

**APPLICATION OF ICT STRATEGY IN ENHANCING COMPETITIVE ADVANTAGE
AMONG COMMERCIAL BANKS IN KENYA**

BY

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**A MANAGEMENT RESEARCH PROJECT SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE MASTER OF BUSINESS
ADMINISTRATION DEGREE**

**SCHOOL OF BUSINESS
UNIVERSITY OF NAIROBI
NOVEMBER 2010**

DECLARATION

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

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This management project has been submitted for examination with my approval as the university supervisor.

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ACKNOWLEDGEMENTS

This project and entire MBA course has been accomplished with the support, encouragement and contribution of a number of people whom I deeply indebted. I would also like to express my heartfelt gratitude to all those whom, in one way or the other, may have contributed to the realization of this project.

My sincere thanks go to my lecturer, Dr Zack Awino, whose intellectual guidance and criticism enabled me to weather through the stormy path to the success of the project. Special thanks go to the other lecturers in the school of business, University of Nairobi, who have been a source of motivation and inspiration during the entire MBA course. These include, among others, Dr. Ogutu, Mr. Maalu and Prof. Aosa. I wish to acknowledge the support, encouragement and challenges I received from my MBA friends and colleagues that led to the completion of this work. Special thanks go to Tom Malachy, Shelly Muthoni, Fiona Nakitare, Phillip Machuki, Mungai Patrick, Nyamweya among others.

I would wish to appreciate passionate support and motherly encouragement accorded me by my wife Susan for the entire duration of the MBA course including the sacrifices and self denials she went through during my studies. Finally am grateful to the Almighty God for the good health and knowledge and being on my side during the MBA program.

DEDICATION

This project is dedicated to my wife Susan, Children Winfrey, Franklyn and Boniface and my niece Winnie for creating an enabling environment that has seen the success of this project.

May God bless you all.

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ABBREVIATIONS

ATM	-	Automated Teller Machine
BPR	-	Business Process Re-engineering
CBK	-	Central Bank of Kenya
CCK	-	Communications Commission of Kenya
EAC	-	East Africa Community
EAP&TC	-	East Africa Post and Telecommunications Corporation
EDI	-	Electronic Data Interchange
ICT	-	Information and Communications Technology
KP&TC	-	Kenya Post and Telecommunications Corporation
NCS	-	National Communications Secretariat
NSE	-	Nairobi Stock Exchange
WSIS	-	World Summit on the Information Society

Abstract

The study is a comprehensive evaluation of the response of Kenyan commercial banks to the adoption of ICT strategy in enhancing competitive advantage. Various variables were used to establish the extent of the adoption and implementation of information technology devices in banking processes. These include the nature and degree of adoption of ICT technologies; degree of utilization and the impact of the adoption of ICT devices on banks operations. The study targeted 42 banks in the country of which 35 or 81% responded. The study revealed that ICT has been discovered to be the main driving force of competition in the banking industry during the period of study. The importance of ICT strategy in banking industry is further confirmed by the fact that 100% of the banks under study had ICT departments adequately staffed and that all have adopted technology devices like Electronic Data Interchange (EDI), M-pesa, ATM, e-mail and Visa card in order to increase operational efficiency, cut costs and to meet the customer demands. Banks also use ICT strategy as a means of increasing switching costs to customers (Porter, 2008). The adoption of ICT in banks has improved customer services, facilitated accurate records, ensures convenient business hour, prompt and fair attention, and enhances faster services.

KEY WORDS

ICT, STRATEGY, COMPETITIVE ADVANTAGE, BANKS, KENYA

CHAPTER ONE: INTRODUCTION

1.1 Background Of The study

The current business environment is very dynamic and undergoes rapid changes as a result of technological innovation, increased awareness and demands from customers. Business organisations, especially the banking industry of the 21st century, operate in a complex and competitive environment characterized by these changing conditions and highly unpredictable economic climate. Information and Communication Technology (ICT) is at the centre of this global change curve. Laudon and Laudon, (1991) contend that managers cannot ignore Information Systems because they play a critical role in contemporary organisation. The application of information and communication technology concepts, techniques, policies and implementation strategies to banking services have become a subject of fundamental importance and concerns to all banks and indeed a prerequisite for local and global competitiveness. It has continued to change the way banks and their corporate relationships are organized worldwide and the variety of innovative devices available to enhance the speed and quality of service delivery.

Harold and Jeff (1995) stated that financial service providers should modify their traditional operating practices to remain viable in the 1990s and the decades that follow. Woherem (2000) concluded that only banks that overhaul the whole of their payment and delivery systems and apply ICT to their operations are likely to survive and prosper in the new millennium. He advises banks to re-examine their service and delivery systems in order to properly position themselves within the framework of the dictates of the dynamism of information and communication

technology. The quest for survival, global relevance, maintenance of existing market share and sustainable development has made exploitation of the many advantages of ICT through the use of automated devices imperative in the industry. This study will evaluate the response of Kenyan banks to this new trend and examines the extent to which they have adopted innovative technologies in their operations and the resultant effects.

1.1.1 Concept of Strategy

Strategic decision-making involves thinking about the long-term course one will take through a broad competitive landscape. Mintzberg (1979) stated that strategy provides the direction for operations. Strategy is, simply, the art and science of options. It is a matter of understanding current options, creating new options, and choosing among them. The object of strategy is to bring about advantageous conditions within which action will occur. Strategy is a mediating force between the organisation and its environment.

Porter (1985) defines strategy as a central vehicle for achieving competitive advantage. While Chandler (1998) defines strategy as the determination of the basic, long term goals of an enterprise, and the adoption of courses of action and the allocation of resources necessary to carry out these goals”

1.1.2 Concept of Competitive Advantage

Competitive advantage of an organization involves gaining an advantage over other competing firms with regard to the design and delivery of the product or service. Gaining competitive advantage entail a set of specialized skills, assets, and capabilities for the organization (Porter,

1980). It is an effective tool towards gaining sustainable competitive advantage. In addition, the firm has to optimally utilize its internal resources and capabilities to exploit external opportunities in order to gain sustainable competitive advantage.

Porter (1980) explains that competitive advantage exists when the firm is able to deliver the same benefits as competitors but at a lower cost (cost advantage), or deliver benefits that exceed those of competing products (differentiation advantage). Thus, a competitive advantage enables the firm to create superior value for its customers and superior profits for itself.

1.1.3 Information and Communication Technology strategy

The term Information Technology (IT) has recently been expanded to Information and Communication Technology (ICT) in recognition of the growing significance of communications technology to access the Internet, send email to other institutions to video conference. The phrase ICT was coined in the year 1997 Stevenson Report to the United Kingdom government and promoted by the new National Curriculum documents for the UK in 2000 (Zahra, 2000). ICT therefore combines telecommunications, computing and broadcasting and covers any product that will store, retrieve, manipulate, transmit or receive information electronically, including telephones, faxes, computers and televisions (CCK, 2006).

The Information and Communication Technology (ICT) Strategy, therefore, defines the technical direction and framework for company's technology based developments, services and risk management. The ICT Strategy embodies the principles and priorities set within an organization's Strategic Plan and any other subsidiary strategies (Wendy R. 2004).

1.1.4 Application of ICT Strategy in Enhancing Competitive Advantage

ICT plays a major role in supporting strategic objectives of an organization including development of products, services and capabilities that give a firm competitive advantage over the competitive forces it faces in its market environment (Laudon and Laudon, 1996). It can be used as a competitive weapon once strategic business opportunities are identified. Two models of the firm and its immediate environment have been used to identify areas where ICT can provide advantage over competitors. These models are Porter's Competitive forces and Value Chain Models (Porter, 1980). Competitive advantage can be achieved by enhancing the firm's ability to deal with customers, suppliers, substitute products and services, the bargaining power of customers and suppliers and the positioning of traditional industry competitors. Large investments in complex ICT that increases firm's efficiency can create barrier to entry in the market. ICT can be used to lower costs by reducing cost of business processes and reduce costs to customers and suppliers. It plays a major role in differentiation by creating new features that improve on a firm's existing products and services thereby resulting in product unique features.

For banks, new opportunities can be created by *stretching* and exploiting the capabilities either in ways competitors find difficult to match or to create quite new market opportunities or both. Stretching ICT capabilities has been the basis on which banks have sought to create new services to their customers. ICT, therefore, enhances banks competence thereby directly affects how managers decide, how they plan and what products and services are offered in the banking industry. ICT creates applications and services that provide direct strategic advantage to banks. It supports strategic changes such as reengineering to enable efficient decentralization of operations by providing fast communication links thereby enhancing inter-bank communications

through collaboration, e-mails, teleconferencing, video conferencing and automated teller machines (ATMs). It also provides service intelligence by collection and analysis of information about innovation, customers, competitors and environmental changes. Another ICT service which enhances competitive advantage in banks is the Electronic Data Interchange (EDI) used to communicate electronically within all branches. Like email, EDI enables the sending and receiving of messages between computers connected by a communication link such as a telephone line or electromagnetic technology. The following are some of the studies in which ICT has improved the delivery of banking services and products to customers.

