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Effect of Mobile Bank Service Efficiency and Cost of System Failures on Financial Performance of Commercial Banks in Kenya
(A Case Study of a Commercial Bank in Embu County)

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Abstract

Financial institutions in Kenya are in the process of significant transformation. The force behind the transformation of these institutions is innovation in information technology, rapid development of information technology has made banking tasks more efficient and cheaper. Banks are now increasingly choosing mobile platforms for innovative payment models and commerce capabilities. The general objective of the study was to analyze the effect of mobile banking innovation on the financial performance of Commercial Banks in Kenya. The specific objective was to establish How system failures associated with the adoption of mobile banking impact the financial performance of Commercial Banks in Embu County and How efficiency of services affect the financial performance of Commercial Banks in Embu County.

This study adopted descriptive research design. Target population was a total of 120 respondents from a commercial bank of study in Embu. Stratified random sampling method was used to pick a sample size of 36 respondents. The study collected both primary and secondary data. Primary data was collected using questionnaires. Secondary data was collected from annual reports of the bank. The collected data was analyzed using descriptive statistic especially frequency and percentage presentation. The findings were presented using Graphs and Frequency Distribution Tables. The findings established that frequent power outages, poor network coverage and system overload influence the profitability and creation of shareholder wealth of their bank moderately. This study established further that for operational efficiencies and to realize the full growth potential, banks will need to integrate their existing bank platforms-including core banking, customer relationship management, and payment hubs-with mobile banking solutions. Banks will also need to manage a multitude of partners, such as telecommunication providers, social media outlets, data analytics providers, retailers, payment networks, mobile device manufacturers, and many other stakeholders in order to realize successes in commercial banks in Kenya

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Key Words: Automatic Teller Machine, Central Bank of Kenya, Information Communication and Technology, Kenya Bankers Associations, Short Message Service, Technology Acceptance Model, Wide Area Network and Personal Identification Number .

INTRODUCTION

Mobile networks in Kenya offer mobile-money services in the name of M-pesa by safaricom Ltd, Orange money by Orange Company, Yu- cash by Esser and Airtel Money by Airtel Company. In Kenya, mobile money market registered customers are about 15 million users transferring Kenya shillings two billion daily from above service providers. Mobile-Money providers have partnered with several commercial banks to offer mobile based financial products that are aimed to reach the unbanked Kenyan citizens in all 47 counties in Kenya.

Banks are among the most important financial institutions in the economy. They are the principal sources of credit for millions of individuals and families and for many units of governments (schools, districts, cities, counties) among others. Moreover, for small local businesses ranging from grocery stores to automobile dealers, banks are often the major source of credit to stock their shelves with merchandise to fill a dealer's showroom with new cars. When businesses and customers make payments for purchase of goods and services, more often than not they use bank-provided cheques, credit or debit cards or electronic accounts connected to a computer network like, M-Pesa of Safaricom or Airtel- Money by Airtel Company in Kenya. When these customers need financial information and financial planning, it is the banker whom they turn most frequently for advice and counsel (Rose, 2002).

The Banking industry in Kenya is governed by the Banking Act, the Central Bank of Kenya Act and the various prudential guidelines issued by the Central Bank of Kenya (CBK, 2013).The banking sector was liberalized in 1995 when exchange controls lifted. The CBK, which falls under the Cabinet Secretary for National Treasury docket, is responsible for formulating and implementing monetary policy and fostering the liquidity, solvency and proper functioning of the financial system. The

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banks have come together under the Kenya Bankers Association (KBA), which serves as a lobby for the banking sector's interest's .The KBA serves a forum to address issues affecting members (Price Water House Coopers, 2013).

According to CBK, (2013), Kenyan banks have continued to embrace new technology innovation to improve service delivery. A considerable number of banks have adopted the use of mobile phone technology as a service delivery channel to enhance convenience to their customers. In this regard, a number of new products that leverage on ICT, in particular mobile phone telephony were introduced by several institutions (CBK, 2013).

