STRATEGIC IMPLICATIONS OF CLOUD COMPUTING AS A COMPETITIVE ADVANTAGE IN THE BANKING INDUSTRY IN KENYA

EVERLYN NDANU MUTUNGA

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

NOVEMBER, 2014

DECLARATION

I declare that this project is my original work and has not been presented in any other University or College for Examination or Academic purposes.

Signature: _____ Date: _____

EVERLYN NDANU MUTUNGA

D61/70157/2007

The project has been forwarded for presentation with my approval as the University Supervisor.

Signature: _____ Date: _____

DR. ZACHARY B. AWINO, PhD

Senior Lecturer

Department of Business Administration

School of Business, University of Nairobi

ACKNOWLEDGEMENTS

First and foremost, I would like to thank God for the gift of life, health, strength and knowledge that He bestowed upon me and for enabling me to complete this research study.

My sincere gratitude goes to my supervisor, Dr. Zack B. Awino, for the continuous guidance and dedicated support I received from him during the entire process of undertaking this study. I would also like to thank my MBA lecturers for building my knowledge during this academic pursuit.

I would like to thank my loving family, my MBA colleagues and close friends for all the guidance, motivation and moral support in all stages of this project.

Finally, I would like to appreciate all those who made this research project a success. God bless you all.

DEDICATION

I dedicate this project to my loving family and close friends. Lots of gratitude goes to my loving mum Margaret and dad Francis who believed in the pursuit of academic excellence and who taught me that even the biggest task can be accomplished if it is done one step at a time with patience, discipline and dedication. To my close and best friends Evelyn, Alice and Patrick who prayed, stayed up, bought dinners and lunches when I was busy working to get this project done and those that have supported me through guidance in reference to their academic experiences. I am entirely grateful.

TABLE OF CONTENTS

LIST OF TABLES

ABSTRACT

Cloud computing is the offering of computing resources over the internet. Cloud computing is the most popular rising computing model that benefit from massive approval. Strategy is depicted as a set of beliefs on how a firm can achieve success. The purpose of strategy is to provide directional cues to the organization that permit it to achieve its objectives while responding to the opportunities and threats in the environment. Competitive advantage is an organization's ability to perform in one or more ways that competitors will not and cannot match. The objective of the study was to determine the strategic implication of cloud computing as a competitive advantage in the banking industry in Kenya. This study adopted a cross-sectional survey. The target population of the study was the top 10 best performing commercial banks operating in Kenya. Both primary and secondary data were collected for the study. The completed questionnaires were first edited and checked for completeness and consistency and analyzed by the use of descriptive statistics using SPSS version 20.0. The study established that cloud computing transformed the banking experience and customer relationships by leveraging social and mobile media as. The study also established that cloud computing can hold ground for the banks overall vision, mission and objectives in achieving the overall competitive strategy. The study concluded that leveraging social and mobile media has enabled the banking industry to improve on customer relationship. The study also concluded that costs, lack of technical knowhow and security were major challenge faced when trying to use cloud computing for strategic/competitive advantage. It is also recommended that the banking industry should consider migrating its services to in the future to a digital platform so as to improve customer relationships and other areas of operation. It is recommended that further studies be done to establish in depth the challenges facing adoption of cloud technology as a competitive advantage in banking industry and a recommendation on how they can be addressed. The implications of this study to the Kenyan banking sector is that it should be used as a guide to further pursue interest in identifying the strategic implications of cloud computing in their banking environments.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The rapid occurrence, prevalence and potential impact of cloud computing has ignited a significant amount of concern amongst Information System (IS) and information technology (IT) industry and research. Cloud computing is perhaps the most popular rising computing model that benefit from massive approval (Hayes, 2009). It is envisaged that this latest IT model will transform the whole computing setting from technology to human resource to companies and their yields (Yousif, 2010). Cloud computing is the offering of computing resources over the internet. It is a growing and latest mode of delivering computing services online, which are controlled by third parties at secluded locations (Rima, Choi and Lumb, 2009). Technological infrastructure is key in running the operations of any sector. Cloud services permit persons and businesses to utilize technological systems via the internet from distant sites. There has been an increasing level of internet connection and this rising amount of data has resulted to numerous providers and particularly data centers to implement larger infrastructures with dynamic load balancing (Hayes, 2008).

This study is founded on two theories: Systems and the competitiveness theories. According to systems theory, the specific environments in which organizations operate are very competitive throughout the network of suppliers, distributors, government agencies, and competitors with which a business enterprise interacts. As such, an organization is affected by the environment in the same way that it affects it. In order to

be competitive, organizations need to adapt their operations to the changing environment or else they get extinct (Pallis, 2010). A competitiveness theory proposes some kind of advantage as enabling a country gain more out of international trade. The same is true for the firm if it is to remain competitive among its competitors. If sustainable superior performance is to be achieved a firm must differentiate itself (Alderson, 1937).

The banking industry has become very competitive as banks seek to outperform each other and secure their market share (Lucky, 2009). Many banks have now launched data centers where majority of their enquiries are handled. With the increased demand for data centers such as power utilization, cooling structure, infrastructure, space, competent IT experts and day-to-day running costs, cloud computing is developing as a vital shift and a changing model on the way services are brought in IT due to its financial and operational gains to businesses (Goyal & Joshi, 2011). Many banks have opted for information technology in their expansion strategies as opposed to opening physical branch networks. Distributing and duplicating data when demand arises, resource utilization is found to be drastically enhanced through cloud computing. In addition, web server hosts portray images of pertinent consumers who demand some level of accessibility across numerous servers and direct requests in accordance to interchange load (Benedikter, 2011).

1.1.1 Concept of Strategy

Strategy is depicted as a set of beliefs on how a firm can achieve success (woods and Joyce, 2003). Thompson and Strickland (2007) define strategy as the match between an organization's resources, skills and the environmental opportunities as well as the risks it faces and the purposes it wishes to accomplish. It is a multi-dimensional concept and

various authors have defined strategy in different ways. The purpose of strategy will be provide directional cues to the organization that permit it to achieve its objectives while responding to the opportunities and threats in the environment (Pearce and Robinson, 2007). Several scholars have viewed strategy differently. For instance, Ansoff (1999) views strategy in terms of market and product choices. According to his view, strategy is the “common thread” among an organization’s activities and the market.

Johnson and Scholes (1998) define strategy as the direction and scope of an organization that ideally matches the results of its changing environment and in particular its markets and customers so as to meet stakeholder expectation. According to Colin (2004), strategy is a unified and integrated plan that relates the strategic advantages of the firm to the challenges of the environment and that is designed to ensure that the basic objectives of the enterprise are achieved through proper execution by the organization (Peppard, 2000).

1.1.2 Cloud Computing

Cloud computing is a subscription-based service where an organization can obtain networked storage space and computer resources (Rima, Choi and Lumb, 2009). It is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources like the networks, servers, storage, applications, and services that can be rapidly provisioned and released with minimal management effort or service provider interaction. It is perhaps the most popular rising computing model that benefit from massive approval (Hayes, 2009).

Cloud computing model is composed of five essential characteristics including: on-demand self-service where a consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service provider (Lewis, 2009). Secondly, broad network access where capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms like mobile phones, tablets, laptops, and workstations (Strowd & Lewis, 2010).

The third characteristic is resource pooling where the provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. Rapid elasticity where capabilities can be elastically provisioned and released, in some cases automatically, to scale rapidly outward and inward commensurate with demand. Measured service in which cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service like storage, processing, bandwidth, and active user accounts (Strowd & Lewis, 2010).

1.1.3 Competitive Advantage

Competitive advantage is an organization's ability to perform in one or more ways that competitors will not and cannot match (Kotler, 2000) and is realized by the organization's marketing strategy, the implementation of this strategy and the context in which competition unfolds. Barney (1991) has argued that competitive advantage can be gained if the firm's current strategy creates value and is not being implemented by any

competitor at present or in the future. Day and Wensley (1994) have focused on two categorical sources involved in creating competitive advantage: superior skills and superior resources. To succeed in building a sustainable competitive advantage, a firm must try to provide what buyers will, perceive as superior value of the goods/services amongst other substitute goods/service in the market. This entails either a good quality product at a low price, or a better quality product that is worth paying more for (Day and Wensley, 1994).

A particular competitive advantage over rivals in one aspect of competition may help the firm better serve the customer in that particular aspect. To achieve superior performance, especially persistent superior performance, a firm often needs multiple competitive advantages. Beating rivals on multiple strategically important vectors is essential for a winning firm (Ma, 1997). Creating a constellation of multiple evolving competitive advantages and renewing such a constellation in a timely fashion, however, will likely make persistent superior performance more readily attainable (Ma, 1997). Barney (1991) concluded that not all firm's resources hold the potential of sustainable competitive advantage; instead there are four attributes to it: rareness, value, inability to imitate and inability to be substituted.

1.1.4 Banking Industry in Kenya

The Banking sector 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, 2013). The banking sector was liberalized in 1995 and exchange controls lifted. The CBK, which falls under the National Treasury docket, is responsible

for formulating and implementing monetary policy and fostering the liquidity, solvency and proper functioning of the financial system. The Kenyan banking industry has 44 banks; 31 are locally owned and 13 are foreign owned. The locally owned financial institutions comprise three banks with significant shareholding by the Government and State Corporations, 27 commercial banks and one mortgage finance institution, Housing Finance (Bank Supervision Report, 2012). The banks have come together under the Kenya Bankers Association (KBA), which serves as a lobby for the bank's interests. KBA serves a forum to address issues affecting members. Over the last few years, the Banking industry in Kenya has continued to grow in assets, deposits, profitability and products offering (Angulu, 2007). The growth has been mainly underpinned by an industry wide branch network expansion strategy both in Kenya and in the East African community region and automation of a large number of services and a move towards emphasis on the complex customer needs rather than traditional 'off-the-shelf' banking products (CBK, 2012). Players in this industry have experienced increased competition over the last few years resulting from increased innovations among the players and new entrants into the market.

