ADOPTION OF CLOUD COMPUTING AMONG SMALL AND MEDIUM ENTERPRISES IN KENYA

BY

JAMES KITONGA SIMBA

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

NOVEMBER 2014

DECLARATION

This research project is my own original work and has not been presented for the award of degree in other university

Signature: **……………………….…**   Date: **………………….…………**

JAMES KITONGA   SIMBA

REG NO: D61/72713/2012

This Research project has been submitted for examination with my approval as university supervisor

Signature: _____ Date_____

MR. JOEL K LELEI

Department of Management Science.

School of Business,

University of Nairobi.

ABSTRACT

Cloud computing is the latest trend in IT world. It is Internet-based computing, whereby shared resources, software and information; are provided to computers and other devices on-demand. The study was concerned with the adoption of cloud computing among small and medium enterprises in Kenya. The study was guided by the following research objectives: To establish the drivers for cloud computing adoption by SME's in Kenya, cloud computing risks of Safaricom hosted cloud computing, mitigation strategies forclouding computing risks and to determine the impact of clouding computing adoption on SME's performance.The study used a descriptive studytargeting the chief information technology officer, information technology managers, information system managers and managers involved in policy making decisions on computing systems in 30 SMEs that have adopted cloud computing. The study collected primary datausing questionnaires. Data was analyzed using descriptive statistics and regression analysis. The results were presented using tables and other graphical presentations for ease of understanding and analysis. The respondents were of the perception that cloud computing is cost effective, easier to use, solves problems and easier to learn. The study also found out that the major concerns for cloud computing adoption were security, privacy and reliability and that cloud computing adoption had positive impact on organizationalperformance.Adoption of cloud computing is determined by the technical competence of the IT staff, firm size and profit objectives of the firm .Medium size firms with competent IT staff and cost cutting objectives are more likely to adopt cloud computing due to its perceived affordability. Consequently the study concludes there has been significant progress towards adoption of cloud computing in Kenya. This is mainly attributed to cloud computing solutions being more attractive, cost-effective, easy to get and purchase, compared to company owned infrastructure.

DEDICATION

This study is dedicated to my family for giving me the enabling environment for the production of this work.

ACKNOWLEDGEMENTS

I acknowledge the power of God, the maker, and the provider of knowledge for enabling me to complete this proposal in the right spirit. Most important, I sincerely wish to acknowledge the support from my supervisor Mr. JoelLeleiwithout whom I could not have gone this far with my project work. To all my lecturers who contributed in one way or another in quenching my desire for knowledge I owe you my gratitude. I owe a great deal of gratitude to my family members for their unfailing moral support throughout my period of study and for understanding and appreciating the demand of the course in terms of time and resources.

Table of Contents

CHAPTER ONE :INTRODUCTION

1.1 Background of the Study

The term Cloud Computing is a service where resources, information, and software can be provided to computers over a network, which is mainly the Internet. It is a much more reliable platform when compared to grids and its scalability is much more flexible and dynamic when compared to resource pools (Simon et al., 2009).It is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction (Mell and Grance, (2009).

In our day and age, businesses are trying to survive through the harsh economic crises along with keeping up with the demanding and competitive market. Information Systems have provided organizations with more efficient means of data management, collection and mining at the cost of hardware, software, and Information Technology solutions. Hence, these organizations are striving to find more suitable and cost-efficient means of conducting their IT-sector using better tools and technologies, hence Cloud Computing can be a suitable candidate to play this role (Mondal, (2011).

Cloud computing is the latest trend in IT world. It is Internet-based computing, whereby shared resources, software and information; are provided to computers and other devices on-demand. This technology has the capacity to administer a common collection of resources on request. It is proving extremely striking to cash-strapped IT departments that want to deliver better services under pressure. The advent of cloud computing in recent years has sparked interest from different stakeholders of Information Technology (IT) and Computer science, such as academicians, business organizations and institutions.

Cloud computing is an approach where information technology services and capabilities are delivered to an organization or individual over the Internet by a centralized provider, often for a fee (Robinson, (2009). Cloud computing has a number of distinguishing characteristics (David, (2009). The computing resources are held by the provider. Computing resources are accessible over the Internet via personal computers,

laptops, smart phones, and personal digital assistants. A cloud computer provides access to programs, storage, processing, applications, and software development. This access is granted after an agreement is negotiated between the cloud computing provider and the recipient of services (Daniel,(2008).

With a commercial cloud computing provider, resources are normally available, for a set fee, based on usage. For the majority of cloud vendors that charge for cycles or time used, an accounting and billing procedure is needed, with contractual terms agreed upon before service is granted (David, (2009). There has been an interest in cloud computing as seen with the publishing of cloud computing research by Chellappa in 1997as cited in Mei,Zhang,andChan,(2008),though widespreadawareness of cloud computing came later. In late 2006, Google CEO Eric Schmidt publicized the cloud computing concept in his talk on Search Engine Strategies Conferences in 2006 (Aymerich, Fenu, and Schmidt, (2008). Following this an extensiveincrease in cloud computing research has occurred, especially starting around 2008. Research efforts emphasize a variety of topics related to cloud computing. Some of these topics include applications and their capabilities, costs, the need for cloud computing, security, reasons for adoption, and growth trends (Neumann, 2008 and Hansen, (2004).

With its promise of a new economic model for the Computing and Information Technology (CIT), cloud computing brings about a shift in the way organization invest in their IT resources. The new economic model removes the need for the organization to invest a substantial sum of money for purchase of limited IT resources that are internally managed, but rather the organization can outsource its IT resource requirements to a cloud computing service provider and pay per useCloud Computing (FaithShimba, (2010).

This new computing paradigm called cloud computing has also brought risks to the organization seeking to adopt it. The risks that are raised are: trust, security, legal, compliance, customer awareness and organizational risks. (John W. Rittinghouse and James F. Ransome,(2010)

This chapter provides the background material for the remainder of this dissertation. The first section provides the definition of cloud computing, a brief history of cloud computing, underlying technologies, service and delivery models offered by cloud computing and the benefits of using cloud computing.

1.1.1The concept of Cloud Computing

The term Cloud Computing is a service where resources, information, and software can be provided to computers over a network, which is mainly the Internet. Concept of this new trend started from 1960.It was used by telecommunication companies that offered point to point data circuits and virtual private networks until1990. But due to network traffic that made network bandwidth more efficient, cloud computing was introduced. The development of this vital role led to the emergence of modern data centers. In 2007 Google, IBM and many universities and companies adopted it. In 2008 Gartner highlighted its characteristics for customer as well service providers.

The extensive adoption of Service-Oriented Architecture, virtualization, utility and autonomic computing has made Cloud Computing grow significantly, and the major driver for this widespread adoption is the economic benefit that cuts expenses for existing applications (Sandhu et al., 2010). The emergence of the Cloud Computing concept has changed the way IT Services are developed, deployed, used, maintained, and paid for (Marston et al., 2011). Cloud Computing In spite of the important opportunities according to IT providers and some researchers, other researchers predict a decline in the adoption of Cloud Solutions as a result of its potential risks (Benlian and Hess, 2011).

1.1.2 Cloud ComputingAdoption Drivers

According to Klein (2003) there are six main benefits to cloud computing, the first one is lower costs: cloud computing pools all of the computing resources that can be distributed to applications as needed, optimizing the use of the sum of the computing resources and delivering better efficiency and utilization of the entire shared infrastructure. The second benefit is reduced capital expenditure: whether you go with a public cloud or outsourced private cloud computing option, cloud computing delivers a better cash flow by eliminating the capital expense associated with building the server infrastructure.

3

Cloud computing enables faster deployment of projects; this is because servers can be brought up and deployed in a matter of minutes ensuring that the time to deploy a new application drops dramatically with cloud computing.Cloud computing is lowersmaintenance costs. This is driven by two factors; less hardware and outsourced, shared information technology staff. Cloud computing uses less physical resources, therefore there is less hardware to power and maintain. With an outsourced cloud, you don't need to keep server, storage, network, and virtualization experts on staff full time The final benefit is that cloud computing offers resiliency and redundancy. This is because in cloud computing there is automatic failover between hardware platforms and disaster recovery services to bring up servers set up in a separate data centre should the primary data centre experience an outage, Barrie Sosinsky, (2011)

1.1.3 Cloud Computing Adoption Risks

Cloud computing adoption is faced with a number of risks, these risksare categorized as:security risks, legal and compliance risks and organizational risks(Andrei, 2009). Broken further, these risks among others include; inconsistency between transnational laws and regulations, cloud service reliability, reliability of supporting infrastructure, uncontrolled variable costs, availability of resources, lack of liability of providers in case of security incidents. Linked to all these risks is the issue of trust between clients and vendors, because cloud computing calls for organizations to trust vendors with the management of their information technologyresources and data. Risks pertaining confidentiality of corporate data, privacy concerns, back up and data restoration incase of a disaster are crucial factors considered with regard to adoption. This research project will focus specifically in identifying the risks facing organizations when seeking to adopt cloud computing.

1.1.4 Cloud ComputingRisksMitigation Strategies

Cloud computing is already mainstream. Surveys on IT priorities reveal a growing focus on cloud systems, and adoption and cloud spending by IT departments is forecast to continue growing. (Dr. Tonny K. Omwansa,Prof. Timothy M. Waema,Mr. Brian Omwenga University of Nairobi, (April 2014).In spite of all the enthusiasm about the

cloud, several issues remain. Many potential cloud adopters are worried about security: once computing resources, especially servers and network components, are in the hands of a third party. Furthermore, the concentration of data turns the data centers of cloud providers into very valuable high-profile targets for malicious attackers.Itis the emergence of theseproblemsthatpromptedseveralcloudcomputingscholars to identify mitigation strategies.Risk mitigation strategies suggested by Betcher,(2010) include audit controls, policies and procedures, service risks and service level arrangement for similar type risks, information technology governance, education and development of proactive relationships and abandoning cloud computing adoption.Even though cloud computing provides compelling benefits and cost-effective options for IT hosting and expansion, new risks and opportunities for security exploits are introduced. Standards, policies and controls are therefore of the essence to assist management in protecting and safeguarding systems and data. Management should understand and analyse cloud computing risks in order to protect systems and data from security exploits. Caroll M, (2011).

