THE IMPACT OF MOBILE AND INTERNET BANKING ON PERFORMANCE OF FINANCIAL INSTITUTIONS IN KENYA

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Abstract

Financial institutions have been in the process of significant transformation. The force behind the transformation of these institutions is innovation in information technology. Information and communication technology is at the Centre of this global change curve of mobile and internet banking in Kenya. Rapid development of information technology has made banking tasks more efficient and cheaper.

This study sought to determine the impact of mobile and internet-banking on performance of financial institutions in Kenya where the survey was conducted on financial institutions in Nairobi. The study also sought to identify the extent of use of mobile and internet banking in financial institutions. The study investigated 30 financial institutions.

The study found that the most prevalent internet banking service is balance inquiry while the least is online bill payment. Cash withdrawal was the most commonly used mobile banking service whereas purchasing commodities was the least commonly used.

Keywords: Mobile Banking, Internet Banking, Financial Institutions, Firm Performance

Introduction

Background of the study

Mobile banking is an innovation that has progressively rendered itself in pervasive ways cutting across several financial institutions and other sectors of the economy. During the 21st century mobile banking advanced from providing mere text messaging services to that of pseudo internet banking where customers could not only view their balances and set up multiple types of alerts but also transact activities such as fund transfers, redeem loyalty coupons, deposit cheques via the mobile phone and instruct payroll based transactions

(Vaidya 2011). The world has also become increasingly addicted to doing business in the cyber space, across the internet and World Wide Web. Internet commerce in its own respect has expanded in various innovative forms of money, and based on digital data issued by private market actors, has in one way or another substituted for state sanctioned bank notes and checking accounts as customary means of payments (Cohen 2001).

Technology has greatly advanced playing a major role in improving the standards of service delivery in the financial institution sector. Days are long gone when customers would queue in the banking halls waiting to pay their utility bills, school fees or any other financial transactions. They can now do this at their convenience by using their ATM cards or over the internet from the comfort of their homes. Additionally due to the tremendous growth of the mobile phone industry most financial institutions have ventured into the untapped opportunity and have partnered with mobile phone network providers to offer banking services to their clients.

ATM banking is one of the earliest and widely adopted retail e-banking services in Kenya (Nyangosi et al. 2009). However according to an annual report by Central Bank of Kenya its adoption and usage has been surpassed by mobile banking in the last few years (CBK 2008). The suggested reason for this is that many low income earners now have access to mobile phones. A positive aspect of mobile phones is that mobile networks are available in remote areas at a low cost. The poor often have greater familiarity and trust in mobile phone companies than with normal financial institutions.

Banking

In general terms, banking is the business activity of accepting and safeguarding money owned by other individuals and entities and then lending out this money in order to earn a profit. The Banking Act of Kenya defines banking to mean the accepting from members of the public of money on deposit repayable on demand or at the expiry of a fixed period or after notice, the accepting from members of the public of money on current account and payment and acceptance of checks and the employing of money held on deposit or on current account or any part of it by lending, investment or in any other manner for the account and the risk of the person so employing the money.

Currently Kenya has 43 licensed commercial banks of these, 31 are locally owned and 12 are foreign owned. Citibank, Habib Bank, standard chartered and Barclays Bank are among the foreign-owned financial institutions in Kenya. The government of Kenya has a substantial stake in three of Kenya's commercial banks. The remaining local commercial banks are largely family owned. Commercial banks in Kenya accept deposits from

individuals and make a profit by using the deposits to offer loans to businesses at high interest rates. These banks are regulated by the Central Bank Act and the Companies' Act, which stipulates the activities they should be engaged in, the rules on publishing of financial statements, minimum capital requirements as well as reserve requirements. Examples of new innovations in the Kenyan banks include adoption of ATMs, smart cards, internet and mobile banking as discussed below.

Mobile banking

Mobile banking (m-banking) refers to provision and availment of banking and financial services through the help of mobile telecommunication devices. The scope of offered services may include facilities to conduct bank and stock market transactions, administer accounts and to access customized information. Mobile networks in Kenya offer m-money services in the name of M-pesa by Safaricom, Orange money by Orange, Yu-cash by Essar, and Airtel money by Airtel. Currently the mobile money market size is about 15 million users transferring Kshs. 2 billion daily, of these over 14 million are Mpesa customers. M-money providers have partnered with commercial banks such as Equity Bank, I&M Bank, and Kenya Commercial Bank, Barclays and Co-operative to offer mobile based financial products that aim to reach the unbanked.

