

ASSESSMENT OF CRITICAL SUCCESS FACTORS OF MOBILE BANKING INNOVATIONS AT COMMERCIAL BANK OF AFRICA AND EQUITY BANK IN KENYA

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ABSTRACT

Mobile banking is beneficial to both banks and customers. It has potential in reducing the banks' overheads and transaction-related costs. Commercial Bank of Africa (CBA) and Equity bank have emerged as frontrunners in mobile banking in Kenya - achieving huge growth in mobile customer base, mobile loan portfolio, and mobile savings. However, most of the other commercial banks in Kenya have recorded mixed results. Therefore, the purpose of this study was to assess the critical success factors of mobile banking innovations by evaluating the implementation done in the Commercial Bank of Africa and Equity Bank in Kenya. The study was guided by the following specific objectives; to examine the relative advantage of mobile banking application platform in Kenya, to determine the customer service support for the mobile banking innovations platforms in Kenya, to establish the level of observability of the mobile banking innovation of CBA and Equity commercial banks in Kenya and to investigate the extent personal factors affect other critical success factors on the success of mobile money innovation. Data was collected from a sample of 99 banking customers selected from Kenya's number one groceries market called *Marikiti* market in Nairobi where such informal traders are the main target of such mobile banking innovations. The research design was descriptive cross-sectional research design. Data was collected using self-administered questionnaires through the drop and pick method. The findings were: only relative advantage had significant effect on performance of a mobile banking innovation ($p=0.030$) and R^2 0.353. However, the all the independent variables has significant correlation with the dependent variable ($p<0.01$) such that an increase in technological observability was correlated with an increase in performance of mobile banking innovation and a decrease in Customer Service Support level demand had a correlation with increase in mobile banking innovation performance. Therefore the study recommends that banks need not only enhance the relative advantage of each mobile innovation but they should pay attention to their technological observability and any marked demand for customer service for these were indicators of the performance of the mobile bank innovation.

Keywords: *mobile bank innovations, relative advantage, customer service support, technological observability*

1.1 Introduction

The banking industry in Kenya has involved itself in automation, moving from traditional banking to better meet the growing complex needs of its customer and globalization challenges (Schubert, 2015). In the recent past, there has been increased competition from local banks as well as international banks, some of which are new players in the country. This has served the Kenyan economy as well as the customers and shareholders are the ones who have benefited the most (CBK, 2011). The banking industry has lately been faced by numerous challenges affecting their delivery of financial services to its customers and upcoming markets (Schubert, 2015). One of the key challenges is the increase in competition from telecommunication companies. The Telecommunication companies in Kenya include Safaricom, Airtel, and Orange. These mobile companies have greatly impacted the financial sector in Kenya taking up a large customer base of the Kenyan citizens leading to perceived revenue loss to banks.

The last decade has seen an explosion in the use of mobile phones. Towards the end of 2015, there were 7.6 billion mobile connections, representing an estimated 4.6 billion mobile subscribers worldwide. Rapidly increasing share of mobile connections are smart phones, with 3.3 billion in 2015, growing to a projected 5.7 billion in 2020 (Naghavi & Shulist, 2016). Much as the savings accounts has been available since the 14th century, the explosive growth in mobile phones stands in stark contrast to the slower diffusion of formal financial services. In 2014 only 3.2 billion adults globally held savings account. The rapid, early success of M-Pesa in Kenya led some to predict that low-cost, digital financial services would quickly spread throughout the developed and developing world. M-PESA managed to get a one million active mobile money accounts in 2008, (Naghavi & Shulist, 2016) although it took a further three years for a second service to reach the one million active accounts mark. In recent years, this has changed since 2012, the growth of mobile money has increased substantially, and by the end of 2015, 17 services had surpassed one million active accounts on a 30-day basis. In 3 months over 30 services had passed one million active accounts, and five services had more than five million active accounts. The industry growth in mobile financial services coupled with greater availability of mobile money data in recent years, has created more avenues to explore some of the patterns in this success.