1.1.5 The Performance of Cloud Computing Adoption in the SME Sector

According to Etro, (2007) the introduction of a cloud computing technology has provided a fundamentalcontribution to growth and competition amongst SMEs and helped several European economies to recover from a severe downturn. The innovation associated with cloud computing has enabled SMES tovoid a large up-front costs (that are currently necessaryfor hardware and software equipment (Dubey and Wagle,(2007) .According to Armbrust et al (2009) cloud computing has had a large impact on the coststructure and through it on the production possibilities of all firms, especiallysmall and medium size enterprises (SMEs). The introductionof cloud computing has reduceddrastically the fixed costs of entry andproduction, turning part of them into variable costs related to the productionnecessities.

Cloud computing has had a positive impact on entry and competition in all SMEs. Aghion and Griffith (2005), observed a positive association betweenICTinnovations adoption and increase in competition. They observed that introduction of cloud computing has allowed firms fromall sectors to reduce fixed costs in ICT and turn part of

them into variable costs. However Andrei (2009) observed that Cloud computing adoption is faced with a number of risks, these risks are: security risks, legal and compliance risks and organizational risks that have since discouraged other firms from adopting cloud computing.

1.1.6Safaricom Limited and theSafaricom Cloud

Safaricom Ltd is a leading mobile network operator in Kenya. It was formed in 1997 as a fully owned subsidiary of Telkom Kenya. In May 2000, Vodafone Group Plc of the United Kingdom acquired a 40% stake and management responsibility for the company. Safaricom employs over 1500 people mainly stationed in Nairob i and other big cities like Mombasa, Kisumu, Nakuru and Eldoret in which it manages retail outlets. Currently, it has nationwide dealerships to ensure customers across the country have access to its products and services.As of January 2010, Safaricom boasts a subscriber base of approximately 12 million.

Safaricom was started as a department of the former state-owned telecommunications operate, Kenya Post and Telecommunication Corporation, in 1993. In 1997, Safaricom Limited was incorporated as a private limited liability company with 40% ownership held by Vodafone Kenya Limited. In 2002, it was converted to a public company while the government held 60% of the shares, 25% of which would be auctioned off in 2008 on the Nairobi Securities Exchange. Safaricom has introduced a number of services to Kenya and been a leading player in the mobile market and national economy as well as being the most profitable company East and Central Africa.

Safaricom developed and launched nationwide a mobile banking service called M-PESA, that allows Kenyans to transfer money via SMS.The service does not require users to have bank accounts, an important aspect in a country like Kenya, where many people do not have bank accounts. With M-PESA, the user can buy digital funds at any M-PESA agent and send that electric cash to any other mobile phone user in Kenya, who can then redeem it for conventional cash at any agent. This system is remotely comparable to hawala banking or services like Western Union. An M-PESA-enabled mobile phone can also function as an electronic wallet and can hold up to 100,000 Kenyan shilling.

Safaricom stakeholder Vodafone, which partnered in the development of M-PESA, has announced that it intends to roll out M-PESA internationally as well.

Safaricom launched the Kipokezi service in May 2010 that enabled its subscribers to send and receive email and online chat through standard mobile phones. Any phone with an SMS service can use Kipokezi.Prior to the service fewer than one in ten Kenyans had accessed the Internet but the Kipokezi launch allowed more than a third of the population to exchange email and online chat messages. TheKipokezi is provided by ForgetMeNot Africa. The service does not require users to have an Internet connection as it uses ForgetMeNot Africa's Handset Initiation technology.

Safaricom together with many other companies have come up with different services for use by the public ranging from weather updates to market prices and even entertainment updates. The company also provides Wi-Fi internet connection in large malls, SMEs and government agencies in Kenya. Itis the first company in East Africa to possess 3G Internet technology with recent success of 4G connectivity though they lacked the proper broadcast spectrum for the service.

The new internet-based networking solution launched by Safaricom opens a new frontier of business for the leading mobile services operator. The service – known technically as clouding computing allowsorganizations to outsource the management of technical business functions, especially information technology, to servers run by a different, often independent, service provider. Safaricom Cloudoffers companies business continuity by enabling sharing of network access with minimal management and service costs.

Safaricom Cloud is the first public cloud computing solution in the region with a number of benefits, including software that ensures that the right people have access to the right information over the trusted infrastructure. Also, the user pays for what they have used. Safaricom Cloud is expected to improve, protect and grow business because users will be able to carry out their duties with minimum capital. Safaricom Cloud comes with back-up services through which the user can select the files to store, as opposed to a disaster

recovery service which replicates content. For companies to be secure and gain acceptance of applications; they need to be supported on a cloud platforms.

1.1.7 Small and Medium Entreprises in Kenya

Small and Medium Enterprises (SMEs) are perceived as the engine of growth in Kenya because of their key role in economic development; yet they face formidable constraints that hinder them from realizing their potential. Limited market access, high ICT infrastructure costs and competition from established Multinationals remain as critical constraints to their growth and competitiveness. Cloud computing present's enormous opportunities for affordable ICT solutions as opposed to setting up expensive ICT infrastructure and is believed to generate an almost equal playing field between SMES and Multinationals (Kiveu, 2011).

SMEs cut across all sectors of the economy, providing a prolific source of employment, income, and government revenue with significant impact in poverty reduction. The sector provides goods and services and steers competition and innovation (KIPPRA, 2002).The sector comprises 98% of all businesses in the country, employs more than 4.6 million people (30%) and accounts for 18.4 % of the country's GDP. Total capital employed in the sector is 28 billion (GOK, 2009).

However the sector faces binding risks that make it impossible for it to realize its full potential. These include limited market access, limited access to information, finances and technology and unfavorable policy and regulatory environment among others (GOK, 2005). Despite the onset cloud computing by the largest service provider in Kenya – Safaricom Ltd, that promises to reduce the cost of information and ICT infrastructures; there hasn't been significant uptake of the service as anticipated due to perceived risks of cloud computing adoption that this study seeks to identify.

1.2 The ResearchProblem

A number of international scholars have examined and provided useful insights on research directions in the field of cloudcomputing.Chinyao,Yahsueh,Chen,andMingchang,(2011) investigated the factors

that affect the adoption of cloud computing by firms belonging to the high-tech industry. A questionnaire-based survey was used to collect data from 111 firms belonging to the high-tech industry in Taiwan. The findings revealed that relative advantage, top management support, firm size, competitive pressure, and trading partner pressure characteristics had a significant effect on the adoption of cloud computing. The research was conducted in the high-tech industry, which may limit the applicability of the findings.

Alshamaila, PapagiannidisandFeng(2013) studied Cloud computing adoption by SMEs in the north east of England. This qualitative exploratory study used semi-structured interviews to collect data in 15 different SMEs and service providers in the north east of England. The main factors that were identified as playing a significant role in SME adoption of cloud services were: relative advantage, uncertainty, geo-restriction, compatibility, trainability, size, top management support, prior experience, innovativeness, industry, market scope, supplier efforts and external computing support. In contrast, this study did not find enough evidence that competitive pressure was a significant determinant of cloud computing adoption. The study was limited and did not feature security of cloud computing and the mitigationstrategies.

Willcocks (2013) sought to understand the factors that drive and inhibit the adoption of cloud computing. The paper drawn on a composite research based in the UK included two detailed surveys and interviews with 56 participants in the cloud supply chain undertaken between 2010 and 2013. The paper found that while some features of cloud computing hasten the adoption of cloud, and its use for innovative purposes by the enterprise, there are also clear risksthat arise from the technological nature of cloud computing itself. The research highlights a series of factors that need to be better understood for the maximum benefit from cloud computing to be achieved. He recommended further research to be undertaken to assess the best responses to these risks.

Academic research on the adoption of cloud computing in Kenya and in particular adoption risksis minimal and profuse. Some work has been done cloud computing on

banking institutions in Kenya.Wangui(2011) took a survey study on cloud computing adoption in Kenya's banking industry. The purpose of the study was geared towards finding out whether commercial banks in Kenya are aware of cloud computing, their readiness to adopt it andtheir attitude towards cloud computing. The findings from the study revealed security concerns, complexity of moving application for cloud and loss of control to third party management came out strongly as the major factors hindering the adoption of cloud technology. The study was limited to commercial banks in Kenya.

On similar studies, Mungai (2012) indicated that Kenyan financial institutions have not taken keen interest in cloud computing. He recommended further studies to be done on implementation risks of cloud computing. From the studies it's evident that there is a knowledge gap in regard to cloud computing adoption and risks in Kenya. There is a lack of understanding on how the users perceive cloud computing. Investigating the factors that affect the users' acceptance of cloud computing is crucial in determining the future of this new platform. A lack of awareness regarding these factors may lead to the users rejecting the new technology. It's therefore evident that there is existence of inadequate literature of cloud computing adoption risks in Kenya hence creates the knowledge gap that this study seeks to fill.

1.3 The Research Objectives
The objectives of this study with regard to safaricom hosted cloud customers were:-
i. To establish thedrivers for cloudcomputing adoption by SME's in Kenya.
ii. To establish cloud computing risks faced by SMEs usingSafaricom hosted cloud.
iii. To establish mitigation strategies adopted by SMEs for clouding computing risks.
iv. To determine the impactof clouding computing adoption on SME's performance.

1.4 Value of the Study
The study pursued to identify cloud computing adoption risks in Kenya with focus being on SME who are the biggest target market for cloud computing service providers such as Safaricom. SMES also stand to benefit significantly if they can successfully adopt cloud computing. This however is /possible only if the service providers understand the risks they encounter by establishing the knowledge gap in

cloud computing in Kenya through research studies such as this; hence the significance.

This information is beneficial to service providers such as Safaricom,business executives and ICT managers to better understand the market risks associated with cloud computing for informed strategic planning in regard to Cloud Computing technologies . This information will also aid them in deciding research policy to develop technologies to mitigate risks; furthermore the results of this study will also assist the industry regulator decide on appropriate policy and economic incentives and legislative measures that will aid Cloud Computing adoption.