Internet banking

Internet banking (e-banking) is the use of internet and telecommunication networks to deliver a wide range of value added products and services to bank customers (Steven, 2002) through the use of a system that allows individuals to perform banking activities at home or from their offices or over the internet. Some online banks are traditional banks which also offer online banking, while others are online only and have no physical presence. Online banking through traditional banks enables customers to perform all routine transactions, such as account transfers, balance inquiries, bill payments, and stop-payment requests, and some even offer online loan applications. Customers can access account information at any time, day or night, and this can be done from anywhere. Internet banking has improved banking efficiency in rendering services to customers. Financial institutions in Kenya cannot ignore information systems since they play an important role in their operations because customers are conscious of technological advancements and demand higher quality services.

Problem Statement

A fundamental assumption of most recent research in operations improvement and operations learning has been that technological innovation has a direct bearing on performance improvement (Upton and Kim, 1999). Strategic management in financial institutions demand that they should have effective systems in place to counter unpredictable

events that can sustain their operations while minimizing the risks involved through technological innovations. Only financial institutions that are able to adapt to their changing environment and adopt new ideas and business methods have guaranteed survival. Some of the forces of change which have impacted the performance of financial institutions mainly include technological advancements such as use of mobile phones and the internet.

Since the beginning of e-banking Kenyan financial institutions have witnessed many changes. Customers now have access to fast, efficient and convenient banking services. Most financial institutions in Kenya are investing large sums on money in information and communication technology (ICT). However while the rapid development of ICT has made some banking tasks more efficient and cheaper, technological advancements have their fair share of problems; for example they take a large share of bank resources, plastic card fraud particularly on lost and stolen cards and counterfeit card fraud. Thus there is a need to manage costs and risks associated with internet banking.

It is crucial that internet banking innovations be made through sound analysis of risks and costs associated to avoid harm on banks performance. Bank performance is directly dependent on efficiency and effectiveness of internet banking and on the other hand tight controls in standards to prevent losses associated with internet banking. In order not to impair on their prosperity, financial institutions need to strike a balance between tight controls and standards in efficiency of internet banking. This is only possible if the effects of internet banking on financial institutions and its customers are well analyzed and understood.

Mobile money has emerged as a strong competition to financial institutions in Kenya. Initially cellular phones were developed to improve communication from the earlier primitive forms of communications such as smoke and drums. Financial institutions introduced ICT as an improvement to the banking channels. This has thus enabled bank customers' access information relating to their accounts, (Tiwari, Buse and Herstatt, 2007.). In this regard mobile phone service providers have taken mobile money services deeper into the financial sector by offering a range of financial services through their networks.

The CBK and the Communication Commission of Kenya (CCK) have allowed service providers to offer mobile money services as there appears to be no reprieve as competition in the mobile money business is still heating up with entry of new money transfer systems which now allow transactions across all mobile telephone service providers like M-pesa.

Objectives of the study

The study objectives are:

1. To establish the impact of mobile and internet banking on the performance of financial institutions in Kenya.
2. To establish the extent of use of mobile and internet banking in financial institutions in Kenya.

Significance of the study

The study will be crucial to emerging financial institutions as it will provide answers to the factors against the implementation of internet banking in Kenya, prove of the success and growth associated with the implementation of internet banking and highlight the areas of banking operations that can be enhanced via internet banking.

It is equally significant for bank executives and indeed the policy makers of the banks and financial institutions to be aware of internet banking as a product of internet commerce with a view to making strategic decisions.

The study is also expected to give an insight on the state of mobile money services as a competition to the commercial banks in Kenya and the factors that have greatly influenced its growth. Players in the financial institution sector and telecommunications industry will find the study useful as they can use the findings to strategize on how they can mutually benefit from this development. Finally, our study adds to the existing literature, and is a valuable tool for students, academicians, institutions, corporate managers and individuals who want to learn more about mobile and internet banking.

Literature Review

This chapter seeks to explore in depth the concept of internet and mobile banking through a review of the various theories as well as empirical studies.

