INFORMATION AND COMMUNICATION TECHNOLOGY AND SERVICE DELIVERY IN COMMERCIAL BANKS IN KENYA

BY:

FESTUS NGILA NGINA

D61/64489/2013

A MANAGEMENT RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION (MBA), SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI.

2016

DECLARATION

This research project is my original work and has not been presented for a degree in any other university.

Signature…… Date…….

Festus Ngila Ngina

Reg No: D61/64489/2013

This research project has been submitted for examination with my approval as the University supervisor.

Signature …… Date…….

Dr. J.T. Kariuki,

Lecturer, Department of Management Science,

DEDICATION

This research work is dedicated; first to the Almighty God for giving me this golden opportunity to carry out this research and equipping me with the knowledge and skills necessary for me to attain the capacity to reach this level of education.

Second to my beloved Dad and Mom, Mr. and Mrs. Daniel King'uyu for their support, motivation and encouragement, they both value education as the key to success and my lovely sisters Judy and Purity and niece Faith who have been my cheerers.

Thirdly to Irene, for her support and understanding through the project, she was truly a source of inspiration and strength.

ACKNOWLEDGEMENT

I hereby wish to express my sincere gratitude to my supervisor, Dr. J.T Kariuki for guidance, selfless dedication and encouragement in making this research report a reality. I am forever grateful that he could find time to see me through this research report despite his busy schedule.

I would also wish to acknowledge the contribution of Irene David, her great input and support helped in ensuring the research project was a success.

I would wish to thank the commercial banks who enabled me pursue this course without a hitch. Their support on my research cannot be underestimated considering my topic was a study of commercial banks in Kenya. The staff members who were respondents in this report were amazingly supportive and I wish to thank each one of them immensely.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ATM	–	Automatic Teller Machine
FSQ	–	Functional Service Quality
HEI	–	Higher Educational Institution
ICT	–	Information and Communications Technology
IS	–	Information Systems
IT	–	Information Technology
MIS	–	Management Information Systems
OCC	–	Office of the Controller of the Currency
PC	–	Personal Computer
PIN	–	Personal Identification Number
RFP	–	Request for Proposal
SPSS	–	Statistical Package for the Social Sciences
TOR	–	Terms of Reference
TSQ	–	Technical Service Quality

ABSTRACT

There have been many developments in information and communication technology (ICT) which have completely revolutionalized the way institutions conduct business. In the banking sector, developments in ICT have been more driven by the need to improve operational efficiency and customer service among other vital operational reasons. Furthermore ICTs have brought about a new dimension in banking institutions, that of enhancing the touchpoints the commercial banks have with their customers, with an aim of a differentiated customer service and customer experience. The study was conducted in commercial banks in Kenya and examined information and communication technologies in use and their contribution to customer service. The objectives were to determine the extent of ICT use, the benefits of using such ICTs and the challenges experienced in using ICTs in service delivery in commercial banks in Kenya. The findings of the study concluded that commercial banks in Kenya have largely leveraged on developments in ICT to deliver fast and efficient service, avail more banking information to the customer and offer banking convenience to geographically dispersed customers. Furthermore, ICTs have enabled banks to easily touch base with customers during special occasions such as birthdays and also delivery of reliable, fast and efficient service. All these contributions of ICT have brought about a positive experience to the customer and have helped improve customer satisfaction. The study further recommends more robust security measures to be put in place by banking institutions to curb cyber crime which is a major hindrance to ICT enabled service delivery

CHAPTER ONE

INTRODUCTION

1.1 Background

Developments in information and communication technologies have revolutionized service delivery in today's business world. Information systems borne from new and sophisticated technologies have presented creative ways to offer services. Business information systems are carefully designed and consist of tools, techniques and procedures which are used by a business to process data (Hooper & Page, 1997). Laudon and Traver (2011) are of the view that information systems are a core part of any organisation and are the result of standard operating procedures, work flows, politics, organisational culture and structure. Every organisation has their own information systems designed according to their information needs. However, the organisations strive for a common goal, that of achieving competitive advantage. For the organisations to remain competitive, they continuously re-evaluate and improve the effectiveness and efficiency of their business information system (Chaffey & Wood, 2005).

New information and communication technologies have played a critical part in the development of banking. These have greatly influenced banks' business and marketing strategies. With technology new services and efficient delivery channels have been established. Internet banking, mobile banking and automated teller machines are examples of these delivery channels. Information and communication technology (ICT) has also provided the banking industry with effective ways to deal with the challenges the new economy poses (Nyapara, 2012).

Information systems' service quality is the value that a customer gets from a service provider when the customer subscribes to a service provider's information system. Implicitly information system service quality offers a measure of the effectiveness of the information system (IS) (Njoroge, 2014). According to Parasuraman et al., (1988) service quality is the extent of discrepancy between what a customer desires or expects vis a vis perception of what is delivered. Accordingly there has been a complete paradigm shift as a result of implementation of information and communication technologies (ICTs) particularly in service delivery leading improved performance in the banking industry. Commercial banks continue to invest heavily in ICT with a wide adoption of information system (

IS) networks in an endeavour to improve service delivery, catch up with global development, manage transaction costs and widen the range of value added services and products offered. The development of flexible, user friendly banking services relies significantly on information and communication technologies (ICT).

However to achieve the strategic intent of the ICT investment, information systems (ISs) must be managed. Information systems (IS) should support business strategies, its processes, the organizational structures and the culture of the business enterprise. This is because computer-based ISs are designed and used by people across various business environments and organizational settings in spite of the fact that they heavily dependent on information and communication technologies (ICTs). As many companies seek to maximize their customer value and business returns, they are using information technology (IT) to support their employees in implementing cooperative business processes. The corporate business processes cover suppliers and customers among other business stakeholders. (O'Brien &Marakas, 2006).

1.1.1 Information and Communication Technology (ICT)

ICT generally involves technologies dedicated to information collection, processing, storage and communication. According to O'Brien (2002) an information system combines people , hardware, software data resources and communication networks to collect, transform and distribute information in an organization. Additionally McCumber (2005) defines information systems as a discrete set of information resources organized for the collection, recording, processing, maintenance, use, sharing, dissemination, or disposition of information. A firm's information system in many cases consists of many subsystems that support the different functional areas. These functional areas include; Sales & Marketing, Production, Finance, Supply Chain and Human Resources, which are integrated to operate within the information system to serve the firm as a whole (Ferreira, Erasmus, & Groenewald, 2009).

Developments in Information systems (IS) are driven by ICTs and enable the provision information that helps people and their organizations make decisions and perform tasks better, i.e. more effectively and efficiently. Information systems can be differentiated through their functions and the services they provide within the firm (Daft, 2008). The organizational structure and division of tasks and responsibilities within a firm largely determines the type of IS to be used. In spite of the fact that a few organizations have a

flat organizational structure, most organizations have a hierarchical structure. Similarly, categorization of IS within such firms tends to mirror their hierarchies factoring the tasks at each specific level.(Ralph & Reynolds, 2010)

1.1.2 Service Delivery

According to Chavira (2013) a service is a means of delivering value to customers by facilitating the outcome customers want to achieve without ownership by customer of the specific process roles and risks. Service delivery is a set of processes that provide the architecture on how the service will be rendered (such as service creation, session control and protocols). In order to provide superior and unmatched services there is a need to integrate both telecommunication and information technology capabilities (Burnes, 2004). Customer care on the other hand involves putting systems in place to maximize customers' satisfaction and should be a prime consideration for every business to keen on keeping their customers happy. This is because sales and profitability depend on a satisfied customer. For customer service roles such as receptionists and sales staff, customer care should be a criterion when recruiting and a core element of their job description and training (Athanassopoulos, 2000).

Banking is a customer oriented service industry. Effectiveness and efficiency are critical particularly with respect to providing services to customers for the industry to be successful. Customer satisfaction as defined by Kotler and Keller (2006) is the extent to which a customer's expectation is met or matched by a perceived performance. Nagabhushanam(2013) defines an effective and efficient service as that which satisfies the needs of a given customer consistently over time. Service quality is a key component in creating and sustaining worthy relationships with customers and keeping abreast with their ever changing needs (Njoka, 2013). In the study, Njoka (2013) notes that banking service providers are using information technology to reduce costs and more importantly create value based services for their customers in order to remain competitive. ICT enabled services help to promote quality service, productivity and overall customer satisfaction. Some of the ICT enabled service delivery channels in use in the banking industry include automated teller machines (ATMs), internet banking and now mobile banking which has taken the industry by storm. The blending of current technology and sound service design in today's commercial banks is a big dream which when realized will greatly improve service delivery and customer satisfaction

1.1.3 Commercial Banks in Kenya

The commercial banking sector in Kenya comprises of 41 banks, 28 of which are locally owned and 13 foreign owned, data as of 15th October 2015. The 13 foreign owned commercial banks comprise 10 banks incorporated as subsidiaries and 3 as branches of the foreign institutions. Commercial banks in Kenya are clustered into three tier groups. A weighted composite index is used to determine the size of a bank. This comprises the bank's assets, deposits, capital, number of deposit accounts and loan accounts. A bank with a weighted composite index of 5 percent or more is a large bank, of between 1 percent and 5 percent is a medium bank and a small bank has less than 1 percent (Sirima& Pere 2014).

