

**CLOUD COMPUTING ADOPTION AND ORGANIZATION
PERFORMANCE AMONG SMALL AND MEDIUM ENTERPRISE (SMEs) IN
NAIROBI COUNTY**

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REQUIREMENTS FOR THE AWARD OF MASTER OF BUSINESS
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DECLARATION

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

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This research project has been submitted with my approval as university supervisor

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ACKNOWLEDGMENTS

I have had great experience in the University of Nairobi. The knowledge I have gained together with the support of my supervisor has enabled me to carry out this study. I would like to give my sincere gratitude to my supervisor Mr Joel Lelei. Without him I would not have been able to carry out this study

DEDICATION

I dedicate this research project to my parents for their full support

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ABSTRACT

This study focused on Cloud Computing adoption organizational performance in Small and Medium Enterprises (SMEs) in Nairobi, Kenya. The objectives were to establish the extent of Cloud Computing adoption, to determine the drivers of adoption of Cloud Computing, to determine the challenges of adopting Cloud Computing and to determine the relationship between Cloud Computing and Organization performance in the Small and Medium Enterprises (SMEs) in Nairobi, Kenya. The study used a descriptive survey. The primary data was collected using questionnaires. The study involved 35 SMEs in Nairobi, the respondents being managers of the SMEs. The study showed that the most commonly adopted services of Cloud Computing were the Software as a Service (SaaS), Hardware as a Service (HaaS), and Interface as a Service (IaaS). The study also shows that benefits of adopting Cloud Computing outweighs its cost, the need to have data backup and Cloud computing being easy to use were the main drivers of Cloud Computing adoption. The study also shows the challenges of Cloud Computing are speed of access, loss of connectivity and efficiency in providing services. The study concludes that there is a relationship in improved organizational performance especially in accuracy of data processing, timely reporting and overall improvement in efficiency of the organization. Further research with a larger sample size of various categories of organizations will enrich the studies on Cloud Computing adoption and improved organization's performance.

CHAPTER ONE: INTRODUCTION

1.1 Background study

Cloud computing has evolved to become a very important tool for many organizations as a way to obtain IT resources in order to improve organization performance. Many organizations outsource their IT instead of having it internal (Vaquero, et al., 2009). This has been led by unreliability of in-sourced IT services, the need to do backup and to compete with other businesses. With cloud computing businesses finds this as a big opportunity for saving operating cost, improving on customer relationship and timely reporting.

Also, with cloud computing, companies currently recalls the way and the place of setting up their IT related budget as well as focusing on their main important issues (Forbes, 2013). IT related Services such as; Software as a Service (SaaS), Hardware as a Service (HaaS), Application as a Service (AaaS) and platform as a service (PaaS) are being offered under Cloud computing. With these services many firms are able to access their work, data and software using simplified input and output devices with internet connections on cloud computing. Also Fear of losing data as well as loading huge company's data is no longer an issue with cloud computing, because a full data backup is provided by cloud computing (Rahmath & Sarwar, 2014). Therefore, adopting Cloud Computing that indeed aid SMEs to operate efficiently, will not only add value to SMEs but also for the GDP growth.

Consequently all business applications are shifting to cloud computing. For the last one decade, cloud application among entities has gained acceleration so rapidly, raising hope to all investors, who may fear the cost of installation of software and hardware to give a backup for their businesses. Due the current growth rate, it is perceived that cloud computing will have a larger market share in the future. Despite all these, there is little knowledge known in Kenya academia on the importance of Cloud Computing.

1.1.1 Cloud Computing

There is no a specific definition for cloud computing hence researchers are all coming up their own definitions. According to Robinson (2009), cloud computing entails incorporating and enabling all the company's information in a centralized platform managed by the internet provider. According to this study, Cloud Computing is a new technological advancement that has revolutionized businesses in global industry.

In the current market, three critical services all given by cloud computing are in existence. There are three main types of services that are presently in the market being offered by cloud computing providers: Infrastructure as a service (IaaS), Platform as a service (PaaS) and Software as a service (SaaS) (Mijac, Picek & Stapic, 2013; Sharma & Keswani, 2013). Mbuba and Wang (2014) came up with a fourth type of cloud services that is hardware as a service (HaaS).

The most common of all this is the Software as a Service (SaaS) (Raihana, 2012). Smaller budget-limited firms are able to access incredible technologies in an affordable manner. Depending on users different and unique requirements the beneficiaries have the option of an appropriate type of cloud computing service.