1.1.1 Commercial Bank of Africa's M-Shwari

Commercial Bank of Africa (CBA) and Safaricom have constantly invested in a mutual and trusting relationship, which in 2007, lead to M-Pesa and now M-Shwari. CBA being a stable and respected financial services brand that has constantly used technology to develop valued propositions to meet the specific needs of her customers. Safaricom on the other hand is a trusted brand and indeed partner to millions of Kenyans in their everyday lives. It is against this backdrop that the two companies found value in partnering to create a solution which will change the way Kenya and rest of the world interfaces with the wider public to deliver financial solutions. M-Shwari gives CBA the platform to offer a much desired service to all market segments through mobile centric banking services.

M-Shwari was launched in January 2013 and by the end of 2014 it boasted 9.2 million savings accounts (representing 7.2 million individual customers) and had disbursed 20.6 million in loans to 2.8 million borrowers. In 2013, only 19% of M-Shwari users were below the national poverty line; this had increased to 30% by the end of 2014. It can be expected that the proportion of poorer

users will grow over time, as usage amongst higher income groups approaches saturation (FSD Africa, 2016).

M-Shwari, coined from a Swahili word that means smoothen or make something better or good, is a revolutionary product set to change the lives of millions of Kenyans. M-Shwari is a product of the partnership between CBA and Safaricom. The "M" signifies mobile centric as this product is operated entirely from your mobile phone. All that is needed is a handset and a registered customer on M-PESA, thus there are no forms or additional documents required for a customer to sign up to M-Shwari (CBA, 2018). M-Shwari intends to deepen and diversify the consumption and income benefits of M-Pesa by providing clients with a facility to save and by offering credit beyond a user's networks of family and friends. Surveys carried out by M-Shwari users affirm that they mainly save and borrow to manage fluctuations in their cash flow and to cope with unexpected needs (FSD Africa, 2016).

M-Shwari is a suite of banking products that are offered to M-PESA customers via their handset to enhance the M-PESA value proposition. With M-Shwari, one has access to Deposit and Loan products that are convenient, reliable and cost-effective for making micro-savings and taking micro-loans. As at March 2017, registered customers of the M-Shwari platform stood at 18.33 million compared to 13.99 million in the same period last year 2016 (NGUGI, 2017).

1.1.2 Equity Bank's Equitel Mobile Banking

Equitel is a new revolutionary mobile platform that helps the customer manage their money and communicate with more Freedom, Choice, and Control (Alex Muhia, 2015). Equity Bank Group launched Equitel in July 2015, a new mobile payment and banking platform for its customers – that officially brings to the fore the convergence between mobile and banking services in Kenya.

The Bank has hailed its newest innovation as the answer to promoting greater access to banking services which currently stands at 53 percent of the Kenyan population. Equitel provides tools and features that aid the customer to perform all financial transactions as well as make calls, send SMS and browse the internet. Equitel brings to the fore the convergence between mobile and banking services.

Equitel unveils the Equity Thin SIM that converts all single SIM phones into dual SIM phones, enabling millions to access two telecom service providers bringing the choice of service and products for the first time.

1.2 Statement of the problem

In Kenya, the major mobile service operator – Safaricom Limited enjoys the most popular mobile money transfer service called Mpesa and it has been a great success since its launch in 2007. While marking their tenth anniversary in March 2017 (Joseph, 2017), Mpesa was serving nearly 30 million customers through 287,400 agents across 10 countries. Due to its phenomenal growth over the years it has caused unprecedented disruption in the way banks operate by invading banking customers' service lines and the unbanked potential customers (CBK, 2011). A recent control by Central Bank of Kenya (CBK) that capped interest rates of commercial loans in the amendment Act 25 of 2016 (Republic of Kenya, 2016) also lead to the reduction of profits for the traditional banks in Kenya. Banks have considered restructuring different austerity measures and innovations to counter this new legislation. Banks are leveraging on ICT especially the mobile banking platform to enhance their competitiveness against established Telecommunication companies who

owned the existing mobile money transfer platforms such as Mpesa. In view of this, banks responded by launching their own joint mobile banking service called Pesalink and even some banks investing in their own mobile money service such as Equitel by Equity Bank, while others such as Commercial Bank of Africa partnering with Safaricom to come up a complete mobile banking platform known as Mshwari.