Theoretical framework

Theory of information production and contemporary banking theory

Diamond (1984) suggested that economic agents may find it worthwhile to produce information about possible investment opportunities if this information is not free; for instance surplus units could incur substantial search costs if they were to seek out borrowers directly. There would be duplication of information production costs if there were no banks as surplus units would incur considerable expenses in seeking out the relevant information before they commit funds to a borrower. 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. As they develop this information they develop a credit rating and become experts in processing information. As a result they have an information advantage and depositors are willing to place funds with a bank knowing that this will be directed to the appropriate borrowers without the former having to incur information costs.

Bhattacharya and Thakor (1993) contemporary banking theory suggests that banks, together with other financial intermediaries are essential in the allocation of capital in the economy. This theory is centered on information asymmetry, an assumption that "different economic agents possess different pieces of information on relevant economic variables, in that agents will use this information for their own profit" (Freixas and Rochet 1988). Asymmetric information leads to adverse selection and moral hazard problems. Asymmetric information problem that occurs before the transaction occurs and is related to the lack of information about the lenders characteristics, is known as adverse selection. Moral hazard takes place after the transaction occurs and is related with incentives by the lenders to behave opportunistically.

Innovation diffusion theory

Mahajan and Peterson (1985) defined an innovation as any idea, object or practice that is perceived as new by members of the social system and defined the diffusion of innovation as the process by which the innovation is communicated through certain channels over time among members of social systems. Diffusion of innovation theory attempts to explain and describe the mechanisms of how new inventions in this case internet and mobile banking is adopted and becomes successful Clarke (1995). Sevcik (2004) stated that not all innovations are adopted even if they are good it may take a long time for an innovation to be adopted. He further stated that resistance to change may be a hindrance to diffusion of innovation although it might not stop the innovation it will slow it down.

Rogers (1995) identified five critical attributes that greatly influence the rate of adoption. These include relative advantage, compatibility, complexity, triability and observability. According to Rogers, the rate of adoption of new innovations will depend on how an organization perceives its relative advantage, compatibility, triability, observability and complexity. If an organization in Kenya observes the benefits of mobile and internet banking they will adopt these innovations given other factors such as the availability of the required tools. Adoption of such innovations will be faster in organizations that have internet access and information technology departments than in organizations without.

Empirical studies

Internet banking

Recent literature has a narrow focus and ignores internet banking almost entirely; it equates internet money with the substitution of currency with internet gadget. For instance Freedman (2000) suggests that internet banking and internet money consists of three devices; access devices, stored value cards, and network money. Internet banking is simply the access to new devices and is therefore ignored. Internet money is the sum of stored value (smart cards) and network money (value stored on computer hard drives).

Santomero and Seater (1996), Prinz (1999) and Shy and Tarkka (2002) present models that identify conditions under which alternative payments substitute for currency. Most of these models indicate that there is at least a possibility for internet substitutes for currency to emerge and flourish on a wide scale depending on the characteristics of the various technology and those of the potential users.

Friedman (1999), intimated that internet banking presents the possibility that an entire alternative payment system not under the control of the Central Bank may arise. Today computers make it at least possible to bypass the payment system altogether, instead using direct bilateral clearing and settlement (Friedman, 1999).

Trends in mobile and internet banking in Kenya

With the emerging wave of information driven economy, the banking industry in Kenya has inevitably found itself unable to resist technological indulgence. This has led to a boom in development of mobile banking laying down a strong base for low cost banking, and growth of mobile phone use in rural Kenya.

Standard Chartered in 2009 launched its mobile banking in seven markets in Africa. In the Kenyan market it offers a number of services on a unique, user-friendly platform called Unstructured Supplementary Services Data (USSD) and is only available on GSM carrier networks which enable customers to access banking in real time, anywhere in the world, through their mobile phones. The platform is a convenient menu-driven application that is not dependent on specific customer handsets and does not need to be downloaded.

Barclays bank's m-banking platform is known as 'hello money'. It allows customers to carry their bank in their mobile and access banking services anytime/anywhere on the move. Unlike other players in the sector this is all for free.

Co-operative bank pioneered mobile banking way back in 2004 by enabling customers to access their accounts and transact using their mobile phones. It offers services such as balance enquiries, mini-statements, SMS alerts on credit and debit transactions to an account, pay utility bills and funds transfer.

Equity bank on the other hand has its own m-banking platform known as Eazzy 24/7 offering services similar to those of co-operative bank.

Telephone and PC banking is a facility that enables customers, via telephone calls, find out about their position with their bankers by merely dialing the telephone numbers given to them by the banks. In addition, the computers on the phone would require special codes given to the customers as a means of identification of authentic users before they can receive any information they requested for. Telephone and PC banking brings the bank to the doorstep of the customer, it does not require the customer to leave his premises.

