INFORMATION COMMUNICATION TECHNOLOGY AND PERFORMANCE OF COMMERCIAL BANKS IN KENYA

BY

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DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the University of Nairobi for academic credit.

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This research project has been submitted for examination with my approval as the University Supervisor:-

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DEDICATION

I dedicate this work to my family for their invaluable support and patience during this study.

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ABBREVIATIONS AND ACRONYMS

ATM	Automated Teller Machine
CBK	Central Bank of Kenya
POS	Point of Sale
ICT	Information and Communications Technology
UNDP	United Nation Development Program
RBV	Resource-Based View
KPI	Key Performance Indicators
ROA	Return on Asset
ROE	Return on Equity
KEPSS	Kenya Electronic Payment and Settlement system
GDP	Gross Domestic Product
UK	United Kingdom
BPR	Business Process Re-engineering
NSE	Nairobi Stock Exchange

ABSTRACT

Many organizations are stepping up the pace to increase the size of investment in ICT due to the benefits accruing on such investments and as a result organizations, and hence ICT departments, are under increasing pressure to achieve an above-average performance using ICT. Kenyan commercial banks have continued to deploy huge investments in technology based innovations and training of manpower to handle the new technologies. Data from Central Bank of Kenya indicate that, the number of automated teller machines grew from 166 in 2001 to 2091 in 2010, debit cards increased from 160,000 in 2001 to over 6 million cards by the end of 2010 while mobile banking transactions increased from 48,000 per annum in 2007 to over 250,000 transactions per annum in 2010. Performance of commercial banks in Kenya also grew impressively between years 2001 to 2010 where profit before tax grew from Kshs 2.7 billion in 2001 to Kshs 74 billion in 2010. During the same period, total income grew from Kshs 61billion to Kshs 178 billion while total assets grew from Kshs 425 billion to Kshs 1.7 trillion. This study investigated the effect of the use of information communication technology (ICT) on firm performance of commercial banks in Kenya. The study was a cross-sectional survey. The survey was of the existing commercial banks in Kenya. The unit of analysis was individual commercial bank represented by the relevant bank staff the branches did not count as separate units. Data was collected through the use of primary and secondary data collection methods. The primary data was collected through the use of a semi-structured questionnaire, having both open-ended and closed-ended questions. Secondary data is data that already exists in various records because they are collected for other purposes other than that of the research at hand. Based on the findings, this study concludes that the banks had adopted various ICTs including; Automated Teller Machines (ATMs), Debit & Credit Cards, Point of Sale (POS) Terminals, Mobile Banking, Internet Banking and Electronic Funds Transfer. The study further concludes that the effect of bank ICT on customer deposits in the respondents bank is positive. Additionally, the study concludes that ICT has led to a positive effect on the total income of the banks specifically in relation to increasing commission fee based income, increase of interest based income and expanding the income generating potential of the bank enhancing the performance of the organizations. In addition, debit & credit cards have the highest effect on the total income of the banks followed closely by mobile banking, Automated Teller Machines (ATMs) and Point of Sale (POS) Terminals respectively. The study also concludes that the use of ICT has led to a positive effect on the return on assets of the banks.. Internet banking has the highest effect on the return on assets of the banks followed by automated teller machines (ATMs), point of sale (POS) terminals, electronic funds transfer, debit & credit cards as well as mobile banking respectively. This study recommended that the banks management should consider ICT usages through their organizational levels and try to expose the positive influences of ICT in their organizations. Moreover, this research indicates ICT can be developed to produce products for increasing performance of the organizations.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Less than ten years ago, information and communication technology belonged to the information technology industry; IT managers, systems engineers, and support staff. Today, information and communication technology is part of the mainstream of business strategy as well as everyone and every department in the organization is taking it up. IT is no longer just another cog in the enterprise but a major component of the organization and according to Ochieng (2012), the adoption and integration of Information and Communications Technology (IT) into business processes is increasing at a fast rate. When properly applied and managed, IT has significant productivity gain in that processes are simplified; tasks automated; operational costs are reduced and improve the speed and accuracy of the decisions (Freitas, Luciano and Testa, (2004).

Information and communications technology (IT) has revolutionized the way people live, learn, work and interact (Okinawa Charter, 2000). The world has become a global village with internet, mobile phones and satellite networks shrinking time and space, bringing together computers and communications resulting in new ways of communication, processing, storing and distributing enormous amounts of information (UNDP, 2001). It improves efficiency, accuracy, instantaneous transmission of information, increase quantity, enhance quality, and speed up availability of information in a complex world (Okorie, 2010). Countries' development agenda has accelerated at a higher speed while

organizations have increased production at a higher rate than before. IT has simplified processes in all the operational function of an organization (Ochieng, 2012).

This study will be guided by the resource-based view (RBV) of the firm which rationalizes firm's superior performance to organizational resources and capabilities. The resource-based view of the firm links the performance of organizations to resources and skills that are firm specific, rare and difficult to imitate or substitute (Barney, 1991). Hence, it is a theory that is mostly preferred by researchers in this area of study. This paper consequently is based on this theory. Resources can be broadly defined to include assets, knowledge, capabilities, and organizational processes (Bharadwaj, 2000). The ability of a firm to create competitive advantage depends on its capability, which is the extent to which the organization can assemble, integrate, and deploy valued resources to create or sustain competitive advantage in the industry to which it belongs (Russo and Fouts, 2007).

ICT investment was correlated with better performance in large and decentralized companies compared to small and centralized companies. The wealthier industrialized countries showed a positive and significant relationship between IT and productivity but no evidence of such a relationship was seen for developing countries (Dedrick & Kraemer, 2001). Most developing countries, had not achieved a reasonable measure of e-readiness status due to high IT cost, Government policy towards IT, underutilization of existing technologies, digital illiteracy, lack of trained manpower and inadequate IT exposure and infrastructure (Mutula & Brakel, 2006). The Government of Kenya and decision makers in organizations are now investing more on ICT. Kenya's vision 2030

incorporates ICT infrastructure in its plan with Konza city being its blue print (Kenya Vision 2030).

1.1.1 Information and Communication Technology

ICT refers to a wide range of computerized technologies that enables communication and the electronic capturing, processing, and transmission of information. These technologies include products and services such as desktop computers, laptops, hand-held devices, wired or wireless intranet, business productivity software, data storage and security, network security amongst others (Ashrafi and Murtaza, 2008). With the use of ICT, businesses can interact more efficiently, and it enables businesses to be digitally networked (Buhalis, 2003). With the use of ICT, the time constraint, and distance barrier to accessing relevant information is eliminated or drastically reduced hence it improves coordination of activities within organizational boundaries (Spanos et al., 2011).

As an enabler of technologies, IT is used strategically in almost all businesses and industries. People manage computer and communications hardware, software and applications; networked systems; online information sharing, communication and commerce systems; business processes making use of these systems; and user support. The business functionality of an organization depends on the reach and range of the stock of this resource. It is a major business resource and a key source for attaining long-term competitive position (McKenney, 2005). Barney (1991) contended however, that physical assets, in and of themselves, can only serve as sources of competitive advantage if and only if they outperform equivalent assets of competitors. This notion arises out of the fact

that considering the fact that physical asset can be easily duplicated by competitors and as such may not be regarded as sources of competitive advantage in themselves. They can however, become sources of competitive advantage when their synergetic benefits are exploited to enhance the organizational competitiveness.

1.1.2 Organization Performance

According to Chen (2002), organizational performance means the transformation of inputs into outputs for achieving certain outcomes. With regard to its content, performance informs about the relation between minimal and effective cost (economy), between effective cost and realized output (efficiency) and between output and achieved outcome (effectiveness). Performance measurement and reporting is now widespread across the private sector as well as public sector of many industrialized and industrializing countries (Williams, 2003). The common tool that is used for this process, key performance indicators (KPIs), has been argued to provide intelligence in the form of useful information about a public and private agency's performance (Williams, 2003).

KPIs are viewed as a good management device and a socially constructed tool that makes sense (DeKool, 2004). The fact that KPIs tend to be quantitative has helped to promote their image of objectiveness and rationality. The image of KPIs is further enhanced by their widespread application across the many sectors of many countries. The importance of performance measurement is noted by Ingraham (2005) that it is important to expect that citizens see and understand the results of organisational programs. Scholars like

Modell (2004), Moynihan (2005), Vakkuri and Meklin (2006) have maintained that the implementation of performance measurement systems possess important symbolic value.

Cicea and Hincu (2009) state that commercial banks represent the core of the credit for any national economy. In turn, the credit is the engine that put in motion the financial flows that determine growth and economic development of a nation. As a result, any efficiency in the activities of commercial banks has special implications on the entire economy. The management of every commercial bank must establish a system for assessing investment performance, which suits its circumstances and needs and this evaluation, must be done at consecutive intervals to ensure the achievement of the Bank's investment objectives and to know the general direction of the behavior of investment activity in the past and therefore predict the future.

A commonly used measure of organization performance is the level of profits (Ceylan, Emre and Asl, 2008). Organization profitability can be measured by the return on an organization’s assets (ROA), a ratio of an organization’s profits to its total assets. The income statements of organization report profits before and after taxes. Another good measure on organization performance is the ratio of pre-tax profits to equity (ROE) rather than total assets since organization with higher equity ratio should also have a higher return on assets (Ceylan, Emre and Asl, 2008). Profitability offers clues about the ability of the bank to undertake risks and to expand its activity. The main indicators used in the appreciation of the bank profitability are: Return on equity, ROE (Net income / Average Equity), Return on Asset, ROA (Net income /Total assets) and the indicator of financial leverage or (Equity / Total Assets) (Dardac and Barbu, 2005). The indicators are

submitted to observation along a period of time in order to detect the tendencies of profitability. The analysis of the modification of the various indicators in time shows the changes of the policies and strategies of banks and/or of its business environment (Greuning and Bratanovic, 2004).