Factors behind this success cases on mobile banking innovations by Commercial bank of Africa and Equity bank have not been investigated. Researchers in other countries have found that effectiveness of ICT usage in banks in Nigeria (Naghavi & Shulist, 2016) and perceptions of banks using ICT in Botswana have contributed to success in the new innovations (Maradung, 2013). Therefore, this study seeks to establish the critical success factors necessary for the success of the commercial banks' mobile money innovations in Kenya using a case study of Commercial Bank of Africa (CBA) and Equity bank which have been frontrunners in mobile banking innovations in Kenya.

1.3 Objectives of the study

The main objective of the study is to investigate on entrepreneurial viability of indigenous The research objectives for the study have been divided into the general objective and the specific objectives of the study.

1.3.1 General objective

The main objective of the study was to investigate the critical success factors of commercial banks mobile money innovations in Kenya.

1.3.2 Specific objectives

To examine the relative advantage of mobile banking application platform in Kenya.

To determine the customer service support for the mobile banking innovations platforms in Kenya.

To establish the level of observability of the mobile banking innovation of CBA and Equity commercial banks in Kenya.

To evaluate the extent personal factors affect other critical success factors on the success of mobile money innovation.

1.4 Research question

1. What relative advantage do mobile banking applications have over the traditional banking in Kenya?
2. How is the customer service support for the mobile banking innovations platforms in Kenya?
3. What is the level of innovation observability in mobile banking innovation for CBA and equity commercial banks in Kenya?
4. To what extent are personal factors influencing the other critical success factors on the success of mobile money innovation?

2.1 Literature review

The key focus on governance is important in financial services and especially in the banking sector since this sector has lately become highly exposed to public scrutiny. As a result, the financial sector has lesson learnt in the risk of attracting adverse publicity through failings in governance and risk management strategies.

2.2 Theoretical Review

A theory is a logical statement or a set of statements meant to explain some phenomena and is usually accompanied by evidence. This theoretical framework consists of a review of three theories that provide insight on innovation and uptake of new technologies. These theories include the Rogers' diffusion theory, Technology Acceptance Model and Unified Theory of acceptance and use of technology.

2.2.1 Rogers' diffusion theory

The roots of these ubiquitous innovators and early adopter concepts lie in diffusion theory, of which Everett Rogers is considered to be the founding father. The central assumption of the theory is that the penetration or diffusion of technology innovations follows a normal bell-shaped distribution pattern. In this diffusion pattern, the theory distinguishes between five adopter segments, for which the theory holds to fixed assumptions on their size, profiles and adoption determinants. According to Rogers (2003), innovativeness or the timing of one's adoption decision is assumed to be determined by the subjective perception of a set of product features (relative advantage, complexity, compatibility, trialability, and observability).

Innovators and early adopters, for example, are assumed to have a higher perception of a relative advantage than the majority segments and a lower complexity perception. The aggregation of adoption decisions for all individuals in a social system is assumed to result in a normal distributed diffusion pattern, in which innovators (2.5%), early adopters (13.5%), early majority (34%), late majority (34%) and laggards (16%) are distinguished. Aggregated cumulatively, diffusion is reflected in an S-shaped penetration pattern.

2.2.2 Technology Acceptance Model (TAM)

Technology Acceptance Model (Davis, 1989) was the first model to mention psychological factors affecting technology acceptance and it was developed from the Theory of Reasoned Action (TRA) by Davis. Davis developed and validated better measures through TAM for predicting and explaining technology use. (Journal, 2014) Davis presented a theoretical model aiming to predict and explain ICT usage behaviour, that is, what causes potential adopters to accept or reject the use of information technology. Theoretically, TAM is based on the Theory of Reasoned Action (TRA). In TAM, two theoretical constructs, perceived usefulness and perceived ease of use, are the fundamental determinants of system use and predict attitudes toward the use of the system, that is, the user's willingness to use the system. Perceived usefulness refers to "the degree to which a person believes that using a particular system would enhance his or her job performance", and perceived ease of use refers to "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989).