1.2 Research Problem

The general business environment has become more volatile, unpredictable and very competitive as the effects of globalization and internationalization of firms continue to manifest themselves and affect the competitiveness of firms. The increasing competition that companies are facing today requires that they develop appropriate strategies that will maintain their competitiveness. According to Ansoff (1990), rewards will accrue to those who can read precisely the operating environment and continuously scan it to develop

appropriate solutions that will remain competitive. Therefore, strategy is vital to the adaptation of the changing business environment and development of sustainable competitive advantage. The banking industry has become very competitive as more and more banks seek to either enlarge their market share or increase their customer base (CBK, 2007). Some commercial banks have adopted physical branch expansion while others have adopted information technology as their expansion strategy. A good example includes Barclays Bank Limited which invested heavily in branch network expansion while Standard Chartered Bank invested in information technology. Information technology has been poised as the next technology in leveraging the operations of commercial banks (Kenya Bankers Association, 2014).

Several researchers have reviewed the application of cloud computing to organizations and its effects on organizational performance. For instance, Ylätupa (2011) examined cloud computing in the ICT of Finnish public administration and established that in the public administration of Finland, cloud computing is not familiar to the employees, and if some ministries or departments are using cloud computing, they are not doing it centrally. Kim (2009) examined cloud computing by looking at its impact on today and tomorrow and established that cloud computing was in its infancy in terms of market adoption. However, it was a key IT megatrend that would take root. Quoc, Perkuhn, Catrein, Naumann and Anwar (2011) studied optimization and evaluation of a multimedia streaming service on hybrid Telco cloud. Their approach of modelling the mobile network and its cloud-related properties mathematically proved to be a quick and efficient way to analyse relevant aspects of mobile network configurations from a cost-perspective. Locally, Kiiru (2011) did a survey on cloud computing adoption in Kenya's

banking industry and revealed that banks were not willing to put their IT services to cloud in the next 2 years. Mwaura (2013) studied technology acceptance of cloud computing in ICT departments of the Kenya Government Ministries and established that ICT officer's use of cloud computing tended to be a kind of involuntary and natural activity. Kituku (2012) studied adoption of cloud computing in Kenya by firms listed in the Nairobi Stock Exchange and found various factors affecting the adoption of cloud computing in Kenya and recommended that in order to promote cloud computing among commercial companies cloud service providers should provide successful case studies and statistics in order to help companies realise the applications of the cloud. This study therefore seeks to fill the research gap by evaluating the strategic implications of cloud computing as a competitive advantage in the banking industry in Kenya. What is the strategic implication of cloud computing as a competitive advantage in the banking industry in Kenya?

1.3 Research Objective

To determine the strategic implications of cloud computing as a competitive advantage in the banking industry in Kenya.

1.4 Value of the Study

To the management of commercial banks in Kenya, they will be in a position to understand the effects of cloud computing on their overall performance and especially on competitiveness. Through the findings of this study, it is hoped that the managers of commercial banks will be informed on how to use cloud computing for competitive advantage.

To the management of ICT firms in Kenya, the findings of this study will be important in understanding the role played by cloud computing in building sustainable competitive advantage. Therefore they would invest in development of skills to promote cloud computing role out in Kenya.

To the government and in particular the ICT Board and the Ministry of Information and Communication, the findings from this research will aid in formulation of policies and procedures through which they can intervene and promote ICT business growth in the country at large. This can also be further refined and extended towards attracting potential investors for investment opportunities.

The findings of this study will also help future researchers and scholars. It is hoped that the findings of this study will be used as a source of future reference on scholars wishing to extend the level of knowledge on cloud computing in Kenya and commercial banks. In addition, the study will suggest areas for further studies where they can further knowledge on.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presented a review of the related literature on the subject under study presented by various researchers. The materials were drawn from several sources which are closely related to the theme and the objectives of the study. The exact sections covered include theoretical perspective, cloud computing, competitive strategies and cloud computing and competitive strategies.

2.2 Theoretical Perspective

Systems theory has dominated as a framework for managerial behavior and organizational analysis. It argues that no one organization operates in a vacuum but they all operate in a society and therefore, they are affected by the happenings in their operating environment (Checkland & Scholes, 1990). Open systems reflected the belief that all organizations are unique in part because of the unique environment in which they operate and that they should be structured to accommodate unique problems and opportunities. Environmental influences that affect open systems can be described as either specific or general. According to Laszlo (1995), the specific environment refers to the network of suppliers, distributors, government agencies, and competitors with which a business enterprise interacts. The open-systems theory assumes that all large organizations are comprised of multiple subsystems, each of which receives inputs from other subsystems and turns them into outputs for use by other subsystems.

The subsystems are not necessarily represented by departments in an organization, but might instead resemble patterns of activity (Sandelin, 1991). Another relevant theory for this study is the competitive theory. Early literature on the theories of trade between nations provided the basis for competitiveness theory. It alluded to the development of sustainable competitive advantage well before its time. Competitiveness theory evolved from the traditional trade theories, fundamentally 'The effect of the Wealth of Nations' Adam Smith in 1776 (later translated in 1937), which was revolutionary. In his book Adam Smith disputed the then existing philosophy Mercantilism view on trade which suggested that trade was a zero sum game in which a trade surplus of one country is offset by a trade deficit in another country. Smith in his argument viewed trade as a positive sum game in which all trading partners can benefit if countries specialized in the production of goods and services in which they had absolute advantage. This came to be known as the theory of absolute advantage.

Competitiveness theories proposed some kind of advantage as enabling a country gain more out of international trade. The same is true for the firm. If sustainable superior performance (which equals sustainable competitive advantage) is to be achieved a firm must differentiate itself. Alderson (1937) hinted at a basic tenet of sustainable competitive advantage, that a fundamental aspect of competitive advantage is the specialization of suppliers to meet the variations in buyer demand. Later Alderson (1965) recognized that firms should strive for unique characteristics in order to distinguish themselves from competitors in the eyes of the consumer. He stated that differential advantage might be achieved through lowering prices, selective advertising appeals and/or product improvement and innovations. While these concepts lay the core

foundation for firms in moving toward sustainable competitive advantage, the intense nature of competition today requires that firms be more innovative and entrepreneurial in their strategy planning than just lowering prices or improving existing products. The most important question then would be how then can companies build sustainable competitive advantage? In order for organizations to remain competitive in a highly volatile operating environment, they need to develop appropriate strategies that will optimize their operations. Cloud computing is one of the strategies adopted by organizations to ensure they acquire and maintain competitive advantage (Yousif, 2010).

2.3 Cloud Computing and Competitive Advantage

Ylätupa (2011) defines Cloud Computing as a means by which highly scalable and elastic technology-enabled services can be easily consumed over the Internet on an as-needed basis. According to Bell (2008), Cloud Computing is a collection of IT enabled resources and capabilities that can be delivered via the internet as a service. In the cloud computing environment, working is through virtualized applications on a networked architecture. Cloud computing provides an on-demand computing model and changes the traditional allocation of IT resources to a more collaborative framework (Hayes, 2008). National Institute of Standards and Technology (NIST) has announced the definition of cloud computing, which has been widely used as a baseline for further discussion (Chang, Dean and Ghemawat, 2008). In general, cloud computing uses virtualization technologies to provide on demand computing resources via networks and has the following characteristics: on-demand self-service, resource optimization, scalability, flexible pricing model, and measured service (Vanderwiele, 2008).

The flexibility of a cloud-based framework allows cloud service providers to support multiple products with shared resources (Anandasivam and Premm, 2009). Cloud computing basically consists of three service models: Infrastructure as a Service (IaaS): the provision of storage capabilities and computing power; Platform as a Service (PaaS): the provision of a programmable environment with needed programming languages, libraries, services, and tools; Software as a Service (SaaS): the provision of web-based applications. In addition, there are basically four ways to deploy cloud computing, including private cloud, public cloud, community cloud, and hybrid cloud (Bollinei and Neupane, 2011). Each deployment model has its benefits and drawbacks (Mueller, 2011). The decision of choosing a proper cloud computing deployment model should take technological as well as organizational factors into consideration.

Mueller (2011) suggests that, banks can make use of cloud computing in several areas. Identity management process is a key area that can be moved to cloud thereby enhancing linking of identity information between accounts. This can significantly reduce costly provisioning, mitigate security loopholes and resolve traditional user issues caused by rigid application architecture. Enterprise content management is another candidate for Cloud Computing in banks, specifically on customer interaction archival and searches (Chang, Dean and Ghemawat, 2008). Banks can also enable transaction processing in the cloud through Extreme Transaction Processing (XTP) which pertains to a certain class of applications that need to handle large volumes of data that needs to be absorbed, correlated, and acted upon such as fraud detection, risk computation, and stock trade resolution.

Other services that banks can move to cloud computing includes managing schedules by using web-based scheduling whereby everyone places his/her schedule in the cloud thus enabling the meeting organizer to easily see who is available. E-mail archiving, e-mail security and document creation, back-office activities such as credit card processing, Foreign exchange among others can also be moved to cloud (Bollinei and Neupane, 2011).

According to Pearce and Robinson (2010, p.259), business managers evaluate and choose strategies that they think will make their business successful. Businesses become successful because they possess some advantage relative to their competitors". Competitive advantage can be found in the business cost structure and its ability to differentiate the business from competitors (Hoffman, 2000). Businesses that create competitive advantage from one or both of these sources usually experience above average profitability within their industry while those that lack a cost of differentiation advantage usually experience average or below average profitability within their industry (Barney, 1991).

Competitive strategy depends on an organization's capabilities, strengths, and weaknesses in relation to market characteristics and the corresponding capabilities, strengths, and weaknesses of its competitors (Thompson and Strickland, 2006). According to Porter, competition within an industry is driven by five basic factors namely; threat of new entrants, threat of substitute products or services, bargaining power of suppliers, bargaining power of buyers and rivalry amongst existing firms (Porter, 1985).

Porter (1996) argues that competitive strategy is "about being different." He adds, "It means deliberately choosing a different set of activities to deliver a unique mix of value." In short, Porter argues that strategy is about competitive position, about differentiating yourself in the eyes of the customer, about adding value through a mix of activities different from those used by competitors. In his earlier book, Porter defines competitive strategy as "a combination of the ends (goals) for which the firm is striving and the means (policies) by which it is seeking to get there." Thus, Porter seems to embrace strategy as both plan and position.