This study intended to identify the risks and risks by assigning them weight values in terms of impact on business continuity as well as offer suitable mitigation strategies for each. The study intends to equip IT security with a framework for vetting cloud Computing vendors objectively in order to maximize the return on investment while minimizing the risk of Cloud Computing. This study will also provide literature that will one day be used as a point of reference by academic scholars and institutions of higher learning.

CHAPTER TWO:LITERATURE REVIEW

2.1 Introduction

This chapter presents the knowledge of study available in field of cloud computing. It is a summary of the findings, recommendations and theories postulated from studies done by scholars and researchers in the field of cloud computing.This chapter will give us an insight on the findings of other studies, understanding of the drivers andrisks of cloud computing and the mitigation strategies to cloud computing risks.

2.2 TheoreticalReview

This section focuses extensively on highlighting the theoretical foundation on drivers of cloud computing adoption and risks.The section will provide a review of literature on cloud computing practices from IT gurus such as Fred Davis (2010).

2.2.1 The TechnologyAcceptance Model (TAM)

It is an information systems theory that models how users come to accept and use a technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably: Perceived usefulness (PU) - This was defined by Fred Davis as the degree to which a person believes that using a particular system would enhance his or her job performance. Perceived ease-of-use(PEOU) - Davis defined this as the degree to which a person believes that using a particular system would be free from effort (Davis 1989).TAM has been continuously studied and expanded-the two major upgrades being theTAM 2 (Venkatesh and Davis 2000 and Venkatesh 2000).A TAM 3 has also been proposed in the context ofe-commerce with an inclusion of the effects of trust and perceived risk on system use,VenkateshandBala,(2008).

2.2.2 UnifiedTheory of Acceptance and Use of Technology (UTAUT)

This is a technology acceptance model formulated by Venkatesh,(2000) and others in "User acceptance of information technology: Toward a unified view. The UTAUT aims

to explain user intentions to use an information system and subsequent usage behavior. The theory holds that four key constructs: 1) performance expectancy, 2) effort expectancy, 3) social influence, and 4) facilitating conditions; the first three being direct determinants of usage intention and behavior, and the fourth a direct determinant of use behavior. Gender, age, experience, and voluntariness of use are posited to moderate the impact of the four key constructs on usage intention and behavior.

2.3 Cloud Computing Adoption

There are many ways in which the adoption of cloud computing can revolutionize businesses. A number of studies within the field of cloud computing have addressed key areas such as new technologies, security requirements and the future expectations of these emerging environments using a number of different models. Most studies have explored the importance of technological factors that might affect cloud adoption (Low et al, 2011).However the influences of environmental and organizational factors vary significantly and open up new areas for research.

2.3.1 Relative Advantage

Relative advantage is a core indicator to the adoption of a new IS innovation and Rogers(2003) defines it as being the degree to which a technological factor is perceived to provide a greater benefit for organizations. A number of previous studies have researched in detail the impact of relative advantage on an organizations technological adoption. These studies, Thong (1999) and Lee (2004) have revealed that when businesses received relative advantage of an innovation, then the probability of adoption will increase. Cloud computing offers organizations many advantages to those adopting it including flexibility, scalability, on-demand, low entry cost and pay per use models. Organizations have almost instant access to on-demand hardware and software resources accessed over the internet with minimal upfront capital investments.

2.3.2Compatibility

Rogers (2003) states that compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters. Previous literature has confirmed compatibility as an essential factor for the adoption of

new IS innovations. Organizations are more likely to consider the adoption of cloud computing if the technology is recognized as being compatible with existing work application systems and the organizations values. In contrast, when technology is viewed as incompatible then major changes to processes are necessary which requires considerable new learning and high costs.

2.3.3Top Management Support

Top management support is crucial for organizations looking to create a supportive environment and for providing the suitable resources required for the adoption of cloud computing services. Having this support aids organizations in overcoming any internal barriers and resistance to change. Low et al (2011) states that as the complexity of technologies increase, top management support is essential to maintaining potential organizational change through an expressed vision and commitment, sending positive signals of confidence in the new technology to all employees of the firm. They play an important role as the implementation of cloud computing may involve integration of resources, activities and the reengineering of certain processes.

2.3.4Firm Size

Rogers (2003) highlights that organizational size is one of the most fundamental determinants of the innovator profile. In addition, Pan and Jang ,2008) state that large organizations have a higher tendency to adopt IT innovations, largely due to their superior flexibility and aptitude to take risks. However experimental results on what the correlation is between organizational size and IT innovation adoption is mixed. According to Annukka, (2008), there are multiple studies revealing a positive correlation whilst other studies report a negative correlation.

2.3.5TechnologyReadiness

The technological readiness of an organization, which includes the technological infrastructure and IT human resources, has an effect on the adoption of new IT innovations (Low et al, (2011).The IT human resources provide the necessary skills, experience and knowledge base required to implement and integrate a new cloud computing service. Technological infrastructure refers more to the already installed and

in-use enterprise systems and network technologies which provide the platform for new cloud computing applications to be built upon. The proposed cloud computing services will only become part of an organizations value chain of activities if they have the necessary infrastructure and technical competence.

2.3.6 Competitive Pressure

The external environment has a direct impact on an organization's decision. Competitive pressure refers to the level of pressure experienced by the organization from its competitors within the same industry. Laforet, (2011) highlighted its importance as a strong incentive and adoption driver. Many industries have characteristics of needing rapid change, where organizations face constant pressure and become increasingly aware of and attempt to follow their competitor's adoption of similar new technologies. Through the adoption of cloud computing, organizations can benefit from greater operational efficiencies, more accurate data collection and better understanding of market visibility (Low et al, 2011).   This competitive pressure has resulted in many organizations outsourcing their IT infrastructure to not only improve effectiveness but also to enable lower prices to be offered, as an attempt to increase their market share.

2.3.7 Trading Partner Pressure

Many organizations rely on trading partners and cloud vendors for their IT design and implementation of tasks (Low et al, 2011). Pan and Jang (2008), amongst other literature research reveal how trading partner pressure is a key determinant for IT adoption and use. Organizations of all sizes rely on the expertise and skills of trading partners when looking to adopt cloud computing services. The marketing activities completed by these trading partners can have a significant impact on an organizations decision as to whether or not to adopt new IT innovations.

2.4. Cloud ComputingRisks

2.4.1 Policy and OrganizationalRisks
According to Betcher(2010),policy and organizational risksare business-related IT risks that organizations may face when considering cloud computing service providers. Such risks include lock-in, loss of governance, compliance risks, loss of business reputation, and cloud

service termination or failure. Lock-in refers to the inability of a customer to move their data and or programs away from a cloud computing service provider (Armbrust,2009).While customer lock-in may be attractive to cloud computing providers, customers are vulnerable to price increases, reliability problems, or even to providers going out of business (Armbrust, 2009). Loss of governance is another policy and organizational risk which has been identified as a top security risk as customers may cede control to cloud computing service providers on a number of issues that may impact their security, mission, and goals (ENISA, 2009).

2.4.2 TechnicalRisks

Betcher(2010) stated that technical risks are IT-related risks that have a direct, technological impact on the cloud computing systems that host customer programs and or data. Such risks include availability of Service. With respect to high performance computing applications Armbrust(2009) believes the problem with virtual machines and operating systems is that they do not provide a programmatic way to ensure all threads of a program run simultaneously With regard to data storage, Youseff(2008) argue that availability, scalability and performance are conflicting goals as the requirements for each of these individual needs are rigorous.

2.4.3 LegalRisks

Legal risks are the IT-related risks that are legal in nature, and can also have a negative impact on an organization using cloud computing services (Betcher, 2010). Such risks include Subpoena and e-discovery where if computer systems are confiscated by law enforcement agencies or through civil suits, the centralization of storage and sharedtenancy of physical hardware imparts more risk of unwanted data disclosure to cloud computing clients (ENISA, 2009). For example the United States Patriot Act allows the government to, among other things, demand access to data stored on any computer, and if the data is stored by a third party, the data is to be handed over without the knowledge or permission of the company or person using the hosting service (Abadi, 2009). Some businesses may not like the ability of a country to get access to their data via the court system (Armbrust, et al., 2009).

2.5 Coud ComputingRiskMitigation Strategies

Risk mitigation strategies suggested by Betcher(2010) include audit controls, policies and procedures, service Risks and service level arrangement for similar typesrisks.

2.5.1 Audit Controls

When considering a cloud based initiative or reviewing a solution already in place it isrecommended to determine a vendor's internal audit process, how often it is audited by external agencies, the standards the vendor is held to, and whether or not it is open to being audited for compliance (Gatewood, 2009). Vendors rush to develop and present cloud-based solutions, they may fall short on including the necessary records management controls (Gatewood, 2009). There are risks to conducting audits in the cloud environment, auditing cloud providers can be difficult and expensive (Cloud Security Alliance, 2009). Sponsoring an external audit may be appropriate, but a formal adopted framework and properly identified scope is necessary (Cloud Security Alliance, 2009).Furthermore, some cloud providers won't allow compliance auditors on site (Rash, 2009).

2.5.2 Policies and Procedures

Businesses must work with legal, security, and assurance professionals to ensure that the appropriate levels of security and privacy are achieved (ISACA, 2009a). When reviewing policies and procedures related to cloud computing services it is recommended for one to determine the vendors policies and procedures, and related information management approaches, are acceptable; if they are not, the data should either be moved or the vendor should make an auditable change specific to the needs of the client organization (Gatewood, 2009).

2.5.3 Service LevelAgreements

Given the nature of cloud computing, it is suggested that standard contract clauses with vendors may require additional review (ENISA, 2009). A Service Level Agreement is an extremely important item of documentation for both the consumer and the cloud service provider, that if used properly: identifies and defines customer needs, provides a framework for understanding, simplifies complex issues, reduces areas of conflict,

encourages dialog in the event of disputes, and eliminates unrealistic expectations.