Financial performance refers to how adequately a financial firm meets the needs of its shareholders (owners), employees, depositors and other creditors and borrowing customers. At the same time, commercial banks must find a way to keep government regulators satisfied that their operating policies, loans and investments are sound, protecting the public interest. The success or failure of these institutions in meeting the expectations of others is usually revealed by a careful study of the financial statements of the bank (Rose et al, 2008). The significant changes that have occurred in the financial sector have increased the importance of performance analysis for modern banks. The new banking environment is characterized by intense competition and a movement towards increasingly market oriented banking systems. In many countries, the widespread privatization of process has led to the effect of weakening political interference in bank management while the objective of shareholder's wealth maximization is now a priority (Koch & Macdonald, 2005).

Statement of the Problem

In the recent past, Kenya financial market has witnessed a lot of transaction due financial innovation in mobile banking in Kenya, which has also seen intense competition in the banking sector. This has resulted in an increase uptake of the mobile banking services by both private and public financial institutions and banks. Today, banks in Kenya have adopted wireless and mobile technology into their

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boardrooms to offer their customers the freedom to pay bills, assist customers plan their payments at their convenience, to receive updates on the various marketing, and provide more personal and intimate relationships (Ongwenyi, 2012). This uptake of the service comes along with several financial costs, challenges and risks on the part of service providers as well as customers. The rush by commercial banks and other players in the financial and communications industry has created a paradigm shift in the operations and financial performance of these players immensely (Ongwenyi, 2012). According to Gatere (2014), the symptoms of these changes are obvious as indicated by new products and new production processes. The cost of system failures and lack of efficiency of the new service requires immense financial resources, both physical infrastructures, Human resources, and other resources required for the successful implementation of the mobile banking services.

Thus need for this study to empirically identify and analyse the effects of mobile banking system failures and efficiecny on the financial performance of commercial Banks in Kenya.

Research Objectives

The general objective of the study was to establish the effect of mobile banking innovation on the financial performance of Commercial Banks in Kenya.

The specific objectives were

i. To establish how system failures associated with mobile banking innovation affects the financial performance of commercial Banks in Embu County, Kenya.
ii. To establish how efficiency of innovation services affect the financial performance of of commercial Banks in Embu County, Kenya.

Research Questions

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i. How does system failures associated with the adoption of mobile banking impact the financial performance of commercial Banks in Embu County, Kenya?

ii. How does efficiency of services affect the financial performance of commercial Banks in Embu County, Kenya?

Theoretical Literature Review

This section brings out theory anchoring the study, which is the Theory of Information Production and Contemporary banking and the liquidity preference theory.

Theory of Information Production and Contemporary Banking

Diamond (2014) suggested that economic agents may find it worthwhile to produce information about possible investment opportunities if this information is not for free for instance surplus units could incur substantial search costs if they were to seek out borrowers directly. Banks enjoy economies of scale and have expertise in processing information related to deficit units (borrowers). They may obtain information upon first contact with borrowers but in real sense it's more likely to be learned over time through repeated dealings with the borrower.

Rogers (2011), identified five critical attributes that greatly influence the rate adoption. These include relative advantage, compatibility, complexity, triability and observability. If an organization observes the benefits of mobile and internet banking, they will adopt these innovations faster and have internet access and information technology departments than organizations without. Rose (2014), further noted that the most important innovation on mobile banking in financial dimensions for any banks are profitability and risk. The objective of maximizing profitability requires an institution to be continuously on the look-out for new opportunities for further revenue growth, greater efficiency and effective planning control.