The banking industry continues to embrace the changes in information systems. Most banks are gradually reducing their branches by adopting new communication technologies. The Central Bank Annual Supervision report (2014) shows an increased utilization of modern information systems which has pushed several banks to acquire ATMs as part of their strategy towards branchless banking. The central bank notes that advancements in ICT have enhanced efficiency and improved customer service in the banking industry. The increase in use of ATM cards as a result of broadened ATM network, and a wider network of merchants that accept payment through credit/debit cards confirm the developments. Internet banking is also rapidly growing as several banks continue to tap into it. Today's customer is highly informed and with varied expectations. These coupled with the increased competition amongst players in the commercial banking sector has pushed for the adoption of sophisticated channels which are cost effective in offering financial services in order to ensure efficiency and maintain market share.

1.2 Research Problem

Today`s business environment requires ICT to be part and parcel of service delivery. New technology information systems play a big role, that of providing efficient channels to serve customers. Customers are also able to perform self – service operations through platforms such as e-banking and mobile banking. However, when there is system down time customer satisfaction is adversely affected because services may become completely inaccessible. The time taken to restore the systems to normal operation may also be too long further aggravating the service situation. Despite the importance of customer service derived from information systems, implementation of these systems places more

emphasis on the processes efficiency and not customer satisfaction (Karmakar et al., 2007).

According to Cooper (2010) the way to differentiate an organization with a good information system and one with a poor information system is on the way they deliver their services. A good information system enables the organization to be quick and efficient. It also balances what the customers' needs are and the service providers needs. Additionally it combines the best of technology and people. Many banks have implemented information systems as a strategic tool in operations and customer service in an endeavour to improve on efficiency and competitive advantage. These systems are mostly used by customer service staff; however, customers also access these systems for self service needs such as electronic-banking and mobile banking.

Kiptoo (2013) did a study on computer-based management information systems (MIS) and service quality in middle level institutions in Kenya, a case study of ol'lessos technical training institute. The conclusion was that institutions embraced the need to adopt MIS and had made attempts to facilitate its implementation. However, there exists a gap in the usage of these systems in the management of information largely due to lack of training. Kiptoo (2013) recommended an assessment on MIS training, information access on shared databases and the need to engage services of an experienced IT company with necessary technical capacity. This is important in the initial stages of MIS adoption. Njoroge (2014) in a study on information systems (ISs) service quality attributes in the banking industry analyzes the impact of outsourcing IS service providers. The study notes that the quality of service rendered by IS service providers is a serious issue which impacts on IS effectiveness. Jepchirchir (2012) did a study on the influence of customer service on organizational performance. The study established that customers and employees should be involved in the process of formulating and implementing customer service policies for the process to succeed. This is because customers and employees are the parties largely affected by the process. Nyandiere (2007) surveyed managers in his study on the increasing role of IS in the management of Higher Educational Institutions (HEIs) in Kenya. The study established that ICT is a tool for operations and management support. Most of the previous studies in the area of ICTs in commercial banks have focussed on operational efficiency and very little on their impact on service delivery. This study sought to answer the research question; what is the impact of information and communication technologies on service delivery in Kenyan commercial banks?

1.3 Research Objective

The objectives of the research were to:

i. Determine the extent to which commercial banks in Kenya are using ICT in service delivery
ii. Determine the benefits of using ICT on service delivery in commercial banks in Kenya
iii. Establish the challenges of using ICT to deliver service in commercial banks in Kenya

1.4 Value of the Study

The results of this study bring out theoretical, practical and methodological benefits. Specifically the results add to the current scope of knowledge and theory in information and communication technology in service delivery in the banking industry.

By accessing the benefits of implementing ICTs commercial bank managers have a reference point when making ICT investment decisions to ensure they invest more in systems that deliver better customer experience. Policy makers may use the findings of the study to come up with strategies that can make service delivery less costly but effective. As a result they will by extension deliver on stakeholder expectations in cost management hence facilitating attainment of strategic ambitions of the institutions.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter reviewed previous literature on information and communication technologies both locally and internationally.

2.2. Theoretical Framework

The theoretical framework is the philosophical basis on which the research was undertaken, and formed the link between the theoretical aspects and practical components of the investigations undertaken. The theoretical framework, therefore, had an implication for every decision made in the research process.

2.2.1 The SERVQUAL Model

The degree of disparity between customer's expectations on a service to be received vis a vis the received service is conceptualized as service quality. Servqual is a multi-item scale developed to assess customer perceptions of service quality in service and retail businesses (Parasuraman et al., 1988). The scale decomposes the notion of service quality into five constructs; the tangibles, which covers physical facilities, equipment and staff appearance, reliability which is the ability to perform services dependably and accurately, responsiveness which involves willingness to help and respond to customer need, assurance, the ability of staff to inspire confidence and trust, and empathy, the extent to which caring individualized service is given. Servqual represents service quality as the discrepancy between a customer's expectations for a service offering and the customer's perceptions of the service received, requiring respondents to answer questions about both their expectations and their perceptions (Parasuraman et al., 1988). Servqual measure is an attitudinal as it uses perceived as opposed to actual service received (Parasuraman et al., 1988). Such makes service quality is a good tool to measure customer satisfaction.

According to Clemes (2008) the probability of achieving higher customer satisfaction increases as service quality increases. Service providers should hence deliver high quality services in order to achieve higher level of customer satisfaction. This is because service quality promotes customer satisfaction. Reliability, tangibility and empathy also positively impact customer satisfaction (Jamal &Anastasiadou, 2009).

2.2.2 Delone and Mclean IS Success Model

In the Delone and Mclean IS Success Model, systems quality measures technical success; information quality measures semantic success and use, user satisfaction, individual impacts, and organizational impacts measures effectiveness success. The model suggests that an information system is created and contains various features which exhibit various degrees of system and information quality. Users and information system managers experience these features while using the system and are either satisfied of dissatisfied. The use of the information system and products then influences the individual user in the conduct of their work. These individual impacts collectively result in organizational impacts (Delone & Mclean, 2004).

DeLone and McLean IS success model measures the success of information systems and fosters net benefits for users or user groups (DeLone & McLean, 2004). The model consists of different components; the quality component, which is involves system quality, information quality, and service quality and the usage component, where the usage of the system and the resulting satisfaction is addressed. Another component of the model is the net benefits to the user. Customer support falls under the service-quality component as it is a type of a service. On the other hand online customer service fits into both information quality and system quality. The different tasks that an online customer must fulfil and the information task which is present in all phases of the transaction process separates the two (Sterne, 1996) ,The net benefits are the ultimate impact of the system and affects the users as well as the institution (DeLone& McLean, 2004).

2.3 ICT in the Banking Industry

Banks have traditionally been in the forefront of harnessing technology to improve their products and service offering. They have over the time been using electronic and telecommunication networks to deliver a wide range of value added products and services. The range of services and products offered by different banks vary widely both in their contents and sophistication. In line with this, ICT has specifically enabled the introduction of new technology driven service delivery channels which have been adopted by most players in the banking industry.

2.3.1 Automated Teller Machines (ATMs)

An Automated Teller Machine (ATM) is a computer terminal, a cash vault and a record keeping system which are put together in one unit. The unit permits a bank's customer to

enter the bank's database with a special plastic card which contains a personal identification number (PIN). The customer may also access the system by punching a code into a computer terminal which is linked to the bank's computerized records. The service is available 24 hours a day (Rose, 1999). ATMs are mostly located outside banks, shopping malls, airports, petrol stations among other convenient places where customers frequent. Once the customer has gained access to their account over an ATM they can virtually transact on any of the services supported. ATMs offer a wide range of services which include; making deposits, funds transfer between accounts, bill payments, and withdrawals among other services. Banks have increasingly implemented ATMs for competitive advantage. ATMs complement bank tellers and this has saved the customer time as customers have an alternative to queuing in banking halls. Rose (1999) notes that there is continuous service to the customer and improved productivity to banks.