The card system is a unique internet payment type. Smart cards are plastic devices with embedded integrated circuit being used for settlement of financial obligations. Depending on the sophistication, it can be used as a Credit Card, Debit Card and ATM cards. The cards are internetally loaded with cash value and can be carried around like cash and store information on a microchip. The microchip contains a "purse" in which value is held internetally. In addition, it also contains security programs which protect transactions between one card user and the other. It can also be transferred directly to a retailer, merchant or any other outlet to pay for goods and services, and like cash, transactions between individuals without the need for banks or any other third parties. Also, the system does not require central clearing, it is valued immediately.

Research Methodology

A research methodology guides the researcher in collecting, analyzing and interpreting observed facts (Bless and Achola, 1988). This chapter introduces the logical framework to be followed in the process of conducting the study. It is divided into: research design, population and sample, data collection and data analysis.

Research Design

According to Mcmillan and Schumaker (2001) a research design is a plan for selecting subjects, research sites and data collection procedures to answer the research questions. It is the conceptual framework within which research is conducted and constitutes the blueprint for the collection of data and the analysis thereof of the collected data

Based on the purpose of the study and the type of data involved, descriptive and qualitative research designs were used. The goal was to provide a clear understanding of mobile and internet banking and its usage in financial institutions and therefore conclude on the impact it has had on their performance. Qualitative data was collected from the managers, subordinate staff as well as from customers of the financial institutions.

Population and Sample

Cooper and Emory (1995) define population as the total collection of elements about which the researcher wishes to make some inferences. An element is the subject on which the measurement is being taken and is the unit of the study. The population of interest in this study consisted of 61 financial institutions operating in Kenya of which only 30 responded . The managers, employees and customers were targeted as the key respondents. There was a need to sample the population because not all the population elements use mobile and internet banking.

The study therefore used stratified sampling. This is the process of dividing members of the population into homogeneous subgroups before sampling. The strata should be mutually exclusive: every element in the population must be assigned to only one stratum. Financial institutions were classified according to microfinance institutions, SACCOS and commercial banks where 2 microfinance institutions, 11 SACCOS and 17 commercial banks were sampled.

Data Collection

Primary sources were used in data collection. Open and close-ended questionnaires were administered to target respondents. In total two questionnaires were delivered: one to managers and employees and another to customers. They purposed to find out information regarding the level of usage of mobile and internet banking, demographics of the customers, services offered and used, level of satisfaction, impact on performance, opportunities for growth and challenges faced through the use of mobile and internet banking. This instrument allowed for cost and time savings for the respondents as well as the researchers.

Data Analysis

According to Bryman and Bell (2003) data analysis refers to a technique used to make inferences from data collected by means of a systematic and objective identification of specific characteristics. Once data is collected it has to be edited to verify to the completeness of data, coded in order to assign numbers or symbols to the various answers for effective categorization/classification, entered in order to convert the information gathered to a medium for viewing and manipulation (e.g. excel or statistical package for social sciences SSPS) and finally displayed through the use of frequency tables and charts.

Collected data was analyzed using both quantitative and qualitative measures. Qualitative data regarding customer level satisfaction, challenges faced, demographics and services provided and used were analyzed using content analysis to measure the semantic contents of the message.

Qualitative data was analyzed using statistical data analysis. The data was tabulated in pie-charts, tables and graphs for easier understanding and presentation.

Data Analysis and Interpretation

This section presents the data analysis, findings and discussion of the study in line with the research objectives of the study, the study's research objective was to establish the impact of mobile and internet banking on financial performance of financial institutions in Kenya. To achieve the objective the research raised a number specific objective; to establish the extent of use of mobile banking and the extent of use of internet banking in financial institutions in Kenya.

Data analysis

The response rate of the questionnaires from the three types of institutions under study was fairly high, out of the 98 questionnaires sent to the respondents, 64 questionnaires both from customers and managers/employees were returned for analysis. To enhance the quality of the data obtained structured questions were used whereby the respondents were asked to give various indicators on mobile and internet banking. Various data were collected to satisfy this study in accordance with the methodology.

The software that was used for the following analysis was Microsoft excel and Statistical Package for Social Sciences (SPSS).