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Liquidity Preference Theory

The liquidity preference theory was formulated by Keynes (1971). The theory suggests that liquidity preference entails the degree to which individuals prefer cash over less liquid assets. It basically entails individuals` ease of holding cash. The theory suggests that, holding all other things equal, investors actually prefer liquid investments in comparison to illiquid ones. Investors prefer cash as it results to a resultant demand in premiums after they fortify their cash by adopting illiquid investments (Choudhry, 2011). Liquidity is cash money whereas liquidity preference is people liking for cash money. Therefore, attraction to mobile banking supports the liquidity preference theory since customers can easily access their finances through mobile banking platforms.

Empirical Literature Review

Mobile Banking related System Failures and Financial Performance

The adoption of mobile banking platforms is not a smooth ride as indicated by previous studies undertaken. According to Mbogo (2010), a majority of mobile banking users are low and average income earners. These categories also happen to hold high percentage of people without bank accounts. He also observed that users perceive mobile banking as a service that completely substitutes bank accounts. This may in a way deny banks an opportunity to offer banking services to such customers. Mbogo (2010) further observed the concentration of mobile banking usage in urban areas. Universal access in rural areas is faced with numerous challenges including how to manage the float (cash) in light of prospected demand. He further observed that access is a serious issue of concern in some other underdeveloped regions where network signals are extremely sparse. This is a result of operator's tendency to focus mainly on the densely populated economic zones.

According to a study conducted by Pelowski (2010), he observed that system failures were among the key challenges that mobile phone banking faced. This was a result of poor network coverage, frequent power outages and systems overloads. A study by Luarna (2005), highlighted the challenges of mobile banking regulation. The study

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indicated that although mobile money is critical to economic development, the increase in usage in areas that was vulnerable to money laundering and terrorist financing was worrying. The further observed that the presence of regulation reinforced mobile banking, though it emphasized that regulators were uncertain about how best to regulate mobile banking for financial integrity. Luarma (2005), further explained that as more countries draft mobile banking regulations, operational guidance on optimal means to develop effective anti-money laundering and combating the financial terrorism regulatory framework for mobile banking was proving to be insufficient and incomplete. CBK (2003), observed that the integrity of mobile banking goes beyond the know your customers obligations, customer due diligence, and is a challenging aspect of financial integrity controls and even more so for mobile money.

The expansion of mobile money is dependent on the way money laundering and financial terrorism risk assessments are undertaken, the way suspicious transactions are reported, the way record keeping requirements are designed and the way outsourcing agency relationships are defined and regulated. Any disconnect between these aspects may influence the direction .of banking transactions. This could be either the level of trust the customers develop on mobile banking as well as potential losses that banks may incur as a result of risk of risks associated with mobile banking that are not catered for.

Efficiency of innovation on Mobile Banking Services and Financial Performance

According to Graham (2011), mobile banking, (also known as m-banking and sms-banking) is a term used for performing balance checks, account transactions and payments via mobile devices such as mobile phones. Mobile banking today is most often performed via SMS or mobile internet, but can also be used by special programs called clients downloaded to the mobile devise.

As a result of mobile banking technology, a wide spectrum of mobile banking business models have evolved. Among such business models include; bank-led model, non-bank led model and mobile banking services. The bank model as

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discussed by Graham(2011), offers distinct alternative to conventional branch-based banking in that a customer conducts financial transactions of the whole range of retail agents (through mobile phone)instead of bank branches or through employees. The model promises the potential to substantially increase the financial service outreach by using delivery channels ,thus retailers/mobile phones, a different trade partner, having experience and target market distinct from traditional banks and may be significantly cheaper than the bank based alternatives. The nonbank led model is where a bank does not come into the picture (except possibly as a safe keep of surplus funds) (Ongwenyi, 2012).

The advent of mobile banking has seen a revolutionary change in banking institutions as evidenced by a series of studies undertaken. A study undertaken by Kimenyi (2012), indicated that technological innovations have now made it possible to extend financial services to millions of poor people at relatively low cost. A case in point is mobile telephone money transfer services that allow mobile phone users to make financial transactions or transfers across the country conveniently and at low cost. Kenya's main mobile payment service, known as M-PESA, provided by main mobile phone company, Safaricom, represents a good example of how low-cost approaches that use modem technology can effectively expand the financial services frontier. Today, millions of Kenyans use M-PESA to make payments send remittances and store funds for short periods.