2.5.4 IT Governance

There are additional ways in which Cloud Computing customers can operate within a favorable environment, including establishing and promoting cloud standards with a standardized cloud application programming interface (API), customers will have an easier time migrating data between service providers (Weinhardt, Anandasivam, Blau, Borissov, Meinl, Michalk, andStèoßer, 2009). Another form of governance of Cloud Computing is through utilizingbrokersandmarkets(Betcher, 2010).Organizations storing information in the cloud is able to comply with all the rules and regulations it faces (Gatewood, 2009). The true federation of controls will need to expand beyond the organization itself and into the data repositories outside of the organization which currently do not exist (Gatewood, 2009).

In conclusion Cloud Computing is an old idea that has recently emerged as a commercial reality (Armbrust, et al., 2009). The benefits of scalability, reliability, security, ease of deployment, and ease of management for customers, traded off against worries of trust, privacy, availability, performance, ownership, and supplier persistence, still stand (Erdogmus, 2009). That is, the economies of scale and flexibility of cloud computing are both a friend and a foe from a security point of view (ENISA, 2009). Cloud Computing requires good governance, risk management, and common sense on the part of organizations (Cloud Security Alliance, 2009).

The introduction of a cloud computing technology has significantly impacted on organizational performance and has had a fundamentalcontribution to growth and competition amongst SMEs. The innovation associated with cloud computing adoption has enabled SMES tovoid large up-front costs that are currently necessaryfor hardware and software equipment hence increasing organizational profit margins (Dubey and Wagle,2007). According to Armbrust et al,(`2009) cloud computing has had a large impact on the cost structure and through it on the production possibilities of all firms, especiallysmall and medium size enterprises (SMEs).

The perceived cost cutting benefits of cloud computing has significantly impacted its adoption in the SME sector (Armbrust et al, 2009). There is a strong positive coloration between cloud computing adoption and organizational performance(Dubey and Wagle,2007).Organizations that adopted cloud computing in the UK registered significant growth in their profits.This is so because the introductionof cloud computing has reduceddrastically the fixed costs of entry andproduction, turning part of them into variable costs related to the productionnecessities.

In summary Cloud computing has had a positive impact on entry and competition in allSMEs.Aghionand Griffith (2005), observed a positive association betweenICTinnovations adoption and increase in competition. They observed that introduction of cloud computing has allowed firms fromall sectors to reduce fixed costs in ICT and turn part of them into variable costs. However,Andrei (2009) observed that Cloud computing adoption is faced with a number of risks, these risks are: security risks, legal and compliance risks and organizational risks that have since discouraged other firms from adopting cloud computing.

2.6 The Conceptual Framework

A conceptual framework helps simplify the proposed relationship between variables in the study and show the same graphically or diagrammatically Mugenda (2003).With regard to literature review theoretical review, identification was made on five constructs namely Relative Advantage(RA), Perceived Usefulness (PU), Perceived Ease of Use,(PEOU), Vendor Credibility (VC), and Attitudes toward use of technology (ATUT) as drivers of cloud computing adoption.Figure 2.1 is a graphical representation of the conceptual framework.

Cloud Computing Adoption Drivers

Figure 2.1.The conceptual framework


```
┌─────────────────────┐
│ Relative advantage  │
│ (RA)                │
└─────────────────────┘

┌─────────────────────┐                                      SME performance
│ Perceived usefulness│
│ (PU)                │                        ┌──────────────────────────────┐
└─────────────────────┘    ┌──────────────┐    │ • Reduced fixed costs        │
                           │ Cloud        │    │ • Enhanced Business          │
┌─────────────────────┐    │ Computing    │    │   flexibility                │
│ Perceived ease of   │───▶│ Adoption     │───▶│ • Increased                  │
│ use(PEOU)           │    └──────────────┘    │   productivity               │
└─────────────────────┘                        │ • Service Quality            │
                                               └──────────────────────────────┘
┌─────────────────────┐
│ Attitudes toward use│
│ of technology       │
│ (ATUT)              │
└─────────────────────┘

┌─────────────────────┐
│ Vendor credibility  │
│ (VC)                │
└─────────────────────┘
```
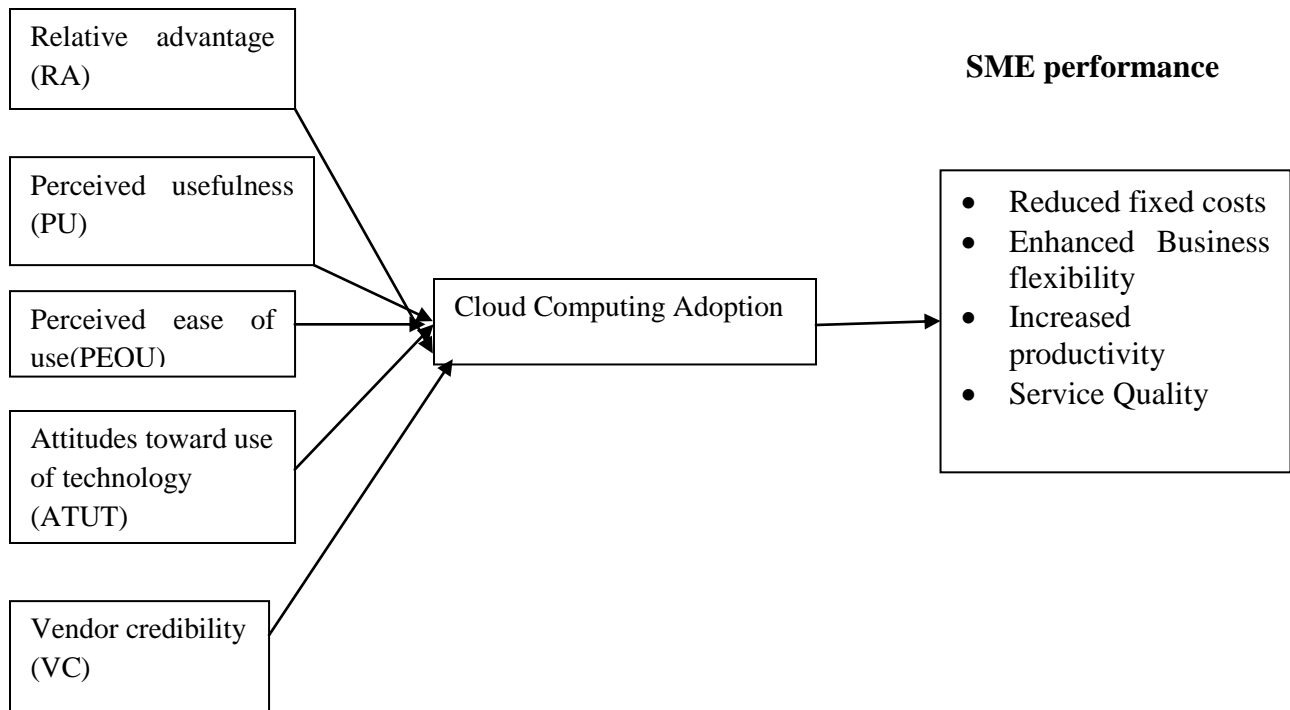
2.6.1 Relative Advantage (RA)

Refers degree towhich a technological factor is perceived as providinggreater benefit for organizations. The benefits ofentrenched cloud computing services comprise; speed ofbusiness communication, efficient harmonization amongfirms, improved customer communications, and access tomarket information mobilization.

2.6.2 PerceivedUsefulness (PU)

Perceived usefulness of a cloud adoption service can be umpired based on improvement inperformance, productivity, job effectiveness and serviceusefulness. Firms who perceive

that cloud computing solutionwill help them in achieving all these benefits are more likelyto adopt cloud services.

2.6.3 PerceivedEase of Use (PEOU

Perceived ease of use willlead to clear collaboration and easy to understand service, lessmental effort in using service and able to perform tasksaccording to organization's requirement.

2.6.4 Attitude towardsUsingTechnology (ATUT)

Decision to adopt cloud computing is influenced a lot byorganizational, technical and environmental factors. Attitude towards adoption of cloud computingplays an important role in this decision. Business technologystrategies, top management support, pool of availabletechnologies in organization are some of the factors whichcan help in ascertaining a firm's attitude towardsusing cloud computing.

2.6.5 VendorCredibility (VC)

Vendor credibility forms part of the overall reputation of acompany. There are two important dimensions to vendorcredibility, perceived expertise and trustworthiness .With regard to cloud computing, such expertise refers toperceptions of a vendor's sincerity, reliability, trustworthiness, and dependability with respect to carryingthrough on service premise. Vendor credibility can be seenas a key element in creating trust online and reducing bothprivacy risk and consumer security and reliability concerns

CHAPTER THREE : RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out various stages and phases that was followed in completing the study. It involves a blueprint for the collection, measurement and analysis of data. In this section the research identified the procedures and techniques that was used in the collection, processing and analysis of data. Specifically the following subsections are included; research design, target population, sample design, data collection instruments, data collection procedures, and finally data analysis.

3.2 Research design

The study utilized descriptive approach. Descriptive research is a process of collecting data in order to test hypothesis or to answer questions concerning the current status of the object of the study. This method has a clear advantage of being effective way of collecting data from large sample cheaply and faster (Mugenda and Mugenda, 1999). Kothari (1990) describes descriptive research studies as those studies which are concerned with describing characteristics to particular individuals or a group. In light of these observations, the researcher will settle on this research design.

3.3 Target Population

Target population in statistics is the specific population about which information is desired. According to Ngechu (2004), a population is a well-defined or set of people, services, elements, events, group of things or households that are being investigated. The population of study includes SME in Kenya that have adopted Cloud computing. There are approximately 30 SME currently under Safaricom hosted Cloud computing; other service providers have not made significant penetration to the market .The study was therefore be a census survey.

3.4Data collection method

Data collection methods are ways in which data for analysis was collected.The study used primary data, which was collected using a questionnaire containing both structured and unstructured questions .The structured questionnaires were used to access the respondents

opinion on the driversforcloud computing adoption, cloud computing risks, mitigation strategies for the cloud computing risks and the impact of clouding computing on SME's performance.

The questionnaire was divided into 3 sections. Section A captured information about general characteristics of the firm and the respondents. Section B captured drivers of cloud computing adoption. Section C dealt with cloud computing risks and mitigation strategies and the perceived impact of cloud computing adoption on organizational performance .The basic data collection method employed as much as possible use of "drop and pick later" technique. Responses were sought from employees who have been in the industry for at least five years.