Automated Teller Machines (ATM)

Bank service automation is becoming a critical factor in the process of trying to attain cost-effectiveness which can be used as a strategic competitive weapon in the financial services market. Many financial institutions have clearly embarked on the development of technology-driven strategies which they hope will be translated in terms of customer preferences and consequently higher returns and market penetration. Automated teller machines (ATMs) have been playing a pioneering and pivotal role in the advancement of this technological transformation of the banking scene. The banking industry has tried to take advantage of the productivity and customer service gains associated with technology by the provision of ATMs which consumers can use to carry out day-to-day banking transactions. Leonard and Spencer (1991) found that a great majority of consumers perceived banks with ATMs as being either very successful or somewhat successful.

Lewis (1993) analyzed the perceptions of users and non-users of an automated service and found that the main reason for using the ATM was accessibility. The user group believed that the ATM

improves quality of service, reduces cost, presents no risks to customers, and is fast and easy to use. The introduction of new financial services such as ATMs has greatly decreased the interface of the bank with its customers. These services will not build customer franchises, but will lower the bank's direct involvement with the customer and may, in turn, affect patterns of customer loyalty (Howcroft and Lavis, 1986). Moutinho and Brownlie (1989) found that a high level of bank customers' satisfaction was directly related to the location and accessibility of ATMs. The respondent's evaluation of ATM services indicated a surprising willingness to accept the incorporation of new functions and services provided to them through ATMs (i.e. loan requests, credit card payments and transfer of funds).

Internet Banking

It is widely agreed that internet banking provides banks with a competitive advantage, by improving the quality of customer services and reducing the operational costs (Furst et al., 2000). Indeed, during the last decade the number of banks that recognized the benefits of internet banking services and adopted internet banking increased dramatically.

Internet banking services was first provided in the early 1980s by Nottingham Building Society and the Bank of Scotland (McAllister et al, 2003). The introduction of the internet has allowed banks to practice a new generation of banking activities without being forced to invest in expensive physical branches. Findings of a comprehensive study by Daniel (1999) indicated that the market share, or the strength of a bank, is positively related to its decision to provide internet banking. A large number of empirical studies have also been conducted with respect to the customer perception and acceptance of internet banking services. In this regard, Joseph and Stone (2003) investigated the customer perception of the impact of technology on service delivery in the banking sector. According to the findings of this research high scores on the

ability to deliver service via technology appears to be correlated with high satisfaction with services deemed most important to customer (Joseph and Stone, 2003).

M-Pesa Service

M-PESA is a Safaricom service which enables the user to transfer money using a mobile phone. Kenya is the first country in the world to use this service, which is offered in partnership between Safaricom and Vodafone (<http://en.wikipedia.org/wiki/M-Pesa>).

M-PESA is a branchless banking service, meaning that it is designed to enable users to complete basic banking transactions without the need to visit a bank branch. The continuing success of M-PESA, in Kenya, has been due to the creation of a highly popular, affordable payment service with only limited involvement of a bank. The system was developed and ran by Sagentia Company from initial development to the 6 million customer mark. The service has now been transitioned to be operationally run by IBM Global Services on behalf of Vodafone; the initial 3 markets (Kenya, Tanzania & Afghanistan) are hosted by Rackspace (Vodafone, February 13 2007).

1.1.4 Commercial Banks in Kenya

Financial System is the most important institutional and functional vehicle for economic transformation of any country. Banking sector is reckoned as a hub and barometer of the financial system. As a pillar of the economy, this sector plays a predominant role in the economic development of the country (Sudhindra B. 2005).

The Banking industry in Kenya is governed by the Companies Act, the Banking Act, the Central Bank of Kenya Act and the various prudential guidelines issued by the Central Bank of Kenya

(CBK). The banking sector was liberalized in 1995 and exchange controls lifted. The CBK, which falls under the Minister for Finance docket, is responsible for formulating and implementing monetary policy and fostering the liquidity, solvency and proper functioning of the financial system.

As at December 2008 there were forty six banking and non bank institutions, fifteen micro finance institutions and one hundred and nine foreign exchange bureaus.

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

Banking being a highly information intensity industry implies that customers demand accurate information regarding their accounts and this information need to be easily accessible and retrievable. As a result, ICT systems for core banking activities are used in the collection, processing and output of information to users and customers (Hoppe et al. 2001)

1.2 Statement of the Problem

Firms operate in a dynamic business environment. A number of forces in the environment affect business in various ways and influence their competitiveness. These forces bring about uncertainty for organizations in their quest for success and survival. Firms, therefore, have to come up with strategies aimed at gaining competitive advantage and one of them is adoption of ICT to facilitate easier and faster acquisition and dissemination of information.

There are a number of studies that have been done relating ICT to business competitiveness including Owuor (2003), Vishall (2006), Nzuki (2006), Abwao (2002) 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. Innovative and state-of the art ICT systems can be a basis of competitive advantage which can give a firm capabilities that rivals cannot match. Owuor (2004) looked at the use of ICT as a facilitator of Business Process Re-engineering (BPR) in vegetable oil industry. He analyzed the actual ICT tools being used in the oil industry to support BPR and organizational transformation. 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. Abwao (2002), studied application of ICT in business management within insurance firms in Nairobi and found out that insurance companies in Kenya have actually embraced the use of ICT for their competitive advantage. 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. She concluded that many firms listed in NSE apply ICT in their core business processes and competitive strategies thereby obtaining positive results that helped them gain competitive edge in the industry. Other studies have focused on different aspects of ICT in organizations other than assessing its strategic role.

None of the various studies done in Kenya have explicitly addressed the application of ICT strategy in enhancing competitiveness in commercial banks in Kenya. This study, therefore, seeks to address the extent to which ICT strategy is applied in enhancing competitiveness by commercial banks in Kenya. This leads to one research question that will help the researcher

achieve the research objective: To what extent does ICT strategy enhances competitive advantage in commercial banks in Kenya?

1.3 Objective of the Study

To establish the extent to which ICT strategy is applied in enhancing competitive advantage in Commercial Banks in Kenya

1.4 Value of the Study

The research findings from this study will be useful by firms which have adopted, adopting or are expanding their ICT strategy framework. The findings will help such firms to know and understand the factors associated with ICT adoption for strategic competitive advantage thereby use the knowledge in formulating strategies for applying ICT to gain competitive advantage. It will also give an appreciation of the level of ICT integration into the organizations structures especially commercial banks in Kenya. Policy makers can use the research data to establish the best policies to use in order to enhance ICT use by firms. Another beneficiary of the findings will be the government for they can use the data to know the extent of ICT use and adoption by commercial banks in Kenya and how to bridge the gap. The academicians will also get the basic information for further studies along the same line to bridge any gap. It will provide the input to the academicians in developing appropriate syllabus for the strategic management students and entrepreneurs in the digital economy.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

We are the witnesses of fundamental transformation of modern world, as the industrial society that marked the 20th century rapidly gives way to the information society of the 21st century. The first phase of World Summit on the Information Society (WSIS) had taken place in Geneva, in December 2003, with the aim to develop a common vision and understanding of the information society and to draw up a strategic plan of action for concerted development towards realizing this vision. In the Declaration of Principles, adopted by WSIS, one of the key principles for building inclusive Information society was to define the role of governments and all stakeholders in the promotion of ICTs for the development. It is concluded in Action plan, adopted by WSIS, that development of national e-strategies should be encouraged by all countries by 2005.

The ICT revolution has touched every aspect of people's life including banking industries. Singh (2002) opined that technology has introduced new ways of delivering banking services and products to the customers such as Automated Teller Machines (ATM) and internet banking (IB). Hence banks have found themselves at the forefront of technology adoption for the past three decades. These changes and developments in the banking industry have impacted on service quality, future of the banking activities, and consequently its continually competitive ability in the world markets since going along with technology is one of the most important factors of organizations success in general and banks in particular (Siam, 2006).

2.2. Concepts of Competitive Strategy

Strategy is the means by which objectives are pursued and obtained over time. Porter (1980) stated that strategy is basically about competition and the means by which an organization tries to gain a competitive advantage. The only purpose of strategic planning is to empower an organization to efficiently gain a suitable competitive edge over its competitors which implies that corporate strategy is an attempt to change, in the most efficient way, company strength relative to that of its competitors. Pearce and Robinson (1997 page 36) stated,

“Strategy can be seen either as the building of defense against competitive forces or as the finding of positions in the industry where competitive forces are weakest”.

Ansoff (1967) stated that strategy is the common thread in an organization, giving direction and scope of an organization in the long run while Ansoff (1980) explained that strategy is the set of decision making rules for guiding organizational behavior. It is a management tool which offers important help for coping with business turbulence and challenges faced by organizations as well as public sector. According to Gerry, Kevan and Whittington (2006), strategies exist at a number of levels in organization namely corporate, business, functional and operating strategies.

Mintzberg (1987) viewed strategy as a plan, ploy, pattern, a position and a perspective while Ansoff and McDonnell (1990) assert that the study of strategy emerged in the late 1950s and early 1960s, when firms invented a systematic approach to deciding where and how they will do their future business.