Many of those without bank accounts are able to use this service at a low cost and low risk (Njenga, 2009)Studies reveal that Northern European countries are among the most advances ones in the adoption and use of different new mobile and technological appliances, and these countries have expanded the implementation of technological advancement in banking services. In Finland, payment and account management products over mobile phones such as SMS services have been available since 1992, television based banking since 1998 and banking via mobile internet WAP since 1999. Finish customers conduct their routine banking via internet. It is noted that over 70% of customers visit a branch office less than twice in a year, with the number of

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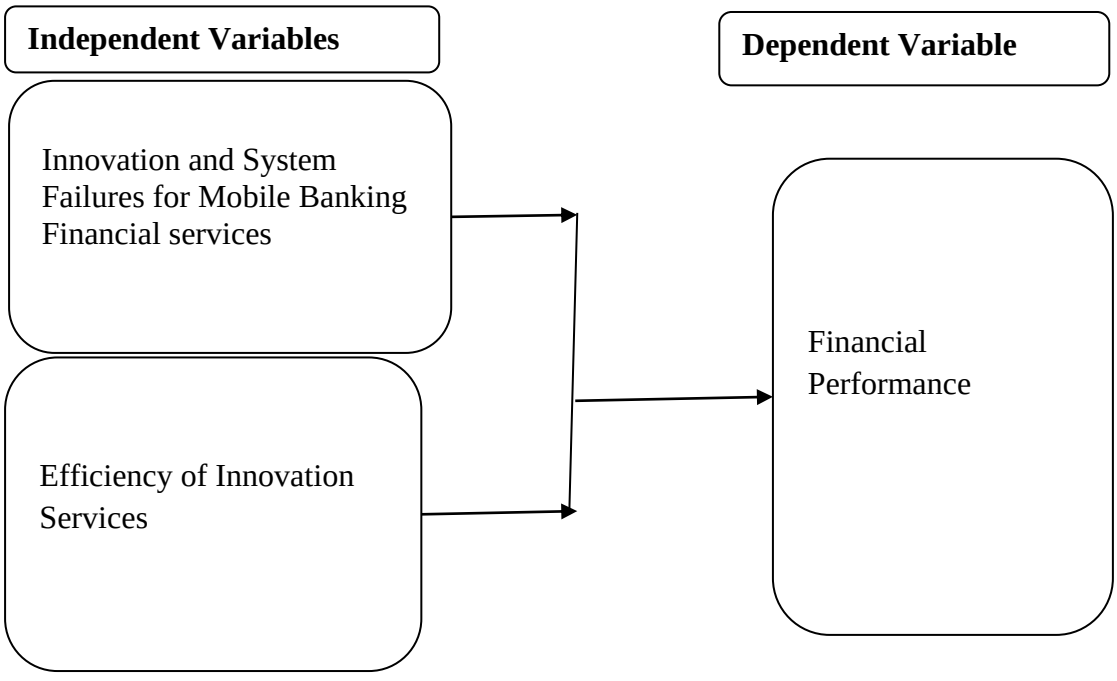
branches in Finland shrinking in rhythm with increased internet banking usage. At the moment, internet is also the leading electronic banking channel where the electronic banking channels have been introduced (Ongwenyi, 2012).

In Kenya, the most popular form of money transfer is M-PESA which began in April, 2007 following a donor funded pilot project (Kimenyi, 2009). The service allows users to deposit money into an account stored on their cell phones, to send balances using SMS technology to other users and to redeem deposits for regular money. A study by Nyangosi (2011), showed that financial products through cell phone were found to have gained popularity. Customers found it easy, convenient and efficient to transact conventional banking services which are non-monetary in nature such as balance enquiry, transfer of funds and change of password.