3.5 Data Analysis and Presentation

Data analysis is defined as mathematical interpretation of the relationship between independent and independent variables (Wilkinson, 2013). After the data was been collected, on the respondents opinion on the driversforcloud computing adoption, cloud computing risks, mitigation strategies for the cloud computing risks and the impact of clouding computing on SME's performance the responses weresummarized, edited, coded and allocated frequencies following the likert scale responses ratings to establish the mean, modevariance, standard deviation and the correlation between variables. The two statistical methods; descriptive and inferential analysis were applied to measure and determine the relationship that exists among the collected data. Demographics were analysed using frequency graphs and the objectives were analyzed using mean and standard deviation.

Descriptive analysis using mean and mode were used to understand and interpret variables; also standard deviation and use of spearman's coefficient of correlation were used to understand relationships between the variables of study. The data was analyzed and the research findings will be presented using frequency tables, pie chart and bar graphs as appropriate. Inferential statistics with a confidence interval of 95% will be used to test the margin of error and the applicability of the research findings.

Regression analysis

A multivariate regression model was applied to identify the determinants of cloud computing adoption by SMEs in Kenya. The logistic regression used in this model was:

$$Y = \alpha + \beta_1 X_1 + \beta_1 X_2 + \beta_1 X_3 + \beta_1 X_{4+} \beta_1 X_{5+} \beta_1 X_{6+} X_{7+} \underset{.}{e}$$

Where

Y=cloud computing Adoption

α = Constant Term

β_1= Beta coefficients

X_1= Behavioral Intention (BI)

X_2=Perceived Ease of Use (PEOU)

$X_{3=}$Security and Trust (SandT)

X_4= Perceived Usefulness (PU)

$X_{5=}$Attitude toward

Technology Innovations (ATI)

X_6= Perceived Benefits (PB)

X_7= Social Influence (SI)

$\underset{.}{e}$ = Error

CHAPTER FOUR : DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter discusses the interpretation and presentation of the research findings drawn from the research instrument by way of data analysis. This chapter presents the analysis and findings of the study as set out in the research methodology. The research data was gathered exclusively through questionnaires as the primary research instrument. The questionnaire was designed in line with the research objectives of the study.

4.1.1 Response Rate

The study targeted 30 respondents in collecting data. 24 out of 30 target respondents filled in and returned the questionnaire resulting in a 80% response rate. This response rate is considered adequate since according to Mugenda and Mugenda,(1999) a response rate of 70% and over is excellent and adequate for analysis and reporting.

Table 4.1 Response Rate

TAREGET POPULATION	30
REPONSES	24
RESPONSE RATE	80%

4.2 Respondents' Demographic Characteristics

This section is an analysis of the demographic information of the individual respondents and the respondent's organization. This was done so as to understand the background of the respondents and their work ability to give relevant data useful to the study.

4.2.2 Gender of the Respondents

The study sought to find out the gender of the respondents. Gender was important in this study because gender will enable us to deduce how the different genders of respondents and to understand the impact of gender disparities on cloud computing adoption by SMES .Data was analysed and results are graphical in figure 4.1.

Figure 4.1 Gender of the Respondents
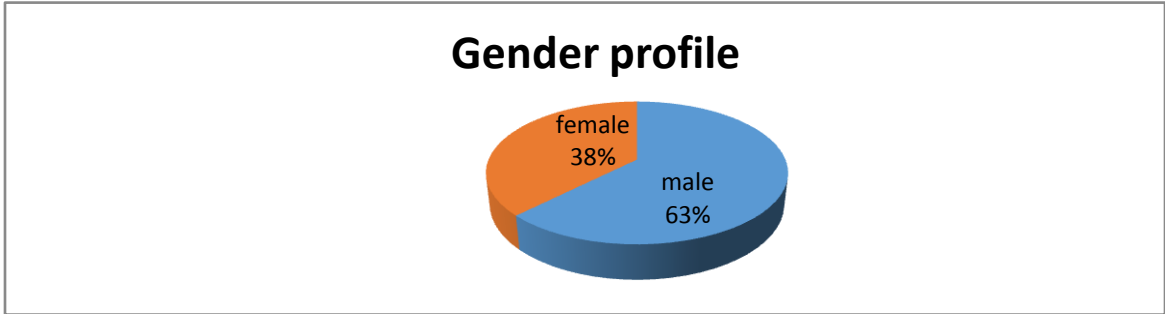
The study found out that 62% of the respondents were male while 38% were female. The findings indicate in respect of the respondents males were.

4.2.3 Ages of the Respondents

The study sought to establish the age bracket of the respondents. Age is important in this study because age and technology acceptance are highly correlated according to technology acceptance theory. The findings are shown Figure 4.2.

Figure 4.2 Ages of the Respondents
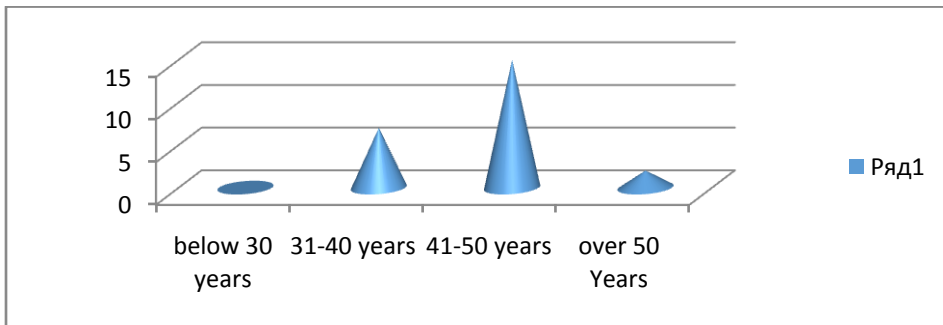
Source: Survey (2014)

From the results, the study found out that 41.1% of the respondents were aged 36 years to 30 years, 26.8% were aged 41-45 years, 17.9% were aged 36-40 years, 7.1% were aged 31-35 years, 3.6% were aged 51-55 years while 3.6% were aged less than 25 years. This indicates that the majority of the respondents (41%) were in the age bracket of 26-30 years.

4.2.4 Length of Time in the ICT industry

The researcher sought to find out the length of time the respondents had worked in the ICT industry. The findings are shown in Table 4.2.

Table 4.2 Length of Time in the ICT industry

Duration	Frequency	Percentile Representation
1 - 2 Years	0	0%
3 - 5 Years	0	0%
6 - 10 Years	3	13%
11 - 15 Years	4	17%
16 - 20 Years	9	38%
21 - 25 Years	6	25%
Over 25 years	2	8%
	24	**100%**

The findings in Table 4.2 indicate that none of the respondents had worked in the ICT industry for 3-5 years, 13% for 6-10 years, 17% for 11-15 years, 25% for 21-25 years, and 8% for over 25 years. This indicates that majority of the respondents have been in the ICT industry for over 16 which is an indication of a motivated and dedicated workforce. The study concludes that the length service is significant towards enhancing the competence of individuals in the ICT sector and their understanding of emerging technological advancements in the industry such as cloud computing

4.2.5 Highest Level of Education

The researcher sought to find out the respondents highest level of education. The findings are shown in Table 4.3.

Table 4.3 Highest Level of Education

Level of Education	Frequency	Percentage
O level	0	0%
Undergraduate Degree	11	46%
Postgraduate Degree	10	42%
Other (Specify)	3	13%

The findings in Table 4.3 indicate that most of the respondents (46.%) indicated that they hadundergraduate degrees, 35.7% while 42% hadpost graduate 13 % had other professional qualifications only. This indicates that majority of the study respondents had attained an undergraduate degree as their highest level of education.

4.2.6 Respondents Professional Certifications

The researcher sought to find out the respondents highest level of education. The findings are shown in Table 4.4.

Table 4.4 Respondents Professional Certifications

Certification	No	Percentage
Cisco Certified Network Administrator	18	75%
Microsoft Certified Systems Engineer	5	21%
Microsoft Certified Database Administrator	12	50%
CompTIA A+	11	46%
Certified Information Systems Auditor	15	63%
Certified Web Professional (CWP)	11	46%
CompTIA Security+	13	54%
Oracle Certified Associate	12	50%
Oracle Certified Professional	13	54%
SAP Associate	13	54%

The findings are shown in Table 4.4 and indicate that all the respondents held at least two professional certificationsand majority of the respondents were Certified Information Systems Auditors at 75%.21% of the respondents were Microsoft Certified Systems Engineers,50% being Microsoft Certified Database Administrators, 46% were Certified Web Professionals,54% held CompTIA Securityqualification,63% were Oracle Certified Associates,and 54% were ProfessionalSAP Associate. This strongly indicates that the respondents had the technical competence needed to carry out organizational changesinthe adoption of cloud computing. It indicates also that the decision to adopt cloud computing is dependent upon the technical competence of the IT staff.

4.2.7 Job Designation

The researcher sought to find out the respondents job designation. The findings are shown in Table 4.5

Title	Frequency	Percent
Chief information technology officer	6	25%
Information technology manager	7	29%
Information system manager	11	46%
Policy making Manager	18	75%

Table 4.5 Job Designation

The findings in Table 4.5 indicate that most of the respondents (46%) were Information system managers, 25% were Chief information technology officers, 29 % were Information technology manager .both information system and technology managers identified themselves as Policy making Managers making the management team involved in policy making to be 75%. This indicates that most of the respondents were in major decision making positions in the companies.

4.2.8 Number of Employees

The researcher sought to find out the number of employees in the companies. The findings are shown in Table 4.6.

Table 4.6 Number of Employees

Range	Frequency	Percent
1-50 Employees	1	4%
51 -100 Employees	1	4%
101 - 250 Employees	3	13%
251 - 500 Employees	18	75%
501 - 1000 Employees	1	4%
1001 - 2500 Employees	0	0%
2501 - 5000 Employees	0	0%

The findings in Table 4.6 indicate that most 13 % had 101 - 250 Employees, 75% had 251 -500 Employees, 4% had 1-50 Employees, 4% had 51 -100 Employees, 0% had 1001 -2500 Employees, 0% had 2501 - 5000 Employees and 4% had 501 - 1000 Employees. The respondent with employee base of between 251 - 500 employees had the highest representation with 75% .and indication that cloud computing is most popular among small and medium enterprises.