In these articles TAM was used in three different ways, namely to compare different adoption models, develop extensions of TAM, or replicate the model. For example, (Davis, 1989) empirically compared the ability of TRA and TAM to predict and explain the acceptance and rejection by users of the voluntary usage of computer-based technology; (Venkatesh V. M., 2003) developed and tested a theoretical extension of TAM, referred to as TAM2, which

explains perceived usefulness and usage intentions with the help of social influence and cognitive instrumental processes, and Adams et al., (1992) replicated Davis study.

2.2.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

(Venkatesh V. M., 2003) Studied from the previous models/theories and formed Unified Theory of Acceptance and Use of Technology (UTAUT) shown in the figure below. The UTAUT has four predictors of users' behavioural intention and there is performance expectancy, effort expectancy, social influence and facilitating conditions. The five similar constructs including perceived usefulness, extrinsic motivation, job-fit, relative advantage, and outcome expectations form the performance expectancy in the UTAUT model while effort expectancy captures the notions of perceived ease of use and complexity. As for the social context, (Venkatesh V. M., 2003) validation tests found that social influence was not significant involuntary contexts.

2.3 Empirical review

In a research carried out in Botswana on the factors affecting the adoption of mobile money services in the banking and financial industries of Botswana in the light of the Technology Acceptance Model (TAM) (Maradung, 2013), the study has therefore shown that, despite the lower penetration and absorption of mobile banking services in Botswana, indicators are that mobile banking is increasingly being adopted in Botswana especially by males, employed individuals, and the youth. (Maradung, 2013). In his study, it depicted that mobile banking has the potential to improve access to financial and banking services in Botswana. Nevertheless, the aspect of critical success factors for mobile money innovations was not tackled and the researcher intends to cover in this study.

Al-Jabri (2012) studied mobile banking adoption by looking at the application of diffusion of innovation theory. This study sought to explore a set of technical attributes and how they influence mobile banking adoption in a developing nation, like Saudi Arabia. The study used diffusion of innovation as a base-line theory to investigate factors that may influence mobile banking adoption and use. More precisely, the objective of this research was to examine the potential facilitators and inhibitors of mobile banking adoption. The study was guided by six hypotheses including relative advantage having a positive effect on mobile banking adoption; Complexity having a negative effect on mobile banking adoption; Compatibility having a positive effect on mobile banking adoption; Observability having a positive effect on mobile banking adoption; Trialability having a positive effect on mobile banking adoption; and perceived risk having a negative effect on mobile banking adoption. The discoveries indicate that banks, in Saudi Arabia, should offer mobile banking services that are compatible with various current user requirements, past experiences, lifestyle and beliefs in order to fulfil customer expectations.

Locally, various studies have been conducted on mobile banking. (Wambari, 2009) studied mobile banking in developing countries using the case of Kenya. The study sought to establish the importance of mobile banking in the day to day running of small businesses in Kenya and to understand the challenges involved in using m-banking as a business tool and appreciate the advantages and disadvantages therein. The study too elaborated that the adoption and use of

mobile phones is a product of the social process, embedded in social practices such as SMEs practices which leads to some economic benefits. This research will look into the importance of mobile banking to commercial banks in Kenya. Munaye (2009) studied the application of mobile banking as a strategic response by Equity bank Kenya limited to the challenge in the external environment. Munaye (2009) reviewed the concept of mobile banking as a strategic response where its effects on financial performance were not considered.