Majority of Kenyan customers strongly agree that mobile banking is a useful channel for banking services (Nyangosi, 2011).

Conceptual Framework

Figure 1



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RESEARCH DESIGN AND METHODOLOGY

Introduction

Research methodology is a framework within which facts collected are placed together so as to bring out their clear meaning. This section of study includes: research design, target population sampling techniques, sample size, sampling procedure, and data collection instruments, validity, reliability and data analysis.

Research Design

This is the overall plan for conducting the study in order to answer the Pre-set questions. This study adopted a descriptive research design. It was efficient in establishing the effects of mobile banking innovation of Commercial Banks.

A descriptive research design is a scientific method of investigation in which data is collected and analyzed in order to describe the current condition, term or relationship concerning a problem in their natural setting.

Descriptive research is used to obtain information concerning the current status of the phenomena to describe what exists, with respect to variables or conditions in a situation, Mugenda & Mugenda, 2012.

Target Population

Breda G.Cox (2011), defines target population as a set of units for which the survey data are to be used to make inferences, thus target population defines those units for which findings of the survey are meant to generalize. The study focused on various branches of commercial Bank in Embu County, Kenya.

Table 1 Distribution of Target Population and accessible population

Categories	Target Population	Percentage (%)
Management	20	17
Finance and marketing	25	21

Customer service	40	33
Credit	35	29
Total	**120**	**100**

Source: Commercial Bank Human Resource Management (2016)

Sampling Techniques

Sampling is the selection of a small group which represents an instead larger one (Mugenda & Mugenda, 2012). The study used stratified and random sampling techniques. The stratified technique ensured that a sample picked will represent the population. The simple random sampling will be used to select participants from the various selected Commercial Banks within Embu County, Kenya

Sample Size

A sample is a set of individuals selected from a population and usually intended to represent the population in a research study (Neuman, 2004). This is achieved by getting thirty percent (30%) of the target population. Mugenda & Mugenda, 2012 recommends this ratio because it gives a smooth curve.

Table 2: Distribution Sample Population Selected

Categories	**Sample Population Percentage (%)**	
Management	6	17
Finance and marketing	8	22
Customer service	12	33

Credit	10	28
Total	**36**	**100**

Data Collection Instrument/Procedure

The data collection instrument in this study was structured questionnaires. The questionnaire was appropriate to aid the respondents in giving collect answers without fear (Pamela,2013). The questionnaires contains mainly closed ended questions which have a list of options and were preferred because of their convenience since it allowed the access of data from scattered sample at a low cost thus the result was more reliable (Kothari, 2014).

The data collection was drop and picks technique which was convenient for the respondents and also enable the researcher to obtain adequate responses. The researcher administered the questionnaires personally to the respondents and picked them later after a week. This way is efficient as it ensures collection of responses from a large sample is ensured (Pamela, 2003).

Pilot Test

The study will carry out a pilot test, the validity and reliability of the questionnaires in gathering the data required for the purposes of the study. Kombo and Tromp (2011), and Kothari (2004), describe a pilot test as a replica and rehearsal of the main survey. Dawson (2002), states that pilot testing assist researchers to see if the questionnaire obtained the required results. Reliability was to be tested by use of four questionnaires which will be piloted with random selection from the bank management who will not be included in the final study.

Validity and Reliability

According to Mugenda and Mugenda (2012), reliability is the consistency with which research instrument measures what purposes to measure. The test retest technique was used to test the reliability of the research instrument.

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The test involved administering ten respondents twice to the same group of subject with time intervals of one week. According to Mugenda and Mugenda (2012), validity is the accuracy and meaningfulness of interferences which are based on research results. The study applied content validity as a measure of the degree to which data obtained from the research instrument mean fully and accurately reflect or represent a theoretical concept.