As developing economies continue to evolve, many banks operating in these economies have similarly undergone major technological changes. The changes are aimed at improving the quality of banking products and services in an endeavour to meet customer needs and keep up with competition. As such, the use of ATMs represents significant developments in the application of technology to design strategic tools for service delivery. Being an innovative service delivery channel, the ATM should provide services to the satisfaction of customers because this is an essential determinant of its technological success (Wu & Wang, 2007). Other studies have shown that banks use an ATM as a strategic tool for satisfying customer needs, enhancing employees' efficiency, and gaining competitive advantage. Some banks also use them signify their technological advancement.

2.3.2 Mobile Banking

Mobile banking (M-banking)is one of the latest developments in e-banking and is also referred to as wireless internet applications of banking (Choi et al. 2006, Scornavacca & Hoehle, 2007). M-banking introduces a new channel for banking services, especially for remote areas where the internet is still unavailable. Strategic implications and customer perception of M-banking services are explored with a focus on the consumer value creation and a better understanding about the customer-perceived value of M-banking services (Laukkanen & Lauronen, 2005).

M-banking presents numerous benefits for both customers and banks (Leow, 1999). To the customer it provides expanded access, significant time saving and ultimate convenience. Similarly from a banks point of view, the cost of delivering services is significantly lower in a mobile based service setup compared to branch based service setup. M-banking has almost all the benefits achieved by ATMs on service delivery; however, the channel does not have the capability to dispense cash like ATMs do. The channel enables customer to conduct business even after the traditional bank hours, as a result accruing continual productivity for the bank. Additionally the delivery channel offers banking services to customers at the convenience of their offices or homes. Hence M-banking provides an alternative to going to the bank branch/ATM which saves customers' time.

2.3.3 Internet Banking

Internet banking involves the communication with a bank including the performance of transactions through the international network. Thus internet banking allows the client to perform banking transactions and obtain other information within the scope shown at the website of the bank. Mathias and Sahut (1999) define internet banking as systems that enable bank customers to access accounts and general information on bank products and services or any other banking activity held on the internet through a PC or other intelligent device.

Internet banking according to Essinger (1999) aims to give customers access to their bank accounts via a web site enabling them to perform certain transactions on their account. The access is given if the client complies with stringent security checks in place. It involves the provision of traditional (banking) services over the internet. Internet banking by its nature offers more convenience and flexibility to customers coupled with a virtually absolute control over their banking. Thus, service delivery is informational (informing customers on bank's products) and transactional (conducting banking services).

As an alternative delivery conduit for banking, internet banking has all the impact on productivity attributable to tele-banking and PC-banking. It is also the most cost-efficient technological means of yielding higher productivity. Furthermore, internet banking eliminates the barriers of distance / time and provides continual productivity for the bank to unimaginable distant customers. Financial institutions' web sites have the capabilities to perform a variety of functions ranging from basic information provision to full

transactional capability. Knight et al. (1999) identifies four separate levels of information provision; the basic level, an Internet presence merely provides information about the financial institution. There is no interaction between the institution and customer other than a possible e-mail link. The next level allows the institution to receive information, such as an electronic loan application, thus the customer can provide their details to the bank for follow-up. The third level offers the customer the opportunity to share information, such as account balances or transaction details. The highest level identified also allows the customer to process information.

Sathye (2005) with respect to the adoption of Internet banking found that two factors; difficulty in use and security concerns are major hindrances why customers do not want to use internet services. Tan and Thompson (2000) in their study in which factors that impacted on the adoption of internet banking services were investigated, found that a customers' attitude and perceived behavioural control-factors significantly influenced their intentions to use the services.

2.4 Benefits of ICT on Service Delivery

The purpose of information and communication technology is to have processes that consistently deliver high quality services to drive customer satisfaction and customer retention, whilst maintaining process efficiency (Johnston & Clark 2005). Thus, good information systems give businesses leverage to gain a competitive edge in the marketplace (Shostack, 1984). Therefore ICT should focus on ensuring high standards of both technical service quality (TSQ), the right service outcome, and functional service quality (FSQ), doing things appropriately in the process of delivery, so that the service is perceived as being of good quality and one that generates customer satisfaction (Mohr & Bitner, 1995).

Information and communication technologies assist customers to realize the value of service outcome. Major service transformations occur in information processing (Vargo & Lusch 2004). The way in which a service is delivered and how the service provider will achieve the same is contained in the information system. For instance, in banking, customers can use traditional bank branch, automated teller machine or electronic (internet, phone) delivery processes for a single service outcome. As such ICT enables robust service delivery channels that minimize the possibility of single point failure of

any system. Again, the nature of customer inputs vary according to the channel selected by the customer and will therefore exhibit a variety of process design characteristics.

The usage of information technology in service delivery is considered affordable and easy,the key benefit being the possibility to customize and personalize (Piccoli et al. 2004). By personalization through ICT the customer is endowed a feeling of being special and the presents the company with the possibility of a differentiated service. Compared to employees, customers are generally less skillful at operating information technology involved in an e-service, and consequently demand a more user friendly interface of the system. Where as in practice, the designs of many e-service systems have until recently been technology-driven, the design is lately driven by the customer need, which has encouraged the uptake of such systems. ICT in service delivery has also reduced the need for intensive training to serve customers. Availability of system manual makes the lack of skills or knowledge of less concern when employees are the major users, since this gap can be filled easily through reference materials and quick trainings sessions. However when customers are the primary users of the facility, is very much limited in terms of its control or influence over its customers' skills or knowledge. This makes a user-friendly interface highly important for successful service delivery. ICTs also enable ease of maintaining and improving a service, and the qualities of service experiences delivered through a given channel. In practice, many e-services have been designed according to common sense or common practice with little thought given to quality as defined by the customer (Xue, 2003).

Using information system is one of the ways a bank can take on the needs of today's customers. There are four main areas in which information system can be used; innovation, effectiveness and efficiency, growth and quality (Fritsche, 2010). Slow development times are being pressured by rapidly changing customer demands, global outsourcing, and new software. This has pushed businesses to change gears and only innovation can help them keep up with this drastic change (Arndt, Berner& Edmondson, 2006). Organizations innovate to gain something others do not possess so that they can survive. Change is inevitable to any organization, and one of the best ways would be to innovate in order to keep up with it. ICTs provide tools to innovate and keep up with change. Innovation also comes with many benefits including new ways to reach goals, creating value for the company and keeping up with globalization and change.

Moreover information systems can offer company's customers a way to grow. New markets, new jobs and expansion are three of the main ways the systems can help with. It can also help the company to stay competitive and gain more revenue (Arndt, Berner& Edmondson, 2006).

Karuga, (2010) did a study on a survey on impact of ICT on business value creation in Kenyan banking sector. The main objective of this study was to examine the degree of adoption of ICT technologies in Kenyan banks such as core banking system, automated teller machine (ATM) networks, payment systems, mobile banking, Tele-banking, internet banking and the impact these technologies have on business values creation in the banks. The findings were that adoption of ICT has influenced the content and quality of banking operations thus creating value that enhances financial performance for the banks and customer satisfaction.

Lastly information systems enhance the quality of services offered. When information systems are implemented efficiency and effectiveness improves hence leading to better customer experience. These improve customer relationship paving way for future business for the organization (Fritsche, 2010). Advancements in technology also represent a wealth of potential benefits for service systems. The common benefits are reduced costs, improved service quality and increased availability of service operations. These facilitate customer acquisition and retention (Walley & Amin 1994).

2.5 Challenges in using ICT in Service Delivery

Otieno (2008) conducted a study on the challenges in the implementation of mobile banking in the banking industry. The study established that there wasa great impact of mobile banking information systems on service level in the institutions where they were implemented. However, a number of factors posed challenges to the implementation, these factors were security, legislation and user related challenges. In security there was a strong feeling that mobile banking systems were not secure and reliable, the legislation that governs use and operation of mobile banking systems was not clearly defined and that banks did not have a clear guideline from the regulator on the way to offer such services. Users were also not keen on adopting mobile banking services as a result of security fears and the fact that they were still accustomed to the normal banking systems. However the study also noted that the following factors did not pose a challenge to the implementation of mobile banking information systems; these were managers,

employees, finances, and technology. Managers in general needed to be aware of challenges of implementing IS and devise ways to minimize and reduce the possibility of such challenges occurring to ensure a successful implementation.

According to Glushko (2008) other challenges in the implementation of ICTs in the banking industry include the poor integration with back office activities and system downtime on customer's self-service platforms which often leads to slow response time which has a detrimental effect on customer satisfaction. That lack of effective synchrony between the back end and front can result to slow responses and which greatly affects the reliability of the system, therefore adversely affecting customer service delivery.