4.2.9 Average Annual Revenue of the Firm

The researcher sought to find out the average annual revenues of the firms. The findings are shown in Table 4.7.

Table 4.7 Average Annual Revenue of the Firm

Revenue Range	Frequency	Percent
5 million or less	2	8%
6-30 Million	4.0	17%
31-50 Million	10.0	42%
51-80 Million	8.0	33%
81-100 Million	0.0	0%

The findings in Table 4.6 indicate that 8% of the respondent organizations has kshs 5 million or less annual turnover while 17% had 6-30 Million; majority had 31-50 Million turnover at 42%; 33% had 51-80 Million while non had over 80 Million annual turnover

4.2.10 Industrial Section of the Firm

The researcher sought to find out the industrial section of the firms. The findings are shown in Table 4.8.

Table 4.8 Industrial Section of the Firm

Section	Frequency	Percent
Agricultural	0	
Automobiles and accessories	1	4%
Banking	2	8%
Commercial and services	4	17%
Energy and petroleum	1	4%
Insurance	4	17%
Investment	7	29%
Manufacturing and allied	0	0%
Telecommunications and technology	5	21%

The findings in Table 4.6 indicate that 0% of the respondents were in Agriculture, 17% were in Commercial and services, 21% were in Telecommunications and technology, 4 % were in Automobiles and accessories, 8% were in banking, 17 % were in insurance, 29% were in investment, 4% were in Energy and petroleum while 0% were in Manufacturing and allied. This is an indication that cloud computing adoption is most popular amongst investment firms and those involved in commercial and services.

4.3 Extentof Cloud Computing Adoption

The study sought to find out the extent of adoption of cloud computing in their firms. The results are shown in Table 4.9.

Table 4.9 Extent of cloud computing adoption

Service	Mean	SD
Business availability/disaster recovery	3.25	0.002
Data storage	3.46	0.010
Online email services	4.42	0.005
ERP	4.25	0.002
Online payroll	4.33	0.000
Online back up	4.58	0.035
Telephony	3.58	0.271
Online accounting service	3.63	0.047
Online website, domain hosting	4.38	0.037

The findings in Table 4.9 show the functions that the firms have moved to cloud computing. The scale used was 1- No Extent; 2 - Little Extent; 3 - Moderate Extent; 4 - Great Extent; 5 - Very Great Extent.The most popular cloud computing service which had been adapted to a very great extent by the respondents; is online accounting services.The findingsindicate that over 50% of the respondents has adopted to a very great extent adopted all the aspects of cloud computing while 36% had to a great extent adopted cloud computing in all operational aspects.

4.4 Cloud Computing Adoption Drivers

The study sought to determine cloud computing adoption drivers in their firms. The results are shown in Table 4.10:-

Table 4.10Drivers of cloud computing Adoption

Drivers of cloud computing	MEAN	SD
Representation of industrial trends.	1.96	1.77
Rises of status symbols.	2.33	1.14
Increases employee confidence.	2.33	1.14
Makes work easier.	4.38	0.14
Symbol of technology receptivity	4.29	0.10
Technologically pioneer drive	4.25	0.08
Enhancement of security backups.	4.29	0.10
Stability of service	3.88	0.00
Eliminates the problem of incompatibility	4.00	0.01
Security	3.92	0.00
Trustworthiness of solution	3.96	0.01
Time saving	3.83	0.00
Simplicity of solutions	4.04	0.02
Variety of cloud solutions	3.50	0.06
Functionality satisfaction	3.79	0.00
Interface user friendliness	4.17	0.05
Understandable cloud procedures	4.00	0.01
Attractiveness of cloud solution	4.79	0.45
Cost-effective solution	4.79	0.45
Affordability of solution	4.75	0.41
Influence of mass media	3.33	0.13
Influence by expert opinions	3.96	0.01

The findings of the study are indicated in Table 4.10where 1= Not at all, 2= little extent 3= Moderate extent, 4= Great extent, 5= Very great extent; indicate that the respondents strongly agreed to a very great extent that the decision to adopt cloud computing was informed by its cost-effectiveness, availability, attractiveness, affordability and its user friendliness, the respondents agreed also to a great extent that the security of backups, compatibility solutions informed their decision to adopt cloud computing.

4.5 Cloud Computing Concerns/risks

The study sought to find out to what extent the following risks/factors affect the adoption of cloud computing in the respondents company. The results are shown in Table 4.11

Table4.11 Cloud Computing Concerns/risks

CONCERNS	MEAN	SD
Privacy	4.7083	0.0017
Security	4.7917	0.0100
Availability of Services	4.7500	0.0050
Availability of Data	4.3750	0.0378
Confidentiality of corporate data	4.7917	0.0100
Loss of control of services	4.7083	0.0017
Inconsistency between transnational laws and regulations	4.2917	0.0642
Cost of migration to the cloud	3.8750	0.3003
Difficulty in migration to the cloud	4.0000	0.2113
Intra-clouds (vendor lock-in) migration	3.9167	0.2689
Lack of liability of providers in case of security incidents	4.8333	0.0168
Rejection by the employees	4.3750	0.0378
Unclear scheme in the pay per use approach	4.0417	0.1850
Uncontrolled variable cost	4.5833	0.0022
Ability to Back up and Restore of data after a disaster	4.7083	0.0017
Cloud Service Reliability	4.5833	0.0022
reliability of supporting infrastructure	4.3750	0.0378

The findings in Table 4.11where 1= Not at all, 2= little extent 3= Moderate extent, 4= Great extent, 5= Very great extent The respondents indicated that privacy and security affected the adoption of cloud computing to a moderate extent while they agreed to a great extent that availability of services, availability of data, confidentiality of corporate data, loss of control of services, inconsistency between transnational laws and regulations, cost of migration to the cloud, difficulty in migration to the cloud, intra-clouds (vendor lock-in) migration, lack of liability of providers in case of security incidents, rejection by the employees, unclear scheme in the pay per use approach, uncontrolled variable cost, ability to back up and restore of data after a disaster, cloud service reliability and reliability of supporting infrastructure affect the adoption of cloud computing.

This indicates that respondents indicated that privacy and security affected the adoption of cloud computing to a moderate extent while they agreed to a great extent that availability of services, availability of data, confidentiality of corporate data, loss of control of

services, inconsistency between transnational laws and regulations, cost of migration to the cloud, difficulty in migration to the cloud, intra-clouds (vendor lock-in) migration, lack of liability of providers in case of security incidents, rejection by the employees, unclear scheme in the pay per use approach, uncontrolled variable cost, ability to back up and restore of data after a disaster, cloud service reliability and reliability of supporting infrastructure affect the adoption of cloud computing.

4.6 Mitigation strategies to Cloud Computing Risks

The study sought to find out to what extent the following Mitigation strategies are adopted in addressing Cloud Computing Risks

Table4.11 Mitigation strategies to Cloud Computing Risks

Mitigation strategies	MEAN	SD
Audit Controls	4.71	0.09
Policies and Procedures	4.79	0.01
Service level Agreements	4.75	0.05
IT Governance	4.88	0.08
Education and developing proactive relationships	4.92	0.12
Abandoning cloud computing adoption	4.79	0.01

The analysis in table 4.11 indicates that the respondents practice all mitigation strategies to cloud computing risks to a very great extent including abandonment of cloud computing adoption all together with a small standard deviation of 0.33 an indication the opinion is of widely accepted view.

Table4.12Impact of Cloud Computing Adoption on Organizational Performance

The study also sought to find out the how organizational have performed as a result of adopting cloud computing. The table below shows the respondents perceived impact of cloud computing on organizational performance where 1= Not at all, 2= little extent 3= Moderate extent, 4= Great extent, 5= Very great extent.

Organizational performance	MEAN	SD
Increased in profits	4.625	0.065
Enhanced agility	4.792	0.102
Enhanced flexibility	4.75	0.06
Increased productivity	4.667	0.023
Improvement in service quality	4.917	0.227
Reduction in IT infrastructure maintenance cost	5	0.31
Better upgradeability	4.458	0.232
Easier management	4.708	0.018
reduce the environment destruction	4.292	0.398

The analysis in table 4.12 indicates that 76% of the respondents strongly agree to avery great extent that cloud computing practices have improvement organizational performance in areas of profitability,agility,flexibility,productivity, service quality, maintenance cost,management, and ease on theenvironment destruction with a standard deviation of 0.32 an indication of all widely accepted view .

4.7 Regression Analysis

A multivariate regression model was applied to identify the determinants of cloud computing adoption by SMEs in Kenya. The logistic regression used in this model was:

$Y = \alpha + \beta_1 X_1 + \beta_1 X_2 + \beta_1 X_3 + \beta_1 X_{4+} \beta_1 X_{5+} \beta_1 X_{6+} X_{7+} e$

Where

Y=cloud computing Adoption

α = Constant Term

β_1= Beta coefficients

X_1= Behavioral Intention (BI)

X_2=Perceived Ease of Use (PEOU)

X_3=Security and Trust (SandT)

X_4= Perceived Usefulness (PU)

X_5=Attitude toward

Technology Innovations (ATI)

X_6= Perceived Benefits (PB)

X_7= Social Influence (SI)

ę = Error

Table 4.12 ANOVA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.32a	0.567	0.57	0.05

a) Predictors: (Constant), Behavioral Intention (BI), Perceived Ease of Use (PEOU), Security and Trust(SandT), Perceived Usefulness (PU), Attitude toward Technology Innovations (ATI), Perceived Benefits (PB) and Social Influence (SI)

b) Dependent Variable: cloud computing adoption

The study used ANOVA to establish the significance of the regression model from which an F-significance value of less than 0.05 was established. The model is statistically significant in predicting how Behavioral Intention (BI), Perceived Ease of Use (PEOU), Security and Trust(SandT), Perceived Usefulness (PU), Attitude toward Technology Innovations (ATI), Perceived Benefits (PB) and Social Influence (SI) affectcloud computing adoption. This means that the regression model has a confidence level of above 95% hence high reliability of the results.