Results

Internet Banking

Table 4.1: Types of institutions

Institutions	Frequency	Percentage
Saccos	11	36.5
Micro finance	2	6.7
Commercial banks	17	56.7

The financial institutions selected were grouped into three categories these being Sacco's, micro finance institutions and commercial banks. Commercial banks constituted 56.7%; Saccos were 36.5%, whereas micro finance institutions were 6.7% of the total sample.

Table 4.2: Customer turnout level since introduction of internet banking

Rating	Frequency	Percent
High	19	63.3
Low	2	6.7
Total	21	70.0

This analysis was conducted to determine the growth in usage of internet banking by surveying the customer turnout level since the introduction of internet banking.63.3% of the

respondents indicated that there was a high customer turnout level while 6.7% indicated that there was a low turnout level. This implies that there is potential for growth of internet banking in the future.

Table 4.3: Impact of internet banking on performance of organization

Rating	Frequency	Percent
Yes	20	66.7
No	2	6.7
Total	22	73.3

This part of the analysis sought to find out if internet banking has an impact on the performance of financial institutions.66.7% of the respondents indicated that internet banking impacted on performance while 6.7% indicated that it had no impact on performance

The implication for managers is that internet banking can be targeted to improve performance of financial institutions leading to higher return.

Mobile Banking

Table 4.4: Use of mobile banking in the institution

Rating	Frequency	Percent
Yes	23	76.7
No	6	20.0
Total	29	96.7

This section as a whole sought to find out if the institutions sampled used mobile banking to deliver services to their customers. 76.7% of the respondents indicated they used mobile banking while 20% indicated that they did not use mobile banking.

Table 4.5: A comparison of usage of mobile banking

Percentages			
Financial institutions	**High**	**Moderate**	**None**
Saccos	16.7	10	6.7
Microfinance	0	3.3	0
Commercial banks	30	16.7	10

The purpose of this analysis was to bring out a comparison among the three groups of institutions under study and rank the rate of usage of mobile banking in the provision of services. The study found that commercial banks had the highest rate of usage at 30%, Sacco's seconded commercial banks in the adoption of mobile banking, and the usage of mobile banking among financial institutions is moderate among the microfinance institutions.

Table 4.6: How often customers use the following services

Services	Deposit cash	Send money	Withdraw cash	Pay bill	Purchase commodities
Very often	46.7%	36.7%	50.0%	20.0%	10.0%
Often	10.0%	16.7%	6.7%	23.3%	10.0%
Sometimes	10%	13.3%	3.3%	20.3%	26.7%
Never	6.7%	6.7%	10.0%	13.3%	16.7%

The purpose of this analysis was to find out how often customers use of the various services offered by the financial institutions through their mobile phones. It was found that customers who deposit cash through their mobile phones very often were 46.7%; often 10%, sometimes 10%, and 6.7% did not use this service. 36.7% of the customers send money using their mobile phones very often, 16.7% often, 13.3% sometimes and 6.7% never send money using their mobile phones. 50% of the customers with draw cash using their mobile phones very often, 6.7% often, 3.3% sometimes and 10% never. Also 20% pay bills using their mobile phones very often, 23.3% often, 20.3% sometimes, and 13.3% never use this service. 10% of the customers purchase commodities through their mobile phones very often, 10% often, 26.7% sometimes and 16.7% do not use this service.

This implies that cash withdrawal is the most common mobile money transaction carried out by customers whereas commodity purchase is the least common transaction.

Table 4.7: Customer turnout level since introduction of mobile banking

Rating	Frequency	Percent
Extremely high	2	6.7
High	20	66.7
Low	1	3.3
Total	23	76.7

This section sought to determine the customer turnout level since the introduction of mobile banking.

66.7% of the respondents indicated that the customer turnout level was high, 6.7% indicated it was extremely high while 3.3% indicated that the customer turnout level was low

This implies that there is opportunity for growth in mobile banking in the future which may impact positively on performance

Table 4.8: Impact on performance

Rating	Frequency	Percent
Yes	24	80.0
Not applicable	6	20.0
Total	30	100.0

This section sought to determine the impact of mobile banking on performance of financial institutions. 80% of the respondents indicated that mobile banking had an impact on performance while 20% indicated that it had no impact on performance.

Use of mobile banking by customers

88.2% of the respondents surveyed use mobile banking services whereas 11.8% did not use mobile banking.