Furthermore, customers are influenced by the extent of integration and consistency between the front stage and back stage. The front stage or back stage distinction reconciles the conflicting views about the desirability or inevitability of variability in service delivery. Variability in the front stage often arises when an empowered employee improvises or innovates to satisfy a customer making an unexpected request or complaint. (Alter, 2012). Implementation of ICTs in service delivery in many instances removes the capacity for employees to improvise or innovate

2.6 Summary of Literature Review and Conceptual Framework

The fast paced developments in technology in the banking industry have driven the need to implement more robust information systems which are aligned to customer experience. Service is the key driver of customer satisfaction and retention in the industry. Research has also shown that good knowledge of your customers in order to achieve customer segmentation for specialized service need to be properly addressed. Customer satisfaction as a result of customer experience promotes customer loyalty, which is critical in the banking industry.

Chiu et al. (2014) on the importance if information systems driven customer experience states; customer risk perceptions need to be held at an acceptable threshold in order for the effects of utilitarian and hedonic benefits to be realized.

The main challenges that may arise are on implementation of ICTs by banks and information security as a result of the fast paced changes in technology which introduce new risks in service delivery.

Figure 2.1: Conceptual Framework

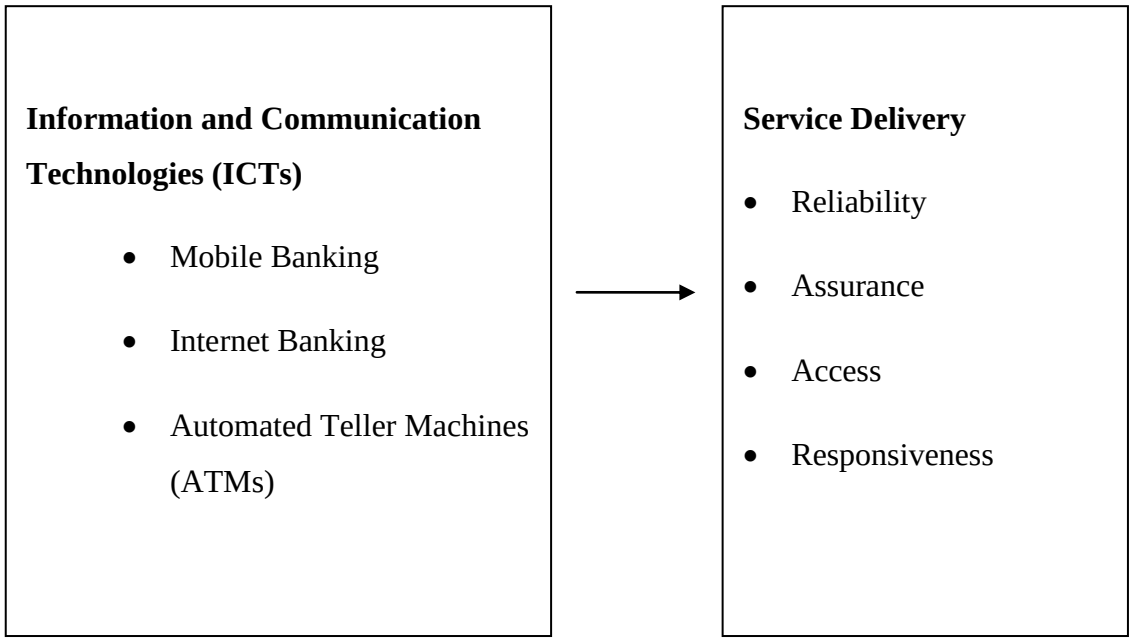

Figure 2.1 provides a snapshot of the different ICTs in the banking industry and the service delivery attributes that the study accessed.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter is a blueprint of the methodology followed by the researcher to complete the study. The chapter captures and highlights the procedures and techniques that were employed to collect process and analyze data. Subsections are included in discussing the chapter. These include; research design, population, data collection methodology and data analysis.

3.2 Research Design

The study took on a descriptive research design. Mugenda and Mugenda (2003) define descriptive research as the process of collecting data and analyzing it in order to describe a specific phenomenon in its current status, events and linkages between different factors at the time. Descriptive research design was selected because it allowed detailed analysis on ICTs in the banking industry and its effect in relation to service delivery.

3.3 Population

The population for this study was commercial banks in Kenya. There were 41 fully operational commercial banks in Kenya at the time of the study. The researcher targeted respondents who were information system managers and customer service managers in all the 41 operational commercial banks. A census survey was conducted because the population was considerably small and manageable.

3.5 Data Collection Methodology

The data used in the study was collected using questionnaires**.** The questionnaire contained closed-ended statements and also a few open ended questions. The questionnaires were administered through email and drop and pick method. Questionnaires were used primarily because they allowed the respondents to give their responses in a free environment and also due to their ease of distribution. The preference for a questionnaire was based on the fact that respondents are able to complete with minimal or without help, anonymously, and it is cheaper and quicker than other methods while reaching out to the respondents (Bryman, 2008; Cohen et al., 2007).

3.6 Data Analysis

After collection, the researcher undertook data pre-processing and developed a coding scheme by creating codes and scales from the responses. Descriptive statistics were used to analyze the data in this study with SPSS as the main tool for data analysis and presentation.

Demographic data was analyzed using frequencies and percentages and presented using tables. The objective on the extent to which commercial banks in Kenya are using ICT in service delivery was analyzed using frequencies and percentages. The objective was also analyzed using measures of central tendency (mean and mode). Objectives two and three were analyzed using measures of central tendency i.e. mean and frequency distribution. The objectives were to determine the benefits of using ICT in service delivery and the challenges of using ICT to deliver services in commercial banks in Kenya respectively. The analyzed results were presented in tables.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter deals with analysis and presentation of the findings. The research was conducted in the 41 fully operational banks in Kenya. Eighty two self-administered questionnaires were administered. Out of the eighty two questionnaires only 61 questionnaires were returned dully filled, making a 74% response rate adequate for statistical reporting.

4.2 Demographic information

The respondents comprised of 57.4% male and 42.6% female bank employees

4.2.1 Age Distribution of Respondents

Table 4.1 Distribution of Respondents by Age

Age Group (Years)	**Frequency**	**Percent (%)**
18-25	3	4.91
26-35	27	44.26
36-45	16	26.22
46-55	11	18.03
56 and above	4	6.55
Total	61	100

Table 4.1 shows that majority of the respondents (44.3%) were aged between 26-35 years while 18.0% are aged between 46-55 years. Only 4.9 % were between the ages of 18-25 years while 6.6% were above the age of 56 years.

4.2.2 Education Level Attained by Respondents

All the respondents had a certificate as the least education qualification

Table 4.2 Distribution of Respondents by Highest Education Attained

Highest education level	**Frequency**	**Percent (%)**
Certificate	3	4.92
Diploma	6	9.84
1st degree	37	60.65
Post graduate degree	11	18.03
Other professional papers	4	6.55
Total	61	100

A large percentage of the respondents were 1st degree holders (60.7%) while 18.0% had post graduate degree. Those with a diploma comprised 9.9% and 4.9% had certificate as their highest qualification. This implies that the respondents understood the study questions and were in a position to provide the information sought by the researcher.

4.2.3 Work Experience

Majority of the respondents had been working in the banking industry for more than one year as shown in the table below.

Table 4.3 Distribution of Respondents by Work Experience in Banking Industry

Years of service	**Frequency**	**Percent (%)**
Less than 1 year	7	11.47
1 – 5 years	18	29.50
6 – 10 years	22	36.06
Over 10 years	14	22.95
Total	61	100

From Table 4.3, respondents who had served in the banking industry for over 6 years account for 59.1 percent of the total respondents. A lower percentage (29.5) of

respondents had been working in the banking industry for a period of between 1 and 5 years. This shows majority of the employees are seasoned and well conversant with the operations of the institutions which helps them extend better customer service.

4.4 ICT Usage and Customer Service

Respondents were asked to provide input regarding the extent to which the different ICTs are in use in offering services in their institutions. Their responses are shown in Table 4.4

Table 4.4 Extent of ICT Use in Service Delivery in Banks

Type of Service Delivery	Percent (%) of respondents						Mean	Standard Deviation
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree	Total		
Mobile banking	0	0	3.28	63.93	32.79	100	4.29	0.5
ATMs	0	0	1.64	29.51	68.85	100	4.67	1.16
Internet banking (Information only system)	0	0	0	73.77	26.23	100	4.26	2.18
Internet banking (Electronic information transfer system)	0	0	0	70.49	29.51	100	4.3	2.25
Internet banking (Fully electronic transactional system)	0	0	0	62.3	37.7	100	4.38	2.39

Table 4.4 shows that ATMs are widely used across the banking sector in the country. A majority of respondents (with a mean of 4.67) agreed to the usage of ATMs in provision of banking services across the country. Internet banking (fully electronic transactional system) is also shown to be widely used across the banking sector. This is indicated by the respondents who agreed to the usage of internet banking in the provision of banking services across the country with a strong mean of 4.38. The results may be attributed to the fast developments in the telecommunications industry where smart devices are taking over from the classical mobile device. Additionally, majority of the respondents with a mean of 4.30 were in agreement that internet banking (electronic information transfer system) has been widely adopted in their institutions to disseminate information. The strong agreement to the use of internet banking (electronic information transfer system) in their institutions means it is a core channel in service delivery.