The researcher gave a copy of questionnaires to the supervisor to check if it represented all the objectives of the study. The researcher personally administered research tool after a prior visit that assisted in refining timings of the distribution of the questionnaires.

Ethical Consideration

Businesses today are technology and innovation driven. There is huge competition in the sphere and therefore like other industry or business function ethics is essential here also. Specially because ethics by itself is only a tool to create and doesn't know ethics or morals!

Every day we have innovative products and services that announce their arrival in the market place and others that go obsolete. It is this technology and innovation that leads to ethical issues, considering the competition to stay ahead by innovating is immense. Issues like data mining, invasion to privacy, data theft and workplace monitoring are common and critical.

In the first case we are compelled to think about the pace at which technology is progressing. There are manifold implications here, be it things like computer security or viruses, Trojans, spam's that invade the privacy of people or the fact the technology is promoting consumerism. Commercial Bank Limited has ensured that a follow-up in how ethical issues are considered as its way to take care of its clients.

Nowadays data storage is primarily on computer systems. With the advent of internet technology the world has got interconnected and data can be accessed remotely by those who are otherwise unauthorized to do the same. This is one of the pitfalls of innovation. The other one i.e. the pace of technological change also raises the question of ethics.

RESEARCH FINDINGS AND DISCUSSION

A) Response rate

Table 1 Response Rate

Response	**Frequency**	**Percentage**
Returned Questionnaires	31	86%
Questionnaires not returned	6	14%
Total	**37**	**100%**

Table 1 show 86% of response rate while 14% did not respond. This shows that the respondents co-operated and this made it possible for study to get the information for the study.

B) Gender Analysis

Gender of respondents was very significant to this study. The genders were presented in the table 2.

Table 2 Gender Analysis

Population category	**Frequency**	**Percentage** (%)
Male	25	81%
Female	6	19%
Total	**31**	**100%**

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Table 2 shows that the total number of male who responded was 81% while female respondents' were 19%. From the study, it can be concluded that there was no gender balance in the organizations. This shows that the males supported the study findings than the females.

C) Mobile Banking System Failures.

Table 3: System Failures

Reason	**Frequency**	**Percentage**
Network failure	21	58
Poor management	7	20
Power break-down	8	22
Total	**36**	**100**

Table 3 shows that majority at 58% of the respondent stated that network failure was the reason for system failure, 20% stated poor management as the reason behind system failure, and while 22% said that power break-down was the cause of system failures.

D) Mobile Banking Services Efficiency.

i. When respondents were asked whether the mobile services offered were efficient, the responses are as follows;

Table 4: Mobile Banking Services Efficiency.

Category	**Frequency**	**Percentage**
Yes	18	50
Somehow	11	31
No	4	11
Not sure	3	8

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Total	**36**	**100**

ii. On problems users encountered while using mobile money services, responses are as follows;

Table 5 : Problems Encountered while using mobile services

Problem	Frequency	Percentage
Lost money	26	72
No float	10	28
System failure	0	0
Total	**36**	**100**

Table 5 shows that 72% of the respondents had experienced loss of money while 28% experienced no float while using mobile money service. This could be as a result of system breakdown leading to loss of data needed for conducting transactions.

E) **Financial Performance**

When the respondents were asked to rate the financial performances of their banks in a period of last 5 years, the findings showed that 67% indicated that banking innovation was good and affects financial performance positively.

Table 6:Rating of Financial Performance

Category	Frequency	Percentage
Good	24	67
Excellent	10	28
Bad	2	5
Total	**36**	**100**

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SUMMARY OF DATA ANALYSIS

Research aimed to establish the effects of mobile banking innovation on the financial performance of Commercial banks in Kenya and how best the factors can be addressed to improve the bank performance. Data about the variables was obtained from a sample of 36 of which 31 employees responded using the questionnaire. The study showed that 86% of the respondents responded appropriately to the questionnaire. This showed that the research was popular.