There are various factors that influence cloud computing adoption which include external (vendor) support, competitive pressure and management decision is making level on cloud computing innovativeness (Tehrani, 2013). Others included employees cloud knowledge and the information intensity or availability on cloud computing. As such, this explains why the cloud computing adoption rate is not growing as fast as expected (Throng, 2010). Reduced cost is another factor that influences cloud computing adoption by organizations. Despite the challenges organizations have adopted cloud computing in order to improve on organization performance.

A study carried out by Elragal and Serafi (2011) showed that many companies have started to adopt cloud computing with the aim of improving organization performance. The results showed that in-cloud systems are faster to implement, pocket friendly, user-friendly and scalable. Application systems hosted in-house give organizations more control and hence many organizations consider them more secure hence the improved performance.

Winston (2011) observes that if companies were to adopt cloud computing they would reduce their energy use and carbon footprint of computing by up to 90%. The world is moving towards environmental consciousness and thus reduction of carbon emissions has been a key factor being observed by many organizations in the world today. Less servers running means less power consumed and less heat emitted into the environment which is good for everyone. Little knowledge about cloud computing is known in the SMEs market (Mohlameane & Ruxwana, 2014). This shows the gap in the cloud computing in the SME's market.

1.1.2 SMEs in Nairobi

According to the law of business in Europe, a business is categorized as an SME based on a number of considerations. Some of these are the number of employees in that company, their financial turnover. The law brings out that a business that has up to 10 employees is an SME. Those with up to 50 employees are small business, while those who employ up to 250 workers, are taken as medium size enterprises. So in terms of functions, SMEs vary from retail, "service" to different services like Software as a Service, Platform as a Service, Hardware as a Service and Application as a Service.

SMEs play a significant role in many states (Makarius & Samuel, 2009). The Kenya National Bureau of Statistics (2017) indicates that there are more than 17 million SMEs registered in Kenya and only 101,450 in Nairobi County 98% of them contribute about 25% of the country's GDP and employing up to 50% of Kenya's workforce.

However, due many reason related to finances, many SMEs fail within a few months. The actual reason behind this fact is that, these businesses hardly access enough financial resources (Welsh & Wite, 1981) to help them grow their businesses for future sustainability. This therefore, makes these SMEs so weak and develops a stranded growth especially in this world of technology (Bilili & Raymond, 1993). Controlling total expenditure is the key challenge facing all SMEs in Kenya, (Communications News, 2008) hence weakening their ability to go digital like Information Technology (IT). Cloud Computing has been a new and major trend and is expected to be adopted to improve on business performance (Pornwasin, 2013).

1.2 Research Problem

Cloud computing is composed of complex systems using many diverse technologies, services, and delivery mechanisms and growing dramatically. Possible benefits of cloud computing according to Kourik (2011) include reducing IT capital expenditure-capital expenditure, providing rapid dynamic scaling of resources on a metered basis, as well as transparency related to platforms, storage, and transmission and processing of data (Kourik, 2011). However, these benefits come with many potential challenges. According to a study done by Allert (2014), SMEs in Thailand were slow in uptake of cloud computing as they have limited understanding of the functions of a Cloud. Benlian and Hess (2011) also carried out a study to find out the major challenge to adopting Cloud Computing systems and they found that security remains a major issue when users think about hosting their data on cloud as they do not have their data within their premises. These findings suggest the significance of Cloud Computing. However, they were in different context unlike those in Kenya.

In Kenya, Vision 2030 is working to improve the country economic status, through the application of ICT. To have this vision happen, SMEs remain a quintessential vessel in stimulating growth, employment opportunities as well as eradicating unemployment by empowering SMEs and promoting them to digital through adoption of ICT. One way through this is through Cloud Computing to enhance performance. Knowledge of Cloud Computing adoption and organization performance is therefore needed.

Adoption of cloud computing has been a major driver to improved internet access, need for improved business operation and need for reduced costs Saini et al (2011) This study goes to show that the adoption of cloud computing for improved organizational performance for SMEs in Kenya can work as well as it has worked globally. Nonetheless, cloud computing is a new technological advancement that provides both strategic and operational advantages to its adopters.