1.1.3 The Banking Sector in Kenya

The Kenyan Banking sector comprised of 43 commercial banks, 1 mortgage finance company, 6 deposit taking microfinance institutions, 2 credit reference bureaus, 3 representative offices and 124 foreign exchange bureaus (CBK, 2011). The Kenyan financial sector has undergone tremendous changes in the last two decades (1990-2010). Misati, Njoroge, Kamau and Ouma (2010) for instance, document that financial products have increased, activities and organizational forms have also improved and the overall efficiency of the financial system has increased (CBK 2010). Commercial banks branch network has grown from 530 in 1999 to 1,102 branches by end of June 2011, ATMs increased from 262 to 2,021, number of deposit accounts from approximately 1million with 16,673 staff to 12.8million with 28,846 staff over the same period (CBK, 2011). Consequently, the banking sector productivity score continued to improve where the staff to customers' ratio was 1:444 in June 2011 compared to 1:60 in 1999. Total assets increased from Ksh. 387,371 million in December 1999 to Ksh. 1.9 trillion in June 2011 while customer deposits from Ksh. 235billion to Ksh. 1.4 trillion in June 2011 (CBK, 2011).

The financial sector development in Kenya can be reviewed in three phases (Misati et al., 2010). The first phase is the 1970s to early 1980s. During this time, the financial sector was largely dominated by the banking sector, which was characterized by financial repression. The government played a key role in allocating credit to investments by utilizing direct instruments of monetary policy such as interest rate controls, exchange rate controls and allocation of credit to priority sectors among other government restrictions (Misati et al., 2010). The second phase began with the advent of Structural Adjustment Programmes and liberalization policies in the late 1980s and early 1990s. Over this period, relaxation of the interest rate, exchange rate and capital accounts controls were witnessed. The essence of the financial sector reforms this time was to trigger narrow interest rates spreads, increase availability of financial resources through increased savings, enhance efficiency in credit allocation and increase investments.

Liberalization was also meant to encourage usage of indirect tools in monetary policy formulation. The third phase which is the main focus of this study is the late 1990s to date and can be classified as the era of financial innovation and emerging financial instruments. The period witnessed emergence of new products such as Islamic banking, automatic teller machines (ATMs), plastic money and electronic-money (e-money) amongst others within the banking sector (Misati et al., 2010). Banking industry in Kenya is governed by the Companies Act, the Banking Act, the Central Bank of Kenya Act and other various prudential guidelines issued by the Central Bank of Kenya (CBK). All of the policies and regulations that administer the entire banking industry centers in lifting

the controls towards the management and equitable services (Pricewaterhouse Coopers, 2008).

1.1.4 Commercial Banks in Kenya

Commercial banks are financial intermediaries that serve as financial resource mobilization points in the global economy. They channel funds needed by business and household sectors from surplus spending to deficit spending units in the economy. A well developed efficient banking sector is an important prerequisite for saving and investment decisions needed for rapid economic growth. A well functioning banking sector provides a system by which a country's most profitable and efficient projects are systematically and continuously funded. The role of banks in an economy is paramount because they execute monetary policy and provide means for facilitating payment for goods and services in the domestic and international trade.

In Kenya, there are 43 licensed commercial banks in Kenya. Out of the 43 institutions, 30 are locally owned and 13 are foreign owned. The locally owned financial institutions comprise 3 banks with significant shareholding by the Government and State Corporations, 27 commercial banks and 1 mortgage finance institution (Central bank 2013 website). Most of the commercial banks offer corporate and retail banking services but a small number, mainly comprising the larger banks, offer other services including investment banking. The role of banks in an economy is paramount because they execute monetary policy and provide means for facilitating payment for goods and services in the domestic and international trade. Commercial banks are custodians of depositor's funds

and operate by receiving cash deposits from the general public and loaning them out to the needy at statutorily allowed interest rates.

Financial institutions in the present socio-economic environment are dependent on computer support and IT innovation, therefore, to a substantial extent, the banking industry today is clear on what the emerging technology will be. Kenyan commercial banks have exponentially embraced the use of information and communication technologies in their service provision. They have invested huge amounts of money in implementing the self and virtual banking services with the objective of improving the quality of customer service. Some of the ICT-based products and services include the introduction of Mobile Banking, ATMs, Internet Banking, Core banking solution, Electronic clearing systems and direct debit among others. In mid 2005, Kenya's banking Industry moved a milestone by introducing Real Time Gross and Settlement system (RTGS) which was renamed Kenya Electronic Payment and Settlement system (KEPSS). This will facilitate the inter-bank financial data transfer. The development of e-banking services is expected to decongest banking halls and reduce the incidences of long queues in banking halls. Digital– based financial services have made a significant contribution in covering the cost of offering financial services (Kihumba, 2008). Therefore, it is important to understand the effect of such technological adoptions on performance of commercial banks.

1.2 Research Problem

Many organizations are stepping up the pace to increase the size of investment in ICT due to the benefits accruing on such investments and as a result organizations, and hence ICT departments, are under increasing pressure to achieve an above-average performance using ICT (Boer, Vandecasteele & Rau, 2001). Studies in the developed world have proved that given the proper infrastructure, IT can be an enabler for socioeconomic development with examples given from the developed world where significant IT investments had major impacts including increasing the United States gross domestic product (GDP) by 7.8%, UK by 8.0%, Singapore by 8.3% and Australia by 8.4% (Kamel, Rateb & El-Tawil, 2009).

Kenyan commercial banks have continued to deploy huge investments in technology based innovations and training of manpower to handle the new technologies. Data from Central Bank of Kenya (2011) indicate that, the number of automated teller machines grew from 166 in 2001 to 2091 in 2010, debit cards increased from 160,000 in 2001 to over 6 million cards by the end of 2010 while mobile banking transactions increased from 48,000 per annum in 2007 to over 250,000 transactions per annum in 2010. Performance of commercial banks in Kenya also grew impressively between years 2001 to 2010 where profit before tax grew from Kshs 2.7 billion in 2001 to Kshs 74 billion in 2010. During the same period, total income grew from Kshs 61billion to Kshs 178 billion while total assets grew from Kshs 425 billion to Kshs 1.7 trillion (CBK, 2011).

Over the last decade, many studies undertaken globally examined the relationship between ICT investment and organization performance and concluded that there was a positive relationship between ICT investment and business performance (Brynjolfsson & Hitt, 1996). However, according to Tembo (2004), there is little or no clear evidence that the same outcome is being achieved in developing countries, largely because of lack of relevant research being undertaken and also partly because of political and economic structure, restrictive regulatory environments, and hence less well-equipped to take advantage of the potential of ICTs to stimulate growth. Dyerson et al., (2009) reiterated that the cause of poor performance in developing countries was attributed to several factors including the level of ICT adoption within the organization, cost of ICT investments, ICT knowledge competency gap and management's attitude towards the technology (Dyerson, Harindranath & Barnes, 2009).

There are a number of studies that have been locally done relating ICT in various organizations including; Owuor (2004), Vishall (2006), Nzuki (2006) and Stanley (2006). Stanley (2006) did a survey of Strategic role of ICT among insurance companies in Kenya and observed that in today's business environment, competitive advantage goes to those companies most able to mobilize information and create systems that use knowledge effectively. Owuor (2004) looked at the use of ICT as a facilitator of Business Process Re-engineering (BPR) in vegetable oil industry. He concluded that BPR as a change initiative in organization heavily relies on the use of ICT to enable the company achieve its strategic goals. Nzuki (2006) surveyed the ICT audit in commercial banks in Kenya and found out that most banks' operations

and functions are computerized and therefore the need for regular ICT audit. Vishall (2006) did a survey of application of ICT for competitive advantage of firms listed in Nairobi Stock Exchange (NSE) and observed that such firms greatly use ICT to gain competitive advantage in their respective industries. Kariuki (2005) showed the positive impacts of ICT on their banking performance using bank turnover and profits as measure of performance. He concluded that e-banking leads to higher profits though in long-term but not in short-term due to high ICT investment cost. While Davenport (2003) and Oshikoya (2007) and Jean-Aza (2006) suggest that use of and investment in ICT requires complementary investments in skills, organization and innovation and investment and change entails risks and costs which might reduce bank profits in shorter.

It is at the center of such mixed conclusions that create and necessitate the need to carry out a study from a Kenyan context. As such, this study attempted to provide evidence of the use of IT investments by Kenyan Banking Sector and the relationship of this investment on their performance. In particular, the following research question was addressed; what is the effect of the use of information communication technology (ICT) on firm performance of commercial banks in Kenya?

1.3 Research Objectives

The objectives of the study were:

i. To assess the level of information communication technology (ICT) adoption within the commercial banks in Kenya.

ii. To determine the effect of information communication technology (ICT) on performance of the commercial banks in Kenya.

1.4 Value of the Study

This study may be important to the management of banks in Kenya by acting as a management reference point for adoption of technological advances needed to be put in place, both in the present and future.

The results from this study provided insight into information technology investment and it effectiveness in banks. This would allow them to better learn how to improve their abilities in service delivery. The study may provide banks with new concepts and educational resource to improve their insights about performance and effectiveness in their organizations based on information technology.

Finally, researchers may benefit from the study as it added on to the growing body knowledge in IT. This may act as a source of reference for studies to be done on technology. It is in this light that the research aimed at filling the existing academic gap by carrying out a research on the relationship between information technology investment and performance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature on bank innovations. It discusses the key theories underlying bank innovations, develops a conceptual framework and expounds on the research gaps on bank innovations and financial performance.

2.2 Theoretical Review

Different theoretical approaches have been adopted by researchers to investigate the nature of the relationship between ICT and firm performance over the years. Transaction cost theory (Williamson, 1975); Value chain analysis (Porter, 1985); and Resource-based view which is a more recent theory that is widely embraced by many such as Bharadwaj (2000), Rai et al., (2006), Ordanini and Rubera (2010), Fahy and Hooley (2011); Rashidirad, Syed and Soltani (2012). Outlined below is the theory considered in this study which is seen to greatly influence organizational performance.