2.2.1 Competitive Advantage

When a firm sustains profits that exceed the average for its industry, the firm is said to possess a competitive advantage over its rivals. The goal of much of business strategy is to achieve a sustainable competitive advantage. Porter (1985) identified two basic types of competitive advantage namely *cost* advantage and *differentiation* advantage.

According to Porter (1985), a competitive advantage exists when the firm is able to deliver the same benefits as competitors but at a lower cost (cost advantage), or deliver benefits that exceed those of competing products (differentiation advantage). Thus, a competitive advantage enables the firm to create superior value for its customers and superior profits for itself. Cost and differentiation advantages are known as *positional advantages* since they describe the firm's position in the industry as a leader in either cost or differentiation.

2.2.2 Value Creation

The firm creates value by performing a series of activities that Porter identified as the *value chain* (Porter, 1985). In addition to the firm's own value-creating activities, the firm operates in a *value system* of vertical activities including those of upstream suppliers and downstream channel members. To achieve a competitive advantage, the firm must perform one or more value creating activities in a way that creates more overall value than do competitors. Superior value is created through lower costs or superior benefits to the consumer (differentiation).

2.2.3 Porter's Five Forces

Porter (1980) provided a framework that models an industry as being influenced by five forces. The strategic business manager seeking to develop an edge over rival firms can use this model to better understand the industry context in which the firm operates. The five forces are rivalry, threat of substitute, buyer power, supplier power and barrier/threat to entry. *Rivalry* refers to competition among rival firms. The intensity of rivalry among firms varies across industries. In Porter's model, threat of *Substitutes* products refer to products in other industries. A product's price elasticity is affected by substitute products - as more substitutes become available, the demand becomes more elastic since customers have more alternatives. A close substitute product constrains the ability of firms in an industry to raise prices while *buyer Power* is the impact that customers have on a producing industry. *Suppliers Power*, if powerful, can exert an influence on the producing industry such as selling raw materials at a high price to capture some of the industry's profits. *Barriers to Entry / Threat of Entry* refer to the reality that industries possess characteristics that protect the high profit levels of firms in the market and inhibit additional rivals from entering the market.

2.3 Concept of ICT Strategy

Information and Communication Technology (ICT) is the automation of processes, controls, and information production using computers, telecommunications, software and ancillary equipment such as automated teller machine and debit cards (Khalifa 2000). It is a term that generally covers the harnessing of electronic technology for the information needs of a business at all levels.

2.3.1 Information Theory

According to information Theory developed by Norbert Weiner (Weiner N. 1948), communication is used to describe any procedure by which a person may affect the mind of another person. This includes not only oral and written communications but also other types of behaviour such as body language and other nonverbal cues (O'Brien J. A. 1993). Communications of the many types of data resources and information products present in information systems is also included in this theory. Elements of ICT may include media of communications like fibre optic cables; information machines like computers and telecommunications equipment like mobile phones and Satellites (Laudon and Laudon; 2001).

2.3.2 Evolution of Information and Communications Technology

The development in telecommunications has impacted enormously on the applications of ICTs and their uses. Telecommunications technologies, coupled with computer technology have enhanced network-based information and communication platforms, such as the Internet. Telecommunications infrastructure in particular have become the driving forces of ICT; they have the capability to link all various ICT elements together irrespective of locations and to provide a converging platform for these elements. The convergence of the various elements of ICTs has enhanced development in all spheres of human activities. Robin Mansell and Uta When (1998: 1) stated,

"Advanced microelectronics-based information and communication technologies (ICTs) are at the heart of recent social and economic transformations in both the industrialized and many developing nations".

The historical evolution of the institutional structure of Kenya's telecommunication has been shaped by political developments in East Africa as a whole. During the 1920s and 1930s, the British colonial administrations in Kenya and Uganda, and the British-administered League of Nations administration of Tanganyika, became more and more closely linked. By 1933, the postal and telegraph services of the three countries had been fully amalgamated with a single postmaster general responsible for all three postal and telecommunications services known as East Africa Post and Telecommunications Corporation (EAP&TC).

In 1977, the East African Community (EAC) collapsed and a separate Kenya Posts & Telecommunications Corporation (KP&TC) was established which was the predecessor of the current Telkom Kenya.

2.3.3 Information and Communication Technology Policy

According to Brock (1994), public policy creates public good by creating a predictable framework that results in the production of goods. The policy framework should be predictable and should not easily be changed once implemented. This is the logic that drove US telecommunications policy development. Developing countries like Kenya appear to be driven by the same desire. Conscious of the poor and unpredictable quality of services, the rapid policy evolution in Kenya over the past few years is based upon the recognition that in order to create public good, it is important to create a predictable policy environment.

In Kenya, the Government released the *Telecommunications and Postal Sector Policy Guidelines* in 1997 that created an environment for competition in several market segments and paved way

to the enactment of the Kenya Communications Act of 1998 which repealed the Kenya Posts and Telecommunications (KP&TC) Act. This Act established Communication Commission of Kenya (CCK) as the Telecommunications, Radio Communications and Postal Sector Regulator; National Communications Secretariat (NCS) to serve as a policy advisory body; Communications Appeals Tribunal; Telkom Kenya Limited and Postal Corporation of Kenya.

In December 2001, the Ministry of Transport and Communications issued the Telecommunications and Postal Sector Guidelines (CCK, 2001). This recognised convergence trends, which were making it difficult to clearly separate telecommunications and broadcasting concerns. As a result, the government had to review policies that affected licensing processes, frequency management and signal transmission requirements. The aim of the review was to combine broadcasting and telecommunications policy and to eventually develop a combined ICT policy document. The intention of the policy reform process was to position ICT as a service to the economy. Through a gazette notice dated 18th June 2004, the government ended the monopoly of JamboNet as the sole internet backbone provider to the country. This eventually opened the international internet gateway through Vsat Satellites to other firms to compete with Telkom Kenya. Until 30th June 2004, JamboNet operated as the sole carrier of international internet traffic to and from Kenya. Attempts by the government to review the sector's policy, to widen its scope and to integrate it with socio-economic endeavours, bore fruit in 2006 when the first ICT policy document was approved by cabinet in February 2006.

2.3.4 Information and Communication Technology Strategy

The Information and Communication Technology (ICT) Strategy defines the technical direction and framework for company's technology based developments, services and risk management. The ICT Strategy embodies the principles and priorities set within an organization's Strategic Plan and any other subsidiary strategies. The strategy acts as a guide for the development of local strategies for use and management of ICT especially where interoperability with centrally provided services, across departments and partner organisations is required. The aims of the ICT Strategy include defining the technical direction and framework for developments in the infrastructure, administrative and human resource applications that involve use of information technology (Wendy R. 2004). The use of ICT helps in the reduction of manual and paper-intensive forms, more effective work processes, greater transparency and effective governance procedures to ensure the optimum use of the company's overall resources

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the methodology that was used in the study in order to achieve the research objective. The topics covered include the research design, population of the study and data collection methods.

3.2 Research Design

The study adopted a cross section survey design. The survey design was used to collect data from members of the population by asking the targeted ICT managers relevant questions using structured questionnaires. Survey research design is appropriate for collecting data from many study units. The design was chosen because it was suitable for assessing opinions and trends. It included drop-and pick-later method.

3.3 Population

The population of interest in this study consisted of all the 42 commercial banks in Kenya. Due to the small population, a *census study* was conducted.

3.4 Data collection Method

A structured questionnaire was used to collect data. Trained research assistants were hired to help in data collection. ICT managers were targeted since they were perceived to have relevant information required to achieve the objective of the study. The questionnaires were administered using ‘drop-pick later’ method. Follow up was done to ensure collection of questionnaires on

time to help respondents with difficulty and to Probe respondents for further information. The questionnaire were composed of two sections namely Section A which covered demographic information of the respondents and Section B which focused on data pertaining to the extent of ICT use in banks to gain competitive advantage

3.5 Data Analysis

Data analysis was done to establish whether or not ICT strategy enhances competitive advantage in commercial banks in Kenya. The responses were coded to facilitate statistical analysis by use of descriptive statistics. A five point likert scale was used to measure the psychological attitudes, preferences and subjective reactions on managers to decision variables. The responses were coded with figures of 1 to 5 representing various levels and directions of decisions and preferences.

In analyzing data, sample means and standard deviations of the responses was calculated to establish the extent of the use of ICT strategy in enhancing competitive advantage in commercial banks. Descriptive statistics, mainly percentages were also used to describe the uses of ICT strategy in enhancing competitiveness.

Bar graphs, tables and pie charts were used to present the findings of the study. This was due to their ability to bring relative form to the otherwise abstract nature of the influences under investigation in research.

CHAPTER FOUR: ANALYSIS AND INTERPRETATION OF RESULTS

4.1. Introduction

This chapter presents the analysis and findings of the study. Both quantitative and qualitative techniques were used to analyze the data. The purpose of the study was to establish the extent to which ICT strategy is applied in enhancing competitive advantage in Commercial Banks in Kenya. Out of the 43 commercial banks targeted by the study, 35 responded by filling and returning the questionnaires giving a response rate of 81%. For the purposes of showing the relationships among various variables of the study, descriptive statistics such as frequencies, percentages, means and standard deviation were used to describe the data. Bar graphs, pie charts and tables were used to present the findings of the study.