Kigen (2010) studied the impact of mobile banking on transaction costs of microfinance institutions where he found out that by then, mobile banking had reduced transaction costs considerably though they were not directly felt by banks because of the then small mobile banking customer base. He sought to determine the impact that mobile banking had on transaction costs of microfinance institutions as a way of measuring levels of competitiveness on microfinance institutions who had adopted mobile banking whereas this study is set to determine the impact of mobile banking on the competitiveness of Commercial Banks. Kingoo (2011) studied the relationship between electronic banking and the financial performance of commercial banks in Kenya. He paid key attention to the microfinance institutions in Nairobi and looked at the wider electronic banking. This study focused on the profitability variable of mobile banking on microfinance institutions while this study will only concentrate on mobile banking on commercial banks in Kenya.

2.3 Conceptual framework

A conceptual framework is defined as an element concerning the scientific researching process; whereby a specified concept is described equivalently as a measurable event or in measurable terms that basically gives a clear meaning of the concept. According to Mugenda and Mugenda (2003) conceptual framework is a diagrammatic presentation of the relationship between dependent and independent variables. Based on the reviewed theories and empirical framework, the study proposes the use of the Unified Theory of Acceptance and Use of Technology (UTAUT) model. In this study, the independent variables are Relative advantage of the innovation, customer service support for the mobile banking innovation platforms and technological observability, while the intervening variable is the personal factors while the level of success of mobile banking innovations is the dependent variable.