The resource-based view (RBV) of the firm posits that firms compete on the basis of "unique" corporate resources that are considered to be valuable, rare, difficult to either imitate or substituted by other resources. The theory stemmed from the area of strategic management research and widely attracts attention as a suitable tool to examine the value delivered by ICT resources (Melville, 2004; Wade & Holland, 2004). The resource-based view assumes that resources, are heterogeneously distributed among firms and imperfectly mobile. The Resource Based View (RBV) theory emphasizes the internal resources of the organization in formulating strategy to achieve a sustainable competitive

advantage in its markets. Firms that possess and exploit resources and capabilities that are valuable and rare will attain a competitive advantage (Barney, 1991).

Therefore, the organization is seen as made of resources which can be structured to provide it with competitive advantage for better performance. In other words its internal capabilities such as ICT adoption, determine the strategic choice it makes in competing in its external environment. Organizational capabilities are combinations of human skills, organizational procedures and routines, physical assets, and systems of information and incentives that enhance performance along a particular dimension (Chandler, 1982).

Hannan and Freeman (1989) adopted this theory to organizational behavior and survival which was explained in the book Organizational Ecology where they concluded that organizational ecology examines the environment in which organizations compete and a process like natural selection occurs. Population Ecology Theory incorporated the individual, population, and community as units of analysis to look at the death of organizations and the birth of new organizations, as well as organizational growth and change. This led them to theorize about a complete life-cycle for an organization. Theoretical and empirical approach that uses insights from biology, economics, and sociology, and employs statistical analysis to try and understand the conditions under which organizations emerge, grow, and die.

2.3 ICT and Organizational Performance

Information Communication Technology (ICT) is a term used to refer to the use of computers or any other process that helps to produce, manipulate process, store,

communicate, and/or disseminate information and it includes hardware, software, databases, networks and other related components which are used to build information systems (Shaukat & Zafarullah, 2010). Traditionally, ICT investments included IT equipment, communications equipment and software (pre-packaged software, customized software and software developed in-house) (OECD Fact book, 2011-2012). Present-day ICT investments include intellectual capital structure and complementary assets such as human capital, organizational capital, process capital, innovation capital, customer capital and financial capital (Yi-Ming Tu et al, 2010). Different firms allocate their resources differently in a way that maximizes their objectives and those firms that allocate more resources on IT perform better than those firms that allocate less resource (McAfee & Brynjolfsson, 2008). Achieving high performance therefore requires; good ICT infrastructure supported by good ICT management practice (Mwania & Muganda, 2012).

Bell technology solutions enumerate several benefits that can accrue to the organization with the proper implementation of ICT. It helps organizations to connect, collaborate and compete more effectively by combining information, knowledge, processes, and technology to provide a foundation for driving efficiencies and fuelling innovation. Business performance, productivity and profitability are improved, cost is reduced, quality becomes the focal point of the management and customer satisfaction takes the center stage (Bell IT solutions).

One of the findings of the research projects conducted by MIT, the management of the 1990s, was that ICT can help integrate the functions of the activity at all levels within and among organizations (Scott, 2001). ICT can be a means of facilitating communication

and the exchange of information between various departments and functions in the organization and in this light Technology acts as an enhancer of collaboration and networking tool amongst employees, customers and partners because it removes the barriers to real-time communication and effective information sharing (Scott, 2001).

ICT helps companies innovate through fusion of new technologies with society and business thus enabling the creation of new knowledge and discovery (Diem, 2007). ICT is being used by organizations to improve performance, communication, motivate employees, increase competitiveness, improve market dynamics, and repositions the company against its competitors and allowing entry into new markets (Hagen, 2010).

ICT contributes to goals such as; Information access for all, Wellbeing and quality of life for all, Enrichment in the social contact between people, Integration and respect for diversity, Greater autonomy for the individual, Prevention of various kinds of overload and stress, Deepening of true human qualities, Deepening and broadening of democracy, E-cooperation and peace, Sustainability in a broad sense, including the environment, economy, and human side (Bradley, 2010). Knowledge sharing is virtuous for organizations and Technology facilitates knowledge sharing by providing a link between the levels of the individual knowledge workers, where knowledge resides, and the level of the organization, where knowledge attains its (economic, competitive) value (Hendriks, 1999). ICT also facilitates access to meta-knowledge, using technology that facilitates the access to information bases stored in data that are relevant beyond the individual level (Hendriks, 1999).

At the organizational level there are those factors which influence a firm's ICT adoption including anticipated benefits and anticipated barrier. An organization will adopt the new ICT if it perceives there will be savings of inputs, general efficiency, gains, higher flexibility and improvement of product quality (Brynjolfsson & Hitt, 1996). Also a firm will fail to adopt the new ICT if it perceives that the organization is faced with unfavorable financial conditions, human capital restrictions (lack of IT specialists, multi-skilled workers), information and knowledge barriers and managerial barriers like resistance to the new technology within the firm (Heinz, 2002). Technology diffusion theory also contributes to the literature of ICT adoption by stating that skilled machine-users adopt a new technology first, while unskilled users wait until machines become more reliable and accessible (Mukoyama, 2003).

Rogers (1995) in his diffusions of innovation theory categorized five stages of adopters namely; innovators, early adopters, early majority, late majority and laggards (Rogers, 1995). Organizations as well as individual can fall in either category and each depended on adopter's willingness and ability to adopt an innovation, awareness, interest, evaluation, trial, exposure, and capacity to adopt. Also the ease of adoption depended on the characteristic of the technology, functionality and ease of adoption. Hence, technology adoption can be said to depend on both the characteristic of the technology in question and the adopting unit (Javier & Frank, 2006).

Different schools of thought have been presented on ICT productivity with one school of thought contending that ICT investment is an input into a firm's production function (Brynjolfsson and Hitt, 1996) and the other school of thought is that ICT investment is

process oriented and examines relationship between output performance, including efficiency and quality, and other input factors at various levels such as capacity utilization, inventory turnover, relative prices, and product quality (Kauffman & Kreibel, 1991). These schools of thought contend that IT investments do have a positive impact on organizations productivity.

The impact of ICT investments on a company's output and productivity depends on the size of the company because the decisions are based on different expectations in different company sizes (Dozier & Chang, 2006). Dozier and Chang (2006) in their concluding remarks stated that on average, sectors with large companies dedicated a larger percentage of their business expenses to information technology than smaller companies and that with higher Technology levels employees level decreased resulting in higher efficiency and higher productivity level.

Developed countries have higher productivity level related to ICT investment than developing countries (Dedrick, Shih & Kraemer, 2006). The reasons given are; developing countries lacked complementary assets such as human capital and telecommunications infrastructure needed to support Technology use and had less experience with Technology, and as a result had not learned to use Technology effectively. The other reason was lack of appropriate productivity measuring techniques to capture the impacts of Technology on productivity in standard production function models (Dedrick, Shih & Kraemer, 2006). Government policy on openness to the global economy also influences the impacts of Technology productivity. Global openness can

provide access to a broad range of technical and managerial knowledge that exists beyond its borders (Dedrick, Shih & Kraemer, 2006).

2.4 Summary of the Chapter

From the foregoing review of relevant literature, it was evident that research in the area of bank innovations has been done but not in a comprehensive approach. All the literature reviewed indicated that previous researchers only concentrated on a few variables of innovations while this study covered additional important variables that were omitted by previous studies like electronic funds transfer systems, mobile banking and point of sale terminals. This makes the study more comprehensive. From survey of relevant literature, it was found that there are few studies specific to Kenya on the link of financial innovations and performance of commercial banks and they omitted moderating variables. This study therefore filled these pertinent gaps in literature by studying the effects of bank innovations on selected key performance indicators of commercial banks in Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the approach taken in handling the research. It covers the research design, population of the study, data collection and data analysis methods that will be deployed to achieve research objective.

3.2 Research Design

The study was a cross-sectional survey. The survey was of the existing commercial banks in Kenya. This was a qualitative research which relied on qualitative data. This research investigated the why and how of decision making. It is very suitable where questions such as how, why and what are investigated regarding a certain phenomena and it allows for in-depth exploration of issues. The answers to the questions are able to give a real picture of the situation without interference by the researcher.

3.3 Population of the Study

The study focused on all commercial banks existing in the industry shown in the appendix. Central Bank of Kenya (2014) puts the number of commercial banks in Kenya as 43 by the end of the year 2014. The unit of analysis was individual commercial bank represented by the relevant bank staff the branches did not count as separate units.

The commercial banking sector has been selected largely because the banking industry has always taken a leading role in the implementation of modern ICT solutions. Again, it

is an attractive field of study because the banking industry invests a lot in technological infrastructure (Misati *et al.,* 2010).

3.4 Data Collection

Data was collected through the use of primary and secondary data collection methods. Primary data is data that is generated first time for purposes of the research at hand. The primary data was collected through the use of a semi-structured questionnaire, having both open-ended and closed-ended questions (as attached in the appendix I). The questionnaire was divided into two parts. The first part got the demographic information on the bank that was deemed relevant for the study while the second part examined the level of technology adoption within the banking sector and the effect of technology on performance of the banking sector in Kenya. The 5-scale Likert type scale has been adopted for the study. The questionnaires were delivered personally and through email. Follow up was done through emails, telephone calls and personal visits.

Secondary data is data that already exists in various records because they are collected for other purposes other than that of the research at hand. The secondary data comprised of data from journals, media sources, banking websites, newsletters, banking brochures and from the legislating authorities being Central Bank of Kenya (CBK) and Kenya bankers association (KBA).

3.5 Data Analysis

Data analysis means categorizing, manipulating, summarising and presenting data so as to obtain answers to the research question. The purpose of data analysis is therefore to obtain meaning from the data that had been collected.