4.2. Demographic information of the Respondents

In this area, the researcher sought to establish the ownership of the organizations of the study, the year of establishment of the organizations, the number of employees in the organization and those in the ICT department, the availability of ICT department and its role.

4.2.1. Distribution of firms by ownership

The respondents were asked to indicate the ownership status of their organizations. The study found out that 22 (63%) of the firms that responded were locally owned organizations while 13 (37%) were both locally and foreign owned organizations. The study also found that there was no bank that was exclusively foreign owned. The findings of the study were as presented in Figure 4.1.

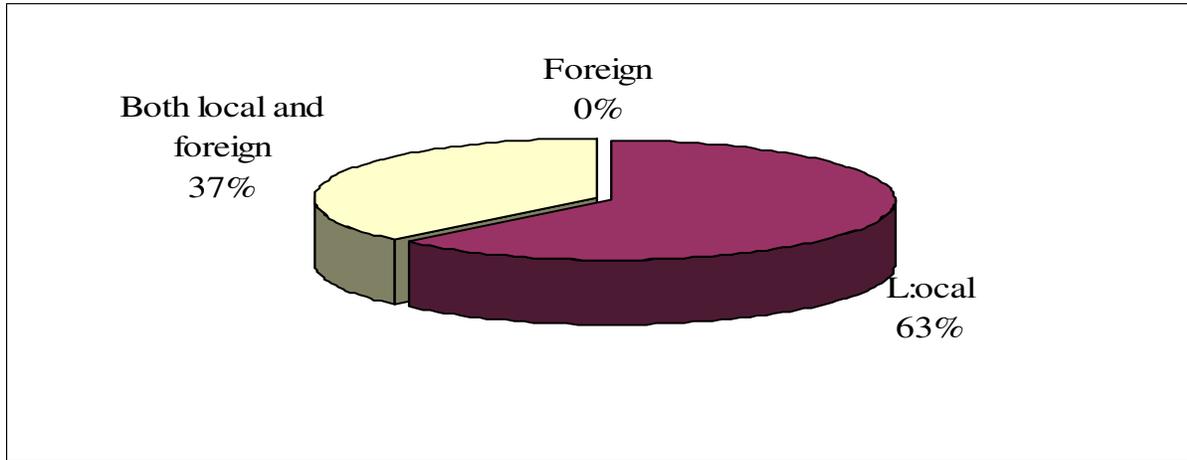


Figure 4.1 Distribution of firms by ownership

4.2.2 Year of firm Establishment

In establishing the year of the establishment of the organizations, the respondents were asked to indicate the year when their organizations were started. The study found that 17 (48%) of the organizations were started between the 1980 and 1989, 12 (34%) were started before 1980, 3 (9%) were established between the year 1990 and 1999. The study finally found that 3 (9%) of the organizations were started from 2000. From the findings of the study, it can be concluded that most of the banking organizations in Kenya were started between 1980 and 1989. This, according to the researcher, meant that the organizations were established and therefore they had adopted the use of ICT as a competitive strategy; thus the researcher perceives the information collected for the study to be relevant and useful in achieving the objective of the study. The findings of the study were as presented in Table 4.1.

Table 4.1 Year of firm Establishment

Year of firm Establishment	Frequency	Percentage (%)
Before 1980	12	34
1980-1989	17	48
1990-1999	3	9
From 2000	3	9
Total	35	100

4.2.3 Number of employees in the firm

The study sought to establish the number of employees in the organizations of the study. It was found that 16 (46%) of the organizations which responded had between 101 and 500 employees, 11 (31%) had between 1 to 100 employees while 8 (23%) had over 500 employees. From the findings of the study, most of the firms under study had grown and were established in their fields. According to the researcher, this was an indication that the organizations thrived well in the field which is perceived to be as a result of updated competitive strategies which necessitates their expansion and in terms of branches and the number of employees. The findings were as summarized in the Table 4.2.

Table 4.2 Number of employee in the organization

No. of employees	Frequency	Percentage (%)
1-100	11	31
101-500	16	46
Over 500	8	23
Total No.	35	100

4.2.4 Number of employees in ICT department

The researcher first sought to establish whether the organization had the ICT department. It was found that all the organizations 35 (100%) under study had the ICT department. This is an indication of the importance of the department in the banking organizations under study. According to Siam (2006) ICT has brought changes and developments in the banking industry which has impacted on service quality, future of the banking activities, and consequently its continually competitive ability in the world markets since going along with technology is one of the most important factors of organizations success in general and banks in particular. Thus the researcher concludes that without the adoption and use of ICT in the banking sectors, these organizations cannot survive the current competitive nature of the market.

The researcher further sought to establish the number of employees in the ICT department. The study found that 20 (57%) of the organizations had between 1 to 10 employees, 4 (11%) of the organizations had between 11 to 20 employees, 4 (11%) of the organizations had between 67 to 70 employees, 3(9%) of the organizations had between 31 to 40 employees, 2(6%) of the

organizations had between 21 to 30 employees, 1 (3%) of the organizations had between 51 to 60 employees and that 1 (3%) of the organizations had between 41 to 50 employees. From the findings of the study, it can be concluded that all the banking organization had the ICT department and quite a number of employees were employed in the department. This is an indication that the department played a major role in the banking organization. The findings were as presented in the **Figure 4.2** below.

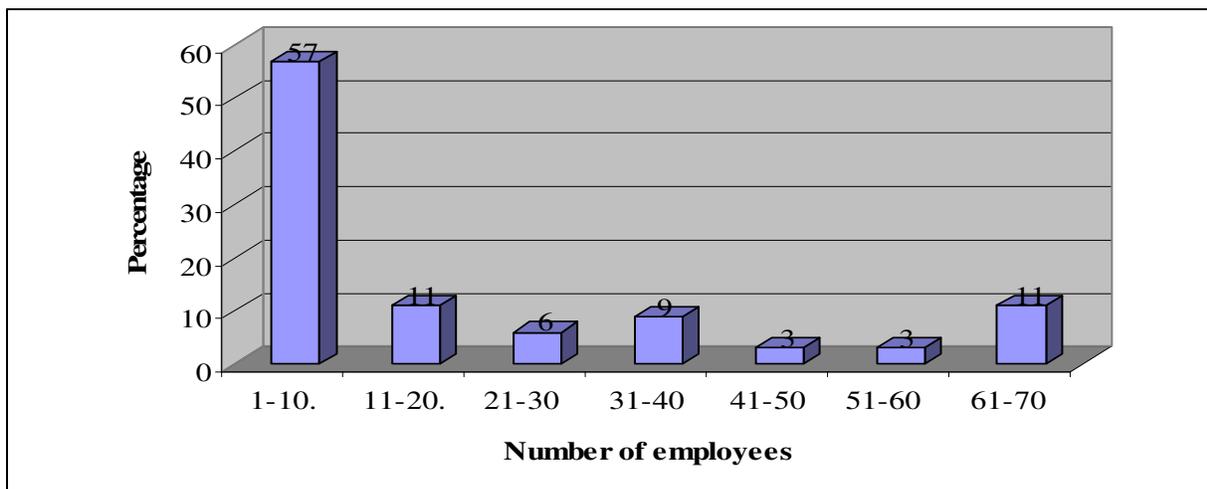


Figure 4.2 Number of employees in ICT department

4.3 The use of ICT as a Strategy in enhancing competitive advantage

In this section, the researcher sought to get information on how ICT has been used to enhance competitive advantage in banks. The findings of the study were as presented in the following sections.

4.3.1 ICT strategy in enhancing competitive advantage in Banks

To establish the extent to which ICT has been used as a strategy in enhancing the competitive advantage in banks, the researcher tested on the extent to which ICT has been used in different business processes. This was tested on a five point likert scale where respondents were required

to indicate the extent of the use of ICT in the organizations in various business processes. On the likert scale, 1 was used to represent “No extent”, 2 represented “Low extent” 3 represented “Moderate extent”, 4 represented “High extent” and 5 represented “Very high extent”.

The score “No extent” was taken to be equivalent to mean score ranging from 0.0 to 1.0, “Low extent” represented mean score ranging from 1.1 to 2.0, “Moderate extent” represented mean score ranging from 2.1 to 3.0, “High extent” represented mean score of 3.1 to 4.0 and “Very high extent” represented mean score of ranging from 4.1 to 5.0. A standard deviation of > 1 (greater than) represents a significant difference in the responses given. The findings of the study were as presented in **Table 4.3**.