Effective strategy may enable a business to influence the environment in its favour and even defend itself against competition. Forrester (2009) asserts that given the current focus in business, there is need to understand competitor strengths in the market and then position one's own offerings to take advantage of weaknesses and avoid head on clashes against strengths. Mintzberg (1994) argues that strategy emerges over time as intentions collide with and accommodate a changing reality. Thus, one might start with a perspective and conclude that it calls for a certain position, which is to be achieved by way of a carefully crafted plan, with the eventual outcome and strategy reflected in a pattern evident in decisions and actions over time.

Strategy is an essential part of any effective business plan. By using an effective competitive strategy, a company finds its industry niche and learns about its customers (Porter, 1990). Porter (1985) asserts there are basic businesses strategies – differentiation, cost leadership, and focus – and a company performs best by choosing one strategy on which to concentrate. However, many researchers feel a combination of these strategies may offer a company the best chance to achieve a competitive advantage (Hlavacka *et al*., 1990). Whatever strategy a business chooses, it must fit with the company and its goals and objectives to gain a competitive advantage (Porter, 1980).

2.4 Knowledge Gap

For most organizations, moving to a new technology that is not fully understood is a position that many people are scared to venture into. A lack of basic cloud knowledge has hindered its adoption across different businesses. This is however believed to be changing according to Computer Technology Industry Association (CompTIA, 2012).

This positive change in perception of cloud has been pushed as more and more companies embrace cloud services. While companies are becoming more aware about the use of cloud in business environments, through various sources such as their in-house IT resources and/or consultants, there is still a gap in many organizations as to the enormous advantages that can be accrued through cloud computing technology. Banks in Kenya are included in these groups that have a knowledge gap when it comes to cloud computing and the edge it gives in competitive advantage. There is need to address this knowledge gap and hence the reason for this particular study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presented the research methodology that was used to carry out the study. It particularly presents the research design to be adopted, population and sample of the study, data collection and analysis.

3.2 Research Design

This study used a cross-sectional survey. Cross sectional survey is a type of descriptive research design involving the collection of information from any given sample of the population element once (Cooper & Schindler, 2008). Mugenda and Mugenda (2003) notes that a survey attempts to collect data from members of a population and describes phenomenon by asking individuals about their perceptions, attitudes, behaviour or values.

Cross-sectional research design was chosen because it appealed for generalization within a particular parameter. The data obtained was standardized to allow easy comparison. Moreover, it explores the existing status of two or more variables at a given point in time. This design will enhance a systematic description that is accurate, valid and reliable as possible to the research objective.

3.3 Population of the Study

The target population of the study was the top 10 best performing commercial banks operating in Kenya as at June 2014 (CBK, 2014), all the ten banks were included in the study hence a census.

According to Cooper and Schindler (2008), a population is a well-defined or set of people, services, elements, and events, group of things or households that are being investigated. Mugenda and Mugenda (2003) define a target population as group of individual to which the researcher would like to generalize her results from. It comprises of all potential participants that can make up the study group.

3.4 Data Collection

Both primary and secondary data was collected. According to Mugenda and Mugenda (2003), primary data is data the researcher collects while secondary data refers to data from other sources. Primary data is considered more reliable and up to date. The main instrument for data collection will be structured questionnaires that allows for uniformity of responses to questions. The questionnaire is a fast way of obtaining data as compared to others instruments (Mugenda & Mugenda, 2003). Questionnaires gives the researcher comprehensive data on a wide range of factors. Closed-ended questions will be used. Questionnaires allow greater uniformity in the way questions are asked, ensuring greater comparability in the responses.

The population of this study was 44 commercial banks operating in Kenya as at June 2014. However, since all the banks are easily accessible as they have an office in Nairobi, the study included all the target population into the study hence a census study. The study targeted information technology directors because of their key involvement in cloud computing and strategy formulation and implementation in banks. The questionnaire was administered using a drop and pick later method in order not to inconvenience the respondents owing to their busy schedule. For those who may want to

respond on soft, a soft copy of the questionnaire was send to them through their mailing addresses. The particular officers to participate in the study were chosen amongst the senior ICT Infrastructure managers of the forty four listed banks in Kenya. These officers were selected upon because of their key role in implementing and interacting with emerging technologies in their business environments for competitive advantage.

3.5 Data Analysis

The completed questionnaires were first edited and checked for completeness and consistency. Quantitative data collected was analyzed by the use of descriptive statistics using Statistical Analysis for Social Sciences (SPSS version 20) and presented through percentages, means, standard deviations and frequencies. The data was split down into different aspects of cloud computing aspects and organizational competitiveness. This offered a systematic and qualitative of the study objective.

The analyzed data was grouped using percentages and measures of central tendency to help generalize the findings. Descriptive statistics including, cross-tabulation, frequencies and percentages, mean and standard deviation was used for comparison. From the cross-tabulation, the study undertook a chi-square test to establish the association between cloud computing use and competitive advantage. This test was conducted at 95% confidence level.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents research findings, analysis of the data and interpretation of the data collected from the respondents. It also presents findings and the discussion about strategic implications of cloud computing as a competitive advantage in the banking industry in Kenya. The data was collected and reports were produced in form of tables and figures and qualitative analysis done in prose.

4.2 Response Rate

The study targeted top respondents in 10 most performing commercial banks operating in Kenya as at June 2014. Out of 10, a total of 9 questionnaires were filled and returned hence giving a response rate of 90%. This response rate was made a reality after the researcher dropped the questionnaires and made personal visits and phone calls to the respondents who then completed the questionnaires. The findings are shown in Table 4.1

Table 4. 1: Response Rate

Completion Status	**Frequency**	**Percentage**
Completed	9	90%
Not Completed	1	10%
Total	**10**	**100%**

Source: Researcher (2014)

4.3 Demographic Information

The study sought to bring out various demographic aspects of the respondents in order to show the criteria used to determine the best suited persons to collect relevant data from.

4.3.1 Gender of the Respondents

The study sought to establish the gender distribution of the respondents. The findings are distributed in Table 4.2.

Table 4. 2: Gender of the Respondents

Gender	**Frequency**	**Percent**
Male	6	66.7%
Female	3	33.3%
Total	**9**	**100.0**

Source: Researcher (2014)

From the findings, the study established that 6 of the respondents were male which represents 66.7% while 3 of the respondents were female which translates to 33.3%. This findings reveal that majority of these respondents were male compared to female.

4.3.2 Position Held in the Bank

The study sought to establish the position held in the bank by the respondents. The findings are distributed in Table 4.3.

Table 4. 3: Position Held in the Bank

Position Held	Frequency	Percent
IT Manager	1	11.1
ICT Infrastructure Manager	1	11.1
Other IT roles	7	77.8
Total	**9**	**100.0**

Source: Researcher (2014)

The findings revealed that majority of the respondents 77.8% (7) held other roles such as IT Finance Officer, senior database administrator, information secretary, DC systems administrator, general manager, network and infrastructure analyst, information security officer and retail support.11.1% (1) respondents held the positions of IT manager and ICT infrastructure manager.

4.3.4 Perception of the term Cloud Computing

The study sought to establish the respondents' perception of the term Cloud Computing. The findings indicated that all the respondents' perceived cloud computing to be Transformational IT Technology.

4.3.3 Length of Time in the IT industry

The study sought to establish the length of time the respondents had been in the IT industry. The findings are distributed in Table 4.4.

Table 4. 4: Length of Time in the IT industry

Length of Time	**Frequency**	**Percent**
3-5 years	3	33.3
6-8 years	4	44.4
9 years and above	2	22.2
Total	**9**	**100.0**

Source: Researcher (2014)

As indicated in table 4.4 above, 33.3% (3) of the respondents had been in the IT industry for between 3-5 years, 44.4% (4) of the respondents had been in the IT industry for between 6-8 years. 2 (22.2%) of the respondents had been in the IT industry for 9 years and above.

4.3.5 Knowledge on Cloud Computing

The study sought to establish the extent of respondents' knowledge of cloud computing. This was crucial to the study as it would help the researcher to establish whether the respondents were in a position to confidently give their knowledgeable views regarding the subject matter. The findings are distributed in Table 4.5.

Table 4. 5: Knowledge on Cloud Computing

Level of Knowledge	Frequency	Percent
Extremely Knowledgeable	2	22.2
Somewhat Knowledgeable	3	33.3
Average Knowledge	4	44.4
Total	**9**	**100.0**

Source: Researcher (2014)

As indicated in the above table, 22.2% (2) of the respondents indicated that they were extremely knowledgeable on cloud computing, 33.3% (3) of the respondents indicated that they were somewhat knowledgeable on cloud computing while 44.4% (4) indicated that they had average knowledge on cloud computing.

4.3.6 Number of years the bank has been Operational

The study sought to establish the number of years the bank has been operational. The findings are distributed in Table 4.6.

Table 4. 6: Number of years the bank has been Operational

Number of Years	Frequency	Percent
Less than 5 years	1	11.1
5-10 years	1	11.1
11-15 years	1	11.1
16 years and above	6	66.7
Total	**9**	**100.0**

Source: Researcher (2014)

From the findings, majority of the respondents 6 (66%) indicated that the bank had been operational for 16 years and above whereas 11.1% (1) of the respondents indicated that the bank had been operational for less than 5 years, 5-10 years and 11-15 years.

4.3.7 Extent of Cloud Computing Adoption in the Business Environment

The study sought to establish the extent to which banks have adopted cloud computing in the business environment. The findings are distributed in Table 4.7.

Table 4. 7: Extent of Cloud Computing Adoption in the Business Environment

Extent of Adoption	**Frequency**	**Percent**
Not at All	4	44.4
To a Low Extent	1	11.1
Moderate Extent	1	11.1
High Extent	2	22.2
Very High Extent	1	11.1
Total	**9**	**100.0**

Source: Researcher (2014)

Majority of the respondents 44.4% (4) indicated that the banks had not adopted in the business environment at all. 11.1% (1) of the respondents indicated that the banks had adopted cloud computing in business environment to a low extent, moderate extent and to a very high extent. 22.2% (2) of the respondents indicated that the banks had adopted cloud computing in business environment to a high extent.