Mobile banking was also shown as key in service delivery for banks. Respondents with a mean of 4.29 agreed. These may be attributable to the vast telecommunication coverage in the country which has encouraged penetration of mobile devices. Similarly, respondents with a mean of 4.26 agreed that internet banking is widespread. Internet banking is extensively used for information provision. A lot of information pertaining to various banks and their services are obtained through the internet. This implies that internet banking (information only system) is extensively helpful in the dissemination of vital information pertaining to the banks, thus highly effective service delivery channel.

Generally, ICT is core in the provision of banking services. A large number of the respondents agreed to the extensive usage of the various ICT channels (ATMs, mobile banking and internet banking) in enhancing service delivery to their customers.

4.5 Impact of ICT in Service Delivery in the Banking Sector

Table 4.5 ICT and Service Delivery

Statement	Percent (%) of respondents						Mean	Standard Deviation
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree	Total		
The use of mobile banking has made service delivery more efficient				42.62	57.38	100	4.57	2.72
The use of ATMs has brought convenience to the customer by bringing services closer to them				21.31	78.69	100	4.78	3.08
The use internet banking (Information only system) has enabled easy access to banking information when needed				31.15	68.85	100	4.69	2.93
The use of internet banking (Electronic information transfer system)has enabled fast access to account information			4.91	60.66	34.43	100	4.29	0.5

Table 4.5 shows that a large percentage of the respondents (57.4%) strongly agreed that the use of mobile banking has made service delivery more efficient with the remaining percentage moderately agreeing to the same. The strong opinion indicates that mobile banking is seen as a key driver to efficient services bank customers enjoy. A very large percentage (78.7%) of the respondents strongly agreed and 21.3% agreed that the use of

ATMs has brought convenience to the customer by bringing services closer to them. The response shows that the banking sector highly relies on ATMs in the delivery of services. Consequently, it was concluded that the use of ATMs had enabled customers to enjoy convenient services

Table 4.5 also shows that majority of the respondents (68.9%) strongly agreed and 31.2% agreed that the use of internet banking (Information only system) has enabled easy access to banking information when needed. This implies that with internet banking customers are able to access most of the information they need on a bank from the internet without the need to visit a branch. Majority of the respondents (60.7%) also agreed with 34.4% strongly agreeing that the use of internet banking (Electronic information transfer system) has enabled fast access to account information. The response implies that internet banking is well trusted in the banking sector to offer timely access to account information. A large number of the respondents (80.3%) strongly agreed and 19.7% agreed that the use of internet banking (fully electronic transactional system) has made banking easy by bringing services closer to the customer. Implicitly internet banking bridges the gap between convenience and practicality, offering a service channel that satisfies the customer needs without requiring the customer to travel to a banking hall.

4.6 Benefits of ICT Use in Service Delivery

The respondents were asked to provide input regarding the extent to which the different ICTs have benefitted their institutions in provision of services. Their responses are shown in Table 4.6

Table 4.6 Benefits of ICT Use in Service Delivery.

Benefit	Percent (%) of respondents						Mean	Standard Deviation
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree	Total		
ICT enables timely service to customers				27.87	72.13	100	4.72	2.31
Customers are able to access mobile and internet banking from anywhere as long as they have an enabled device				18.03	81.97	100	4.82	2.44

Benefit	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree	Total	Mean	Standard Deviation
Customers are able to access services at any time, any day as ICT has provided 24 hour 365 day service channels to banks.			19.67	54.1	26.23	100	4.07	0.1
Use of ICT has enabled faster processing of customer requests				1.64	98.36	100	4.98	2.66
Mobile banking helps alert customers on transactions occurring in their accounts				22.95	77.05	100	4.77	2.37
Use of ICT has enabled banks to appreciate their customers and wish them well during special occasions like birthdays			24.59	47.54	27.87	100	4.03	0
ICT has enabled customers to perform enquiries on transactions without the need to talk to banking officials.			18.03	62.3	19.67	100	4.02	0
ICT has made it easy for the customer to access banking information				6.56	93.44	100	4.93	2.59
ICT helps the bank to keep up with the ever changing customer service needs			29.51	32.79	37.7	100	4.08	0.1
ICT enables the bank to create service group segments to serve the customers better.			26.23	31.15	42.62	100	4.16	0.22
ICT has brought about comfort to the customer as they no longer need to visit a crowded banking hall			8.2	36.07	55.74	100	4.48	0.64
Use of ICT has helped reduce errors while serving customers resulting to a more satisfied customer.			3.28	16.39	80.33	100	4.77	1.03
ICT has enabled banks to obtain feedback on services offered to customers which helps them to continuously improve their service offering.			22.95	45.9	31.15	100	4.08	0.1
Bank staff are empowered as ICTs provide tools which enable them to better analyze situations in order to offer best solutions to customers			11.48	50.82	37.7	100	4.26	0.35
ICT through mobile banking has enabled provision of flexible services to the customers			6.56	57.37	36.07	100	4.3	0.4

Based on the findings on Table 4.6, majority of the respondents (72.1%) strongly agreed and 27.9% agreed that the use of ICT enables timely delivery of services. A Large percentage of the respondents (82.0%) also strongly agreed that customers are able to access mobile and internet banking from anywhere as long as they have an enabled device. Majority of the respondents (26.2%) strongly agreed and 54.1% agreed that customers are able to access services at any time, any day as ICT has provided 24 hour 365 day service channels to banks. The findings show that use of ICTs has helped bring services closer to the customer leading to increased efficiency in service delivery.

Use of ICT has also enabled faster processing of customer requests and also enhanced the touch points the banking institutions have with customers. This is shown by 98.4% of respondents who strongly agreed and 1.6% who agreed to the speedy execution of customer requests owing to introduction of ICTs. A large percentage (77.1%) of respondents also strongly agreed (with the remaining 22.9% agreeing) that mobile banking helps alert customers on transactions occurring in their accounts. ICTs have also enhanced the social bond the banks have with their customers. The respondents agreed that ICTs have provided channels where customers are appreciated and wished well during special occasions such birthdays. This is shown by 27.9% of respondents who strongly agreed to the assertion, 47.5% who agreed, and 24.6% who moderately agreed.

The responses also confirm that ICT has helped banks to keep up with the ever changing customer service needs. A large percentage of respondents (37.7%) strongly agreed with 32.8% agreeing and 29.2% moderately agreeing to the assertion. Majority of the respondents (80.3%) also strongly agreed, 16.3% agreed and 3.3% moderately agreed that use of ICT has helped reduce errors while serving customers resulting to improved customer satisfaction. On the provision of flexible services to the customers through mobile banking, 57.7% of the respondents agreed while 36.1% strongly agreed that it is a benefit derived from ICT.

These findings are consistent with Karuga (2010) survey assertion that ICTs influence the content and quality of banking operations thus creating value that enhances financial performance for the banks as a result of improved customer satisfaction. The findings further relate to Walley et al. (1994) conclusion that ICTs represent a wealth of potential benefits among them increased service availability which facilitates customer retention.