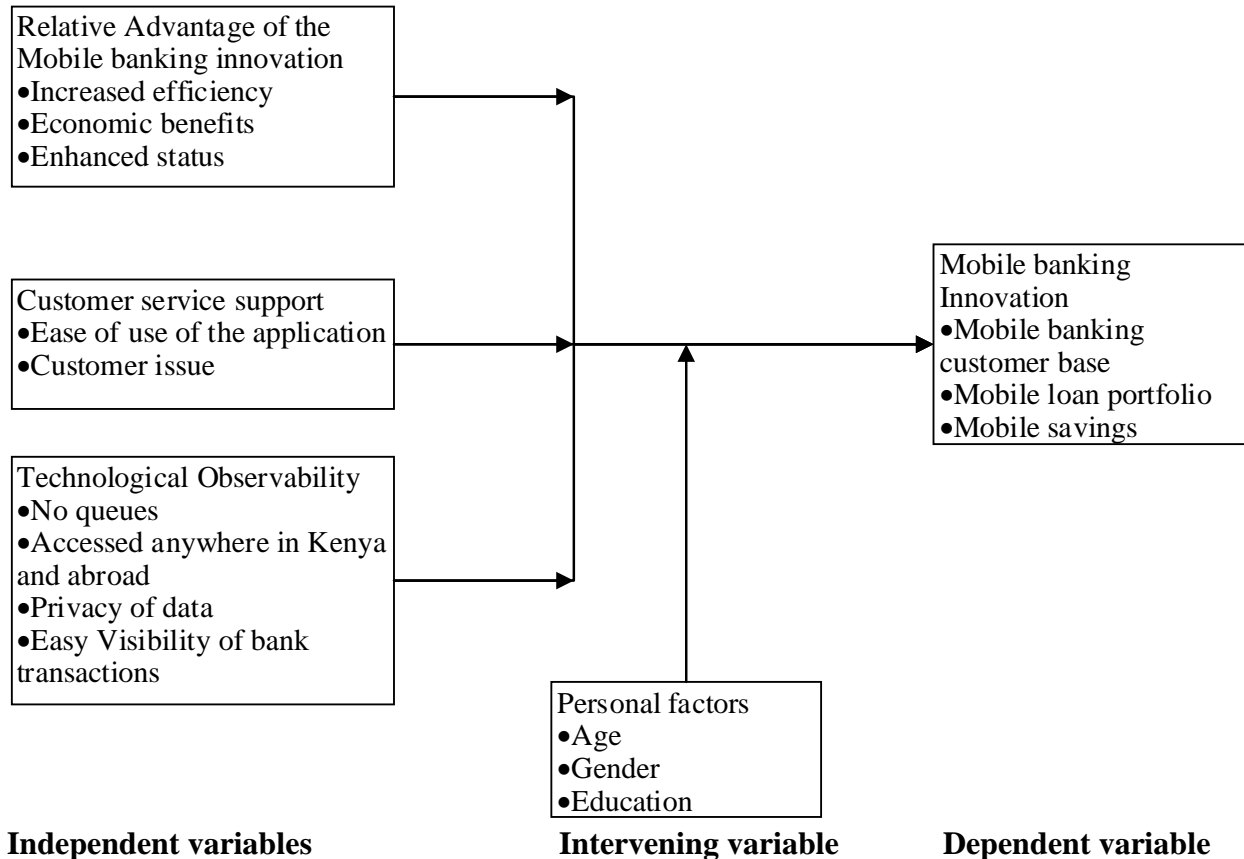


Figure 1: Conceptual framework

3.1 Research methodology

Descriptive cross-sectional study design was used in this research. Descriptive research designs help provide answers to the questions of who, what, when, where, and how associated with a particular research problem. Descriptive research is used to obtain information concerning the current status of the phenomena and to describe "what exists" with respect to variables or conditions in a situation (Mugenda, 2003). The study aimed at collecting information from the respondent in relation to their uptake and usage of mobile money innovations in CBA M-Shwari and Equity banks' Equitel. The research was conducted using a quantitative method. Data was gathered through interviewer administering questionnaires.

3.2 Target population

Ngechu (2004) defined a population as a well-defined or set of people, services, elements, and events, group of things or households that are being investigated. The Kenyan Banking sector is highly fragmented. The target population for this study was the mobile banking customers from the informal sector. This was deliberately taken because they are the major beneficiary of the mobile banking innovation platforms in Kenya and their specific need to be able to access self-service mobile banking products and services. This has shaped the way the mobile banking platforms that is Mshwari and Equitel to have a wide network of customers across the country and hence many people are either aware of them or bank with them.

3.3 Sampling technique and sample size

The primary data was obtained by use of semi-structured questionnaires from 99 respondents of a food market in Nairobi called *Marikiti* market. The City Council of Nairobi put the number of traders who passed through Marikiti every day at 10,000 (Mumo, 2011). The sample population was selected as most appropriate because most of the respondents were from the informal sector who tended to prefer mobile banking for many varied reasons.

3.4 Data collection instruments

The primary data was collected using appropriate research instruments mainly through the administration of semi-structured questionnaires and structured interviews to the respondents from the banking customers in the agreed sample above. Each set had its own unique questionnaires with different questions with the main aim of obtaining maximum and pertinent data for analysis.

4. Data analysis, presentations and discussions

This study aimed at using both quantitative and qualitative approaches for data analysis. Mugenda and Mugenda (2003) assert that data obtained from the field in raw form is difficult to interpret unless it is cleaned, coded and analyzed. The qualitative analysis consists of examining, categorizing, tabulating and recombining pieces of evidence to address the research questions. Qualitative data was grouped into meaningful patterns and themes and observed to help in the summarizing and organization of the data. Quantitative data was analyzed using descriptive statistics such as means, standard deviation, and frequencies whereas qualitative data was analyzed using correlation and regression analysis. For variables under investigation, the following model was used to explain the relationship between the critical success factors variables and the dependent variable (Mobile Bank Innovations)

$$Y = \beta_0 + \beta_1\chi_1 + \beta_2\chi_2 + \beta_3\chi_3 + \beta_4\chi_4 + \varepsilon$$

Y= is the dependent variable (Mobile Bank Innovations)

β_0 = constant of the model

x_1 = Relative advantage of a mobile banking application.

x_2 = Customer service support for the mobile banking application

χ_3 = Level of observability of mobile banking innovation

χ_4 = Personal factors

e =error term

4.1 Findings, results, presentation and discussion

Data was collected at Marikiti market, Nairobi. A total of 99 questionnaires were issued out of which 75 were returned, only 66 were completed adequately for analysis. The response rate was 75.7%.