According to the research done, majority of the respondents of the organizations were male. That was 81% of the respondents. Male respondents were higher as compared to female respondents. This showed that there is gender bias in the organizations. Most of the respondents were aged between 35-40 years which is 48% of the total respondents. The majority of the respondents had attained a diploma in their level of education at 65%.

On the current positions of the respondents, majority of them were in management at 69%. This could be because most of the operations are carried out through innovation to improve the services in the organization. The data collected showed that majority of the respondents at 53% had worked in the bank for a period of not more than one year. This could be as a result of transfers to other parts of the country.

Results showed that 81% of the respondents stated that the bank was registered locally. All the respondents agreed that their bank offered mobile banking services. 92% of the respondents stated that the bank begun offering mobile banking service less than five years ago.

Majority of the respondents at 83% agreed that mobile banking innovation for their services affect the performance of Commercial Bank. Most of the respondents at 50% declared that payments and transfers services affect bank performance a lot. This could be as a result of expenses incurred while carrying out the transactions. Access

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to account information moderately affects bank performance. This was stated by 42 percent of the respondents since the innovation is not very familiar to them.

Majority of the respondents at 58% stated that network failure was the main reason that caused system failures leading to inefficiency of the services offered which affected the performance of the bank.

On the issue of problems experienced while offering mobile banking services, majority of the respondents at 72% stated that loss of money was one of the problems experienced. 66.7% of the respondents indicated that the financial performance in their banks was good.

CONCLUSION AND RECOMMNENDATIONS

System Failures

The concludes that there is a negative significant relationship between system failures and financial performance in Commercial Bank in Kenya. The study further concludes that frequent power outages, poor network coverage and system overload influence the profitability and creation of shareholder wealth of their bank moderately.

Efficiency of services

The concludes that there is a negative significant relationship between efficiency of services and financial performance in commercial banks in Kenya. The results there are problems like loss of money and lack of floats which affect the mobile banking service and hence leading to poor performance of the bank. Mobile banking offers banks several opportunities for increasing revenues. These include monetizing the value of customer analytics, delivering greater real-time access to products and services, and conducting targeted marketing campaigns based upon the knowledge of consumer preferences that banks collect.

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Recommendations of the Study

System Failures

The study found that systems failure influences financial performance of commercial banks in Kenya moderately. This study therefore recommends that Commercial banks in Kenya should ensure that systems failures are kept at minimal so as to reduce its influence on the financial performance of Commercial banks in Kenya.

Efficiency of services

To achieve operational efficiencies and realize the full growth potential, banks will need to integrate their existing bank platforms-including core banking, customer relationship management, and payment hubs-with mobile banking solutions. Banks will also need to manage a multitude of partners, such as telecommunication providers, social media outlets, data analytics providers, retailers, payment networks, mobile device manufacturers, and many other stakeholders.

References

Al-Jabir, I. M, (2012). Mobile banking adoption: application of diffusion of innovation theory, Journal of Electronic Commerce Research, VOL 13, NO 4, 2012.

Behaviour And Its Implications For Banks.Working Paper No. 37. Present International Conference on Management of

2006, 8 –13 July 2006, Istanbul (Turkey)

Casu, B. G.&Molyneux. P, (2006).*Introduction to Banking.* England: Prentice Hall.

CBK, (2013). *Banking Structure in Kenya,* Retrieved from http/www.cbk.co.ke.

Chinget M. C. Chuan, A. T., Sim, J. J. Kam, H. and Tan, (2011) Factors Affecting Malaysian Mobile Banking Adoption: An Empirical Analysis,International Journal of Network and Mobile Technologies, Vol 2 / Issue 3

ISSN: 2235-767X
Volume 07 Issue 6
June 2019

Donner, J. And Tellez, A. C. (2008), Mobile banking and economic development: Linking adoption, impact, and use, Asian Journal of Communication, 18(4), 318-322.