Before processing the responses, the completed questionnaires were sorted, checked and edited for completeness and consistency. The data was then coded to enable the responses to be grouped into various categories. Descriptive statistics techniques were used to analyze the quantitative data. Coding was done in SPSS, analyzed and the output interpreted in frequencies, percentages, mean scores, standard deviation and rankings. The findings were presented using tables, graphs and pie charts. This was enhanced by an explanation and interpretation of the data.

In addition, the study conducted a multiple regression analysis to determine the relationship between technology and firm performance where the technology variables were regressed against the firm performance. The results of the regression analysis were interpreted based on the R square, significance of F statistics and the significance of beta values from the coefficients of the X variables. Significance was tested at 5% level. The regression model was ($\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon}$):

Whereby Y = Firm Performance

X_1 = Automated Teller Machines (ATMs)

X_2 = Debit & Credit Cards

X_3= Point of Sale (POS) Terminals

X_4 = Mobile Banking

X_5 = Internet Banking

X_6 = Electronic Funds Transfer

$\mathbf{e_t}$ = Error term and $\boldsymbol{\beta_0}$ $\boldsymbol{\beta_1}$ $\boldsymbol{\beta_2}$ $\boldsymbol{\beta_3}$ and $\boldsymbol{\beta_4}$ are the regression equation coefficients for each of the variables discussed.

CHAPTER FOUR: DATA ANALYSIS FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the study's findings based on analysis of its primary data. To facilitate ease of dissemination and understanding for the target audience, presentation of findings is done using tables and figures. Moreover, below each statistical presentation relevant explanations and interpretations are given.

4.2 Response Rate

From the targeted population of 43 respondents who were all drawn from commercial banks in Kenya, 38 responded. This added up to a response rate of 88%, which was considerably sufficient to guarantee representative findings. According to Bell (2005), a response rate of 60% is adequate to permit data analysis. Table 4.1 shows the contributive proportions of responses obtained.

Table 4.1: Response Rate

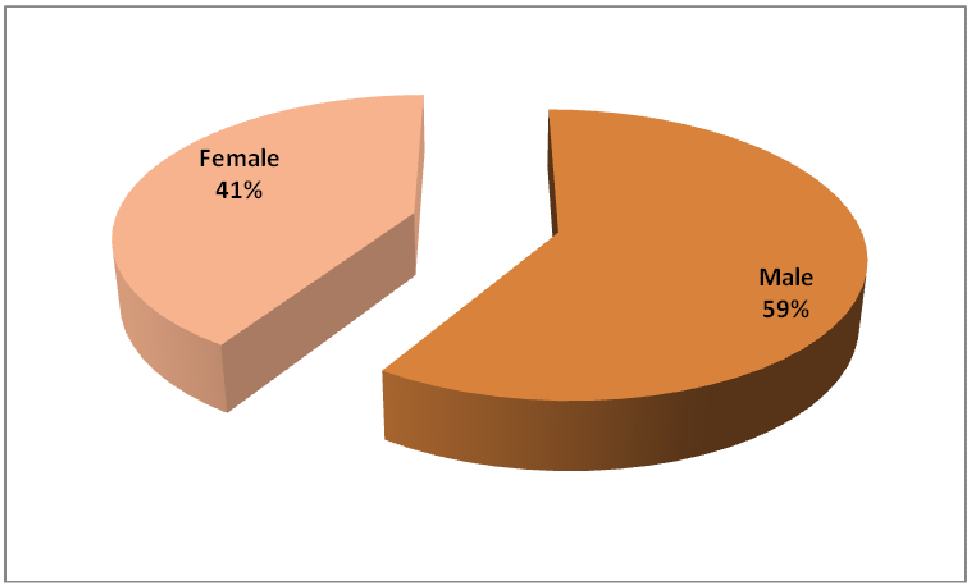
	Frequency	**Percent (%)**
Responded	38	88
Non-respondents	5	12
Total	**43**	**100**

4.3: Demographic Characteristics

4.3.1 Respondents by Gender

The respondents were requested to indicate their gender. Accordingly, the findings are as presented in the Figure 4.1.

Figure 4.1: Respondents Gender



According to the findings, majority (59%) were male and 41 % were female. This implies that even though most of the responses emanated from males there was gender balance.

4.3.2 Respondents' Distribution by Age

The study sought to establish the age of the respondents and the findings are as shown in Table 4.2.

Table 4.2: Respondents' Distribution by Age

	Frequency	Percent (%)
20-28 years	2	6
29-35 years	6	17
36-43 years	16	42
44-51 years	11	28
Above 51 years	3	7
Total	**38**	**100.0**

Most (16) of the respondents were 36-43 years, 11 were 44-51 years, 6 were 29-35 years, 3 were above 51 years and 2 were 20-28 years. This depicts that most of the respondents were 36-43 years old.

4.3.3 Respondents Highest Level of Education

The respondents were asked to indicate their highest level of education and the findings are as illustrated in Table 4.3.

Table 4.3: Respondents Highest Level of Education

Category	Frequency	Percentage (%)
Bachelor level	15	39%
Master's Level	23	61%
Total	**38**	**100**

In terms of their education level, the study findings show that 61% had reached Master's level and 39% had reached Bachelor's level. This depicts that all respondents had attained university education.

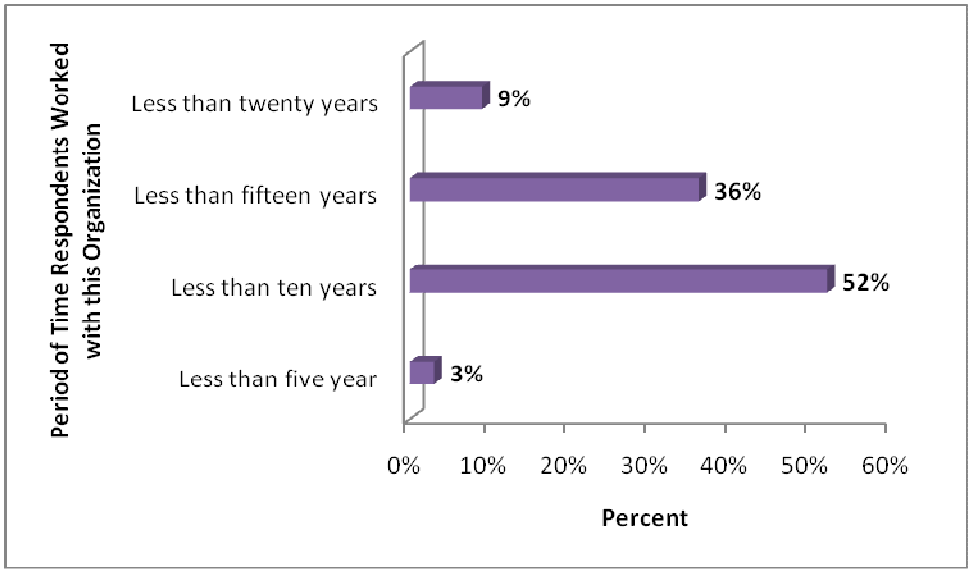
4.3.4 Respondents' by Department

The respondents were asked to indicate the department they are based in their organization. All the respondents stated that they were based in the ICT department. This information shows that the respondents could be relied upon to give accurate information with regard to the effect of the use of information communication technology (ICT) on firm performance of commercial banks in Kenya.

4.3.5 Period of Time Respondents Worked with this Organization

The study requested the respondents to state how long they have worked with their organization.

Figure 4.2: Period of Time Respondents Worked with this Organization



The study found that 52% of the respondents had worked in their organization for less than ten years, 36% of the respondents had worked in their organization less than fifteen years, 9% of the respondents had worked in their organization for less than twenty years and 3% of the respondents had worked in their organization for less than five years. This depicts that the most of the respondents have worked for their organization for a reasonable period of time and therefore had accumulated a lot of knowledge and skills over time making them suitable to provide information for this study.

4.4 Level of ICT Adoption in Respondents Bank

The study investigated the ICTs that have been adopted by the respondents' organization. The findings are presented in the table below.

Table 4.4: Level of ICT Adoption in Respondents Bank

TECHNOLOGY ADOPTION	Frequency Level
Automated Teller Machines (ATMs)	43
Debit & Credit Cards	43
Point of Sale (POS) Terminals	43
Mobile Banking	43
Internet Banking	43
Electronic Funds Transfer	43

The findings reveal that the respondents bank had adopted various ICTs including; Automated Teller Machines (ATMs), Debit & Credit Cards, Point of Sale (POS)

Terminals, Mobile Banking, Internet Banking and Electronic Funds Transfer as indicated by the frequency level of 43 each.

4.5 Effect of the Use of ICT on Total Income

The study investigated the effect of bank ICT on incomes of the bank by requesting their respondents to indicate their level agreement with statements relating to effect of bank ICT on incomes of the bank. The findings are as presented in Table 4.5.