Table 4.10: How often customers use the banking services

Services	Deposit cash	Send money	Withdraw cash	Pay bills	Check balances	Purchase commodities
Very often	11.8%	14.7%	17.6%	8.8%	23.5%	11.8%
Often	32.4%	38.2%	35.3%	38.2%	26.5%	8.8%
Sometimes	29.4%	23.5%	23.5%	26.5%	23.5%	11.8%
Never	17.6%	11.8%	14.7%	14.7%	8.8%	50.0%

The purpose of this analysis was to find out how often customers use of the following banking offered by the financial institutions through their mobile phones. It was found that customers who deposit cash through their mobile phones very often were 11.8%; often 32.4%, sometimes 29.4%, and 17.4% did not use this service. 14.7% of the customers send money using their mobile phones very often, 38.2% often, 23.5% sometimes and 11.8% never send money using their mobile phones. 17.6% of the customers with draw cash using their mobile phones very often, 35.3% often, 23.5% sometimes and 14.7% never. Also 8.8% pay bills using their mobile phones very often, 38.2% often, 26.5% sometimes, and 14.7% never use this service. The study revealed that 23.5% of the customers check their balances using their mobile phones very often, 26.5% often, 23.5% sometimes, and 8.8% do not at all use this service .11.8% of the customers purchase commodities through their mobile phones very often, 8.8% often, 11.8% sometimes and 50% do not use this service.

This implies that balance enquiry is the most common mobile money transaction carried out by customers whereas bill payment is the least common transaction

Use of internet banking services

This section sought to find out how many respondents use internet banking services. It revealed that 67.6% of the respondents did use internet banking services whereas 23.5% did not.

Table 4.11: How often do customers use these services?

Types of services	Very often	Often	Sometimes	Never
Check balance online	5.9%	23.5%	23.5%	26.5%
Online bill payment	5.9%	14.7%	20.6%	38.2%
Download loan application	2.9%	14.7%	8.8%	50.0%
Use credit card online	11.8%	5.9%	14.7%	47.1%
Seeking product and rate information	11.8%	23.5%	20.6%	23.5%
Inter account transfer	2.9%	5.9%	20.6%	41.2%
Salary processing	2.9%	14.7%	17.6%	41.2%
Customer care	2.9%	11.8%	29.4%	29.4%

The purpose of this analysis was to find how often customers use internet banking services. It revealed that customers who check their balances online very often were 5.9%, often 23.5%, sometimes 23.5% whereas 26.5% never use this service. 5.9% of the customers pay their bills online very often, 14.7% often, 20.6% sometimes and 38.2% never pay for their bills online. 2.9% of the customers download loan applications online very often, 14.7% often, 8.8% sometimes and 50% never.11.8% of the respondents use credit cards online very often, 5.9% often, 14.7% sometimes, and 47.1% never use this service. 11.8% of the customers seek product and rate information very often, 23.5% often, 20.6% sometimes and 23.5% do not check product and rate information online.2.9% transfer cash to other accounts online very often, 5.9% often, 20.6% sometimes and 41.2% never use this service. 2.9% of the customers process their salaries online very often, 14.7% often 17.6% sometimes and 41.2% never use the above service. Finally 2.9% of customers seek customer service care and support very often, 11.8% often, 29.4% sometimes while 29.4% do not use this service.

Summary

The study revealed that among the financial institutions surveyed, commercial banks had the highest usage of internet banking at 43.3%, SACCOs had the second highest usage of internet banking whereas none of the microfinance institutions used internet banking.Amongst all the financial institutions surveyed commercial banks had the highest usage of mobile banking, SACCOs the second highest whereas MFIs had the least usage of mobile banking even though all of them used mobile banking.

Of the services provided by financial institutions via internet banking the service that customers used most was online balance inquiry (40%) whereas the least used service was online bill payment (3.3%). According to the financial institutions the customer turn out level was high (63.3%) as a result of the use of internet banking. 66.7% of the respondents indicated that internet banking had a positive impact on performance whereas only 6.7% indicated that it had not impacted on performance of the financial institutions

Conclusion

The study was able to achieve the set objectives; to explore the impact of mobile and internet banking on performance of financial institutions, as well as the extent of use of mobile and internet banking, by surveying a representative sample of financial institutions within Nairobi. The study found that commercial banks had the highest rate of usage of internet banking among the financial institutions sampled. SACCOS are slowly adopting internet banking, while micro finance institutions have not yet adopted internet banking.