4.7 Challenges of Using ICT in the Banking Sector

The respondents were asked to provide input regarding the challenges and hindrances to the use of ICTs in service delivery. Their responses are shown in Table 4.7

Table 4.7 Challenges of Using ICT in Service Delivery in Commercial Banks

Challenge/Hindrance	Percent (%) of respondents						Mean	Standard Deviation
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree	Total		
Lack of thorough knowledge of technology by staff has been a hindrance in the use of ICT in the banking industry		26.23	37.7	32.79	3.28	100	3.13	0.66
Lack of thorough knowledge of technology by customers has been a hindrance in the uptake of ICT enabled services			13.11	42.62	44.26	100	4.31	2.34
Unavailability of services due to network issues is a major hindrance in the use of ICT in the banking industry		37.7	34.43	22.95	4.92	100	2.95	0.98
Customers' concern about security has led to low uptake of ICT enabled services			4.92	59.01	36.07	100	4.31	2.34
Poor information system's user interface is a major hindrance in the use of ICT systems by customers		14.75	34.43	31.15	19.67	100	3.56	0.1
Lack of adequate support personnel to handle customer queries on a timely fashion has discouraged customers from using ICT enabled services		21.31	42.62	36.07		100	3.15	1.61
Fast changes in available technology has rendered current technology unusable to serve customers		30.98	18.2	34.43	16.39	100	3.67	0.3
Fast changes in customer preferences has made it difficult to keep at par with their service demands			26.23	40.98	32.79	100	4.07	1.91
Huge costs associated with acquiring ICT equipment is a major hindrance to ICT use in service delivery		14.75	34.43	31.15	19.67	100	3.56	0.1

Challenge/Hindrance	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree	Total	Mean	Standard Deviation
Lack of personal contact in ICT enabled service setup makes it hard to build customer relationships			32.79	45.9	21.31	100	3.89	1.59
Inability to accept hard currency by online systems which forces the customers to visit the banking hall or ATM to make deposits is a hindrance to ICT use in service delivery			42.62	27.87	29.51	100	3.87	1.56

Table 4.7 shows the impediments highlighted by respondents to the use of ICT. Majority of the respondents with a mean score of 4.31 believed that lack of thorough knowledge of technology by customers was a major impediment to the use of ICTs to deliver services. Customer concern about security of ICT enabled services was also seen as a major impediment to the use of the services. Respondents with a mean of 4.31 agreed to the statement. Respondents with a mean of 4.07 also agreed that fast changes in customer preferences has made it difficult to keep at par with customer service demands slowing the use of ICT channels. Additionally lack of personal contact in ICT enabled service setup is seen to negate the building of customer relationships, respondents with a mean score of 3.89 agreed to this assertion.

However network issues which render services unavailable was not seen as major hindrance in the use of ICT in the banking industry. Fewer respondents (with a mean of 2.95) agreed to the assertion. The responses imply that the responsibility to drive up usage of ICT enabled services largely depends on a banks ICT strategy. The findings are in line with Otieno (2008) study that recommended that managers in general need to be aware of challenges in implementing IS and devise ways to minimize and reduce the possibility of such challenges occurring to ensure a successful implementation.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION, RECOMMENDATIONS, LIMITATIONS AND FURTHER WORK

5.1 Introduction

This chapter outlines the findings as presented in the previous chapter. The research findings, conclusions and recommendations are discussed based on the objectives of the study. The study aimed at determining the extent to which commercial banks in Kenya are using ICT in service delivery, determining the benefits of using ICT on service delivery in commercial banks in Kenya and establishing the challenges of using ICT to deliver service in commercial banks in Kenya

5.2 Summary of Findings

From the findings, an assessment of age distribution, qualification and experience indicated that most of the respondents were aged between 26-35 and 36-45, the majority (60.65%) had at least 1st degree as qualification and 18.03% had post graduate degree qualification, a greater percentage of the employees (36.06%) had at least 6 years of experiences in the banking sector. These findings imply that the respondents were well placed to assess the level of ICT usage in delivery of customer service. The age group indicated that majority of the respondents were seasoned persons with a clear understanding of customer expectation as far as service delivery is concerned. Furthermore, 29.5 % of the employees had a working experience of between 1 to 5 years. The few years worked yet fast integration into the banking industry processes signal potential benefits associated with ICT in service delivery. Respondents' qualification, age and work experience indicate that they constantly interact with customers in their day to day activities and are therefore well placed to assess the objectives of the research. Their qualification and experience in the banking industry best position them to understand the effects of ICT on delivery of services.

The research assessed the extent to which commercial banks use ICT in service delivery. The respondents were instructed to respond on a 5 point Likert scale and indicate the extent they agree or disagree with the statements. The findings indicated that mobile banking and ATM are widely used across the banking sector in the country with a mean of 4.29 and 4.67 respectively. Similarly, respondents with a mean of 4.31 agreed that internet banking is widespread in the banking industry. Internet banking is extensively

used for information provision and dissemination of vital information pertaining to the banks, thus highly effective.

In general, the use of ICT in the provision of banking services is widespread across the banking sector. Mobile banking was seen to be extensively used in the banking industry to offer services to customers. The respondents (32.8%) strongly agreed and 63.9% agreed indicating a very strong belief in the technology in delivery of banking services. The respondents (68.9%) also believed ATMs were widely used to deliver banking services. The use of internet banking in the banking industry in delivery of services was also seen to be widespread, 37.7% of the respondents strongly agreed that the banking industry benefits in the use of fully electronic transactional systems.

The research also assessed the benefits of using ICT on service delivery in commercial banks in Kenya. The findings indicated that 57.4% of the respondents strongly agreed that the use of mobile banking has made service delivery more efficient, A large percentage (78.7%) of the respondents strongly believed that the use of ATMs has brought convenience to the customer by bringing services closer, 68.9% of the respondents strongly agreed that the use internet banking (Information only system) has enabled easy access to banking information when needed, 60.7% agreed that use of internet banking (Electronic information transfer system) has enabled fast access to account information and 80.4% strongly believed that the use of internet banking (Fully electronic transactional system) has made banking easy by bringing services closer to the customer. Consequently, it can be concluded that the use of mobile banking, ATMs and Internet banking in service delivery has a positive influence on service delivery in the banking sector. The respondents' strong belief in ICTs in the banking industry is also in line with the Delone and Mclean IS Success Model where technical success, semantic success and effectiveness access of the ICTs are evident.

Information technology present the banking industry with a myriad benefits that enables them to effectively deliver services. This has a high effect on customer satisfaction. The research assessed some of the benefits of ICT to the banking industry. The majority of the respondents strongly agreed to the benefits; 98.4% that ICTs have enabled faster processing of customer requests, 93.4% that customers are now able to easily access banking information using internet banking, 82.0% that customers are able to access mobile and internet banking from anywhere as long as they have an enabled device,

80.3% that ICTs have helped reduce processing errors, which impact service delivery, 77.1% that ICT has provided a mechanism of alerting customers of transactions happening in their accounts and 72.1% that customers can now obtain timely service when needed. These benefits serve to fulfil Johnstone and Clark (2005) argument that the purpose of ICT is to have processes that consistently deliver high quality services and drive customer satisfaction. They indicate a great improvement on customer service experience as a result of ICT enables service which serves to show the importance of investing in ICT in commercial banks.

However, there are a number of challenges faced by the banking industry in the use and implementation of ICT in customer service. A majority of respondents reported that lack of thorough knowledge of technology by customers was a hindrance to the use of ICT in the banking industry (44.3% strongly agreed) and 36.1% strongly believed that security concerns by customers had slowed down the uptake of ICT enabled services. Other hindrances indicated include lack of personal contact in ICT enabled service setup making it hard to build customer relationships, huge costs associated with acquiring ICT equipment, fast changes in customer preferences, inability to accept hard currency by online systems which forces the customers to visit the banking hall or ATM to make deposits and poor information system user interface. The findings are in line with Otieno (2008) findings where security and user related challenges were highlighted as major challenges in implementing mobile banking systems. There were however no highlighted challenges occasioned by the legislations in place in Kenya.

5.3 Conclusion

Developments in information and communication technologies have revolutionized service delivery in today's business world. Information systems borne from new and sophisticated technologies have presented creative ways to offer a variety of services. With technology new services and efficient delivery channels have been established. A lot of information has also been availed to the customer enabling them to make more informed decisions. Mobile banking, ATMs and internet banking have in particular provided the banking industry with the wherewithal to deal with the global challenges the industry poses in the delivery of banking services. Commercial banks are using information technology to create value based services for their customers in order to remain competitive.

5.4 Recommendations

ICT has in particular brought a complete paradigm shift on performance and customer service delivery in the banking industry. In order to catch up with global development, improve the quality of customer service delivery and improve efficiency banks need to invest heavily in ICT and widely adopt business networks in order to deliver a wide range of value added products and services. ICT development has a significant effect on development of more flexible and customer friendly banking services. There is also need to adopt an ICT strategy by bank managers, placing emphasis on customer education and ICT awareness. This is because a large percentage of customers in Kenya are not ICT literate which affects the uptake of ICT enabled services, negating the gain such an investment should earn. Furthermore, ICTs need to be managed to support the business strategies, business processes, and organizational structures. This is because if not well managed the ICTs may fail to support the overall organization goals. Since ICTs combine the best of technology and people, commercial banks should tap into ICT capabilities as a strategic resource for competitive advantage in service delivery and operations.

5.5 Limitations

The study was limited to banks' staff views on ICT and customer service. This was largely due to resource constraints such as time and money. Furthermore, customers were not interviewed and with them as the ultimate recipient of the services offered their responses would have provided deeper insights for the study. The study was also restricted to the commercial banks in Kenya therefore the results cannot be subjected to generalisation for other industries.