4.3.8 Percentage of Banking Services Delivered through Cloud Computing

The study sought to establish the percentage of banking services delivered through cloud computing. The findings are distributed in Table 4.8.

Table 4. 8: Percentage of Banking Services Delivered through Cloud Computing

Percentage of Services	Frequency	Percent
None	3	33.3
1% - 5%	1	11.1
6% - 20%	2	22.2
21% - 50%	1	11.1
51% - 75%	1	11.1
76% and above	1	11.1
Total	**9**	**100.0**

Source: Researcher (2014)

From the findings in Table 4.9 above, majority of the respondents 33.3% (3) indicated that no banking service is delivered through cloud computing, 11.1% (1) of the respondents indicated that 1% - 5%, 21% - 50%, 51% - 75%, 76% and above of the banking services are delivered through cloud computing.

4.3.9 Favourable Cloud Computing Platform

The study sought to establish the respondents' favorable cloud computing platform. The findings are distributed in table 4.9 below.

Table 4. 9: Favourable Cloud Computing Platform

Platform	Frequency	Percent
Infrastructure as a service	2	22.2
Platform as a service	2	22.2
Software as a service	2	22.2
None	3	33.3
Total	**9**	**100.0**

Source: Researcher (2014)

The findings in the above table indicated that majority of the respondents 33.3% (3) indicated that they had no favorable cloud platform. 22.2% (2) of the respondents indicated that the banks favourable cloud computing platform was infrastructure as a service, platform as a service and software as a service.

The respondents were asked to indicate whether the bank was ready to migrate its services to the cloud.

Table 4. 10: Customer Relationship Management

Statement	Frequency	Percent
Agree	7	77.8
Disagree	2	22.2
Total	**9**	**100.0**

Source: Researcher (2014)

On whether the bank was ready to migrate customer relationship management to the cloud, majority of the respondents 77.8% (7) agreed while 22.2% (2) of the respondents disagreed.

Table 4. 11: Sales and Marketing

Statement	**Frequency**	**Percent**
Agree	7	77.8
Disagree	2	22.2
Total	**9**	**100.0**

Source: Researcher (2014)

The findings revealed that 77.8% (7) of the respondents agreed that the banks were ready to migrate sales and marketing to the cloud while 22.2% (2) of the respondents disagreed with the statement.

Table 4. 12: Business Operations

Statement	**Frequency**	**Percent**
Agree	1	11.1
Disagree	8	88.9
Total	**9**	**100.0**

Source: Researcher (2014)

On whether the bank should migrate its business operations to the cloud, majority of the respondents 88.9% (8) disagreed while 11.1% (1) respondent agreed that business operations should be migrated to the cloud.

Table 4. 13: Functional services

Statement	Frequency	Percent
Agree	5	55.6
Disagree	4	44.4
Total	**9**	**100.0**

Source: Researcher (2014)

The respondents were asked whether the bank should migrate its functional services to the cloud, majority of them 55.6% (5) agreed that functional services should be migrated to the cloud while 44.4% (4) of the respondents disagreed.

Table 4. 14: Research and development

Statement	Frequency	Percent
Agree	6	66.7
Disagree	3	33.3
Total	**9**	**100.0**

Source: Researcher (2014)

On whether the banks should migrate research and development to the cloud, majority of the respondents 66.7% (6) agreed that indeed banks should migrate research and development to the cloud while 33.3% (3) of them disagreed.

4.4 Strategic Implications of Cloud Computing as a Competitive Advantage in the Banking Industry

The respondents were asked to rate the extent to which they agree to the general trends in IT keeping in mind that banking and financial service providers are not exempt from the impact of cloud computing. The findings are shown in Table 4.15.

Table 4. 15: Strategic Implications of Cloud Computing

Statement	Mean	S. D
Cloud computing will transform the banking experience and customer relationships by leveraging social and mobile media	4.00	.707
Core banking business requirements will dynamically be translated to IT solutions through cloud computing that reshape the role of the IT function	3.11	1.36
The virtualization characteristic of cloud computing will enable greater automation, scale out and the ability to handle more front end and back end business activities	3.77	1.09
Today's banking consumer's move towards digital, mobile and contactless services will affect their tastes, buying habits, channels and customer services	4.33	.86

Source: Researcher (2014)

As indicated in the table above, majority of the respondents agreed that cloud computing will transform the banking experience and customer relationships by leveraging social and mobile media as shown with a mean of 4.000 and a deviation of 0.707. Majority of

the respondents were neutral on whether core banking business requirements will dynamically be translated to IT solutions through cloud computing that reshape the role of the IT function as shown with a mean of 3.11 and a deviation of 1.36. On whether the virtualization characteristic of cloud computing will enable greater automation, scale out and the ability to handle more front end and back end business activities, majority of the respondents agreed with a mean of 3.77 and a deviation of 1.09. The findings revealed that majority of the respondents agreed that today's banking consumer's move towards digital, mobile and contactless services will affect their tastes, buying habits, channels and customer services with a mean of 4.33 and a deviation of 0.86.

Table 4. 16: Bank's Future Strategic Goals

Description	**Frequency**	**Percent**
Disagree	1	11.1
Neutral	2	22.2
Agree	3	33.3
Strongly Agree	3	33.3
Total	**9**	**100.0**

Source: Researcher (2014)

On Bank's Future Strategic Goals, majority of the respondents 33.3% (3) agreed while others strongly agreed that banks future strategic goals were aligned to cloud computing, 22.2% (2) of the respondents were neutral while 11.1% (1) respondent disagreed with the statement

Table 4. 17: Bank's Next Anticipated Service Delivery through Cloud Computing

Description	Frequency	Percent
Infrastructure as a service	4	44.4
Platform as a service	1	11.1
Software as a service	1	11.1
None	3	33.3
Total	**9**	**100.0**

Source: Researcher (2014)

The respondents were asked on the banks next anticipated service delivery through cloud computing. Majority of the respondents 44.4% indicated that the next anticipated service delivery was infrastructure as a service, 33.3% of the respondents indicated the there was no anticipated service delivery while 11.1% respondents indicated that that platform as a service and software as a service.

The respondents were asked whether the use of cloud computing technology has strategic implications on competitiveness in the banking industry, majority of the respondents 44.4% indicated agreed while others strongly agreed that the use of cloud computing technology has strategic implications on competitiveness in the banking industry while 11.1% of the respondents were neutral on the statement. The respondents were asked to rate the extent to which they agree with strategic implications of cloud computing as a competitive advantage in the banking industry.

Table 4. 18: Strategic Implications of Cloud Computing as Competitive Advantage

Statement	Mean	S.D
Cloud computing can hold ground for the bank's overall vision, mission and objectives in achieving the overall competitive strategy	3.00	1.13
Cloud computing can transform the bank's competitive product offers to reflect the changing demands of the upward mobile and social needs customer	4.00	.70
Core banking operations can be reshaped and reinvented by cloud computing to enable a more competitive, customer centric, efficient and sustainable business model	3.66	1.17
Cloud computing can be used as a platform for new competitive IT strategy for your bank	3.66	.86
Cloud computing is in line as a key strategic differentiator when it comes to new technology adoption in a bank	3.55	1.42
Testing environment can be enhanced by cloud computing in the innovation and invention of new products and services	3.77	1.30
A healthy return on investment can be accrued with the use of cloud computing through lowered costs and shifts in capital expenses	3.88	1.05
Customer relationships can be enhanced by use of cloud computing which enables making services more convenient, accessible, personalized and easy to use	4.11	.78

Source: Researcher (2014)

The findings in table 4.18 above indicates that majority of the respondents were neutral on whether cloud computing can hold ground for the bank's overall vision, mission and objectives in achieving the overall competitive strategy as shown with a mean of 3.00 and a deviation of 1.13. On whether cloud computing can transform the bank's competitive product offers to reflect the changing demands of the upward mobile and social needs customer, the respondents agreed with a mean of 4.00 and a deviation of 0.70. The

respondents agreed that core banking operations can be reshaped and reinvented by cloud computing to enable a more competitive, customer centric, efficient and sustainable business model as shown with a mean of 3.66 and a deviation of 1.17. The study found out that majority of the respondents agreed that cloud computing can be used as a platform for new competitive IT strategy for the bank as shown with a mean of 3.66 and a deviation of 0.86.

Regarding the statement as to whether cloud computing is in line as a key strategic differentiator when it comes to new technology adoption in a bank, the respondents agreed with a mean of 3.55 and a deviation of 1.42. The respondents agreed that testing environment can be enhanced by cloud computing in the innovation and invention of new products and services as shown with a mean of 3.77 and a deviation of 1.30. The respondents further agreed that a healthy return on investment can be accrued with the use of cloud computing through lowered costs and shifts in capital expenses as shown with a mean of 3.88 and a deviation of 1.05. The study established that majority of the respondents agreed that customer relationships can be enhanced by use of cloud computing which enables making services more convenient, accessible, personalized and easy to use as shown with a mean of 4.11 and a deviation of 0.78.

4.4.1 Strategic Motivations of Adopting Cloud Computing

The respondents were asked to prioritize the strategic motivations of adopting cloud computing for competitive advantage as would apply to the bank. The findings are shown in Table 4.19.

Table 4. 19: Strategic Motivations of Adopting Cloud Computing

Description	Mean	S. D
Capitalize on the growing number of internet services	3.22	1.20
Technological edge over competitors	2.88	1.45
Flexibility of IT resources	2.00	1.22
Resource optimization and diversification	2.34	1.67
Economies of scale	2.77	1.20

Source: Researcher (2014)

Majority of the respondents indicated that capitalizing on the growing number of internet services was a third priority as shown with a mean of 3.22 and a deviation of 1.20. The respondents indicated that technological edge over competitors was second priority as shown with a mean of 2.88 and a deviation of 1.45. Regarding flexibility of IT resources, the respondents second prioritized the strategic motivation with a mean of 2.00 and a deviation of 1.22.The respondents gave Resource optimization and diversification a fourth priority as shown with a mean of 2.34 and a deviation of 1.67. Finally the respondents gave a third priority to economies of scale as shown with a mean of 2.77 and a deviation of 1.20.