The study revealed that the most prevalent internet banking services were seeking product rate information and the use of online credit cards. Since its introduction in mid-2005, the adoption of internet banking has been slow due to impaired unavailability of infrastructure and lack of supportive legislation for internet banking (Nyangosi et al 2009). However the adoption of internet banking has enhanced performance of the banking industry due to increased efficiency, effectiveness and productivity.

The study found that mobile banking faces various challenges among them being, system delays by the mobile money transfer service providers, slow processing of transactions especially during the weekends, high transactions costs, limit on the amount of money that can be withdrawn in a day and fraud. These challenges can be solved through regular maintenance of mobile money transfer systems which will help in managing the systems' capacity and in turn address the problem of transaction delays and improve customer service through speedy support and lower user charges.

Limitations of the study

In undertaking this study a number of challenges were faced. There was bureaucracy in getting approval to respond to questionnaires with most institutions insisting that permission be sought from the Chief Executive Officer or Human Resource Manager. This led to delays in obtaining the required responses for data analysis in time. Some customers were unwilling to divulge information and seemed to not have time to fill in the questionnaires.

Suggestions for further study

The study focused on the impact of internet and mobile banking on financial performance of financial institutions in Kenya while its evident its rampant growth impacts on the overall economy as well. Therefore, a study should be conducted to investigate the impact of mobile and internet banking on the economy.The study found that mobile banking has been adopted at a faster rate than internet banking therefore a study needs to be conducted to investigate why this is the case.

References:

Berestien, A. (1998), *Monetary Policy Implications of Digital Money*, Kyklos, Vol. 51.

Bhattacharya, S. and A. Thakor (1993), ''Contemporary Banking Theory,'' *Journal of Financial Intermediation 3, 2-50.*

Bilderbeek, R (Dir.) (1994): ''Case studies in innovative and knowledge- intensive business services.'' TNO Report. STB/94/041. Research project for the EC DG XIII, print EIMS Programme.

Bryman and Bell (2003), is the resource-based 'view' a useful perspective for strategic management research?, *The Academy of Management Review*, 26(1), 22-40

Central Bank of Kenya. (2008) *Bank Supervision Report*. Nairobi: Central Bank of Kenya

Central Bank of Kenya. (2009) *Bank Supervision Report*. Nairobi: Central Bank of Kenya

Central Bank of Kenya. (2010) Annual Report. Nairobi: Central Bank of Kenya

Cooper, D and Emory, C. (1995) Business Research Methods. Chicago. Irwin

Diamond, D. and P. Dybvig (1983) '' Bank runs, deposit insurance and liquidity,'' *Journal of Political Economics 91*,pp.401-419

ECB (1999) '' Payments Systems in the European Union'': Addendum incorporating 1997figures (Blue Book), January.

Freedman, C. (2000), Monetary Policy Implementation: Past, Present and Future-''Will Electronic Money Lead to the Eventual Demise of Central Banking?'' *International Finance*, Vol.3, No.2, pp. 211-227

Freixas, X. and J.C. Rochet (1998), Microeconomics of banking, MIT Press.

Friedman, B, (1999), the Future of Monetary Policy: The Central Bank as an Army with Only a Signal Corps?*InternationalFinance*, Vol.2, No.3, pp.321-338.

Goodhart, E. (2000). Can Central Banking Survive the IT *Revolution? InternationalFinance*, Vol. 3, No.2.pp.189-209.

Juniper Research, (2009). *Mobile Banking Strategies: Applications*, Opportunities and Markets 2010-2015.

Kariuki, N. (2005), *Six Puzzles in Electronic Money and Banking* IMF Working Paper, IMF Institute. Vol. 19. February.

Mcmillan & Schumaker (2001); Non-enforceable implementation of enterprise mobilization: and exploratory study of the critical success factors, *Industrial Management & Data Systems*, 105 (6), 786-814.

Prinz, A. (1999), *Money in, the Real and the Virtual World; E-Money, C-Money, and the Demand for CB-Money*, Netnomics, Vol.1, pp.11-35.

Santomero, A.M, and Seater J.J, (1986). *Alternative Monies and the demand for Media of Exchange*, Journal of Money, Credit and Banking, Vol.28, pp. 942-960.

Steven A. (2002), *Information Systems: The Information of E-Business*, New Jersey: Natalie Anderson, pp.11-36

Tarkka, J.(2002), *The Market for Electronic Cash Cards*, Journal of Money, Credit and Banking, Vol.34, pp.299-314.