Table 4.5: Effect of the Use of ICT on Total Income

	Mean	**Std Dev.**
Automated Teller Machines (ATMs)		
ATMs have had a positive effect of increasing commission fee based income	3.86	0.225
ATMs have influenced positively the increase of interest based income	3.99	0.135
ATMs have expanded the income generating potential of the bank	4.45	0.415
Overall	**4.10**	**0.258**
Debit & Credit Cards		
Debit & credit cards have had a positive effect of increasing commission fee based income	3.97	0.169
Debit & credit cards have influenced positively the increase of interest based income	4.42	0.333
Debit & credit cards have expanded the income generating potential of the bank	4.36	0.178
Overall	**4.25**	**0.227**
Point of Sale (POS) Terminals		
POS terminals have had a positive effect of increasing commission fee based income	3.91	0.211
POS terminals have influenced positively the increase of interest based income	3.71	0.241
POS terminals have expanded the income generating potential of the bank	4.29	0.346

Overall	**3.97**	**0.266**
Mobile Banking		
Mobile banking has had a positive effect of increasing commission fee based income	4.01	0.445
Mobile banking has influenced positively the increase of interest based income	4.22	0.177
Mobile banking has expanded the income generating potential of the bank	4.49	0.341
Overall	**4.24**	**0.321**

As shown in Table 4.5, most of the respondents agreed that bank ICT had an effect on incomes of the bank. To begin with mobile banking was found to have expanded the income generating potential of the bank (mean= 4.46). Influenced positively the increase of interest based income (mean=4.22). Had a positive effect of increasing commission fee based (mean=4.01). POS terminals have expanded the income generating potential of the bank (mean= 4.29). POS terminals have influenced positively the increase of interest based income (mean= 3.71) and that POS terminals have had a positive effect of increasing commission fee based income (mean= 3.91). Debit & credit cards have expanded the income generating potential of the bank (mean= 4.36). Debit & credit cards have influenced positively the increase of interest based income (mean=4.42). Debit & credit cards have had a positive effect of increasing commission fee based income (mean=3.97). ATMs have expanded the income generating potential of the bank (mean= 4.45). ATMs have influenced positively the increase of interest based income (mean= 3.99) and ATMs have had a positive effect of increasing commission fee based income (mean= 3.86).

The findings indicate that the use of ICT has led to a positive effect on the total income of the banks specifically in relation to increasing commission fee based income, increase of interest based income and expanding the income generating potential of the bank enhancing the performance of the organizations. In addition, debit & credit cards were found to have the highest effect on the total income of the banks followed closely by mobile banking, Automated Teller Machines (ATMs) and Point of Sale (POS) Terminals respectively.

4.6 Effect of Bank ICT on Return on Assets

The study sought to investigate the effect of ICT on return on assets of the bank. Respondents were therefore asked to indicate their level of agreement with statements regarding the effect of ICT on return on assets in their bank. The findings are presented in Table 4.6.

Table 4.6: Effect of Bank ICT on Return on Assets

Automated Teller Machines (ATMs)	**Mean**	**Std Dev.**
ATMs influence reduction of operational costs and hence better return on assets for the bank	4.21	0.421
ATMs investments have payback period of less than 3 years and hence good return on assets	4.03	0.211
Incomes from ATMs have had positive impact on bank income margins	4.37	0.216
Overall	**4.20**	**0.283**
Debit & Credit Cards		
Debit & credit cards influence reduction of operational costs and hence better return on assets for the bank	3.87	0.220
Debit & credit cards investments have payback period of less than 3 years and hence good return on assets	4.26	0.149

Incomes from debit & credit cards have had positive impact on bank income margins	4.37	0.015
Overall	**4.17**	**0.128**
Point of Sale (POS) Terminals		
POS terminals influence reduction of operational costs and hence better return on assets for the bank	4.22	0.167
POS terminals investments have payback period of less than 3 years and hence good return on assets	3.96	0.322
Incomes from POS terminals have had positive impact on bank income margins	4.41	0.218
Overall	**4.20**	**0.236**
Mobile Banking		
Mobile banking influence reduction of operational costs and hence better return on assets for the bank	4.16	0.118
Mobile banking investments have payback period of less than 3 years and hence good return on assets	3.78	0.103
Incomes from mobile banking have had positive impact on bank income margins	4.39	0.217
Overall	**4.11**	**0.146**
Internet Banking		
Internet banking influence reduction of operational costs and hence better return on assets for the bank	4.11	0.145
Internet banking investments have payback period of less than 3 years and hence good return on assets	4.24	0.264
Incomes from internet banking have had positive impact on bank income margins	4.51	0.338
Overall	**4.29**	**0.249**
Electronic Funds Transfer		
Electronic funds transfer influence reduction of operational costs and hence better return on assets for the bank	4.06	0.233
Electronic funds transfer investments have payback period of less than 3 years and hence good return on assets	4.22	0.177
Incomes from electronic funds transfer have had positive impact on bank income margins	4.30	0.189
Overall	**4.19**	**0.200**

The findings in Table 4.6, most of the respondents agreed that ICT had an effect on return on assets of the banks. Firstly incomes from ATMs have had positive impact on bank income margins (mean= 4.37), ATMs influence reduction of operational costs and hence better return on assets for the bank (mean=4.21) and ATMs investments have payback period of less than 3 years and hence good return on assets (mean= 4.03). Incomes from debit & credit cards have had positive impact on bank income margins (mean=4.37). Debit & credit cards investments have payback period of less than 3 years and hence good return on assets (mean= 4.26). Debit & credit cards influence reduction of operational costs and hence better return on assets for the bank (mean= 3.87). Incomes from POS terminals have had positive impact on bank income margins (mean= 4.41). POS terminals influence reduction of operational costs and hence better return on assets for the bank (mean= 4.22) and that POS terminals investments have payback period of less than 3 years and hence good return on assets (mean= 3.96). Incomes from mobile banking have had positive impact on bank income margins (mean=4.39). Mobile banking influence reduction of operational costs and hence better return on assets for the bank (mean=4.16). Mobile banking investments have payback period of less than 3 years and hence good return on assets (mean=3.78).

Incomes from internet banking have had positive impact on bank income margins (mean= 4.51). Internet banking investments have payback period of less than 3 years and hence good return on assets (mean= 4.24). Internet banking influence reduction of operational costs and hence better return on assets for the bank (mean= 4.11). Incomes from electronic funds transfer have had positive impact on bank income margins (mean=4.30).

Electronic funds transfer investments have payback period of less than 3 years and hence good return on assets (mean=4.22). Electronic funds transfer influence reduction of operational costs and hence better return on assets for the bank (mean=4.06).

These findings imply that the use of ICT has led to a positive effect on the return on assets of the banks. ICT has influenced the income margins, payback period of less than 3 years and reduction of operational costs. Finally, the findings further portray that internet banking has the highest effect on the return on assets of the banks followed by automated teller machines (ATMs), point of sale (POS) terminals, electronic funds transfer, debit & credit cards as well as mobile banking respectively.

4.7 Effect of Bank ICT on Bank Profitability

The respondents were asked to state their level of agreement with statements regarding the effect of bank ICT on profitability of the bank. The findings are as presented in Table 4.7.

Table 4.7: Effect of Bank ICT on Bank Profitability

	Mean	**Std**
Automated Teller Machines (ATMs)		
Income from ATMs has high margin hence contributing positively to bank annual profitability	4.39	0.218
ATMs have low maintenance costs leading to high levels of profitability over their economic lifetime	4.41	0.002
Investment in ATMs in mostly motivated by profits to the bank	4.46	0.014
Overall	**4.42**	**0.078**

Debit & Credit Cards		
Income from debit and credit cards has high margin hence contributing positively to bank annual profitability	3.96	0.317
Debit and credit cards have low maintenance costs leading to high levels of profitability over their economic lifetime	4.02	0.247
Investment in debit and credit cards is mostly motivated by profits to	4.06	0.328
Overall	**4.01**	**0.297**
Electronic Funds Transfer		
Income from electronic funds transfer has high margin hence contributing positively to bank annual profitability	4.09	0.247
Electronic funds transfer have low maintenance costs leading to high levels of profitability over their economic lifetime	4.11	0.366
Investment in electronic funds transfer is mostly motivated by profits to the bank	4.28	0.139
Overall	**4.16**	**0.251**
Point of Sale (POS) Terminals		
Income from POS terminals has high margin hence contributing positively to bank annual profitability	3.96	0.271
POS terminals have low maintenance costs leading to high levels of profitability over their economic lifetime	4.01	0.211
Investment in POS terminals is mostly motivated by profits to the bank	4.16	0.148
Overall	**4.04**	**0.210**
Mobile Banking		
Income from mobile banking has high margin hence contributing positively to bank annual profitability	4.06	0.271
Mobile banking has low maintenance costs leading to high levels of profitability over their economic lifetime	4.22	0.325
Investment in mobile banking is mostly motivated by profits to the bank	4.00	0.442
Overall	**4.09**	**0.346**

Internet Banking		
Income from internet banking has high margin hence contributing positively to bank annual profitability	4.33	0.292
Internet banking has low maintenance costs leading to high levels of profitability over their economic lifetime	4.18	0.211
Investment in internet banking is mostly motivated by profits to the	4.27	0.387
Overall	**4.26**	**0.297**

From the findings in Table 4.7 majority of the respondents agreed that ICT had an effect on profitability of the banks. To start with investment in ATMs in mostly motivated by profits to the bank (mean= 4.46). ATMs have low maintenance costs leading to high levels of profitability over their economic lifetime (mean=4.41). Income from ATMs has high margin hence contributing positively to bank annual profitability (mean= 4.39). Investment in debit and credit cards is mostly motivated by profits to the bank (mean=4.06). Debit and credit cards have low maintenance costs leading to high levels of profitability over their economic lifetime (mean= 4.02). Income from debit and credit cards has high margin hence contributing positively to bank annual profitability (mean= 3.96). Investment in electronic funds transfer is mostly motivated by profits to the bank (mean=4.28). Electronic funds transfer have low maintenance costs leading to high levels of profitability over their economic lifetime (mean=4.11). Income from electronic funds transfer has high margin hence contributing positively to bank annual profitability (mean=4.09). Investment in POS terminals is mostly motivated by profits to the bank (mean=4.16). POS terminals have low maintenance costs leading to high levels of profitability over their economic lifetime (mean= 4.01). Income from POS terminals has high margin hence contributing positively to bank annual profitability (mean= 3.96).

Mobile banking has low maintenance costs leading to high levels of profitability over their economic lifetime (mean=4.22). Income from mobile banking has high margin hence contributing positively to bank annual profitability (mean= 4.06). Investment in mobile banking is mostly motivated by profits to the bank (mean= 4.00). Additionally, income from internet banking has high margin hence contributing positively to bank annual profitability (mean= 4.33). Investment in internet banking is mostly motivated by profits to the bank (mean= 4.27). Internet banking has low maintenance costs leading to high levels of profitability over their economic lifetime (mean= 4.18).