There are knowledge gaps in previous studies on cloud computing adoption in Kenya because they did not provide a guideline that SMEs could adopt in implementing cloud computing. Kitur (2001) did a survey of the strategic role of ICT systems among insurance companies in Kenya. A survey of application of ICT

for competitive advantage of firms listed at the NSE was done by Vishal (2006) and Lelei (2003) did a study of ICT as a strategic tool in microfinance institutions in Kenya. Kituku (2012) carried out a study in and left out: Extent of Cloud Computing adoption, drivers of Cloud Computing adoption, challenges of Cloud Computing and relationship of cloud computing and organization performance. This study was to answer, extent of Cloud Computing adoption, drivers of Cloud Computing adoption, challenges of Cloud Computing what the relationship is between adoption of cloud computing and organizational performance amongst SMEs in Nairobi, Kenya. Given the knowledge gaps in the previous studies, there is need to address Cloud Computing adoption and organization in SMEs. Thus this study was undertaken to address the following questions: What is the extent of Cloud Computing adoption? What are the drivers of Cloud Computing adoption? What are the challenges of Cloud Computing adoption? What is the relationship between Cloud Computing and organization performance?

1.3 Research Objectives

The objectives of this research are:

- i) To determine the extent of cloud computing adoption among SMEs in Nairobi
- ii) To establish drivers for adoption of cloud computing by SMEs in Nairobi
- iii) To determine the challenges of cloud computing acceptance in SMEs in Nairobi county
- iv) To determine relationship between cloud computing adoption and organization performance of SMEs in Nairobi county

1.4 Value of the Study

The validity of the study is that, it will be an important source of information for all SMEs in Nairobi, to the degree of improving their feelings towards cloud computing service providers, hence make them adopt, the system. The study also benefits the cloud service providers to be able to teach and enhance customers as well as maintaining a close customer service.

The study can also be a reference point for SMEs who are using the cloud computing service when faced with related challenges. The research findings are also of use to the administration especially Communication Commission of Kenya (CCK) to

identify barriers to cloud computing and relationship between cloud computing and organization performance. They easily make laws that suit the clients who are using the cloud computing service provider as well as enhancing technology. The research findings are also a reference for researchers and other scholars like students exploring similar topics.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter presents the literature, models of cloud computing, theoretical and empirical studies on cloud computing. This involves a thorough search of all knowledge on the subject being researched on.

2.2 Theories of Technology Adoption

The theory of technology acceptance, inductive theory, theory of competitive strategy:

2.2.1 Technology Acceptance Model (TAM)

According to Wixom and Todd (2005), TAM posits that an individual's intention to use a system is determined by the perceived usefulness and perceived ease of use with intention to use serving as a mediator of actual system use. Davis, Bagozzi and Warshaw (1989), state that perceived usefulness is also seen as being directly impacted by perceived ease of use. This will address the first objective that covers the extent of adoption of the cloud computing adoption

2.2.2 Inductive Theory

Inductive theory is where the observation is first made, patterns observed and the theory is stated (Duvoskiy, 2012). This caters for the second and third objectives in this study where the questions on the factors that affect cloud computing adoption and their relationship to organizational performance are addressed. The observations made will be on factors affecting adoption of cloud computing adoption. The extent of improvement of organizational performance will also be studied for the patterns.

This theory is contributed to when we analyze the factors affecting adoption of cloud computing. It shows the patterns of why organizations will chose to use or not use the cloud computing. This will also show the connection between adoption of cloud computing and improved organization performance.

2.2.3 The Theory of Competitive Strategy

The theory by Porter may be contributed to in demonstrating the competitive advantage that the adoption of cloud computing offers to the companies that adopt it. Porter (1979) demonstrated a framework which uses concepts to derive 5 forces that determine market attractiveness. They consist of those forces close to a company that

affect its ability to serve its customers and make a profit. If there are any changes in any of the forces, the company is required to re-assess its marketplace. There forces are: the bargaining power of customers, the bargaining power of suppliers, the threat of substitute products and the threat of new entrants. These four forces combine with other variables to influence a fifth force, the level of competition in an industry.

All organizations wish to be attractive in the market in a bid to gain more customers and make profits. They look to have an extra edge that puts them at an advantage over other companies. This is where the competitive strategy comes in. Adoption of cloud computing by small and medium enterprises will help an organization achieve competitive advantage. This is achieved by better service provision to customers, better relationships with suppliers due to efficiency, reduced operation costs by better utilization of resources and accuracy in data processing and reporting. It also raises the bar in the market for organizations to improve their operations.