4.5 Perception of the Future use of Cloud computing as a Competitive Advantage in the Banking Industry

The respondents were perception of the future use of cloud computing as a competitive advantage in the banking industry. The findings are shown in Table 4.20.

Table 4. 20: Perception of the future use of Cloud computing as a Competitive

Percentage Range	Frequency	Percent
11%-15%	3	33.3
26%-50%	4	44.4
51% and above	2	22.2
Total	**9**	**100.0**

Source: Researcher (2014)

From the findings, majority of the respondents 44.4% (4) perceived the future use of cloud computing as a competitive advantage in the banking industry as between 26%-50%, 33.3% (3) of the respondents perceived the future use of cloud computing as a competitive advantage in the banking industry as between 11%-15% while 22.2% (2) perceived the future use of cloud computing as a competitive advantage in the banking industry as 51% and above.

The respondents were also asked the percentage of banking services delivered through cloud computing platform. The findings are shown in Table 4.21.

Table 4. 21: Percentage of Banking Services Delivered through Cloud computing Platform

Percentage Range	Frequency	Percent
None	4	44.4
11%-15%	1	11.1
16%-25%	1	11.1
26%-50%	1	11.1
51% and above	2	22.2
Total	**9**	**100.0**

Source: Researcher (2014)

As indicated in table 4.21 above, majority of the respondents 44.4% indicated that there was no banking services delivered through cloud computing platform. 11.1% of the respondents indicated that 11%-15%, 16%-25% and 26%-50% of the banking services were delivered through cloud computing platform. 22.2% of the respondents indicated that above 51% of the banking services were delivered through cloud computing platform.

4.6 Challenges Faced when trying to use Cloud computing for Strategic/Competitive Advantage

The respondents were also asked the challenges faced when trying to use cloud computing for strategic/competitive advantage. The findings are shown in table 4.22 below.

Table 4. 22: Cost

Description	Frequency	Percent
Not at All	2	22.2
Moderate Extent	3	33.3
High Extent	4	44.4
Total	**9**	**100.0**

Source: Researcher (2014)

The findings indicated that 44.4% of the respondents agreed to a high extent that cost is a major challenge faced when trying to use cloud computing for strategic/competitive advantage, 33.3% to a moderate extent and 22.2% to no extent at all.

Table 4. 23: Lack of Technical Knowhow

Description	Frequency	Percent
Not at All	1	11.1
To a Low Extent	2	22.2
Moderate Extent	1	11.1
High Extent	5	55.6
Total	**9**	**100.0**

Source: Researcher (2014)

Regarding lack of Technical knowhow, majority of respondents 55.6% agreed to a high extent that lack of technical knowhow is a major challenge faced when trying to use cloud computing for strategic/competitive advantage, 22.2% indicated to a low extent while 11.1% indicate to no extent at all as well as to a moderate extent.

Table 4. 24: Security

Description	Frequency	Percent
To a Low Extent	1	11.1
High Extent	4	44.4
Very High Extent	4	44.4
Total	**9**	**100.0**

Source: Researcher (2014)

Regarding security, 44.4% of the respondents agreed to very high extent and high extent that security is a major challenge faced when trying to use cloud computing for strategic/competitive advantage, 11.1% to a low extent.

Table 4. 25: Compliance

Description	Frequency	Percent
Moderate Extent	4	44.4
High Extent	3	33.3
Very High Extent	2	22.2
Total	**9**	**100.0**

Source: Researcher (2014)

As indicated in the above table, 44.4% of the respondents agreed to a moderate extent that compliance is a major challenge faced when trying to use cloud computing for strategic/competitive advantage, 33.3% indicated to a high extent and 22.2% indicated to a very high extent.

4.7 Discussion

Strategy is a multi-dimensional concept and various authors have defined strategy in different ways. Colin (2004) alleges that strategy is a unified and integrated plan that relates the strategic advantages of the firm to the challenges of the environment. The purpose of strategy will be to provide directional cues to the organization that permits it to achieve its objectives while responding to the opportunities and threats in the environment (Pearce and Robinson, 2007). Strategy in light of the topic of this study focusses on strategic implications of cloud computing in the banking industry. Cloud Computing is perhaps the most popular rising computing model that benefits from massive approval (Hayes, 2009). It has been identified as pay-per-use consumption and delivery model which enables real-time delivery of configurable computing highly scalable resources over the internet to multiple companies. These companies pay for only what they use. In relation to competitive advantage, Day and Wensley (1994) focused on two categorical sources involved in creating competitive advantage and they include superior skills and superior resources.

In light of the area of study focused on this research, the objective was to determine the strategic implications of cloud computing as a competitive advantage. This was as applies in the banking industry in Kenya. Over the last few years in Kenya, the Banking industry has continued to grow in assets, deposits, profitability and products offering (Angulu, 2007). It has become very competitive as more and more banks seek to either enlarge their market share or increase their customer base (CBK, 2007). With this said, Information technology has been poised as the next technology in leveraging the operations of commercial banks (Kenya Bankers Association, 2014).

Several studies were previously carried out locally in relation to cloud computing (Mwaura, 2013) and (Kituku, 2012) however the one that stands out the most is one that sought to establish the level of cloud computing in Kenya's banking industry (Kiiru, 2011) and the findings revealed that banks were not willing to put their IT services to the cloud in the next two years. Two years down the line, findings from this study have shown that there is a level of understanding of cloud computing and even further brought out the perception that there are strategic implications that can be accrued from this emerging technology for competitive advantage. In the effort to explain how the findings from the study relate to expectations, a discussion hereby follows in trying to establish this.

To begin with, in a bid to establish the level of knowledge of the respondents on cloud computing, the findings revealed that 44.4% of the respondents had been engaged or involved in the IT industry for between six to eight years while some had been in it between three to five years (Table 4.4). Two of the respondents had more experience in the IT industry as compared to the rest. Ylätupa (2011) examined cloud computing in the ICT of Finnish public administration and established that in the public administration of Finland, cloud computing is not familiar to the employees. This finding was very significant to the study as it made it possible to trust the respondents' view of the technology unlike if they had no knowledge about cloud computing. The more the experience in the industry the more knowledgeable (Table 4.5) and exposed they are to new trends in IT Technology inclusive of cloud computing. When asked about their perception of the term cloud computing, all respondents indicated that they perceive and understand that cloud computing is a transformational IT technology.

From the demographics of the targeted banks, it was found that 66.7% of them had been in operation for sixteen years and above (Table 4.6). More than 50% of the banks had had a touch of cloud computing in their business environments (Table 4.7) in one way or another. This is also supported by more findings (Table 4.8) where respondents were asked to rate the percentage of banking services that were being delivered through cloud computing. According to Chappell (2008), there are three major types of cloud computing platforms and they include software as a service, platform as a service and infrastructure as a service. When it comes to identifying the favorable cloud computing platform, 66.6% identified infrastructure as a service, platform as a service and software as a service. 33.3% of the respondents did not identify a favorable platform (Table 4.9).

The respondents were asked if the bank would readily move specific core banking services to the cloud and the response was varied dependent of the identified function. 77.8% were in agreement that customer relationship management and sales and marketing could be moved to the cloud technology. 88.9% of the respondents dis-agreed that business operations could be moved to the cloud (Table 4.12). Above 50% of the respondents agreed functional services, research and development could be migrated to the cloud. Mueller (2011) suggests that, banks can make use of cloud computing in several areas. Identity management process is a key area that can be moved to cloud thereby enhancing linking of identity information between accounts. This can significantly reduce costly provisioning, mitigate security loopholes and resolve traditional user issues caused by rigid application architecture. As a suggestion, enterprise content management is another candidate for Cloud Computing in banks, specifically on customer interaction archival and searches (Chang, Dean and Ghemawat, 2008).

In part three of the research instrument, this is where the focus of the study was as it sought to establish the strategic implications of cloud computing as a competitive advantage in the banking industry in Kenya thereby overtly addresses the laid out research objective. To begin with, four general cloud computing trends as pertains to the banking industry were introduced to the respondents and they were required to rate their view on each. With a mean of 4.00, a majority of the respondents agreed that cloud computing will transform the banking experience and customer relationships by leveraging social and mobile media. As far as banking goes, it's in line with the statement that customer focused enterprises deliver a superior customer experience and because of cloud computing they can now offer a consistent cross-channel experience (IBM, 2013). The findings revealed that the respondents were neutral on whether core banking business requirements will dynamically be translated to IT solutions through cloud computing. Cloud has the power to fundamentally shift competitive landscapes by providing new platform for creating and delivering business value (Berman *et al*, 2012).

From Table 4.15 findings, more than 80% of the respondents are of the view that virtualization characteristic of cloud computing will enable greater automation, scale out and the ability to handle more front end and back end business activities. Berman *et al* (2012) established that Information Technology scalability is recognized by many as a major benefit accrued from cloud computing. More than 85% of the respondents agreed that banking consumers' move towards digital, mobile and contactless services will affect their tastes, buying habits, channels and customer services. From this we continue to see that the strategic implications of cloud computing are visible even though we have a long way to go in embracing the cloud technology fully in our business environments.

Strategic implications of cloud computing stem on very many variables and present themselves in different forms depending on where applied. Cloud computing can play a strategic role for all companies not just those in technology or services industries, by doing away with typical IT constraints and freeing to pursue growth and innovations (PWC, 2011) From Table 4.18, the study findings revealed majority of the respondents agreed that cloud computing can transform a bank's competitive product thus giving competitive advantage and that it can also be used as a platform for new competitive IT strategy. As to whether cloud computing is in line as a key strategic differentiator, the respondents agreed to this. Banking and Financial Services Institutions are possibly the most advanced in terms of technology adoption and use it as a key differentiator (Suresh, 2010).