The findings indicate that the use of ICT has positively affected the profitability of the banks through high margin and low maintenance costs. The findings also portray that automated teller machines (ATMs) coming in next was internet banking, electronic funds transfer, mobile banking, point of sale (POS) terminals and debit & credit cards respectively.

4.8 Effect of Bank ICT on Customer Deposits

The study investigated the effect of bank ICT on deposits of the respondents' bank. The findings are tabulated below.

Table 4.8: Effect of Bank ICT on Customer Deposits

Automated Teller Machines (ATMs)	**Mean**	**Std**
ATM services have attracted more retail depositors for the bank	3.96	0.224
ATMs have enabled customers to access their deposits with ease for withdrawal	3.99	0.251

ATMs have attracted corporate depositors and deposits	4.02	0.413
Overall	**3.99**	**0.296**
Debit & Credit Cards		
Debit & credit cards services have attracted more retail depositors for	4.12	0.336
Debit & credit cards services have enabled customers to access their deposits with ease for withdrawal	4.07	0.189
Debit & credit cards services have attracted corporate depositors and deposits	3.69	0.116
Overall	**3.96**	**0.214**
Point of Sale (POS) Terminals		
POS terminal services have attracted more retail depositors for the	3.88	0.007
POS terminal services have enabled customers to access their deposits with ease for withdrawal	4.02	0.337
POS terminal services have attracted corporate depositors and deposits	4.03	0.218
Overall	**3.98**	**0.187**
Mobile Banking		
Mobile banking services have attracted more retail depositors for the	4.14	0.003
Mobile banking services have enabled customers to access their deposits with ease for withdrawal	4.19	0.220
Mobile banking services have attracted corporate depositors and	4.09	0.141
Overall	**4.14**	**0.121**
Internet Banking		
Internet banking services have attracted more retail depositors for the	4.29	0.336
Internet banking services have enabled customers to access their deposits with ease for withdrawal	4.32	0.521
Internet banking services have attracted corporate depositors and deposits	3.96	0.229

Overall	**4.19**	**0.362**
Electronic Funds Transfer		
Electronic funds transfer services have attracted more retail depositors for the bank	4.05	0.247
Electronic funds transfer have enabled customers to access their deposits with ease for withdrawal	3.96	0.224
Electronic funds transfer have attracted corporate depositors and deposits	3.99	0.251
Overall	**4.00**	**0.241**
Mobile Phones		
Use of mobile phones has increased customer access to bank services	4.07	0.189
Use of mobile phones has added to more profitable business avenues to the bank	4.12	0.336
The use of mobile phones has improved the level of deposits for the	4.02	0.413
Use of mobile phones has led to more bank innovations	4.09	0.116
Mobile phones have led to more retail customers than corporate customers to the bank	3.94	0.225
Overall	**4.05**	**0.256**
Internet Services		
Use of internet services has increased customer access to bank services	4.02	0.337
Use of internet services has added to more profitable business avenues to the bank	4.03	0.218
The use of internet services has improved the level of deposits for the	4.09	0.141
Use of internet services has led to more bank innovations	4.14	0.003
Internet services have led to more retail customers than corporate customers to the bank	4.19	0.220
Overall	**4.09**	**0.184**

The respondents were asked to rate a series of statements on the effect of bank ICT on customer deposits of their bank. As shown in table 4.8, most of the respondents agreed that ATMs have attracted corporate depositors and deposits (mean= 4.02). ATMs have enabled customers to access their deposits with ease for withdrawal (mean=3.99). ATM services have attracted more retail depositors for the bank (mean= 3.96). Debit & credit cards services have attracted more retail depositors for the bank (mean=4.12). Debit & credit cards services have enabled customers to access their deposits with ease for withdrawal (mean= 4.07). Debit & credit cards services have attracted corporate depositors and deposits (mean= 3.69). POS terminal services have attracted corporate depositors and deposits (mean=4.03). POS terminal services have enabled customers to access their deposits with ease for withdrawal (mean=4.02). POS terminal services have attracted more retail depositors for the bank (mean=3.88). Mobile banking services have enabled customers to access their deposits with ease for withdrawal (mean=4.19). Mobile banking services have attracted more retail depositors for the bank (mean= 4.14). Mobile banking services have attracted corporate depositors and deposits (mean= 4.09). Internet banking services have enabled customers to access their deposits with ease for withdrawal (mean=4.32). Internet banking services have attracted more retail depositors for the bank (mean= 4.29). Internet banking services have attracted corporate depositors and deposits (mean= 3.96). Furthermore, electronic funds transfer services have attracted more retail depositors for the bank (mean= 4.05). Electronic funds transfer have attracted corporate depositors and deposits (mean= 3.99). Electronic funds transfer have enabled customers to access their deposits with ease for withdrawal (mean= 3.96).

Use of mobile phones has added to more profitable business avenues to the bank (mean=4.12). Use of mobile phones has led to more bank innovations (mean= 4.09). Use of mobile phones has increased customer access to bank services (mean=4.07). The use of mobile phones has improved the level of deposits for the bank (mean= 4.02). Mobile phones have led to more retail customers than corporate customers to the bank (mean= 3.94). Internet services have led to more retail customers than corporate customers to the bank (mean=4.19). Use of internet services has led to more bank innovations (mean=4.14). The use of internet services has improved the level of deposits for the bank (mean=4.09). Use of internet services has added to more profitable business avenues to the bank (mean=4.03). Use of internet services has increased customer access to bank services (mean= 4.02).

According to the findings, it can be deduced that the effect of bank ICT on customer deposits in the respondents bank is positive. This is in regard to attracting corporate depositors and deposits, enabling customers to access their deposits with ease for withdrawal as well as attracting more retail depositors for the bank.

4.9 Inferential statistics

This section presents a discussion of the results of inferential statistics. The study conducted a multiple regression analysis to determine the relative importance of each of the variables with respect to firm performance of banks. The study applied the statistical package for social sciences (SPSS) to code, enter and compute the measurements of the multiple regressions for the study. Findings are presented in the following tables;

Table 4.9: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	. 918[a]	.843	.805	.51038

a. Predictors: (Constant), Automated Teller Machines (ATMs), Debit & Credit Cards, Point of Sale (POS) Terminals, Mobile Banking, Internet Banking, Electronic Funds Transfer

b. Dependent Variable: firm performance of banks

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (firm performance of banks) that is explained by all the four independent variables (Automated Teller Machines (ATMs), Debit & Credit Cards, Point of Sale (POS) Terminals, Mobile Banking, Internet Banking and Electronic Funds Transfer).

The six independent variables that were studied, explain 84.3% of variance in firm performance of banks as represented by the R^2. This therefore means that other factors not studied in this research contribute 15.7% of variance in the dependent variable. Therefore, further research should be conducted to investigate the other technological factors that affect firm performance of banks.

Table 4.10: ANOVA (Analysis of Variance)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.214	18	.114	11.833	.006[a]
	Residual	5.045	25	.200		
	Total	6.259	43			

a. Predictors: (Constant), Automated Teller Machines (ATMs), Debit & Credit Cards, Point of Sale (POS) Terminals, Mobile Banking, Internet Banking, Electronic Funds Transfer

b. Dependent Variable: performance of banks

Analysis of Variance (ANOVA) consists of calculations that provide information about levels of variability within a regression model and form a basis for tests of significance. The "F" column provides a statistic for testing the hypothesis that all $\beta \neq$ 0 against the null hypothesis that β = 0 (Weisberg, 2005). From the findings the significance value is .006 which is less that 0.05 thus the model is statistically significance in predicting how Automated Teller Machines (ATMs), Debit & Credit Cards, Point of Sale (POS) Terminals, Mobile Banking, Internet Banking and Electronic Funds Transfer affect firm performance of banks. The F critical at 5% level of significance was 3.23. Since F calculated is greater than the F critical (value = 11.833), this shows that the overall model was significant.

Table 4.11: Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	B	
(Constant)	3.374	.842		4.009	.000
Automated Teller Machines (ATMs)	0.842	.046	0.330	18.304	.001
Debit & Credit Cards	0.656	.13	0.032	5.046	.0041
Point of Sale (POS) Terminals	0.696	.060	.011	11.6000	.025
Mobile Banking	0.752	.88	0.167	0.855	.0015
Internet Banking	0.705	.65	0.154	1.085	.0022
Electronic Funds Transfer	0.672	.094	.131	7.1489	.038

From the regression findings, the substitution of the equation;

(**$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4$**) becomes:

$$Y = 3.374 + 0.842X_1 + 0.656X_2 + 0.696X_3 + 0.752X_4 + 0.705X_5 + 0.672X_6 +$$

Where Y is the dependent variable (performance of banks), X_1 is the Automated Teller Machines (ATMs) variable, X_2 is the Debit & Credit Cards, X_3 is Point of Sale (POS) Terminals variable, X_4 is the Mobile Banking variable, X_5 is the Internet Banking variable and X_6 is the Electronic Funds Transfer variable.

According to the equation, taking all factors (Automated Teller Machines (ATMs), Debit & Credit Cards, Point of Sale (POS) Terminals, Mobile Banking, Internet Banking, Electronic Funds Transfer) constant at zero, performance of banks will be 3.374. The data findings also show that a unit increase in Automated Teller Machines (ATMs) will lead to a 0.842 increase in performance of banks. A unit increase in Debit & Credit Cards will lead to a 0.656 increase in performance of banks, a unit increase in Point of Sale (POS)

Terminals will lead to a 0.696 increase in performance of banks. A unit increase in Mobile Banking will lead to a 0.752 increase in performance of banks. A unit increase in Internet Banking will lead to a 0.705 increase in performance of banks, a unit increase in Electronic Funds Transfer will lead to a 0.672 increase in performance of banks.