Table 4.13 Regression Coefficients results

Coefficients[a]					
Model	**Unstandardized coefficient**		**Standardized coefficient**		
	B	Std. Error	Beta	t	Sig.
(Constant)	0.32	0.65	0.48	0.66	0.02
Attitude toward Technology	0.09	1.75	0.23	1.78	0.10
Innovations (ATI)	0.13	0.06	-0.15	-1.50	0.16
Perceived Benefits (PB)	0.17	0.07	0.18	1.79	0.10
Behavioral Intention (BI)	0.12	0.07	-0.11	-1.24	0.23
Perceived Ease of Use (PEOU)	0.13	0.06	0.23	1.58	0.14

Security and Trust (SandT)	0.19	0.08	0.21	1.78	0.10
Perceived Usefulness (PU)	0.26	0.09	0.31	2.26	0.05
Social Influence (SI)	0.53	0.07	0.58	5.95	0.02

Source, Author 2014

The Predictors: (Constant), Behavioral Intention (BI), Perceived Ease of Use (PEOU), Security and Trust(SandT), Perceived Usefulness (PU), Attitude toward Technology Innovations (ATI), Perceived Benefits (PB) and Social Influence (SI).From the data in Table4.13, there is positive relationship between cloud computing adoption and Behavioral Intention (BI), Perceived Ease of Use (PEOU), Security and Trust (SandT), Perceived Usefulness (PU), Attitude toward Technology Innovations (ATI), Perceived Benefits (PB) and Social Influence (SI).

The established regression equation was;

$Y = 0.32 + 0.09X_1 + 0.13X_2 + 0.17X_3 + 0.12X_{4+} 0.13X_{5+} 0.19X_{6+} 0.26X_{7+} 0.53X_7 + e$

4.8 Discussion of the findings

From this regression model, it was found that cloud computing adoption would be at 0.309 holding factors influencing attitude towards cloud computing adoption to a constant zero. A unit increase in Behavioral Intention would lead to a change in cloud computing adoption by factor of 0.09; a unit increase in Perceived Ease of Use would lead to increase a change in cloud computing adoption by factor of 0.13, a unit increase in Security and Trust would result to an increase in a change in cloud computing adoption by a factor of 0.170, also unit increase in Perceived Usefulness would result to increase in a change cloud computing adoption by factor of 0.12.This implies that Behavioral Intention (BI), Perceived Ease of Use (PEOU), Security and Trust (SandT), Perceived Usefulness (PU), Attitude toward Technology Innovations (ATI), Perceived Benefits (PB) and Social Influence (SI) have an influence on cloud computing adoption.

CHAPTER FIVE : SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary, conclusions and recommendations of the study. Section 5.2 summarizes the key results found, while section 5.3 draws the conclusions. Section 5.4 notes the recommendations from the findings of the study. Section 5.5 outlines the limitations of the study while section 5.6 gives suggestions for further research.

5.2 Summary of the Findings

The main objective of the study aimed at establishingthe drivers of cloud computing adoption By SMES in Kenya. The findings on the demographic information of the respondent's greatly enhanced the reliability of the research findings. The study found out that the majority of the respondent'sgood experience in the ICT industry and had the prerequisite education leveland technical competence needed to carry out their duties. The respondents also were holders of at least one professional qualification as Certified NetworkAdministrators, MicrosoftCertified Systems Engineers, Microsoft Certified Database Administrator, CompTIAA+, Certified Information Systems Auditors, Certified Web Professional (CWP),CompTIASecurity+, International Computer Driving License, Oracle Certified Associate Oracle Certified Professional and SAP Associate certifications.

The study also found out that the respondents company turnover annually met the descriptions of medium sized companies and that the respondents were in major decision making positions in the companies and most of the companies had medium numbers of employees. The companies were also in major industrial sectors in the economy such as Commercial and services, Telecommunications and technology,Automobilesand accessories, Banking, Insurance, Investment and Energy and petroleum.On the services and functions that had been moved to the cloud, the study found out that the SMEs had to a great extent adopted all the functions offered by the service providers such as; disaster recovery, data storage, online email services,erp, online payroll,onlinebackup,telephonyonline accounting serviceandonline website

domain hosting

The study found that the drivers of cloud computing adoption were the respondents perceived attractiveness of cloud computing solutions as being cost-effective, easy to get and purchase. In addition the perception that cloud computing solutions makes work easier, and is a symbol of being technologically receptive and pioneer in cloud computing positively affected cloud computing adoption. Consequentlyexpert opinions and word-of-mouth affected the adoption of cloud computing solutions.

There was however no correlation between cloud computing adoption and the perception that cloud computing solutions represented industrial trends and the expectations that it would raise the organizations status symbols nor as way to increase employee confidence. The findings also indicate that cloud computing solutions enhance the security of backups and eliminate the problem of incompatibility. The respondents also found the solutions enhanced efficiency, quality of work, improved user performance, competitiveness, and that the functionality of the cloud computing solutions is satisfying, friendly, understandable, and is easy to learn.

The study also found out the concerns of the respondents with respect to adopting cloud computing. the study found out that privacy and security affected the adoption of cloud computing to a moderate extent while they agreed to a great extent that availability of services, availability of data, confidentiality of corporate data, loss of control of services, inconsistency between transnational laws and regulations, cost of migration to the cloud, difficulty in migration to the cloud, intra-clouds (vendor lock-in) migration, lack of liability of providers in case of security incidents, rejection by the employees, unclear scheme in the pay per use approach, uncontrolled variable cost, ability to back up and restore of data after a disaster, cloud service reliability and reliability of supporting infrastructure affect the adoption of cloud computing.

On the mitigation strategies to cloud computing risks the study found out that the respondents practiced all the mitigation strategies of Audit Controls, Policies and

Procedures, Servicelevel Agreements, IT Governance, Education and developingproactive relationships, to a very great extent. The respondents strongly agree to a very great extent that cloud computing practices have improvement organizational performance in areas of profitability, agility,flexibility,productivity,service quality, maintenance cost,management, and ease on the environment destruction

5.3 Conclusions

The study concludes that the adoption of cloud computing is determined by the technical competence of the IT staff, firm size and profit objectives of the firm .Medium size firms with competent IT staff and cost cutting objectives are more likely to adopt cloud computing due to its perceived affordability. Consequently the study concludes there has been significant progress towards adoption of cloud computing in Kenya. This is mainly attributed to cloud computing solutions being more attractive, cost-effective, easy to get and purchase, compared to company owned infrastructure.

Despite the perceived benefits of cloud computing Cloud computing adoption is faced with a number of risks, these risks are: security risks, legal and compliance risks and organizational risksLinked to all these risks is the issue of trust between clients and vendors, because cloud computing calls for organizations to trust vendors with the management of their IT resources and data. Trust being a critical factor in cloud computing adoption.Itis the émergence of the mitigation stratégies.Risk mitigation strategiesinclude audit controls, policies and procedures, service Risks and service level arrangement for similar type risks. There is however no evidence that the mitigation strategies have reduced concerns on cloud computing adoption

5.4 Recommendations for policy

The implications of the findings of this study for practice are these. First, in order to promote cloud computing among commercial companies cloud service providers should provide successful case studies and statistics in order to help companies realizethe potential benefits. Second, to achieveagreement on an industry standard perhaps is the priority in the sector. The standardization will reduce uncertainties and hence encourage adoptions. Third, like other information technology adoptions in

businesses there are issues other than the technology that need to be taken into account for example compatibility of the technology with organizational policy, structure, valueand most importantly products and services. Companies will have to assess the necessity of cloud computing to their business first and then its compatibility.

5.5 Limitations of the Study

Every study inevitably encounters certain levels of limitations due to a variety of factors;andalthough the study was completed and reached its aim, it was not done without some limitations. Respondents such as chief executives or senior managers are usually very busy hence the tendency not to give in-depth attention to the unstructured parts of the questionnaire. Secondly not all the respondents managed to respond to the questionnaire. Thirdly there was resource constrain of money and Finally, Cloud computing is very new to Kenya and there isn't much information about the same in the Kenyan context.

5.6 Recommendations for Further Research

The study focused on cloud computing adoption drivers in SMEs in Kenya Further research on cloud computing should focus on investigating the sustainability of cloud computing programs in Kenya. There is also need to investigate the effectives of cloud computing in creating comparative businesses advantage. Further research also needs to identify the issues faced by organizations when adopting the cloud. Since cloud computing is still new to both academia and commerce the outcome of these studies will help academics and practitioners alike assess the actual uses of the cloud in practice and the business benefits and risks of adopting it.

REFERENCES

Andrei, H. (2009). *Cloud computing adoption risks*

Alshamaila, PapagiannidisandFeng, (2013) *cloud computing adoptionin northern England.* Industrial Management and Data Systems,

Armbrust, M., Fox, A., Griffith, R., Joseph, A., Katz, R., Konwinski, A., et al. (2009).*Above the Clouds:* A Berkeley view cloud computing.

Awuondo, I. (2008).*Commercial Application of ICT in the Banking Sector.*

Aymerich, L.D Fenu,W. andSurcis, S.L; 2008.*Data management in the cloud computing concepts: Limitations and opportunities*.Computer Society Technical Committee on Data Engineering.

Barrie Sosinsky 2011 *Cloud Computing Bible*

Benlian and Hess, 2011.*Opportunities and risks of software-as-a-service: Findings from a survey of IT executives*

Betcher, J., T. (2010).*Cloud Computing: Key IT-Related Risks and Mitigation Strategies for Consideration by IT Security Practitioners.*

Caroll M,(2011).*Secure cloud computing: Benefits, risks and controls*.

Chellapa*A Tale of Clouds: Paradigm Comparisons and Some Thoughts on Research Issues.*

Chinyao Low, Yahsueh Chen, Mingchang Wu, (2011) "*Understanding the determinants of cloud computing adoption*", Industrial Management and Data Systems, Vol. 111

Cloud Security Alliance. (2009). *Security guidance for critical areas of focus in cloud computing*

Daniel S. (2008). *Market-oriented cloud computing:* Vision, hype, and reality for delivering IT   services as computing utilities.