There was a strong agreement that this technology can enhance research and development of new and innovative products and services by enabling a strategic testing environment. The belief that banking operations can be reshaped to enable a more competitive, customer centric, efficient and sustainable business model is in line with the study findings. As for challenges with cloud computing, above 85% of the respondents agree to cost, security, lack of technical knowhow and compliance as significant impediments. Suresh (2010) emphasizes on these and also adds legal, maturity of solution, integration and complexity of governance to mention but a few.

In conclusion, the cloud will inevitably impact nearly all facets of the IT ecosystem such that IT solutions and service vendors will now need to adapt their infrastructure, people and processes (KPMG, 2011). The banking industry may significantly change in order to accommodate this new technology and would have to continue to adopt cloud computing

in order to stay ahead of the curve. There are some limitations that arguably would slightly water down the quality of this study as affects primarily on the time especially for data collection. It would have been even more beneficial for the study to have on top of the research instrument, a one on one interview with each of the respondents to bring out a deeper insight in trying to achieve the research objective. Further research would enrich this study by digging deeper into the challenges identified as to affect, impair or impact negatively the adoption of cloud computing in the banking industry in Kenya.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter sets to draw conclusions that will address the research objectives outlined in chapter one above and make recommendations in lieu of the findings from the study. The objective of this study was to determine the strategic implication of cloud computing as a competitive advantage in the banking industry in Kenya. The findings are discussed as below.

5.2 Summary

To begin with, the profiling of the respondents revealed that a significant number of them had spent a significant number of years in the IT industry and were quite knowledgeable of the Cloud Computing concept. Through the statements as to whether banking and financial providers are not exempt from the impact of cloud computing, the study established that majority of the respondents agreed that cloud computing will transform the banking experience and customer relationships by leveraging social and mobile media. It also established that majority of the respondents were neutral on whether core banking business requirements will dynamically be translated to IT solutions through cloud computing that reshape the role of the IT function. Bell (2008), indicated that cloud computing is a collection of IT enabled resources and capabilities that can be delivered via the internet as a service. On whether the virtualization characteristic of cloud computing will enable greater automation, scale out and the ability to handle more front end and back end business activities, the study established that majority of the

respondents agreed with the said statement. The findings revealed that majority of the respondents agreed that today's banking consumer's move towards digital, mobile and contactless services will affect their tastes, buying habits, channels and customer services. The study established that majority of the respondents were neutral on whether cloud computing can hold ground for the bank's overall vision, mission and objectives in achieving the overall competitive strategy. Mueller (2011) suggests that, banks can make use of cloud computing in several areas. Identity management process is a key area that can be moved to cloud thereby enhancing linking of identity information between accounts. On whether cloud computing can transform the bank's competitive product offers to reflect the changing demands of the upward mobile and social needs customer, the study established that the respondents agreed with the said statement.

The respondents agreed that cloud computing is in line as a key strategic differentiator when it comes to new technology adoption in a bank. The study further established that the respondents agreed that testing environment can be enhanced by cloud computing in the innovation and invention of new products and service. It was revealed that majority of the respondents agreed that customer relationships can be enhanced by use of cloud computing which enables making services more convenient, accessible, personalized and easy to use. This is consistent with Pearce and Robinson (2010) who argued that business managers evaluate and choose strategies that they think will make their business successful. On challenge related elements, the study established that majority of the respondents agreed to a high extent that cost is a major challenge faced when trying to use cloud computing for strategic/competitive advantage. The lack of technical knowhow was also revealed as a major challenge faced when trying to use cloud computing for

strategic/competitive advantage. Security also came out as a major concern faced when trying to use cloud computing for strategic/competitive advantage. The study also established that majority of the respondents agreed to a moderate extent that compliance is a major challenge faced when trying to use cloud computing for strategic/competitive advantage.

5.3 Conclusion

The study was set out with an objective to determine the strategic implications of cloud computing as a competitive advantage in the banking industry in Kenya. From the findings of the study, one of the conclusions thereof is that the banks in Kenya are aware of the cloud computing concept and that the IT departments within which the responsibility for adopting technology lies have significant awareness to the fact that this technology can be used as a competitive advantage. From the ratings of the extent to which the respondents agree with cloud computing as a competitive advantage, we can conclude from the responses that a majority recognize the strategic implications of cloud computing in various use cases in the banking industry. The most significant conclusion can be drawn from the results that cloud computing can be used as a key strategic differentiator in different capacities and capabilities for competitive advantage despite the presence of various challenges that can stifle the interest in adopting cloud computing as a form of competitive advantage.

5.4 Recommendations

Focusing on the concepts of cloud computing and competitive advantage, this research has primarily brought out the strategic implications as applies to the banking industry in Kenya. It is recommended that the leaders and the frontiers of the IT departments in the banks in Kenya to acknowledge this trend in technology and embrace the strategic opportunities that can be accrued from it. Cloud computing is becoming a very hot topic nowadays and many enterprises are interested to know more about it.

The study recommends that the banks in Kenya should adopt cloud computing as a future strategic technological and economic tool for competitive advantage as well as for use in IT operations. As a start, they can focus on a private cloud model since it is more effective to adopt as they can save on costs and have better security and control especially for those whose challenges centered on costs and security concerns. Non-core areas of business such as helpdesk, internal communication can be piloted for this. They can also exhibit flexibility by isolating building and enhancing customer relationships to accommodate for the upward mobile and social needs customer.

Before all of the above, it is paramount to understand cloud computing in a broader and more detailed perspective in order to identify the strategic and competitive gaps to fill with this type of technology.

5.5 Limitations of the Study

The concept of cloud computing is still at its infant stages within the banking industry in Kenya. This was a limitation as not many respondents were ready to give ample time to have a knowledgeable conversation about this topic. In the process, it was difficult to

measure the understanding of cloud computing on an in-depth perspective to draw better conclusions. My study targeted specifically those in charge of IT departments within the bank and because of challenges with availability it was difficult to follow up respondents to have the fill the questionnaires on time. As a result, the respondent criterion was opened up for other significant roles within the IT departments that can effectively provide the data needed.

Other concerns surrounded the university requirement to have questionnaires stamped for certification of feedback provided by the intended source. This was a limitation since a majority of the respondents would fill the questionnaires but not have them stamped alleging fears of using a bank's stamp for the exercise. Most of respondents cited that the information that was being requested was highly confidential. There is a possibility that the information provided in the study did not give a true scenario of the banking industry. The study however, ensured to design a research instrument that sought to elicit general and specific information on the subject matter.

Time and financial constraints respectively limited the desired attention given to conduct data collection and analysis hence exhaustive and extremely comprehensive research could not be carried on the data that was provided. This however did not stop the researcher from analysing the data in depth as expected and providing findings that fulfil the objective of the study.

5.6 Suggestions for Further Studies

Challenges hindering adoption of cloud in the banking industry were identified in the study. However, the survey did not seek to find solutions to these challenges. The researcher therefore recommends further studies on the challenges facing cloud technology in banking industry and a recommendation on how they can be addressed.

The study also suggests that further research be conducted on all the commercial banks in Kenya to establish the level of cloud computing as a competitive advantage in the banking industry in Kenya. Security concerns strongly came out of this study as one of the major hindrance of adoption of this technology. The study therefore recommends that a research be conducted on how cloud computing vendors are addressing the security concerns.

The Kenyan banking sector should use the study as a guide to further pursue interest in identifying the strategic implications of cloud computing in their banking environments. Technology is changing continuously so is the business environment and the needs that need to be met. In line with this, the banks should be able to keep up to meet this challenge of competitive advantage. Academicians can also use this study as a basis for further extending knowledge in this concept of cloud computing and its use in strategy. The government and other policy makers can use this study as an insight into formulating policy on technology and strategy even as applies to government bodies and their operations.

REFERENCES

Accenture, (2010). *Banking in The Cloud:*

Retrieved from: file:///C:/Users/mutune/Downloads/ac57d3-1.PDF

Adam S. (2005). An Inquiry into the Nature and Causes of the Wealth of nations: *An electronic classics series publication.*

Alderson W. (1937). A Marketing View of Competition, *Journal of Marketing*, 58(4), pp. 37-52.

Anandasivam, A. and Premm, M. (2009). Bid price control and dynamic pricing in clouds. *European Conference on Information Systems (ECIS),* Verona, Italy.

Angulu, D. (2007). Response Strategies to the Challenges Posed by Electronic Trading System at the Nairobi Stock Exchange: A Survey of the Stock Broking Firms; *Unpublished MBA Project University of Nairobi.*

Ansoff, I. (1999). Soft Strategic Consulting, Negotiating with Americans, *Harvard Business Review.5 (3)*

Bank Supervision Report (2012). Adoption of electronic payment system in Kenyan Banks, *Journal of Economics*, Paulines' Publishers.

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17, pp.99-120

Barney, J. B. (2002). *Gaining and Sustaining Competitive Advantage,* 2nded. Reading, Mass. Addison-Wesley

BELL, M. (2008). Introduction to Service-oriented Modeling, Service-oriented modeling: *Service Analysis, Design, and Architecture*. Wiley & Sons, 3. ISBN 978-0-470-14111-3,

Benedikter, R. (2011). Answers to the Economic Crisis: *Social Banking and Social Finance*, (Spice Digest, New York: Springer).

Berman, S. et al (2012). The Power of Cloud: *Driving Business Model Innovation*: Retrieved from: https://www.ibm.com/cloud-computing/us/en/assets/power-of-cloud-for-bus-model-innovation.pdf

Blunck, F. (2006). What is Competitiveness? *Journal of management review*, 56 (9): 751-782

Bollinei, P. And Neupane, K. (2011). *Implications for Adopting Cloud Computing in e-Health*: Unpublished MSC project, Blekinge Institution of Technology

Central Bank of Kenya (2007). The Annual Report of the CBK for the Financial Year 2006/07 Central Bank of Kenya.

Central Bank of Kenya (2013), Website: *www.centralbank.go.ke*

Chandler, A.D. (1962). *Strategy and Structure: Chapters in the History of the American*, Cambridge: Industrial Enterprise, MIT Press.

Chang F, Dean J, Ghemawat S. (2008). A Distributed Storage System for Structured Data. ACM *Trans. on Computer Systems*, 26(2).