At 5% level of significance and 95% level of confidence, Automated Teller Machines (ATMs) had a 0.001 level of significance. Debit & Credit Cards had 0.0041. Point of Sale (POS) Terminals had 0.025. Mobile Banking had 0.0015. Internet Banking had 0.0022. Electronic Funds Transfer had 0.38 level of significance implying that the most significant factor is Automated Teller Machines (ATMs), Debit & Credit Cards, Point of Sale (POS) Terminals, Mobile Banking, Internet Banking and lastly Electronic Funds Transfer.

4.10 Discussion of Findings

The main objective of this study is to examine the impact of information and communication technology (ICT) on the efficiency of commercial banks in Kenya. In order to do that some important variables such as, ATM usability, e-banking services, Point of Sale Terminals, Debit and Credit Cards usage were regressed on return on Firm Performance.

The results from the regression model show that the use of ICT in the banking industry does have an impact on the improved performance of the selected banks.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary and discussion of the findings, it also provides the conclusions and recommendations of the study based on the objectives of the study. The objectives of this study were to assess the level of adoption as well as the effect of information communication technology (ICT) within the commercial banks in Kenya.

5.2 Summary of the Findings

The results of the study indicate that the investment on ICT in banks has become a key element of productivity and profitability of the Kenyan banking industry. Increased investment in this area has contributed to the Kenya's overall growth. The study reveals that ICT also enables banks to offer a broad variety of services to clients and automate operational activities within the organization as well as respond to market demands and completion.

5.2.1 The level of adoption of information communication technology (ICT) within the commercial banks in Kenya

The study found out that the banks had adopted various ICTs including; Automated Teller Machines (ATMs), Debit & Credit Cards, Point of Sale (POS) Terminals, Mobile Banking, Internet Banking and Electronic Funds Transfer.

5.2.2 The effect of information communication technology (ICT) within the commercial banks in Kenya

The study also found out that the bank ICT had an effect on incomes of the bank. To begin with mobile banking was found to have; expanded the income generating potential of the bank, influenced positively the increase of interest based income, had a positive effect of increasing commission fee based. POS terminals were found to have; expanded the income generating potential of the bank, influenced positively the increase of interest based income and have had a positive effect of increasing commission fee based income. Debit & credit cards were found to have; expanded the income generating potential of the bank, influenced positively the increase of interest based income have had a positive effect of increasing commission fee based income. ATMs were found to have; expanded the income generating potential of the bank, influenced positively the increase of interest based income and have had a positive effect of increasing commission fee based income.

The study established that ICT had an effect on return on assets of the banks. Firstly incomes from ATMs have had positive impact on bank income margins, ATMs influence reduction of operational costs and hence better return on assets for the bank and ATMs investments have payback period of less than 3 years and hence good return on assets. In addition, it was revealed that incomes from debit & credit cards have had positive impact on bank income margins. Debit & credit cards investments have payback period of less than 3 years and hence good return on assets. Debit & credit cards influence reduction of operational costs and hence better return on assets for the bank. Incomes from POS terminals were found to have had positive impact on bank income margins. POS terminals were found to influence reduction of operational costs and hence better return

on assets for the bank and POS terminals investments were found to have payback period of less than 3 years and hence good return on assets.

The study further determined that incomes from mobile banking have had positive impact on bank income margins. Mobile banking influence reduction of operational costs and hence better return on assets for the bank. Mobile banking investments have payback period of less than 3 years and hence good return on assets. In relation to internet banking the study found out that it had positive impact on bank income margins, the investments have payback period of less than 3 years and hence good return on assets and internet banking influence reduction of operational costs and hence better return on assets for the bank. Incomes from electronic funds transfer were found to have had positive impact on bank income margins, electronic funds transfer investments have payback period of less than 3 years and hence good return on assets and electronic funds transfer influence reduction of operational costs and hence better return on assets for the bank.

The study revealed that ICT had an effect on profitability of the banks. To start with investment in ATMs were found to be mostly motivated by profits to the bank, ATMs have low maintenance costs leading to high levels of profitability over their economic lifetime and income from ATMs has high margin hence contributing positively to bank annual profitability. Investment in debit and credit cards were also found to be mostly motivated by profits to the bank, the debit and credit cards were found to have low maintenance costs leading to high levels of profitability over their economic lifetime while income from debit and credit cards was found to have high margin hence contributing positively to bank annual profitability. Investment in electronic funds

transfer was found to be mostly motivated by profits to the bank, electronic funds transfer were also found to have low maintenance costs leading to high levels of profitability over their economic lifetime and income from electronic funds transfer was found to have high margin hence contributing positively to bank annual profitability.

Additionally the study established that investment in POS terminals is mostly motivated by profits to the bank, POS terminals have low maintenance costs leading to high levels of profitability over their economic lifetime and income from POS terminals has high margin hence contributing positively to bank annual profitability. According to the findings mobile banking has low maintenance costs leading to high levels of profitability over their economic lifetime, income from mobile banking has high margin hence contributing positively to bank annual profitability and investment in mobile banking is mostly motivated by profits to the bank. In relation to internet banking, the study found out that income from internet banking has high margin hence contributing positively to bank annual profitability, investment in internet banking is mostly motivated by profits to the bank and internet banking has low maintenance costs leading to high levels of profitability over their economic lifetime.

The study ascertained that bank ICT had an effect on customer deposits of their bank. To start with, ATMs were found to have attracted corporate depositors and deposits, have enabled customers to access their deposits with ease for withdrawal and its services have attracted more retail depositors for the bank. Debit & credit cards services were found to have attracted more retail depositors for the bank, have enabled customers to access their deposits with ease for withdrawal as well as attracting corporate depositors and deposits.

POS terminal services were also found to have attracted corporate depositors and deposits, enabled customers to access their deposits with ease for withdrawal and attracted more retail depositors for the bank. On the other hand mobile banking services were found to have enabled customers to access their deposits with ease for withdrawal, attracted more retail depositors for the bank and attracted corporate depositors and deposits. They study moreover found out that internet banking services have enabled customers to access their deposits with ease for withdrawal, attracted more retail depositors for the bank and attracted corporate depositors and deposit. Electronic funds transfer services have attracted more retail depositors for the bank, attracted corporate depositors and deposits and enabled customers to access their deposits with ease for withdrawal.

Use of mobile phones was found to; have added to more profitable business avenues to the bank, led to more bank innovations, increased customer access to bank services, improved the level of deposits for the bank and led to more retail customers than corporate customers to the bank. Finally, internet services were found to have led to more retail customers than corporate customers to the bank, led to more bank innovations, improved the level of deposits for the bank, added to more profitable business avenues to the bank and increased customer access to bank services.

5.3 Conclusion

Based on the findings, this study concludes that the banks had adopted various ICTs including; Automated Teller Machines (ATMs), Debit & Credit Cards, Point of Sale (POS) Terminals, Mobile Banking, Internet Banking and Electronic Funds Transfer.

The study further concludes that the effect of bank ICT on customer deposits in the respondents bank is positive. This is in regard to attracting corporate depositors and deposits, enabling customers to access their deposits with ease for withdrawal as well as attracting more retail depositors for the bank.

Additionally, the study concludes that ICT has led to a positive effect on the total income of the banks specifically in relation to increasing commission fee based income, increase of interest based income and expanding the income generating potential of the bank enhancing the performance of the organizations. In addition, debit & credit cards have the highest effect on the total income of the banks followed closely by mobile banking, Automated Teller Machines (ATMs) and Point of Sale (POS) Terminals respectively.

The study also concludes that the use of ICT has led to a positive effect on the return on assets of the banks. ICT has influenced the income margins, payback period of less than 3 years and reduction of operational costs. Internet banking has the highest effect on the return on assets of the banks followed by automated teller machines (ATMs), point of sale (POS) terminals, electronic funds transfer, debit & credit cards as well as mobile banking respectively.

Finally, the study concludes that the use of ICT has positively affected the profitability of the banks through high margin and low maintenance costs. Automated teller machines (ATMs) has the highest effect on the profitability of the banks coming in next was internet banking, electronic funds transfer, mobile banking, point of sale (POS) terminals and debit & credit cards respectively.

5.4 Recommendations

Based on the finding, this study recommends that;

The banks management should consider ICT usages through their organizational levels and try to expose the positive influences of ICT in their organizations. Moreover, this research indicates ICT can be developed to produce products for increasing performance of the organizations.

Although ICT adoption in the organization improves performance, managers should be aware that without complementary investment this opportunity may change to threat.

The banks management should provide appropriate infrastructure in order to reengineer the business processes and stabilize and support the positive contribution of ICT in performance.

5.5 Suggestions for further Studies

Nowadays, ICT investments become much more important for companies not only as the new technologies to produce products but also as the enabler to increase performance.

This study investigated the level of adoption as well as the effect of information communication technology (ICT) within the commercial banks in Kenya.

As a recommendation for future research, researchers should investigate this topic in other sectors or other governmental companies in Kenya to compare the findings. Furthermore, economic view is the approach that directed this study, it is suggested that future researchers investigate the impact of ICT from other perspectives, such as influences of ICT in creating value for customers or impact of ICT on other resources like labors. It is also useful to investigate the impact of ICT in organizational culture.

5.6 Limitations of the Study

The study is limited to the banking industry in Kenya. It recommends research in other sectors of the economy such as telecommunications which is a key driver of the country's economy.

It also limits the scope to internet banking, ATMs, e-banking services without scrutinizing the operating models and the difference in automation within the banks structures.