Table 4.3 ICT strategy in enhancing competitive advantage in Banks

	Number	Mean	Std. Deviation
Accounting	35	4.34	.684
Marketing	35	4.40	.736
Sales	35	3.77	1.003
Recruitment	35	3.29	1.178
Training and development	35	4.23	.942
Customers service	35	4.49	.702
Research and Development	35	4.14	.974

Table 4.3 shows that sales and recruitment were enhanced by ICT strategies to high extent (mean score ranging from 3.1 to 4.0). Accounting, marketing, training and development, customer service and research and development had been enhanced by ICT strategies to a very high extent (mean score of 4.1 to 5.0). There was significant difference on the responses given

on sales and recruitment (standard deviation of more than 1) while there was no significant difference on the responses given on accounting, marketing training and development, customers service and research and development (standard deviation less than 1). These findings coincide with Wendy (2004), who found that the use of ICT helps in the reduction of manual and paper-intensive forms, more effective work processes, greater transparency and effective governance procedures to ensure the optimum use of the company's overall resources. From these findings, it can be concluded that the use of ICT was mostly applied in customer service and marketing of the services offered by the organizations.

4.3.2 The use of ICT Strategy in achieving various business processes

The study sought to determine organizations' achievements in business processes with the use of ICT. It was tested on a five point likert scale where respondents were required to rate the extent of achievements in their businesses. On the likert scale, 1 was used to represent "No extent", 2 represented "Low extent" 3 represented "Moderate extent", 4 represented "High extent" and 5 represented "Very high extent". The score "No extent" was taken to be equivalent to mean score ranging from 0.0 to 1.0, "Low extent" represented mean score ranging from 1.1 to 2.0, "Moderate extent" represented mean score ranging from 2.1 to 3.0, "High extent" represented mean score of 3.1 to 4.0 and "Very high extent" represented mean score of 4.1 to 5.0. A standard deviation of greater than 1 represents a significant difference in the responses given. The findings of the study were as presented in Table 4.4.

Table 4.4 Organizations' achievements in business processes with the use of ICT

Item description	Number	Mean	Std. Deviation
Efficiency in operation	35	4.37	.808
Improvements in products/services quality	35	4.14	.879
New features introduced in product/services	35	4.43	.608
Customers service improvement	35	4.43	.778
Lowering of cost	35	4.17	.747
High output volumes	35	4.17	.707
Ease of free flow of information	35	4.57	.698
Complex operations/processes made simple	35	4.17	.891
Multitasking made possible	35	4.43	.917
Reduction of communication processes	35	4.40	.497
Expansion of services offered (varied services)	35	3.89	1.022
Geographical expansion (Opening of new branches)	35	3.94	1.259
Increased customer based	35	4.51	.853

Table 4.4 shows that the use of ICT has helped in achieving the following: efficiency in operation, improvements in products/services quality, new features introduced in

product/services, customers service improvement, lowering of cost, high output volumes, ease of free flow of information, complex operations/processes made simple, multitasking made possible and increased customer base to very high extent (mean score between 4.1 to 5.0). Geographical expansion (opening of new branches) and expansion of services offered (varied services) were organizations' achievements at high extent (Mean score ranging from 3.1 to 4.0) There was a significant difference on the responses given on the expansion of the services offered and on the geographical expansion through opening of new branches. Laudon and Laudon (1996) found that ICT plays a major role in supporting strategic objectives of an organization including development of products, services and capabilities that give a firm competitive advantage over the competitive forces it faces in its market environment. From the findings of the study, it can be concluded that the use of ICT has improved the services offered by the banking organizations.

4.3.3 Impacts of the use of ICT in Banking Organizations

The study also sought to establish the extent of the impacts of the use of ICT in banking organizations. The findings of the study showed that ICT has made it easy for the employees to access information to a very high extent as indicated by 24 (69%). It was also found that ICT has led to building and maintenance of valuable relation with customers to a very high extent as indicated by 22 (63%). Another impact was that the use of ICT led to the expansion of the organizations both regionally and globally. Other impacts were that the use of ICT supported decision making to a very high extent as indicated by 18 (51%), diversification of products and services and support of automation process as indicated by 16 (46%), building and maintenance of valuable relationship with the suppliers to a moderate extent as indicated by 10 (29%). In support to these findings, Joseph and Stone (2003) investigated the customer perception of the impact of technology on service delivery in the banking sector. Their findings revealed that there

were high scores on the ability to deliver service via technology which appeared to be correlated with high satisfaction with services deemed most important to customer. Thus the researcher concludes that the use of ICT in the banking sector had a lot of impacts in the service delivery and customer satisfaction. The findings of the study were as presented in Table 4.5.

Table 4.5 Impacts of the use of ICT in Banking Organizations

Item description	No extent	Low extent	Moderate extent	High extent	Very high extent	Total Percentage
Differentiating its products/services from that of competitor	14	20	17	29	20	100%
Creating new product/services for current dealers	0	6	17	37	40	100%
Expanding regionally or globally	0	3	14	24	60	100%
Building and maintaining valuable relation with customers	0	6	3	28	63	100%
Building and maintaining valuable relation with suppliers	0	14	29	46	11	100%
Building and maintaining	0	6	20	51	23	100%

valuable relation with partners						
Holding data of information accessible to its employees	0	0	3	28	69	100%
Product & service diversification into newer markets	0	0	17	49	46	100%
Decision making process support	0	0	9	40	51	100%
Support in automation process or operation	0	0	6	49	46	100%
Support alliance	0	6	20	43	31	100%

4.3.4 Extent of use of Technological services in the banking Sector

To test on the extent of use of different services in the banking sectors, the respondents were asked to indicate the extent to which different services have been used in the banking sector. The study found that email was used to a very large extent as indicated by 30 (86%) of the respondents. It was also found that 28 (79%) of the respondents indicated that ATM is used to a very large extent, M-Pesa banking was used to a very large extent as indicated by 8 (29%), bill payment via M-Pesa was used to a moderate extent as indicated by 7 (26%) and that credit cards was used to a very large extent as indicated by 10 (34%) of the respondents. Lewis (1993) analyzed the perceptions of users and non-users of an automated service. He found that the main reason for using the ATM was accessibility. The user group believed that the ATM improves quality of service, reduces cost, presents no risks to customers, and is fast and easy to use. Moutinho and Brownlie (1989) found that a high level of bank customers' satisfaction was

directly related to the location and accessibility of ATMs. The respondent’s evaluation of ATM services indicated a surprising willingness to accept the incorporation of new functions and services provided to them through ATMs (i.e. loan requests, credit card payments and transfer of funds). This is an indication that the adoption and use of ATM by banks have been accepted resulting to the continued use of the service in the current banking systems in Kenya. The findings of the study were as presented in **Table 4.6**.

Table 4.6 Extent of use of Technological services in the banking Sector

	Very large extent	Large extent	Moderate extent	Small extent	No extent at all	Total Percentage
M-pesa Banking	29	23	20	17	11	100%
Bill payment via M-pesa	6	9	26	14	46	100%
A.T.M	79	6	0	9	6	100%
Use of credit cards	34	17	3	6	40	100%
E-mail	86	11	3	0	0	100%

4.3.5 The use of ICT in enhancing competitive advantage

In establishing the use of ICT in enhancing competitive advantage, the respondents were asked to indicate the level of their agreement with the statements on the use of ICT as a strategy. The study found that 30 (86%) of the respondents strongly agreed that ICT support strategies by

providing communication links , streamlining and shortening services design time with computer aided engineering tools. It was also found that 30 (86%) of the respondents strongly agreed that ICT service enhances competitive advantage in banks through Electronic Data Interchanged (EDI) used to communicate electronically within all branches. The study further found that 28 (80%) strongly agreed that ICT creates application for strategic advantage of banks. It was finally found that 22 (63%) agreed that ICT provides service intelligence by collection of information about innovation, customers, competitors and environmental changes. The findings of the study were as presented in **Table 4.7**.

Table 4.7. The use of ICT in enhancing competitive advantage

Statements	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total (%)
ICT creates application for strategic advantage of banks	80	11	0	6	3	100
ICT support strategies by providing communication links , streamlining and shortening services design time with computer aided engineering tools	86	6	0	3	6	100
ICT provide service intelligence by collection of						

information about innovation, customers, competitors and environmental changes	63	29	0	6	3	100
ICT service enhances competitive advantage in banks through EDI for inter branch communications	86	6	0	6	3	100

The respondents were further asked to mention some of the ways in which ICT strategy has been used by banks to gain competitive advantage. The following were their responses: That the banks have adopted the use of M-pesa banking which allows clients to deposit and withdraw cash through their mobile phones. Another strategy was that the banks have enhanced security, data availability, confidentiality and information integrity hence increased customer's services. They also mentioned that banks have made their systems more efficient and flexible to improve their services to their clients. They finally mentioned that banks offer efficient internet banking services to individuals and cooperate customers thus increasing their customer base and the efficiency of their operations.

4.3.6 Stakeholders Switching Costs as a result of the use of ICT Strategy

To establish the costs of the organizations on the use of ICT on different stakeholders, the researcher sought to establish the switching costs for the stakeholders. The study found 15 (43%) of the respondents that switching costs will be very high on organization's customers. It was also found that it will cost averagely on the organization's suppliers as indicated by 18 (51%) of the

respondents and that the costs would be average on organization's distributors as indicated by 16 (46%) of the respondents. According to the model developed by Porter (1980), competitive advantage can be achieved by enhancing the firm's ability to deal with customers, suppliers, substitute products and services, the bargaining power of customers and suppliers and the positioning of traditional industry competitors. He added that ICT can be used to increase switching cost by customers, lower costs by reducing cost of business processes and reduce costs to customers and suppliers. Thus ICT plays a major role in differentiation by creating new features that improve on a firm's existing products and services thereby resulting in product unique features. The findings of the study were as presented in **Figure 4.3**.