David, F. (2009).*Staring at clouds.Internet* Computing, IEEE, 13(3), 4-6.

Dr. Tonny K. Omwansa, Prof. Timothy M. Waema, Mr. Brian Omwenga University of Nairobi, (April 2014)*Cloud Computing in Kenya*

ENISA.(2009).*Cloud computing*: benefits, risks and recommendations for informationsecurity.

Erdogmus, H. (2009).*Cloud Computing:* Does nirvana hide behind the nebula?

Faith Shimba, (2010).*Strategies for Cloud Computing ,*Dublin Institute of Technology

Fred Davis(1989) *Perceived usefulness (PU)*

Gatewood, (2009) Key IT-Related Risks n Mitigatoin Strategies for Consideration

Grance B.,(2009).*Handbook of cloud computing.*

Hansen, L., W.,(2004). *Adoption of New Technology*

IBM, (2010).*Cloud Computing Insights from 110 Implementation Projects*

John W. Rittinghouse, James F. Ransome (2010): *Cloud Computing: Implementation, Management, and Security*

Kiveu , G., (2011) *ICT infrastructure in Kenya's SME*

Klein , J. (2009). *Risks and benefits of cloud computing:* A   study of transaction services in the German banking industry. Information andManagement

Marston et al., 2011.*cloud computing the business perspective*

McLaughlin, E., A (2008).*Cloud Rise:* Rewards and Risks at the Dawn of Cloud Computing.

Modal, (2011).*Understanding cloud Computing*

Microsoft.(2010). *Software, Platforms and Infrastructure Solutions*.The new World of Cloud Computing.

Mugenda, O., andMugenda, G., (1999).*Research Methods Quantitative* and Qualitative Approaches.

Mell (2009).Cloud computing: *Web-based applications that change the way you work and collaborate online*. IN, Indianapolis: Que Publisher -160.

Mei, A., Zhang, and Chan, V. (2008).*A process-oriented perspective on differential businessvalue creation by information technology*: An empirical investigation.Omega, The International Journal of Management Science .

Mungai C.K (2012). *Cloud computing Adoption in Kenya's financial institution:* A survey study in Kenya's banking sector

Rash, W. (2009).*Is cloud computing secure*? Prove it. eWeek, 26(16), 8-10.

Rai, S., andChukwuma, P. (2009).*Security in a cloud.Internal Auditor*, 66(4), 21-23.

Simon V.et al (2009).*A place in the cloud*.CFO, 24(8), 31-35.

Smith, J. (2009). *Fighting physics:* A tough battle.Communications of the ACM, 52(7),

Neumann,Y.,S.,(2008) *Adoption of New Cloud technology*
Sandhu, B., and Wei, K. K (2010).*Innovation diffusion theory as a predictor of adoption*

Scheiner, E., A (2008).Rewards and Risks at the Dawn of Cloud Computing

Robinson, L. M. (2009). *A Break in the Clouds*: Towards a Cloud Definition.
Venkatesh,(2000) *Technology acceptance models 1,2 and 3*
Wangui , B.K (2013). *Cloud computing Adoption in Kenya's banking industry:* A   survey study in Kenya's banking sector

Willocks , S. P. (2013). *Identifying Cloud computing adoption risks.*

Youseff, L., Butrico, M., and Da Silva, D. (2008.) Toward a unified ontology of cloud   computing. Grid Computing Environments Workshop, 2008.

APPENDIX II: QUESTIONNAIRE

SECTION A: DEMOGRAPHIC

1. What is your Gender?   Male [ ]   Female [ ]

2. In which age bracket does your age fall?

25 years or less …………………………………………….……………....[ ]

26-30 years………………………………………………………….…..[ ]

31-35 years………………………………………………………….…..[ ]

36-40 years………………………………………………………….…..[ ]

41-45 years …………………………………………………….……….[ ]

46years and above …………………………………………….………..[ ]

3. How long have you worked in the ICT industry?

Less than 1 year……………………………………….……….…………[]

1 - 2 Years………………………………………………………….…..[ ]

3 - 5 Years………………………………………………………….…..[ ]

6 - 10 Years……………………………………………………….……[ ]

11 - 15 Years………………………………………………………….…..[ ]

16 - 20 Years…………………………………………………….………[ ]

21 - 25 Years………………………………………………………….…..[ ]

Over 25 years……………………………………………………….……[ ]

4. What is your highest level of education?

O level……………………………………………………………….......[ ]

Undergraduate Degree…………………………………………….………[ ]

Postgraduate Degree……………………………………………………...[ ]

Other (Specify)…………………………………………….………………[ ]

5. Which of the following professional certifications do you hold?

Cisco Certified Network Administrator …………………………….……[ ]

Microsoft Certified Systems Engineer …………………………………....[]

Microsoft Certified Database Administrator………………………….…[]

CompTIAA+………………………………………………………….…[]

Certified Information Systems Audit ………………………………..…[   ]

Certified Web Professional (CWP)   ………………………..…...[]

CompTIA Security+   …………….....……………………………….....[   ]

International Computer Driving License.………………………….……[   ]

Oracle Certified Associate……………………………………...…[   ]

Oracle Certified Professional.……………………………….......[   ]

SAP Associate ……………………………………………….……[   ]

Other (Specify) _____

6. What is your job title?

Chief information technology officer……………………….……...[   ]

Information technology manager………………….......................[   ]

Information system manager………………….......................[   ]

Policy making Manager……………………………… …………….…[   ]

Other (specify) _____

7. What is the number of employees in your firm?

1-50 Employees……………………………………………….…[   ]

51 -100 Employees.………………………………………….....[]

101 - 250 Employees.……………………………………………[   ]

251 - 500 Employees.……………………………………………[ ]

501 - 1000 Employees.…………………………………………..[   ]

1001 - 2500 Employees.………………………………………….[]

More than 2500 Employees.………………………………………..[   ]

8. Which industry does the firm belong to?

Agricultural.…………………………………………..……..….[]

Commercial and services.…………………………………….......[ ]

Telecommunications and technology.………………….………..[   ]

Automobiles and accessories…………………………………………[ ]

Banking.………………………………………………..……..[]

Insurance.……………………………………………………….[]

Investment.…………………………………………………...[ ]

Manufacturing and allied.……………………………...…[]

Energy and petroleum.…………………………….……….. [ ]

Other Specify _____

9. What is your annual turnover for 2013/2014 in KES

5 million or less…………………………………………..[]
6-30 Million …………………………………………….[ ]
31-50 Million.……………………………………………[]
51-80 Million.……………………………………………[]
81-100 Million.…………………………………………..[]
Other Specify _____

SECTION B: EXTENT OF ADOPTION OF CLOUD COMPUTING

Tick in the appropriate box to indicate the extent to which the following cloud services are used in your organization.

Use the scale:

1= Not at all
2= Little extent
3= Moderate extent
4= Great extent
5= very great extent

Service	1	2	3	4	5
Business availability/disaster recovery					
Data storage					
Online email services					
ERP					
Online payroll					
Online back up					
Telephony					
Online accounting service					
Online website, domain hosting					

SECTION C: DRIVERS OF CLOUD COMPUTING ADOPTION

Tick in the appropriate box to indicate the extent to which the following were drivers of cloud computing in your organization.

Use the scale:

1= Not at all

2= Little extent

3= Moderate extent

4= Great extent

5= very great extent

Drivers of cloud computing	1	2	3	4	5
Representation of industrial trends.					
Rises of status symbols.					
Increases employee confidence.					
Makes work easier.					
Symbol of technology receptivity					
Technologically pioneer drive					
Enhancement of security backups.					

Stability of service					
Eliminates the problem of incompatibility					
Security					
Trustworthiness of solution					
Time saving					
Simplicity of solutions					
Variety of cloud solutions					
Functionality satisfaction					
Interface user friendliness					
Understandable cloud procedures					
Attractiveness of cloud solution					
Cost-effective solution					
Affordability of solution					
Influence of mass media					
Influence expert opinions					

SECTION D: CLOUD COMPUTING RISKS

Tick in the appropriate box to indicate the extent to which the organization has faced each of the following risks as a result of adopting cloud computing.

Use the scale:

1= Not at all

2= Little extent

3= Moderate extent

4= Great extent

5= very great extent

Concerns	1	2	3	4	5
Privacy					
Security					
Availability of Services					
Availability of Data					
Confidentiality of corporate data					

Loss of control of services					
Inconsistency between transnational laws and regulations					
Cost of migration to the cloud					
Difficulty in migration to the cloud					
Intra-clouds (vendor lock-in) migration					
Lack of liability of providers in case of security incidents					
Rejection by the employees					
Unclear scheme in the pay per use approach					
Uncontrolled variable cost					
Ability to Back up and Restore of data after a disaster					
Cloud Service Reliability					
Reliability of supporting infrastructure					
Other(specify and rate accordingly)_____					

SECTION E: MITIGATION STRATEGIES

Tick in the appropriate box to indicate the extent to which your organization uses each of the following strategies to mitigate cloud computing risks.

Use the scale:

1= Not at all

2= Little extent

3= Moderate extent

4= Great extent

5= Very great extent

Mitigation strategies	1	2	3	4	5
Audit Controls					
Policies and Procedures					
Service level Agreements					
IT Governance					
Education and developing proactive relationships					
Abandoning cloud computing adoption					

SECTION F: IMPACT OF CLOUD COMPUTING ADOPTION ON ORGANIZATIONAL PERFORMANCE

Indicate the extent to which the organizational has performed as a result of adopting cloud computing. Tick for each of the following performance indicators using the scale:-

1= Not at all

2= Little extent

3= Moderate extent

4= Great extent

5= Very great extent

Organizational performance	1	2	3	4	5
Increased in profits					
Enhanced agility					
Enhanced flexibility					
Increased productivity					
Improvement in service quality					
Reduction in IT infrastructure maintenance cost					
Better upgradeability					
Easier management					
reduce the environment destruction					

Thank-you