Majority 88.0%, (n=66) of the respondents used mobile banking platform, few 12.0%, (n=9) didn't use mobile banking platform. They included the following: Mpesa, Mshwari, Coop, Easy pay, CBA loop, Equitel, M Sacco, Fosa. Those who didn't use mobile banking platform stated because it was expensive preferred counter service and convenience & accessibility.

Table 4. 1: Use mobile banking platform

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	56	84.8	87.5	87.5
	No	6	9.1	9.4	96.9
	3.00	2	3.0	3.1	100.0
	Total	64	97.0	100.0	
Missing	55.00	2	3.0		
Total		66	100.0		

4.2 Correlation of the study variables

The findings were presented in Table 4.2. The table shows that all the independent variables had statistically significant ($p < .01$) correlation with the dependent variable (Mobile banking innovation), and the Pearson correlation coefficient was positive except for Customer Service Support, which was negative – meaning that Customer Service Support reduced as bank mobile innovation increased. This implies that where the mobile bank innovation recorded high customer base outcome, higher loan portfolio and higher mobile savings, the Customer Service Support was lower. So when the customer service support is too high it may correlate with lower performance in bank mobile innovation.

Table 4. 2: Correlation between the variables

		Bank Mobile Innovation Level	Relative Advantage	Customer Service Support	Technological Observability
Bank Mobile Innovation Level	Pearson Correlation Sig. (2-tailed) N	1 64			
Relative Advantage	Pearson Correlation Sig. (2-tailed) N	.549 .001 62	1 60		
Customer Service Support	Pearson Correlation Sig. (2-tailed) N	-.580 .001 62	-.538 .002 60	1 62	
Technological Observability	Pearson Correlation Sig. (2-tailed) N	.466 .008 62	.561 .001 62	-.540 .002 60	1 62

4.3 Multiple Linear Regression Analysis

A regression analysis between the Independent Variables (relative advantage of mobile banking, customer service support, technological observability) and the Dependent Variables (mobile banking innovation) was carried out and the findings were presented in Table 4.3.

Table 4. 3: Regression of Independent Variables and the Dependent Variable

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.466	.880		1.665	.108
Relative Advantage	.321	.140	.466	2.294	.030
Customer Service Support	.117	.151	.155	.779	.443
Technological Observability	.242	.170	.290	1.424	.166

The results in Table 4.12 above indicate that only Relative Advantage was significantly affecting Mobile Banking Innovation $p=0.030$ and $\beta=0.321$. Therefore, Mobile Banking Innovation could

be explained by its Relative Advantage and the other two independent variables were not significant.

$$\text{mobile banking innovation (Y)} = 1.466 + 0.321X_1$$

4.1 Conclusion

The relative advantage of mobile banking application was the only factor that had statistically significant regression with the dependent variable. The coefficient was positive and the regression analysis revealed that R² was 0.353 implying that 35.3% of the total variability in the dependent variables could be explained by the relative advantage of the mobile banking application. This means it is very important for banks to ensure that their mobile banking innovations deliver significant relative advantage to their customers through delivering increased efficiency, economic benefits, and enhanced status for the customers. They should also know that increased customer service support demand with an innovation could be an indicator that the mobile innovation is not performing well with the customers. However, the more the technological observability of a mobile banking application the better for the mobile bank innovation.

6.1 Recommendations and Areas for further study

The study therefore recommends that banks in Kenya going into mobile bank innovations must ensure relative advantage of the application and enhance technological observability of the apps. However, they should also pay a keen eye on the customer service demand elicited by the innovation and respond to improving the innovation if they note too surge in Customer Service Support demand for the innovation. To the regulator, the study recommends that mobile banking innovations should be supported since customers were reporting greater satisfaction and less bank visits for regular banking services. To the academia the study recommends further study with additional factors or other factors for evaluation since this model succeeded in explaining only 35.3% level effect of the reviewed independent variables on the independent variable of mobile banking innovation.

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