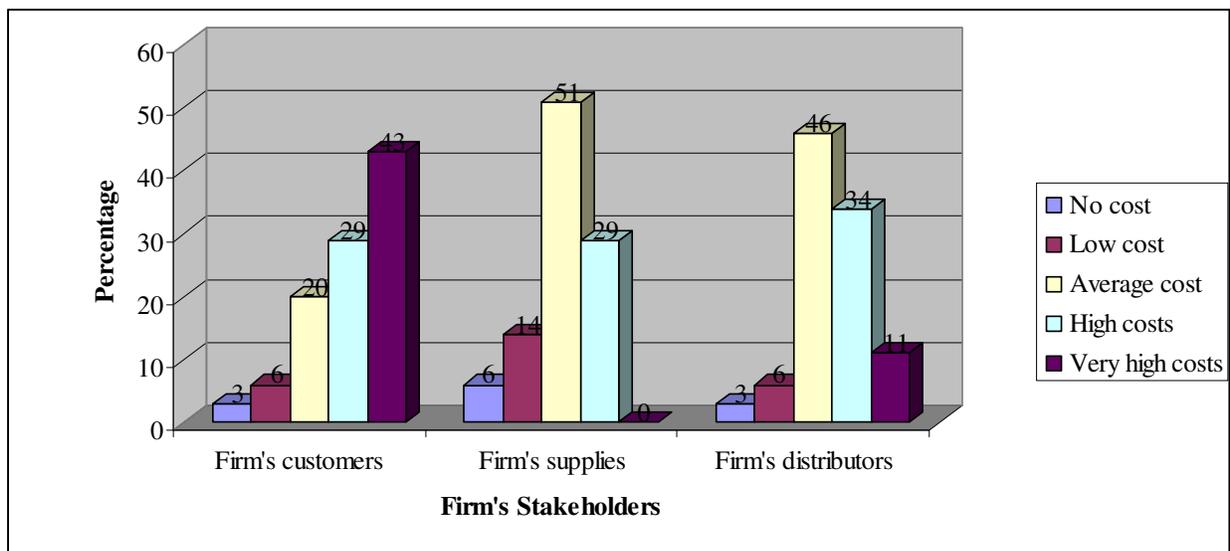


Figure 4.3 Cost Incurred by organizations on stakeholders as a result of the use of ICT

4.3.7 Level of Investment in Implementing ICT Systems

In testing the level of organization's investment the respondents were asked to indicate the level of investment. The study found that 19 (54% of the respondents indicated that they invested very highly in ICT systems. It was also found that 13 (37%) of the respondents indicated that they invested highly in ICT. The study finally found that 3 (9%) of the respondents indicated that their organization invested moderately in ICT. The findings of the study were as presented in Figure 4.4 below.

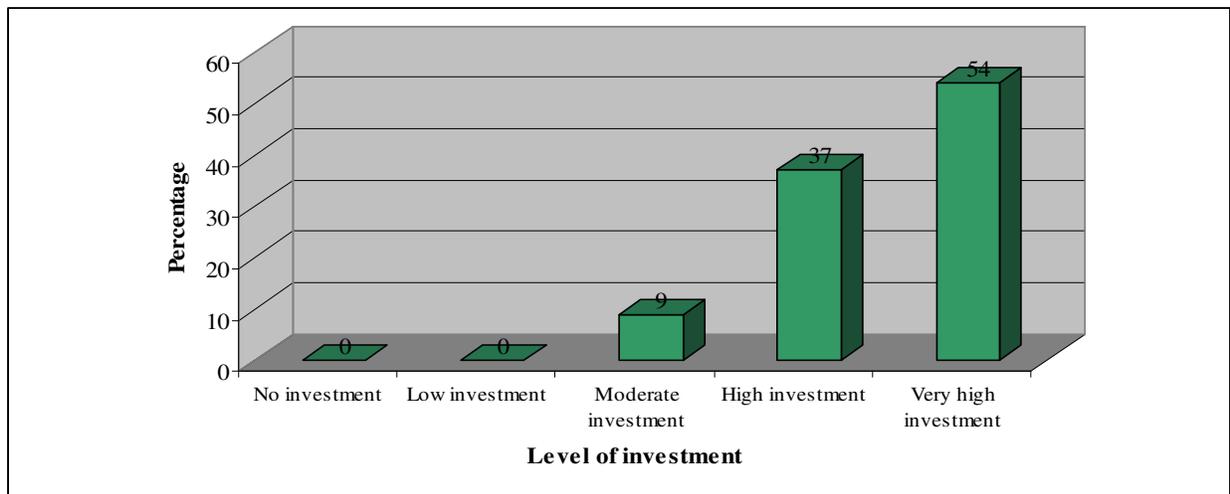


Figure 4.4: Level of Investment in Implementing ICT Systems

4.3.8 Complexity of the ICT System

The study finally sought to establish the level of complexity of the use of ICT in the organizations under study. The study found that 11 (31%) indicated that the complexity was moderate. It was also found that 10 (29%) indicated that the use of ICT was associated with high complexity, 9 (26%) indicated that ICT was associated with very high complexity and that 4 (11%) indicated that it was associated with low complexity. Only 1 (3%) indicated that ICT was not associated with any complexity. The findings of the study were as presented in Figure 4.5 below.

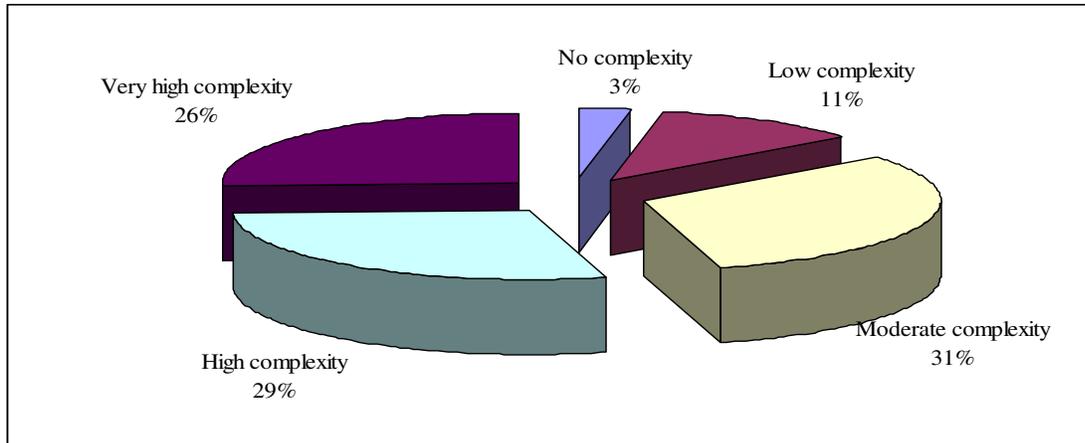


Figure 4.5 Complexity of the ICT System

4.3.9 Challenges facing the adoption of the use of ICT in banking Sector

In establishing the challenges facing the adoption and use of ICT in the banking sector, the respondents were asked to mention the challenges. The challenges were: user's resistance to change, fear of insecurity risks, high initial outlay costs, rapid changes in technology make it costly to keep abreast of the changes, difficulty in server, hardware and network connectivity, fraud perpetrated through technology, high cost of software installation and maintenance, lack of internet services to customers in remote areas, high cost of training staffs which is done every time systems are upgraded, difficulty in switching to new core banking system especially in implementation and difficulty in conforming to banking regulation and ICT governance. In support to these findings, Zheng and Zhong (2005) examined the trends in the internet revolutions that have set the Chinese banking sector in motion and the factors which have influenced the adoption of Internet Banking (IB) in china. It was revealed that internet availability, awareness, attitude towards change, computer and internet access, cost, trust in bank, security concerns, ease of use and convenience were the major factors affecting the adoption

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of areas of the study, a summary of research findings, conclusions, recommendations and recommendations for further study.

5.2 Summary

The purpose of this study was to establish the extent to which ICT strategy is applied in enhancing competitive advantage in Commercial Banks in Kenya. Survey design was used in the study. The study targeted the ICT managers at the headquarters of the 43 commercial banks. Questionnaires were used as instruments for data collection.

The study found that the use of ICT in the banking sector has helped in achieving the following: efficiency in operation, improvements in products/services quality, new features introduced in product/services, customers service improvement, lowering of cost, high output volumes, ease of free flow of information, complex operations/processes made simple, multitasking made possible and increased customer based to very high extent.

Regarding the impacts of ICT, the study found that ICT has made it easy for the employees to access information, it has led to building and maintenance of valuable relation with customers, expansion of the organizations both regionally and globally, it has supported decision making, diversification of products and services and support of automation process and that it has led to building and maintenance of valuable relationship with the suppliers.

In establishing the extent of use of the services resulting from the use of ICT, the study found that email is used to a very large extent. The study also found that M-Pesa and ATMs are used to very large extent.