Chappell, D. (2008). A Short Introduction To Cloud Platforms: *An Enterprise-Oriented View*: Retrieved from: http://www.davidchappell.com/CloudPlatforms--Chappell.pdf

Checkland, P., & Scholes, J. (1990). *Soft Systems Methodology in Action*. New York: Wiley.

Colin, W. (2004). *Strategic Management* Edition illustrated Publisher Palgrave Macmillan.

Cooper, R.D, & Schindler, S.P., (2008). *Business Research Methods*, 10th ed. McGraw Hill, New York, USA

Day, G. S. & Wensley, J. (1994). The Capability of market-driven organization. *Journal of Marketing*,

Drucker P.F., (1987). *The Frontiers of Management*, Heinemann, London

Dyer, J. and Singh, H. (1998). The rational view: cooperative strategy and sources of interorganizational competitive advantage, *Academy of management review*, 23 (4): 660-679

Forrester K. (2009). Tech Radar for Infrastructure & Operations Professionals: *Cloud Computing*. Forrester, Q3.

Gathoga, D. (2001). Responses by Commercial Banks in Kenya to Increased Competition, *Unpublished MBA project, School of Business, University of Nairobi.*

Goyal, K. A. and Joshi, V. (2011). Mergers in Banking Industry of India: Some Emerging Issues, *Asian Journal of Business and Management Sciences*, 1(2): 157-165.

Grant, R. (1995). *Contemporary Strategy Analysis*, Blackwell, Cambridge, MA.,

Hayes, B. (2008). Cloud Computing*: Communications of the ACM*, (7), 9 – 11

Hayes, J. (2009). Cut of the C1oud. *Engineering &Technology*, 60-61 International Telecommunications Union, African Telecommunications Indicators. Geneva: *International Telecommunications Union*, June 1993.

Hlavačka., F *et al* (1990). *Physiological range of stabilometric parameter values of the upright posture evaluated by a microcomputer*. Cs Neurol Neuro chir 53: 107-113, 1990.

IBM, (2013). Cloud Computing for Banking: *Driving Business Model Transformation*: Revtrieved from:*http://www-935.ibm.com/services/multimedia/Cloud_Computing_for_Banking*

Johnson, F and Scholes, P. (2003). Title Exploring Corporate Strategy Edition 6, Illustrated Publisher Pearson Education, Limited, 2003.

Johnson, G, and Scholes, K (2003), *Exploring Corporate Strategy*; Text and Cases, Prentice-Hall, Hemel Hempstead,

Johnson, G. And Scholes, K. (1998) *Exploring Corporate Strategy*, Hemel Hempstead

Karanja, P. (2002), Competitive Strategies of Real Estate Firms: The Perspective of Porter's Generic Model, *Unpublished MBA research project, School of Business, University of Nairobi, Nairobi, Kenya*

Kenya Bankers Association (2012), Website: *www.kba.co.ke*

Kenya Post and Telecommunications Corporation, (1990). *Annual Reports and Accounts. Nairobi, Kenya*.

Kiiru, E. W. (2011). A survey on cloud computing adoption in Kenya's banking industry, *Unpublished MBA project, School of Business, University of Nairobi*

Kim, W. (2009). Cloud Computing: Today and Tomorrow, *Journal object technology*, 8 (2)

Kituku, K. M. (2012). Adoption of cloud computing in Kenya by firms listed in the Nairobi Stock Exchange, *Unpublished MBA project, University of Nairobi*

Kothari, C. R. (2004). *Research Methodology: Methods and Techniques* (2nd ed.), Oxford University Press.

Kotler, P. (2000). *Marketing Management,* 10th Edition, Prentice Hall, New York.

Laszlo, E. (1995a). Systems theory at the end of the millennium: Revolution in science and transformation in society, Presidential Address, *International Society for the Systems Sciences*, Louisville.

Lewis, G. (2009). *Cloud Computing*: Finding the Silver Lining, Not the Silver Bullet,

Lucky, R. W. (2009). Cloud computing, *IEEE Journal of Spectrum*, 46(5), pages 27-45.

Ma, H. (1997). *Constellation of competitive advantage and persistent superior performance,* paper presented at the Academy of Management Annual Meetings, Boston, MA.

McAfee Cloud Security (2012). Website: *http://www.mcafee.com/fr/solutions/cloud-security/news/20120725-01.aspx*

Mintzberg, A. (1988). *Strategic Management*, New York: McGraw Hill Publishers

Mintzberg, H. (1991). Learning 1, planning: reply to Igor Ansoff"', *Strategic Management Journal,* 12 pp.463-6.

Mintzberg, H. (1994). *The rise and fall of strategic planning*. New York: Macmillan, Inc.

Mueller, G., Sonehara, N., Echizen, I. and Wohlgemuth, S. (2011). *Sustainable Cloud Computing. Business & Information Systems Engineering* (BISE) 5/2011.analysis. Acad. Press.

Mugenda, O. M. & Mugenda, A. G., (2003). Research Methods; *Quantitative and Qualitative Approaches*, Acts Press, Nairobi, Kenya.

Mwaura, K. R. (2013). Technology acceptance of cloud computing in ICT departments of the Kenya government ministries, *Unpublished MBA project, School of Business, University of Nairobi.*

Pallis, G. (2010). Cloud Computing: The New Frontier of Internet Computing, *IEEE Journal of Internet Computing*, 14(5), pages 70-73

Pearce A. J. (2007) *Strategic Management: Formulation, Implantation and Control*, 10th Edition, McGraw hill, International Ed, London.

Pearce II, J. A., & Robinson, Jr. R. B. (2011). *Strategic Management* (12th ed.). New York.

Pearce, J. A. and Robinson, R. B. (2001). *Strategic Management: Strategy Formulation and Implementation.* Third Edition, Richard D. Irwin Inc

Pearce, R. (2000). Relocation and developmental progress, University of Bath, Bath, *unpublished paper,*

Peppard, J., (2000). Customer Relationship Management (CRM) in Financial Services, *European Management Journal*, 18(3), pp. 312–327,

Peteraf, M. A. (1993). The cornerstones of competitive advantage: A resource based view, *Strategic Management Journal*, 14, pp. 179–191.

Porter, M. (1990).*Competitive Advantage; Creating and Sustaining Superior Performance*, Free press, New York, NY

Porter, M. (2008). *Competitive Advantage Creating and Sustaining Superior Performance*, New York: Free Press.

Porter, M. E. (1985). *Competitive Advantage*, The Free Press, New York, 1985.

Prahalad C. K., Hamel G., (1990). Core Competency Concept, *Harvard Business Review*, May –June 1990, p. 64, Prentice Hall.

Prepletany, D. (2013). The Impact of Digital Technologies on Innovations in Retail Business Models, *Unpublished Research, International Marketing, AALBORG University,*

PWC, (2011). Building Competitive Advantage in a Global Economy: Retrieved from *http://www.pwc.com/us/en/corporate-governance/assets/building-a-comp-advantage-CDD-2011.pdf*

Quoc, T. D., Perkuhn, H., Catrein, D., Naumann, U. and Anwar, T. (2011). Optimization and evaluation of a multimedia streaming service on hybrid Telco cloud. *International Journal on Cloud Computing: Services and Architecture,* 1(2)

Rainer, F. and Kazem C. (1994). *Defining competitiveness a holistic approach, Management Decision,* Vol. 32 No. 2, 1994, pp. 49-58.

Rima, B. P., Choi, E., & Lumb, 1. (2009). A Taxonomy and Survey of Cloud Computing

Rima, E. Choi, B and Lumb, I. (2009). Resource allocation of Cloud Computing Systems, *Proceedings of 5th IEEE International Joint Conference on INC, IMS and IDC,* Seoul, Korea, August, pages 44-51.

Sandelin, S. (1991). Resistance to dynamic world view. *World Futures,* 30, 211-219.

Shimba, F. (2010). Cloud Computing: Strategies for Cloud Computing Adoption, *Unpublished MSC Computing Project (Information Technology),* Dublin Institute of Technology

Strowd H. And Lewis,G., (2010). *T-Check in System-of-Systems Technologies: Cloud Computing*. Software Engineering Institute, Carnegie Mellon University Systems. *Fifth International Joint Conference on INC, IMS and IDC* (pp. 44 - 51). IEEE.

Suresh, C.M. (2010). Cloud Computing: Strategic Considerations for Banking & Financial Services: Retrieved from: http://www.tcs.com/

Tata Consulting Services (2010), Cloud Computing: Strategic considerations for Banking & Financial Services Institutions, Website: *Retrieved from*

http://www.tcs.com/SiteCollectionDocuments/White%20Papers/Bfs_whitepaper_Cloud-Computing-Strategic-Considerations-for-Banking-and-Financial-Institutions-03_2010.pdf

Thompson A. and Strickland A. J., (2007). *Crafting and Executing Strategy: Text and Readings.* 15th edition, New York: McGraw Hill Companies.

Vanderwiele, M. (2008). *The IBM Research Cloud Computing Initiative,* Keynote talk at ICVCI, RTP, NC, USA,

Wellenius, B. Peter, A. Stern, Timothy E. Nulty and Richard D. (1989). *Restructuring and Managing the Telecommunications Sector:* A World Bank Symposium. Washington, DC: The World Bank,

Woods, A. and Joyce, P. (2003). Owner-Managers and the Practice of Strategic Management. *International Small Business Journal* 21(2): 181–9

Ylätupa, T. (2011). Cloud computing in the ICT of Finnish public administration. *Unpublished Thesis,* Saimaa University of Applied Sciences.

Yousif, M. (2010) Cloud computing-An IT paradigm changer: *ACS/IEEE International Conference on Computer Systems and Applications*.

APPENDICES

Appendix I: Letter of Introduction from the University of Nairobi

UNIVERSITY OF NAIROBI
SCHOOL OF BUSINESS
MBA PROGRAMME

Telephone 020-2059162
Telegram "Varsity", Nairobi
Telex 22095 Varsity

P.O. Box 30197
Nairobi, Kenya

DATE 12/09/2014

TO WHOM IT MAY CONCERN

The bearer of this letter Evelyn Ndanu Mutunga

Registration No. D61/70157/2007

is a bona fide continuing student in the Master of Business Administration (MBA) degree program in this University.