2.3 Cloud Computing Adoption

Cloud computing provides an on-demand computing model and changes the traditional allocation of IT resources to a more collaborative framework (Hayes, 2008) The HAAS (Hardware as a Service) package constitutes a lot for such companies. This means that organizations can lease network equipment such as servers and receive timely upgrade to state-of-the-art technology. Accessibility is also easy as users can access the cloud from any device as long as they have an internet connection. Computing is now device based to ensure that smart phones and tablets can also be used aside from the PC.

The cloud base service provider frame, gives an avenue for supporting several products with common shared assets (Anandasivam & Prem, 2009). Each consumption model bears both advantages and disadvantages (Zhang *et al*, 2010). This mean, before you choose a suitable service provider, take much thought on technological and managerial features. When full adoption of cloud computing has been done by firms, little or no focus will be given to capital expenditure kind of investments. According to sendees (Weinhardt *et al*, 2009), cloud computing can be enjoyed by SMEs at a lower cost, hence access adequate data centers that can help

them advance their businesses. Despite the fact that cloud computing is very important and easily adaptable; firms seem to take long in adopting it (Gill, 2011).

An empirical study on the adoption of SaaS-based applications on German companies revealed a disparity between application types (Benlian, 2009). The 12 government stipulates that traditional backups such as tapes should be done away with because of their susceptibility to errors, fraud, and theft. As such, many SMEs are unable to manage the cloud computing software and use it to minimize operational cost. Due to these factors, companies such as Safaricom Ltd, Seven Seas Technologies and CISCO entered the market in 2011 to help provide cloud-computing services to SMEs. The company targeted SMEs and offered a range of cloud computing services, which include hosting, backup services and storage. Other companies such as Kenya data network, info Connect, and Crimson technologies also offer cloud services such as SaaS, data recovery and PaaS. The aforementioned companies previously offered Cloud Computing services through satellite communication technology, which resulted to bandwidth limitations

Cloud computing came in bringing about disruptive technology that has seen a transformation in how things are done. The disruptiveness of this technology is not yet fully understood by the majority of people including IT practitioners in Kenya. Cloud computing usage has gained popularity in a lot of medium size and large organizations and is mostly used from locally hosted servers within an internal network. According to the International Journal of Management and Commerce Innovations (2014), Software as a Service (SaaS) which is sometimes referred to as "on-demand software" supplied by Independent Software Vendors (ISVs) or "Application-Service-Providers" (ASPs), is a software delivery model in which software and associated data are centrally hosted on the cloud.

SaaS is typically accessed by users using a thin client via a web browser. Over the years, Kenya has seen unprecedented growth in companies and even more growth in usage of technology. Most companies in major towns today have computers on almost every 11 desk and almost every working citizen has a mobile phone. In major cities all over Kenya, the use of smart phones is on the increase as mobile companies compete to capture the huge market for low-end smartphones. The usage of smart

phones and computers means that the internet usage in the country has also increased at the rate of the spread of smart phones.

With a focus on the capital city of Kenya; Nairobi, the demand for proper systems that can manage the entire organization has become a priority as companies are spending millions of Kenya shillings investing in systems. SMEs are increasingly gaining interest in cloud computing for internal business operations such as Financial Management, Inventory and Warehousing Management, Customer Relationship Management, Human resource management and Jobs and Resources Management (Saini et al, 2012). All these are common modules accessed through the cloud computing. Because it can be accessed over the internet, deployment can be done across regional and global offices of an organization. It also gives the users flexibility of accessing the system on any internet-enabled device from anywhere they are as long as they have internet connectivity.

2.4 Drivers Affecting Adoption of cloud computing

Cloud computing offers a lot to companies that do not have the resources to buy servers and host them within their offices. The HAAS (Hardware as a Service) package constitutes a lot for such companies. This means that organizations can lease network equipment such as servers and receive timely upgrade to state-of-the-art technology. Accessibility is also easy as users can access the cloud from any device as long as they have an internet connection. Computing is now device based to ensure that smart phones and tablets can also be used aside from the PC. In this context we will look at the HAAS. When it comes to HAAS, network security sometimes requires both hardware and software updates. HAAS offers upgrade to the latest hardware if it is necessary for security reasons. Notably, the increased SMEs adoption of cloud-Computing in Kenya is fueled by government regulation that companies should have reliable backup systems readily available online.