Gatere, D. G. (2008).*Outsourcing practices by Kenyan bankingsector*. Retrieved February 15th, 2012.

Gupta,Sunil (2013)" The mobile Banking and Payments Revolution "European Financial Review,pg-3-6.

Graham, M.D. (2008). *Mobile phone communication in effective human-elephant conflictManagement in Laikipia County, Kenya.* International Federation of InformationProcessing.

Kidwell, D.& Peterson R,. (2007). *Financial Institutions,Markets&Money* (3rd ed).New Delhi: McGrawHili.

Kimenyi, N. S., (2009). *Expanding the Financial Services Frontier:Lessons From MobilePhone Banking in Kenya.* Retrieved March 6th, 2012, from http://mmublog.org/wp-contentltiles _mf/1 016_ mobile ~hone _kenya_kimenyi pdf.

Kimondo, S., (2012). *Effects of mobile wallets on banking services among commercialbanks in Kenya.* Kenya: University of Nairobi.

Koch, T. &Macdonald, S. (2005). *Bank Management* (5th ed.). USA: Thomson, South-Western.

Kingoo, H., (2011). The relationship between electronic banking and financial performance of commercial banks in Kenya.Unpublished MBA Thesis, University of Nairobi.

Korir, G., (2012).*Factors influencing mobile banking in Kenya,Kenya:* University of Nairobi.

Kothari, C., (2004). *Research methodology,Methods and Techniques.* New Delhi: International P Limited.

Machio, G., (2012). *Effects of mobile banking on Selected Macro-Economic factors inKenya.* Available at: business.uonbi.ac.ke (Accessed on 17th 102013)

Mattila, M, (2003). *Factors Affecting The Adoption Of Mobile Banking Services.*

Retrieved March 6th, 2013, from http://www.arraydev.com/commerce/jibc/0306-04.htm.

Mbogo, M (2010). *The impact of mobile payments on the success and Growth ofMicrobusinesses.* The case of MPESA.Kenya: University of Nairobi.

Mugenda and Mugenda. (2003) *Research Methods, Quantitative and QualitativeTechniques*, Nairobi, Acts Press

Munaye. H. (2009). The application of mobile banking as a strategic response by Commercial bank Kenya limited to the challenge in the external environment. Unpublished MBA Thesis, University of Nairobi.

Njenga, A. D. (2009, 18th March). *Mobile phone banking: Usage experiences in Kenya.*

RetrievedMarch6th,2013,fromhttp://www.w3.org/2008/10/MW4D_WS/papers/njenga.pd

Nyangosi, R. (2008). The evolution of e banking: a study of Indian and Kenyan Technology awareness. *International Journal of electronic finance*, 149 - 169.McGrawHill International Edition.

Rose, P.(2002). *Commercial bank management.* New York: Mc Graw Hill Irwin.

Rose, P & Hudgins, S, (2008). *Bank management and financial Services* (7th Ed.). Singapore:McGraw Hill International Edition.

Sherkhar, K.C., (2004). *Banking theory and practise (Law and Foreign Exchange).* NewDelhi :Vikas Publishing House, PVT Ltd.

Smirlock, M., (2005), "Evidence on the (Non) Relatio Profitability in Banking". Journal of Mone.

Tchouassi, G., (2012) Can Mobile Phones Really Work to Extend Banking Services to the Unbanked? Empirical Lessons from Selected Sub-Saharan Africa Countries, International journal of Development Societies, Vol. 1, No. 2, 2012, 70-81

Tiwari, R. Buse, S and Herstatt, C. (2006) Mobile Banking As Business Strategy:

ISSN: 2235-767X
Volume 07 Issue 6
June 2019

Impact Of Mobile Technologies On Customer Behaviour And Its Implications For Banks, Mobile Banking As Business Strategy:

Wambari, P. A. M (2009), Mobile banking in developing countries. A case study on Kenya. Unpublished Master's ThesisakouluVaasanAmmattik.