adoption of mobile money payments technology, there is need to ensure that security concerns of the payments technology such as confidentiality authentications, integrity of data, and anonymity of the customers' details, privacy of the customers' details and non-repudiation aspects of the technology.

Areas for Further Research

The current study focused on determinants of adoption of mobile money payments technology in the hospitality industry in Juja Sub-county with specific variables of cost concerns and security concerns. Another study can be conducted on the same factors determinants of adoption of mobile money payments technology in a different county in Kenya with different administrative settings for contextual comparison purposes.

REFERENCES

- Aker, J. C., & Mbiti, I. M. (2010). Mobile phones and economic development in Africa. *The Journal of Economic Perspectives*, 24(3), 207-232.
- Andrews. (2007). *Introduction to Tourism and Hospitality industry*. New York, USA: Tata McGraw Hill.
- Batiz-Lazo, B. & Woldesenbet, K. (2006). *The dynamics of product and process Management*. 1(4), 400-421.
- Bélanger, F., & Carter, L. (2013). Trust and risk in e-government adoption. *The Journal of Strategic Information Systems*, 17(2), 165-176.
- Chitungo, S. K., & Munongo, S. (2013). Extending the technology acceptance model to mobile banking adoption in rural Zimbabwe. *Journal of Business Administration and Education*, 3(1).
- Craig, N., N. Dehoratius, A. Raman. (2014). The Impact of Supplier Inventory Service Level on Retailer Demand in the Supply Chain for Functional Apparel Items. *Harvard Business School Working Paper No. 11-034*.
- Kazi, A. K., & Mannan, M. A. (2013). Factors affecting adoption of mobile banking in Pakistan: Empirical Evidence. *International Journal of Research in Business and Social Science*, 2(3), 54.
- Kim, C., Mirusmonov, M., & Lee, I. (2010). An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior*, 26(3), 310-322.
- Lease, D. R. (2011). *Factors influencing the adoption of biometric security technologies by decision making information technology and security managers* (Doctoral dissertation).
- Lee, S. G., Trimi, S., & Kim, C. (2013). The impact of cultural differences on technology adoption. *Journal of World Business*, 48(1), 20-29.

- Lule, I., Omwansa, T. K., & Waema, T. M. (2012). Application of Technology Acceptance Model (TAM) in M-Banking Adoption in Kenya. *International Journal of Computing & ICT Research*, 6(1).
- Lun, Y. V., Wong, C. W., Lai, K. H., & Cheng, T. C. E. (2010). Institutional perspective on the adoption of technology for the security enhancement of container transport. *Transport Reviews*, 28(1), 21-33.
- Macher, J., Miller, N. H., & Osborne, M. (2015). Competition and Technology Adoption.
- Makanyeza, C., & Makanyeza, C. (2017). Determinants of consumers' intention to adopt mobile banking services in Zimbabwe. *International Journal of Bank Marketing*, 35(6), 997-1017.
- Masinge, K. (2011). *Factors influencing the adoption of mobile banking services at the Bottom of the Pyramid in South Africa* (Doctoral dissertation).
- Masinge, K. (2011). *Factors influencing the adoption of mobile banking services at the Bottom of the Pyramid in South Africa* (Doctoral dissertation).
- Mbele-Sibotshiwe, T. (2014). *A study of the perceptions and adoption of Mobile Payment Platforms by entrepreneurs in Zimbabwe's informal economy* (Doctoral dissertation).
- Mbogo, M. (2010). The impact of mobile payments on the success and growth of micro-business: The case of M-Pesa in Kenya. *Journal of Language, Technology & Entrepreneurship in Africa*, 2(1), 182-203.
- Oduori, F. N., & Herbst, F. J. (2015). *New service development: strategy and process in the hospitality sector in Kenya* (Doctoral dissertation).
- Olasina, G. (2015). Factors Influencing the Use of M-Banking by Academics: Case Study Sms-Based M-Banking. *The African Journal of Information Systems*, 7(4), 4.
- Otieno, R. O. (2016). *Factors influencing the adoption of agency banking by KCB bank Kenya limited* (Doctoral Dissertation, School of Business in partial fulfillment of the requirements for the award of a degree of Master of Business Administration, university of Nairobi).
- Republic of Kenya. (2010). *Vision 2030. Nairobi: Government Printer.*
- Sathye, M. (2012). Adoption of Internet banking by Australian consumers: an empirical investigation. *International Journal of bank marketing*, 17(7), 324-334.
- Shin, D. H. (2012). The effects of trust, security and privacy in social networking: A security-based approach to understand the pattern of adoption. *Interacting with computers*, 22(5), 428-438.
- Sloans, E. D. (2003). Financial innovation and monetary policy. Excerpts of speech delivered at the 38th SEACEN Governors Conference and 22nd Meeting of the SEACEN Board of Governors on "*Structural Change and Growth Prospects in Asia –Challenges to Central Banking*",