Regarding the use of ICT in enhancing strategic advantage, the study found that the use of ICT support strategies by providing communication links, streamlining and shortening services design time with computer aided engineering tools. The study also found that ICT service enhances competitive advantage in banks through Electronic Data Interchanged (EDI) used to communicate electronically within all branches. Another use of ICT as a strategy was that ICT creates application for strategic advantage of banks. It was finally found that ICT provide service intelligence by collection of information about innovation, customers, competitors and environmental changes.

Other ways of improving strategic advantage in banks included: improving the ICT strategic advantage by banks through the adoption and use of M-pesa banking which allows clients to deposit and withdraw cash through their mobile phones. Another strategy was that the banks have enhanced security, data availability, confidentiality and information integrity which has improved customer's services. They also mentioned that banks have made their systems more efficient and flexible to improve their services to their clients. They finally mentioned that banks offer efficient internet banking services to individuals and cooperate customer thus increasing their customer base and the efficiency of their operations.

The study finally found that the major challenges facing the adoption and use of ICT in commercial banks in Kenya include: user's resistance to change, fear of insecurity risks, high

initial outlay costs, rapid changes in technology make it costly to keep abreast of the changes, difficulty in server, hardware and network connectivity, fraud perpetrated through technology, high cost of software installation and maintenance, lack of internet services to customers in remote areas, high cost of training staffs which is done every time systems are upgraded, difficulty in switching to new core banking system especially in implementation and difficulty in conforming to banking regulation and ICT governance

5.3 Conclusion

From the findings of the study, it can be concluded that ICT has been use to a very large as a strategy for enhancing competitive advantage in commercial banks in Kenya. The impacts has been that it has improved the efficiency in operation, led to the improvement of the quality of the products/services, improved customer services, helped in lowering operational costs, increased output volumes, ease of free flow of information, it has made the complex operations/processes simple, made multitasking possible and that it has increased the customer based.

Regarding the use of ICT as a strategy, the study found that the use of ICT support strategies has helped in providing communication links, streamlining and shortening services design time with computer aided engineering tools. The study also concludes that ICT has enhanced competitive advantage in banks through Electronic Data Interchanged (EDI) used to communicate electronically within all branches. It was finally concluded that ICT provide service intelligence by collection of information about innovation, customers, competitors and environmental changes.

5.4 Limitations of the Study

This study was done within the context of commercial banks in Nairobi area and therefore the conclusions are drawn based on that context. The research targeted IT managers of the banks to answer the questionnaires. However, during data collection process, it became difficult to meet some of them due to restrictions and busy schedule. In that connection, some of the questionnaires could only be left with the receptionists to handover to the IT managers which were later collected from the same receptionists filled in. Under such circumstance, it is the researcher's assumption that the questionnaires were answered by the targeted IT managers and therefore relevant to the research objectives. Another challenge was that some banks declined to divulge information requested terming them sensitive and hence resulting on a response rate of 81%.

This research project could have been more informative and conclusive if "Factors affecting the Adoption of ICT Strategy in Enhancing Competitive Advantage in Commercial in Kenya" was part of the research objective. But due to time limitation and extent of research work required to tackle the two objectives, the researcher could only handle one research objective and leave the other for future research work.

5.5 Recommendations

The study recommends that banks should create more awareness of their newly introduced ICT related products so that customers may use the products and enjoy the benefits associated with their introduction. Banks should have regular staff training covering various aspects of ICT usage due to the fact that technology is changing daily.

It is also recommended that banks should procure support services from the local companies to improve on the use of ICT in commercial banks in Kenya. Since the study confirms that all the banks under study heavily rely on ICT for their operations, it is recommended that banks initiate ICT policies which government can implement to improve on the ICT infrastructure across the country thereby enhancing internet connectivity and general ICT service delivery. They should adopt the most updated ICT banking strategies and open source software for non critical internal processes to reduce the cost of software investment and therefore gain competitive advantage in the market.

The researcher finally recommends that banks should make full use of ICT to advertise their products and to ensure improved and efficient service delivery to clients and customers to win the competitive advantage in the market.

5.6 Area for further Research

This study was carried out in commercial banks in Kenya to find out the extent of use of ICT as a strategy in enhancing competitive advantage. The researcher therefore recommends that another study be done on the challenges facing the adoption and use of ICT in the banking sector.

5.7 Implication on Policy and Practice

A policy is a guiding principle designed to influence decisions or actions. Typically, a policy designates a required process or procedure within an organization. It is a plan of action to guide decisions and actions. The policy process includes the identification of different alternatives, such as programs or spending priorities, and choosing among them on the basis of the impact they will have. Policies in short can be understood as political, management, financial, and administrative mechanisms arranged to reach explicit goals. On the basis of the results of this study, policy guidelines can be developed by the government through the initiative of banking sector.

The research findings indicate that banking sector uses ICT strategy to a very large extent to improve on the efficiency in operation, quality of the products/services, improved customer services, helped in lowering operational costs, increased output volumes, ease of free flow of information, simplify complex operations/processes and make multitasking possible. If technology and industry are coming together around the internet or ICT in general, then the government, that decides on policy and regulate industry, must recognise this fact and adapt its policy-making accordingly. Since banking sector is a major stakeholder in ICT development, as indicated on the findings, they can use these findings in formulating policy guidelines and forward to the government for implementation. The findings reveal that most customers use ICT services like ATM, M-pesa, visa cards and e-mails thereby confirming that people have become quite conversant with the use of ICT to get services that would otherwise take time and money to achieve. This fact is very important in policy planning for it will determine the level of investment in ICT infrastructure and training by both the government and the banking industry.

REFERENCES

- Ansoff, I. and McDonnell, E. (1990). *Implanting Strategic Management*, (2nd Edition), Prentice Hall.
- Chandler, Alfred D., (1998). *Strategy and Structure: Chapters in the History of the American Industrial Enterprise*. Cambridge, MA: MIT Press
- Computer Security Institute (2003). “*Eighth Annual CSI/FBI Computer Crime and Security Survey*”. Available online from http://i.cmpnet.com/gocsi/db_area/pdfs/fb
- Daniel, E. (1999). “*Provision of electronic banking*” *International Journal of Bank Marketing*, Vol. 17 No. 2, pp.72-83.
- Furst, et al. (2000). *Internet Banking: Developments and Prospects*. Office of the Comptroller of the Currency. Economic and Policy Analysis Working Paper September 9, 2000.
- Gerry J., Kevan S. and Richard W (2006). *Exploring Corporate Strategy*. (7th edition), Prentice Hall
- International Telecommunications Union (1993). *African Telecommunications Indicators*. Geneva: International Telecommunications Union. Available online from <http://en.wikipedia.org/wiki/ITU-D>
- Howcroft, B. and Lavis, J. (1986). “*A strategic perspective on delivery systems in UK retail banking*”, *Services Industry Journal*, Vol. 6 No. 2, pp.144-58.
- Kenya Post and Telecommunications Corporation (1990). *Annual Reports and Accounts*. Nairobi, Kenya.
- Lewis, B. (1993). “*Service quality: recent developments in financial services*”, *International Journal of Bank Marketing*, Vol. 11 No. 6, pp. 19-25.
- Laudon, D.P. and Laudon, J.P. (2001): *Management Information Systems: Organisation and Technology in the Network Enterprises*, 4th ed. Prentice Hall International in. U.S
- Leonard, M. and Spencer, A. (1991), “*The importance of image as a competitive strategy: an exploratory study in commercial banks*”, *International Journal of Bank Marketing*, Vol. 9 No. 4, pp, 36-40.
- Moutinho, L. and Meidan, A. (1989), “*Bank customers’ perceptions innovation and new technology*”, *International Journal of Bank Marketing*, Vol. 7 No. 2, pp. 22-7.

- Murdock, G. and Franz, L. (1983), “*Habit and perceived risk as factors in the resistance to the use of ATMs*”, *Journal of Retail Banking*, Vol. 5 No. 2, pp. 20-29.
- McAllister, Patrick H. and Douglas A. McManus. (1993). *Resolving the Scale Efficiency Puzzle in Banking*. *Journal of Banking and Finance* 17(2-3): 389-405.
- Norbert Weiner (1948). “*Cybernetics or Control and Communication in the Animal and the Machine*”
- Nzuki C. K (2006). *ICT Audit in commercial banks in Kenya*. Unpublished MBA Thesis. University of Nairobi
- Okundi, P.O. and Evans B.G. (1975) "*Afrosat: Proposals for an African Domestic Satellite Communications System.*" Paper presented at the International Conference on Satellite Communications Systems Technology. London.
- Okundi, P.O., Arthur W.O and James K. K. (1977). "*Rural Telecommunications Development in East Africa.*" Proceedings of the International Telecommunications Exposition INTELCOM 77, Vol. 1. Dedham, Massachusetts: Horizon House International.
- Owuor (2004). The use of ICT as a facilitator of Business Process Re-engineering (BPR) in vegetable oil industry. Unpublished MBA Thesis. University of Nairobi.
- Pearce II, J. A. and Robinson, R. B. (1997). “*Strategic Management*” *Formulation, Implementation and Control* (6th Edition), Irwin McGraw Hill, Boston.
- Porter M.E (1980), *Competitive strategy: techniques for analyzing industries and competitors*, Free press, New York, NY
- Porter M. E (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: Free Press.
- Porter M. E, (1990). *The Competitive Advantage of Nations*, by published by The Free Press, a Division of Simon & Schuster Inc., New York, New York.
- Porter, M.E. (2008). *The Five Competitive Forces That Shape Strategy*, *Harvard business Review*.
- Santos, J. (2003), “*E-service quality: a model of virtual service quality dimensions*”, *Managing Service Quality*, Vol. 13 No. 3, pp. 233-46.