5.6 Further Work

While the study has accessed ICT and service delivery in commercial banks, the unit of study was customer service managers and IT managers leaving behind the customers. It would be better to incorporate perceptions of the customers to provide their view of ICT and its contribution to service delivery in commercial banks. The study also can be extended to cover other financial services institutions.

REFERENCES

Alter, S. (2012). *Work system perspective on service, service systems, IT services, and service science.* Retrieved 08 16, 2015, from USF Scholarship Repository: http://repository.usfca.edu/at/45

Athanassopoulos, A. D. (2000) Customer satisfaction cues to support market segmentation and explain switching behaviour, *Journal of Business Research* 47: 191-207.

Bahia K., & Nantel J. A reliable and valid measurement scale for percieved service quality of bank. *International Journal of Bank Marketing, 18* (2), 84-91.

Becker, J., Dreiling, A., Holten, R., & Ribbert, M. (2013).Specifying information systems for business process integration – *A management perspective.information systems and e-business management* 1(3) 44-59

Bitner, M.J. (1990). Evaluating service encounters: The effects of physical surroundings and employee responses. *Journal of Marketing* 14(2): 69-82.

Bitner, M.J., Booms, B.H. & Mohr, L.A. (1994) Critical service encounters: The employee viewpoint. *Journal of Marketing* 14(4): 95-106.

Burnes, B. (2004). *Managing change: A strategic approach to organizational dynamics.* New Jersey: Prentice Hall.

Chaffey, D., & Wood, S. (2005). *Business information management: Improving performance using information systems.* Essex: Prentice Hall.

Chavira, R. (2013, December 16). *ITIL Foundations: What is a service?* Retrieved 9 7, 2015, from Yale information technology services: http://www.its.yale.edu.

Chiu, C., Wang, E.T.G, Fang, Y-H, & Huang, H-Y (2014) Understanding customers' respect purchase intention in b2c w-commerce: The role of utilitarian value, hedonic value and perceived risk. *Information systems journal* 24:85-114

Clemes, M. D. (2008). An empirical analysis of customer satisfaction in international air travel. *Innovative Marketing,* 4(2): 50-52.

Cooper, A. (2010). *Making sense of automotive information systems.* Retrieved 9 14, 2015, from Cooper.com: http://www.cooper.com

Cronin, J. J. & Taylor, S. A. (1992). Measuring service quality: A reexamination and extension. *Journal of Marketing* , 55-68.

Dabholkar, P.A., Thorpe, D.I., &Rentz, J.O. (1996). A measure of service quality for retail stores: Scale development and validation. *Journal of the Academy of Marketing Science*, 24:13-16.

Daft, R. L. (2008). New Era of Management (2nd ed.).

DeLone, W. H. & McLean, E. R. (2004).Measuring e-commerce success: Applying the delone& McLean information systems success model. *International journal of electronic commerce*, 9(1): 31 – 47.

Delone, W. H., & Mclean, E. R. (2013). The DeLone and McLean model of information systems success. *Journal of management information systems*, 19(4): 9–30.

Essinger, J. (1999). *The virtual banking revolution: the customer, the bank and the future* (1st ed) London: International Thomson Business Press.

Falk, T. J. (2007). Identifying cross-channel dis-synergies for multichannel service providers. *Journal of Service Research , 10* (2), 143-160.

Ferreira, E., Erasmus, A., &Groenewald, D. (2009).*Administrative management.*(2nd, Ed.)

Fitzsimmons, J. (2000), *Administração de serviços: operações, estratégia e tecnologia de informação.* Porto Alegre: Bookman

Fritsche, K. (2010). What is Service Design? A simplified guide to aid in today's confusion about new discipline of business. An Unpublished Theses, Tampereen Ammattikorkeakoulu University of Applied Sciences.

Glushko, R. J. (2008). Designing a service science discipline with discipline. *IBM Systems Journal , 47* (1), 15-28.

Helmsing, A. H. J. (2011). *Local government central finance.An introduction*. New York: Free Press

Hill, A. D. (2002). Research opportunities in service process design. *Journal of Operations Management , 20* (2), 189-202.

Hooper, P., & Page, J. (1997). Organizing information and data flows in business systems. *National Public Accountant* 42(9): 9-14.

Jamal, A., & Anastasiadou, K. (2009). Investigating the effects of service quality dimensions and expertise on loyalty. *European Journal of Marketing*, 43(4): 398-420.

Jepchirchir, T. (2012). *Influence of customer care service on organizational performance:The case of Gracia Garden Hotel,Nairobi- Kenya.* University of Nairobi.

Kamarkar, B. &. (2007). *Handbook of Service Business: Management, Marketing, Innovation and Internationalisation.* Northampton: Edward Elgar.

Karuga, A.M. (2010). Survey on impact of ICT on business value creation in Kenyan Banking sector, *An Unpublished MBA Project*, University of Nairobi

Knight, G.A &Calantone, R.J (1999) A flexible model of consumer country of orgin percepations. *International marketing review*, 17(2. 2000),127-145.

Kotler, P., & Keller, K. L. (2006).*Marketing management* (12th ed.). New Jersey: Prentice Hall.

Ladhari, R. (2009). A review of twenty years of SERVQUAL research, International.*Journal of quality and service sciences*, 1(2), 172-198.

Laudon, K. C., & Traver, C. G. (2011). *Management Information Systems.* New Jersey: Prentice Hall.

Leow, H.B. (1999). New distribution channels in banking services. *Banker's Journal Malaysia*, 110, 48-56.

Li, S., Kinman, R., Duan, Y., & Edwards, J. S. (2000). Computer based support for marketing strategy development. *European journal of marketing* ,34,144-162.

Mabert, V. A., Soni, A., &Venkataramanan, &. M. (2013).*The impact of organization size on enterprise resource planning (ERP) implementations in the US manufacturing sector.* Retrieved 9 1, 2015, from www.researchgate.net: http:// researchgate.net/publications.

Mathias G., Sahut. J. (1999). Right to Information Technology and Telecommunications. *Banking and Internet* (2), 6-18.

McCumber, J. (2005). Assessing and managing security risk in IT systems. Auerbach.

Mohr, B. &. (1995). The Role of Employee Effort in Satisfaction with Service Transactions. *Journal of Business Research , 32* (3), 239-252.

Mugenda O.M. & Mugenda. A. M. (2003). *Research methods: Quantitative and qualitative Approaches.* Nairobi: African Centre for Technology Studies.

Nagabhushanam, M. (2013). Influence of demographic profile on acceptance of Internet Banking in a non metro city in Tamil Nadu, India. *Journal of Internet Banking and Commerce* , 12-13.

Njoka, S.K. (2013). Assesment of M&E systems of local NGOs in Kenya, *An Unpublished MBA Project*, University of Nairobi

Njoroge, S. W. (2014). Determination of Information Systems service Quality Attributes in Banking Industry. *International Journal of Technology in Computer Science & Engineering,* 1: 1-4.

Nyandiere, C. (2007). Increasing role of computer-based information systems in the management of higher education institutions. In M. Kashorda, F. Acosta and C. Nyandiere (eds). ICT Infrastructure, Applications, Society and Education: Proceedings of the Seventh Annual Strathmore University ICT Conference. Strathmore University Press: Nairobi.

Nyapara, O.E. (2012). The relationship between information communication technology usage on efficiency among commercial banks in Kenya, *An Unpublished MBA Project*, University of Nairobi

Oboth, M. J. (2011). *Decentralization and service delivery: constraints and controversie*s. Kampala: Makerere University Library.

O'Brien, J. A. (2002). Management Information Systems: Managing Information Technology in the E-Business Enterprise. New delhi: Mc Graw-Hill Higher Education.

O'brien, J. A. (2003). Management information systems: Managing information technology in e-business enterprise. New delhi: Mcgraw-hill.

O'brien, J. A., & Makaras, G. M. (2006). *Management Information Systems.* New York: McGraw-Hill Education.

Otieno, B.J (2008). Challenges in the implementation of mobile banking information systems in commercial, *An Unpublished MBA Project*, University of Nairobi

Parasuraman, A. Z. (1985). A conceptual model of service quality and its implication of future research. *Journal of Marketing , 49*, 41-50.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality, *Journal of Retailing*, 64(1), 12-40.

Piccoli, G. A. (2004). Virtual teams: team control structure, work processesand team effectiveness. *Information Technology and People , 17*, 359-379.

Ralph M, S., & Reynolds, G. W. (2010). *Principles of information systems.* Boston: Cengage Learning.