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APPENDICES

Appendix I: Research Questionnaire

SECTION A: Demographic Information

(Please complete this section by checking the correct answer)

1. What is your gender? ☐ Male ☐ Female

2. What is your age Bracket?

   20-28 ☐ 28-35 ☐ 36-43 ☐ 44-51 ☐ Above 51 ☐

3. What is your level of education?

   Certificate/ Diploma level ☐

   Bachelor level ☐

   Master's Level ☐

   PhD level ☐

4. What department are you based in the organization?.....

5. How long have you worked with this organization?

   Less than five year ( )

Less than ten years ( )

Less than fifteen years ( )

Less than twenty years ( )

More than twenty years ( )

SECTION B: LEVEL OF ICT ADOPTION IN YOUR BANK

6. Which of the following ICTs have been adopted by your organization? Tick where appropriate.

TECHNOLOGY ADOPTION	**X**
Automated Teller Machines (ATMs)	
Debit & Credit Cards	
Point of Sale (POS) Terminals	
Mobile Banking	
Internet Banking	
Electronic Funds Transfer	
Others…….	

SECTION C: EFFECT OF THE USE OF ICT ON TOTAL INCOME

7. This section has statements regarding the effect of bank ICT on incomes of the bank. Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (√) or cross mark (x). *Use a scale of 1 to 5 where 1 is to no extent and 5 is to a great extent.*

	1	2	3	4	5
Automated Teller Machines (ATMs)					
ATMs have had a positive effect of increasing commission fee based income					
ATMs have influenced positively the increase of interest based income					
ATMs have expanded the income generating potential of the bank					
Debit & Credit Cards					
Debit & credit cards have had a positive effect of increasing commission fee based income					
Debit & credit cards have influenced positively the increase of interest based income					
Debit & credit cards have expanded the income generating potential of the bank					
Point of Sale (POS) Terminals					
POS terminals have had a positive effect of increasing commission fee based income					
POS terminals have influenced positively the increase of interest based income					
POS terminals have expanded the income generating potential of the bank					
Mobile Banking					
Mobile banking has had a positive effect of increasing commission fee based income					
Mobile banking has influenced positively the increase of interest based income					
Mobile banking has expanded the income generating potential of the bank					

SECTION D: EFFECT OF BANK ICT ON RETURN ON ASSETS

8. This section has statements regarding the effect of ICT on return on assets of the bank. Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (√) or cross mark (x). *Use a scale of 1 to 5 where 1 is to no extent and 5 is to a great extent.*

Automated Teller Machines (ATMs)	**1**	**2**	**3**	**4**	**5**
ATMs influence reduction of operational costs and hence better return on assets for the bank					
ATMs investments have payback period of less than 3 years and hence good return on assets					
Incomes from ATMs have had positive impact on bank income margins					
Debit & Credit Cards					
Debit & credit cards influence reduction of operational costs and hence better return on assets for the bank					
Debit & credit cards investments have payback period of less than 3 years and hence good return on assets					
Incomes from debit & credit cards have had positive impact on bank income margins					
Point of Sale (POS) Terminals					
POS terminals influence reduction of operational costs and hence better return on assets for the bank					
POS terminals investments have payback period of less than 3 years and hence good return on assets					
Incomes from POS terminals have had positive impact on bank income margins					
Mobile Banking					
Mobile banking influence reduction of operational costs and hence better return on assets for the bank					
Mobile banking investments have payback period of less than 3 years and hence good return on assets					
Incomes from mobile banking have had positive impact on bank income margins					
Internet Banking					
Internet banking influence reduction of operational costs and hence better return on assets for the bank					
Internet banking investments have payback period of less than 3 years and hence good return on assets					
Incomes from internet banking have had positive impact on bank income margins					
Electronic Funds Transfer					
Electronic funds transfer influence reduction of operational costs and hence better return on assets for the bank					
Electronic funds transfer investments have payback period of less than 3 years and hence good return on assets					
Incomes from electronic funds transfer have had positive impact on bank income margins					

SECTION E: EFFECT OF BANK ICT ON BANK PROFITABILITY

9. This section has statements regarding the effect of bank ICT on profitability of the bank. Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (√) or cross mark (x). *Use a scale of 1 to 5 where 1 is to no extent and 5 is to a great extent.*

	1	**2**	**3**	**4**	**5**
Automated Teller Machines (ATMs)					
Income from ATMs has high margin hence contributing positively to bank annual profitability					
ATMs have low maintenance costs leading to high levels of profitability over their economic lifetime					
Investment in ATMs in mostly motivated by profits to the bank					
Income from ATMs has high margin hence contributing positively to bank annual profitability					
ATMs have low maintenance costs leading to high levels of profitability over their economic lifetime					
Investment in ATMs in mostly motivated by profits to the bank					
Debit & Credit Cards					
Income from debit and credit cards has high margin hence contributing positively to bank annual profitability					
Debit and credit cards have low maintenance costs leading to high levels of profitability over their economic lifetime					
Investment in debit and credit cards is mostly motivated by profits to the bank					
Point of Sale (POS) Terminals					
Income from POS terminals has high margin hence contributing positively to bank annual profitability					

POS terminals have low maintenance costs leading to high levels of profitability over their economic lifetime					
Investment in POS terminals is mostly motivated by profits to the bank					
Mobile Banking					
Income from mobile banking has high margin hence contributing positively to bank annual profitability					
Mobile banking has low maintenance costs leading to high levels of profitability over their economic lifetime					
Investment in mobile banking is mostly motivated by profits to the bank					
Internet Banking					
Income from internet banking has high margin hence contributing positively to bank annual profitability					
Internet banking has low maintenance costs leading to high levels of profitability over their economic lifetime					
Investment in internet banking is mostly motivated by profits to the bank					
Electronic Funds Transfer					
Income from electronic funds transfer has high margin hence contributing positively to bank annual profitability					
Electronic funds transfer have low maintenance costs leading to high levels of profitability over their economic lifetime					
Investment in electronic funds transfer is mostly motivated by profits to the bank					

SECTION F: EFFECT OF BANK ICT ON CUSTOMER DEPOSITS

10. This section has statements regarding the effect of bank ICT on deposits of the bank. Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (□ã) or cross mark (x). *Use a scale of 1 to 5 where 1 is to no extent and 5 is to a great extent.*

Automated Teller Machines (ATMs)	**1**	**2**	**3**	**4**	**5**
ATM services have attracted more retail depositors for the bank					
ATMs have enabled customers to access their deposits with ease for withdrawal					
ATMs have attracted corporate depositors and deposits					
Debit & Credit Cards					
Debit & credit cards services have attracted more retail depositors for the bank					
Debit & credit cards services have enabled customers to access their deposits with ease for withdrawal					
Debit & credit cards services have attracted corporate depositors and deposits					
Point of Sale (POS) Terminals					
POS terminal services have attracted more retail depositors for the bank					
POS terminal services have enabled customers to access their deposits with ease for withdrawal					
POS terminal services have attracted corporate depositors and deposits					
Mobile Banking					
Mobile banking services have attracted more retail depositors for the bank					
Mobile banking services have enabled customers to access their deposits with ease for withdrawal					
Mobile banking services have attracted corporate depositors and deposits					
Internet Banking					
Internet banking services have attracted more retail depositors for the bank					
Internet banking services have enabled customers to access their deposits with ease for withdrawal					
Internet banking services have attracted corporate depositors and deposits					
Electronic Funds Transfer					
Electronic funds transfer services have attracted more retail depositors for the bank					
Electronic funds transfer have enabled customers to access their deposits with ease for withdrawal					

Electronic funds transfer have attracted corporate depositors and deposits					
Mobile Phones					
Use of mobile phones has increased customer access to bank services					
Use of mobile phones has added to more profitable business avenues to the bank					
The use of mobile phones has improved the level of deposits for the bank					
Use of mobile phones has led to more bank innovations					
Mobile phones have led to more retail customers than corporate customers to the bank					
Internet Services					
Use of internet services has increased customer access to bank services					
Use of internet services has added to more profitable business avenues to the bank					
The use of internet services has improved the level of deposits for the bank					
Use of internet services has led to more bank innovations					
Internet services have led to more retail customers than corporate customers to the bank					

Thank you for taking your time to respond to this research questionnaire!

Appendix II: Commercial Banks in Kenya

COMMERCIAL BANKS IN KENYA	
1	African Banking Corporation Ltd.
2	Bank of Africa Kenya Ltd.
3	Bank of Baroda (K) Ltd.
4	Barclays Bank of Kenya Ltd.
5	Bank of India
6	CFC Stanbic Bank Ltd.
7	Charterhouse Bank Ltd
8	Chase Bank (K) Ltd.
9	Citibank N.A Kenya
10	Commercial Bank of Africa Ltd.
11	Consolidated Bank of Kenya Ltd.
12	Co-operative Bank of Kenya Ltd.
13	Credit Bank Ltd.
14	Development Bank of Kenya Ltd.
15	Diamond Trust Bank Kenya Ltd.
16	Dubai Bank Kenya Ltd.
17	Ecobank Kenya Ltd
18	Equatorial Commercial Bank Ltd.
19	Equity Bank Ltd.
20	Family Bank Limited
21	Fidelity Commercial Bank Ltd
22	Fina Bank Ltd

23	First community Bank Limited
24	Giro Commercial Bank Ltd.
25	Guardian Bank Ltd
26	Gulf African Bank Limited
27	Habib Bank A.G Zurich
28	Habib Bank Ltd.
29	Imperial Bank Ltd
30	I & M Bank Ltd
31	Jamii Bora Bank Limited.
32	Kenya Commercial Bank Ltd
33	K-Rep Bank Ltd
34	Middle East Bank (K) Ltd
35	National Bank of Kenya Ltd
36	NIC Bank Ltd
37	Oriental Commercial Bank Ltd
38	Paramount Universal Bank Ltd
39	Prime Bank Ltd
40	Standard Chartered Bank Kenya Ltd
41	Trans-National Bank Ltd
42	UBA Kenya Bank Limited
43	Victoria Commercial Bank Ltd

Source: Central Bank of Kenya (2014)