- Sudhindra Bhat (2005). *Managing Challenges in Banking Industry*. Available online from http://www.indianmba.com/Faculty_Column/FC173/fc173.html. dated 07-07-2010
- Stanley K. (2006). *Survey of Strategic role of ICT among insurance companies in Kenya*. Unpublished MBA Thesis. University of Nairobi.
- Tait, F. and Davis, R.H. (1989), “*The development and future of home banking*”, International Journal of Bank Marketing, Vol. 7 No. 2, pp. 3-9.
- Vinson, D.E. and McVandon, W. (1978), “*Developing a market for a new EFTS bank service*”, Journal of Marketing, April, pp. 83-6.
- Vishall Taneja (2006). *Survey of application of ICT for competitive advantage of firms listed in Nairobi Stock Exchange (NSE)*. Unpublished MBA Thesis. University of Nairobi
- World Summit on the Information Society, Declaration of Principles, Geneva 2003
- World Summit on the Information Society, Plan of Action, Geneva 2003

APPENDICES

APPENDIX 1: LETTER OF INTRODUCTION

APPENDIX 2: LIST OF COMMERCIAL BANKS

1. **African Banking Corporation Ltd.**
2. **Bank of Africa Kenya Ltd**
3. **Bank of Baroda Kenya Ltd**
4. **Bank of India**
5. **Barclays Bank of Kenya Ltd**
6. **CFC Bank Ltd**
7. **Charterhouse Bank Ltd**
8. **Chase Bank (K) Ltd**
9. **Citibank N.A Kenya**
10. **City Finance Bank Ltd**
11. **Co-operative Bank of Kenya Ltd**
12. **Commercial Bank of Africa**
13. **Consolidated Bank of Kenya Ltd**
14. **Credit Bank Ltd**
15. **Development Bank of Kenya Ltd**
16. **Diamond Trust Bank (K) Ltd**
17. **Dubai Bank Kenya Ltd**
18. **Equatorial Commercial Bank Ltd**
19. **Ecobank**
20. **Equity Bank Ltd**
21. **Fidelity Commercial Bank Ltd**
22. **Fina Bank Ltd**
23. **Guardian Bank Ltd**
24. **Giro Commercial Bank Ltd**
25. **Habib Bank A.G Zurich**
26. **Habib Bank Ltd**
27. **Imperial Bank Ltd**
28. **Investment and Mortgages Bank Ltd**
29. **K-Rep Bank Ltd**

MANAGING DIRECTORS

- Mr. Shamaz Savani
Leon Dufour
Mr. K.N. Manvi
Mr. A.K. Jalota
Mr. Adan Mohammed
Mr. M. Soundararajan
Under statutory management
Mr. Zafrullah Khan
Mr. Ade Ayeyemi
Mr. S.V. Ramani
Mr. Gideon M. Muriuki
Mr. Isaac Awuondo
Mr. David N. Wachira
R.N. Patnaik
Mr. Victor Kidiwa
Mrs. Nasim M. Devji
Mr. Viju Cherian
Mr. Hassan Rizvi
Mr. R. Arora
Dr. J.N. Mwangi
R.B. Singh
Frank Griffiths
Mr. Gopinath Bhatt
Mr. M.P. Sastry
Mr. Iqbal A. Allawala
Rizwan Haider
Mr. A. Jamohamed
Mr. Arun S. Mathut
Mr. Kimanthi Mutua

30. Kenya Commercial Bank Ltd	Mr. Martin Oduor
31. Middle East Bank (K) Ltd	Mr. Peter Harris
32. National Bank of Kenya Ltd	Mr. Reuben M. Marambii
33. National Industrial Credit Bank Ltd	Mr. J.W. Macharia
34. Oriental Commercial Bank Ltd	Mr. B.K Dutta
35. Paramount Universal Bank Ltd	Mr. Ayaz Merali
36. Prime Bank Ltd	Mr. Vasant K Shetty
37. Southern Credit Banking Corporation Ltd	Mrs. Muthoni Kuria
38. Stanbic Bank Kenya Ltd	Mr. Mike Dutoit
39. Standard Chartered Bank (K) Ltd	Mr. Richard Etemesi
40. Trans-Ntional Bank Ltd	Mr. Dharendra K Rana
41. Victoria Commercial Bank Ltd	Mr. Yogesh K Pattni

Source: CBK website: www.cbk.co.k

APPENDIX 3: QUESTIONNAIRE

SECTION A: DEMOGRAPHIC

1 Is the firm a foreign or locally owned company: (Tick one)

1. Foreign () 2. Local () 3. Both local and foreign owned ()

2 When was the firm established? (month/year)

3 How many employees does the firm have? _____

4 Does it have an ICT department?

Yes () No ()

a. If Yes, how many employees are in ICT department?

b. Does ICT department play an active role in firm's strategy formulation?

Yes () No ()

SECTION B: EXTENT OF ICT STRATEGY IN ENHANCING COMPETITIVE ADVANTAGE.

1. Indicate by ticking, the extent to which the following areas of business processes are computerized at the firm

Scale of use: 1. No extent 2. Low extent 3. Moderate extent 4. High extent

5. Very high extent

	1	2	3	4	5
Accounting	()	()	()	()	()
Marketing	()	()	()	()	()
Sales	()	()	()	()	()

Recruitment	<input type="checkbox"/>				
Training and development	<input type="checkbox"/>				
Customer service	<input type="checkbox"/>				
Research and Development	<input type="checkbox"/>				

2. Indicate by ticking the extent to which the firm has achieved the result below with the use of ICT in its business areas:

Scale of use: 1. No extent 2. Low extent 3. Moderate extent

4. High extent 5. Very high extent

	1	2	3	4	5
a. Efficiency in operations	<input type="checkbox"/>				
b. Improvements in products/service quality	<input type="checkbox"/>				
c. New features introduced in products/services	<input type="checkbox"/>				
d. Customer service improvement	<input type="checkbox"/>				
e. Lowering of cost	<input type="checkbox"/>				
f. High output volumes	<input type="checkbox"/>				
g. Ease of free flow of information	<input type="checkbox"/>				
h. Complex operations/processes made simple	<input type="checkbox"/>				
i. Multitasking made possible	<input type="checkbox"/>				
j. Reduction of communication time between processes	<input type="checkbox"/>				

Others specify

3. Indicate by ticking the extent to which the firm has achieved the results below with the use of ICT in its business areas:

Scale of use: 1. No extent 2. Low extent 3. Moderate extent

4. High extent 5. Very high extent

- | | 1 | 2 | 3 | 4 | 5 |
|--|----------|----------|----------|----------|----------|
| a. Differentiating its products/services from that of competitors | () | () | () | () | () |
| b. Creating new products/services for current market it deals with | () | () | () | () | () |
| c. Expanding regionally or globally | () | () | () | () | () |
| d. Building and maintaining valuable relations with customers | () | () | () | () | () |
| e. Building and maintaining valuable relations with suppliers | () | () | () | () | () |
| f. Building and maintaining valuable relations with partners | () | () | () | () | () |
| g. Holding database of information accessible to its employees | () | () | () | () | () |
| h. Product/service diversification into newer markets | () | () | () | () | () |
| i. Decision making process support | () | () | () | () | () |
| j. Support in automation processes or operations | () | () | () | () | () |
| k. Supporting alliances | () | () | () | () | () |

4. The following are some of the examples of the services resulting from the adoption and use of ICT in the banking sector. Please indicate the extent to which each of the services is used in your bank?

- 1. 1- Very large extent 2- Large extent 3- Moderate extent 4- Small extent**
5- No extent at all

Service	1	2	3	4	5
M-PESA Banking					
Bill payment via M-PESA					
ATM					
Use of Credit Cards					
Email					

5. How would you rate the cost incurred by the firm stakeholders with respect to ICT use if they were to switch to the firm's competitors? (Tick one)

Scale of use: 1. No extent 2. Low extent 3. Moderate extent 4. High extent

5. Very high extent

	1	2	3	4	5
a. Firm's customers	<input type="radio"/>				
b. Firm's suppliers	<input type="radio"/>				
c. Firm's distributors	<input type="radio"/>				

6. Please rate the firm's investment level in implementing the current ICT systems (investment include training, resource allocations and money invested). Circle one

Scale of use: 1. No investment 2. Low investment 3. Moderate investment

4. High investment 5. Very high investment

7. Please rate the complexity of the current ICT systems installed at the firm. (Circle one)

1. No complexity 2. Low complexity 3. Moderate complexity

4. High complexity 5. Very high complexity