Rose, P.S. (1999). *Commercial Bank Management*.4thedition, Boston: Irwin/McGraw-Hill.

Saythe, M. (2005), The Impact of internet banking on performance and risk profile: Evidence from Australian Credit Unions. *Journal of Banking Regulation*, 6: 163-174.

Scornavacca E., &. H. (2007). Mobile Banking in Germany: A Strategic Perspective. *International Journal of Electronic Finance , 1* (3), 304-320.

Serrat, O. (2009, 09). *Harnessing Creativity and Innovation in the Workplace.* Retrieved 9 2, 2015, from www.adb.org: http://www.adb.org.

Shahin, A. (2005). *SERVQUAL a model of service quality gaps: A Framework for determining and prioritizing critical factors in delivering quality services.* Retrieved 8 29, 2015, from www.qmconf.com: http://www.qmconf.com/Docs/0077.pdf

Shostack, G. L. (1984). Designing services that deliver. *Harvard Business Review , 62* (1), 133-139.

Sirima, H., & Pere, F. (2014).*Bank Supervision Annual Report 2014.* Nairobi: Central Bank of Kenya.

Sterne, J. (1996). *Customer Service on the Internet.* New York: John Wiley and Sons.

Wu, J. H. & Wang, Y. M. (2007). Measuring ERP Success: The Key-Users' Viewpoint of the ERP to Produce a Viable IS in the Organization. *Computers in Human Behavior,* 23(3), 1582-1596.

Sirima, H., & Pere, F. (2014).*Bank supervision annual report 2014.* Nairobi: Central Bank of Kenya.

Sterne, J. (1996). *Customer service on the internet.* New York: John Wiley and Sons.

Vargo, S. L. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing , 68* (1), 1-17.

Walley, P. &. (1994). Automation in a customer contact environment. *International Journal of Operations & Production Management , 14* (5), 86-100.

Wu, J. H. & Wang, Y. M. (2007). Measuring ERP Success: The Key-Users' Viewpoint of the ERP to Produce a Viable IS in the Organization. *Computers in Human Behavior,* 23(3), 1582-1596.

Xue, M. H. (2003). Incorporating the dual customer roles in e-service design[working paper No. 03-04]. *Journal of Service Research , 4* (4), 253-267.

APPENDICES

Appendix I: Questionnaire

This questionnaire seeks to collect data about information and communication technology and its influence on service delivery in commercial banks in Kenya. The data collected will be used for academic purpose only. All responses are strictly confidential and no information which could reveal your bank's or your identity will be used in any data reporting, nor will be shared in its individual form with any outside party without your expressed permission to do so. Thank you.

Section A: Demographic information (Tick (√) the appropriate option (bracket)

1. Please select your gender

   Male [ ] Female [ ]

2. What is your age group?

   18 – 25 years [ ] 36 – 45 years [ ]

   26 – 35 years [ ] 46 – 55 years [ ]

   56 years and above [ ]

3. What is your highest academic qualification?

   Certificate [ ] 1st degree [ ]

   Diploma [ ] Post Graduate degree [ ]

   Others (specify) .....

4. How long have you worked in the banking industry?

   Less than 1 year [ ] 6-10 years [ ]

   1-5 years [ ] Over 10 years [ ]

SECTION B: Extent of ICT Use

5. Information systems are greatly used for service delivery in the banking industry. To what extent do you agree with regard to information systems in your bank?

Information system	**Strongly Disagree**	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly agree**
Mobile banking					
Internet banking (Information only system)					
Internet banking (Electronic information transfer system)					
Internet banking (Fully electronic transactional system)					
Automated Teller Machines (ATMs)					

6. In your opinion what are the drivers of the statistics provided in question 5?

.....

.....

.....

.....

.....

7. Please indicate the degree to which you agree with the following statements with regards to the usage of ICT in service delivery in your bank?

Statement	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
The use of mobile banking has made service delivery more efficient					
The use of ATMs has brought convenience to the customer by bringing services closer to them					
The use internet banking (Information only system) has enabled easy access to banking information when needed					
The use of internet banking (Electronic information transfer system)has enabled fast access to account information					
The use of internet banking (Fully electronic transactional system) has made banking easy by bringing services closer to the customer					

8. What needs to be done to fully harness information systems' capabilities in service delivery in commercial banks in Kenya?

.....
.....
.....
.....
.....
.....
.....

PART C: Benefits of ICT in service delivery

9. What is your level of agreement with the following statements with regard to benefits of ICT in service delivery?

	Strongly disagree	**disagree**	**Moderately Agree**	**Agree**	**Strongly agree**
ICT enables timely service to customers					
Customers are able to access mobile and internet banking from anywhere as long as they have an enabled device					
Customers are able to access services at any time, any day as ICT has provided 24 hour 365 day service channels to banks.					
Use of ICT has enabled faster processing of customer requests					
Mobile banking helps alert customers on transactions occurring in their accounts					

Use of ICT has enabled banks to appreciate their customers and wish them well during special occasions like birthdays					
ICT has enabled customers to perform enquiries on transactions without the need to talk to banking officials.					
ICT has made it easy for the customer to access banking information					
ICT helps the bank to keep up with the ever changing customer service needs					
ICT enables the bank to create service group segments to serve the customers better.					
ICT has brought about comfort to the customer as they no longer need to visit a crowded banking hall					
Use of ICT has helped reduce errors while serving customers resulting to a more satisfied customer.					
ICT has enabled banks to obtain feedback on services offered to customers which helps them to continuously improve their service offering.					
Bank staff are empowered as ICTs provide tools which enable them to better analyze situations in order to offer best solutions to customers					
ICT through mobile banking has enabled provision of flexible services to the customers					

10. Kindly list other benefits realized from ICT use in service delivery by your institution

.....

.....

.....

PART D: Challenges of ICT use

11. To what extent do you agree with the following challenges/hindrances to ICT use in service delivery in your institution?

Challenge/hindrance	Strongly disagree	Disagree	Moderately agree	Agree	Strongly agree
Lack of thorough knowledge of technology by staff has been a hindrance in the use of ICT in the banking industry					
Lack of thorough knowledge of technology by customers has been a hindrance in the uptake of ICT enabled services					
Unavailability of services due to network issues is a major hindrance in the use of ICT in the banking industry					
Customers' concern about security has led to low uptake of ICT enabled services					
Poor information system's user interface is a major hindrance in the use of ICT systems by customers					
Lack of adequate support personnel to handle customer queries on a timely fashion has					

discouraged customers from using ICT enabled services					
Fast changes in available technology rendering current technology unusable to serve customers					
Fast changes in customer preferences has made it difficult to keep at par with their service demands					
Huge costs associated with acquiring ICT equipment is a major hindrance to ICT use in service delivery					
Lack of personal contact in ICT enabled service setup makes it hard to build customer relationships					
Inability to accept hard currency by online systems which forces the customers to visit the banking hall or ATM to make deposits is a hindrance to ICT use in service delivery					

12. Kindly list other challenges/hindrances to ICT use in service delivery in your institution.

.....

.....

.....

.....

.....

Appendix II: List of Commercial Banks in Kenya

1. African Banking Corporation Ltd
2. Bank of Africa Ltd
3. Bank of Baroda Ltd
4. Bank of India
5. Barclays Bank Ltd
6. CFC Stanbic Ltd
7. Charterhouse Bank Ltd
8. Chase Bank Ltd
9. Citibank N.A.
10. Commercial Bank of Africa Ltd
11. Consolidated Bank Ltd
12. Cooperative Bank of Kenya Ltd
13. Credit Bank Ltd
14. Development Bank Ltd
15. Diamond Trust Bank of Kenya Ltd
16. Eco-bank Ltd
17. Equatorial Commercial Bank Ltd
18. Equity Bank Ltd
19. Family Bank Ltd
20. Fidelity Bank Ltd
21. Giro Comercial Bank Ltd
22. Guardian Bank Ltd
23. Gulf African Bank Ltd
24. Habib A.G. Zurich
25. Habib Bank Ltd
26. I and M Bank Ltd
27. Jamii Bora Bank Ltd
28. I and M Bank Ltd
29. Jamii Bora Bank Ltd
30. Kenya Commercial Bank Ltd
31. K-Rep Bank Ltd

32. Middle East Bank Ltd
33. National Bank of Kenya Ltd
34. NIC Bank Ltd
35. Oriental Commercial Bank Ltd
36. Paramount Universal Bank Ltd
37. Prime Bank Ltd
38. Standard Chartered Bank Ltd
39. Transnational Bank Ltd
40. UBA Bank of Kenya Ltd
41. Victoria Commercial Bank Ltd

Source: Central Bank of Kenya Supervision Report (2014)