He/she is required to submit as part of his/her coursework assessment a research project report on a management problem. We would like the students to do their projects on real problems affecting firms in Kenya. We would, therefore, appreciate your assistance to enable him/her collect data in your organization.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organizations on request.

Thank you.

UNIVERSITY OF NAIROBI SCHOOL OF BUSINESS 12 SEP 2014 P.O. Box 30197 - 00100, NAIROBI

PATRICK NYABUTO
MBA ADMINISTRATOR
SCHOOL OF BUSINESS

Appendix II: Research Questionnaire

STRATEGIC IMPLICATIONS OF CLOUD COMPUTING AS A COMPETITIVE ADVANTAGE IN THE BANKING INDUSTRY IN KENYA

PART I: RESPONDENT DEMOGRAPHY

1. Name (Optional)

   _____

2. Gender (select your gender)

   Male [ ] Female[ ]

3. Position held in the bank (Please tick the appropriate)

   IT Manager [ ]

   ICT Infrastructure Manager [ ]

   Chief Information Officer [ ]

   Other IT role (please specify)_____

4. How long have you been in the IT industry?

   Less than 2 years [ ]

   3 – 5 years [ ]

   6 – 8 years [ ]

   9 years and above [ ]

5. What is your perception of the term cloud computing?

   IT gizmo term [ ]

   Transformational IT technology [ ]

   No idea [ ]

6. Classify the extent of your knowledge of Cloud Computing (Select one of the below)

   Extremely knowledgeable [ ]

   Somewhat knowledgeable [ ]

   Average knowledge [ ]

   Limited knowledge [ ]

   No knowledge at all [ ]

PART II: BANK DEMOGRAPHY AND CLOUD COMPUTING ADOPTION

1. Name of bank

2. Number of years the bank has been in operation

Less than 5 years	[ ]
5 – 10 years	[ ]
11 – 15 years	[ ]
16 years and above	[ ]

3. To what extent has your bank adopted cloud computing in the business environment?

Not at all	[ ]	To a low extent	[ ]
Moderate Extent	[ ]	High Extent	[ ]
Very High Extent	[ ]		

4. If yes in question 3 above, what percentage of your banking services is delivered through a cloud computing platform?

None	[ ]
1% - 5%	[ ]
6% - 20%	[ ]
21% - 50%	[ ]
51% - 75%	[ ]
76% and above	[ ]

5. What is your bank's most favourable cloud platform?

Infrastructure as a service	[ ]
Platform as a service	[ ]
Software as a service	[ ]
None	[ ]

6. Would the bank readily invest to migrate the below core banking functions to the cloud?

Customer relationship management	Agree	[ ]	Disagree	[ ]
Sales and marketing	Agree	[ ]	Disagree	[ ]
Business operations	Agree	[ ]	Disagree	[ ]
Functional services	Agree	[ ]	Disagree	[ ]
Research and development	Agree	[ ]	Disagree	[ ]

PART III: STRATEGIC IMPLICATIONS OF CLOUD COMPUTING AS A COMPETITIVE ADVANTAGE IN THE BANKING INDUSTRY

Banking and financial services providers are not exempt from the impact of cloud computing. Rate your view on the general trends below according to the scale; 1= strongly disagree, 2=Disagree 3= Neutral, 4= Agree and 5=strongly agree.

Description	**1**	**2**	**3**	**4**	**5**
Cloud computing will transform the banking experience and customer relationships by leveraging social and mobile media					
Core banking business requirements will dynamically be translated to IT solutions through cloud computing that reshape the role of the IT function					
The virtualization characteristic of cloud computing will enable greater automation, scale out and the ability to handle more front end and back end business activities					
Today's banking consumer's move towards digital, mobile and contactless services will affect their tastes, buying habits, channels and customer services					

1. Does your bank's future strategic goals align with cloud computing?

   Strongly Disagree [ ] Disagree [ ]

   Neutral [ ] Agree [ ]

   Strongly Agree [ ]

2. If yes in question 1 above, what is your bank's next anticipated service delivery through cloud computing?

   Infrastructure as a service [ ]

   Platform as a service [ ]

   Software as a service [ ]

   None [ ]

3. Do you believe the use of cloud computing technology has strategic implications on competitiveness in the banking industry?

Strongly Disagree	[ ]	Disagree	[ ]
Neutral	[ ]	Agree	[ ]
Strongly Agree	[ ]		

4. Below are strategic implications of cloud computing as a competitive advantage in the banking industry. Kindly indicate the extent to which you agree to each using the following scale; 1= strongly disagree, 2=Disagree 3= Neutral, 4= Agree and 5=strongly agree.

Description	**1**	**2**	**3**	**4**	**5**
Cloud computing can hold ground for the bank's overall vision, mission and objectives in achieving the overall competitive strategy					
Cloud computing can transform the bank's competitive product offers to reflect the changing demands of the upward mobile and social needs customer					
Core banking operations can be reshaped and reinvented by cloud computing to enable a more competitive, customer centric, efficient and sustainable business model					
Cloud computing can be used as a platform for new competitive IT strategy for your bank					
Cloud computing is in line as a key strategic differentiator when it comes to new technology adoption in a bank					
Testing environment can be enhanced by cloud computing in the innovation and invention of new products and services					
A healthy return on investment can be accrued with the use of cloud computing through lowered costs and shifts in capital expenses					
Customer relationships can be enhanced by use of cloud computing which enables making services more convenient, accessible, personalized and easy to use					

5. Prioritize the following strategic motivations of adopting cloud computing for competitive advantage as would apply to your bank using the scale; 1= Highest priority, 2 = 2nd priority 3=3rd Priority, 4= 4th Priority and 5= Least Priority. (*select one for each*)

1) Description	**1**	**2**	**3**	**4**	**5**
Capitalize on the growing number of users of internet services					
Technological edge over competitors					
Flexibility of IT resources					
Resource optimization and diversification					
Economies of scale					

6. By what percentage growth do you perceive the future use of cloud computing as a competitive advantage in the banking industry?

None	[ ]	5% - 10%	[ ]
11% - 15%	[ ]	16% - 25%	[ ]
26% - 50%	[ ]	51% and above	[ ]

7. If yes in question 3 above, what percentage of your banking services is delivered through a cloud computing platform?

None	[ ]	5% - 10%	[ ]
11% - 15%	[ ]	16% - 25%	[ ]
26% - 50%	[ ]	51% and above	[ ]

8. The below are some of the major challenges faced when trying to implement cloud computing for strategic/competitive advantage. Please rate accordingly as would apply to your bank.

Cost:	Not at all	[ ]	To a low extent	[ ]
	Moderate Extent	[ ]	High Extent	[ ]
	Very High Extent	[ ]		
Lack of technical knowhow:	Not at all	[ ]	To a low extent	[ ]

		Moderate Extent	[ ]	High Extent	[ ]
		Very High Extent	[ ]		
Security:	Not at all	[ ]	To a low extent	[ ]	
	Moderate Extent	[ ]	High Extent	[ ]	
	Very High Extent	[ ]			
Compliance:	Not at all	[ ]	To a low extent	[ ]	
	Moderate Extent	[ ]	High Extent	[ ]	
	Very High Extent	[ ]			

THANK YOU FOR TAKING YOUR TIME IN COMPLETING THIS QUESTIONNAIRE

Appendix III: List of Commercial Banks in Kenya

ABC Bank

Bank of Africa

Bank of Baroda

Bank of India

Barclays Bank Kenya Ltd.

CFC Stanbic Holdings

Chase Bank

Citibank

Commercial Bank of Africa

Consolidated Bank of Kenya

Cooperative Bank of Kenya

Credit Bank

Development Bank of Kenya

Diamond Trust Bank

Dubai Bank Kenya

Ecobank

Equatorial Commercial Bank

Equity Bank

Family Bank

Fidelity (Commercial) Bank Ltd.

Fina Bank Ltd.

First Community Bank Ltd.

Giro Commercial Bank

Guaranty Trust Bank

Guardian Bank

Gulf African Bank Ltd.

Habib Bank

Habib Bank AG Zurich

Housing Finance Co. Ltd.

I&M Bank

Imperial Bank

Jamii Bora Bank

K-Rep Bank Ltd.

Kenya Commercial Bank Ltd.

Middle East Bank Kenya

NIC Bank

National Bank of Kenya

Oriental Commercial Bank Ltd.

Paramount Universal Bank Ltd.

Prime Bank Ltd.

Standard Chartered Bank

Trans-National Bank Ltd.

United Bank of Africa

Victoria Commercial Bank

Source: Central Bank of Kenya (2014)

Appendix IV: Letter to Report Data Collection Challenges

Everlyn N. Mutunga
P.O Box 26367 – 00504
Nairobi, Kenya
Phone: +254 720 423571
Email: ndanueve@gmail.com
Reg: No: D61/ 70157/ 2007

Dr. Zackary B. Awino,
Senior Lecturer,
School of Business,
University of Nairobi,
Nairobi, Kenya

Dear Sir,

RE: REQUEST TO CHANGE MY POPULATION OF STUDY FOR MY MBA PROJECT DUE TO DATA COLLECTION CHALLENGES

I would like to change my population of study to reflect the Top Ten (10) Commercial Banks from my initial Forty Four (44) in Kenya as I have been experiencing quite a number of challenges in data collection.

In my efforts to collect data from the banks, quite a number of respondents will not have the questionnaire stamped and this is one of my major challenges as it is a requirement by the University to have all data gathered certified to be from the intended source. The respondents cite various reasons as to why they will not have the documents stamped citing reasons such as fear of being quoted, appending bank stamp is a sensitive matter and could get one in trouble or is against their internal poilicies. Other respondents as well are taking too long to provide feedback even after several polite reminders just to mention but a few.

Kindly approve for this change so as am able to complete data collection satisfactorily and hence work towards finalizing on my final MBA project as required. I can guarantee to get feedback from the top 10 Commercial banks as they happen to be my employer's customers and I have contacts who I can reach out to.

Your assistance in this matter will be highly appreciated.

Yours sincerely,
Everlyn Mutunga