The 12 government stipulates that traditional backups such as tapes should be done away with because of their susceptibility to errors, fraud, and theft. As such, many SMEs are unable to manage the cloud computing software and use it to minimize operational cost. Due to these factors, companies such as Safaricom Ltd, Seven Seas Technologies and CISCO entered the market in 2011 to help provide cloud-

computing services to SMEs. The company targeted SMEs and offered a range of cloud computing services, which include hosting, backup services and storage. Other companies such as Kenya data network, info Connect, and Crimson technologies also offer cloud services such as SaaS, data recovery and PaaS (Kagwe, 2012). The aforementioned companies previously offered cloud-computing services through satellite communication technology, which resulted to bandwidth limitations.

Therefore, companies started using TEAMS, SEACOM and EASSY submarine fiber optic cables because SMEs were reluctant to adopt the cloud-computing concept. Nonetheless, the improved internet infrastructure shifted the cloud computing challenge and this helped Kenyan SMEs to protect, improve and grow the business while utilizing minimal capital. In fact, a Deloitte survey conducted in 2011 cited that tax and cost advantages as the significant reason why SMEs in Kenya continue to uptake cloud computing service. Despite these benefits, the survey reports cloud computing adoption in SMEs is still limited with legislation issues, data privacy and lack of IT knowledge within organizations.

Nonetheless, the data indicate that SMEs are reluctant to adopt cloud-computing services because of its security and privacy issues and this caused over 15% SMEs to consider not using cloud-computing service for data management. The big software companies like Microsoft and Google and Salesforce.com have provided cloud platforms that allow for partner organizations to utilize. The cloud platform comes in with infrastructure, development environments and provides for hosting applications as well. Companies are saved the cost of having to buy expensive servers or pay for the expensive user licenses for their organization. Similarly, it reduces the costs to the partner organizations in customizing applications per client since all the clients will be using a “one-fits-all” solution making deployment easier. According to researchers (Bitta et al, 2012), the use of cloud computing may not quite pick up as quickly as anticipated. This is mostly due to two factors, security and running costs.

The factor about security is that on the cloud it is hard to guarantee safety as it is in the public space. One other factor is the fact that not many people including CIO's in the Kenya quite understand the whole cloud computing concept. Security is hard to

guarantee. This is because any online activity is subject to hacking as opposed to it being in an internal organization network with the adequate security mechanisms.

Most business executives are wary of cloud computing according to Hegel and Brown (2010). Convincing management of companies to store their most sensitive company information- financials is quite an uphill task if the providers of the cloud service cannot guarantee security. It is well known that organizations are very competitive and even financial data is hardly disclosed unless it is a publicly listed company. And even so, carrying out a research e.g. obtaining the research budgets for the organizations can be a very frustrating experience for a researcher. McGrath (2010) cautions that organizations need to be very careful in the information they want to put out on the cloud lest it spills out and puts the company in an awkward situation. Similarly, the running costs to the organization subscribing to the service over a long period of time turn out to be huge as opposed to if the organization had saved up the money and purchased a server and the software. There is also varying understanding of the cloud computing concept even amongst IT professionals in an organization.

Many IT managers and CIOs tend to understand cloud computing as a tool to aid in server virtualization. They are not fully aware of all that can be done on the cloud. According to Oredo and Njihia (2014), lack of proper awareness is due to the fact that technology always advances faster than the ability of businesses to adopt and use technology in new ways. The nature of technology is very dynamic so what applied five years ago may be irrelevant in the current age. However, despite the various challenges, the cloud computing platforms promise 99.9% uptime meaning that they hardly go off. The only thing an organization will therefore need to invest in is good internet. In addition, cloud computing has been observed to be greener.

Winston (2011) observes that if companies were to adopt cloud computing they would reduce their energy use and carbon footprint of computing by up to 90%. The world is moving towards environmental consciousness and thus reduction of carbon emissions has been a key factor being observed by many organizations in the world today. Fewer servers running means less power consumed and less heat emitted into the environment which is good for everyone.

2.5 Cloud Computing Challenges

This part shows the various challenges faced in cloud computing adoption. Data segregation: As data of many users in September 2013 shows the willingness of some organizations to move their core application systems to the cloud. In this regard, it is advisable that SMEs in Nairobi adopt cloud computing as a paradigm that will add value to their business operations. For instance, cloud computing will increase SME's flexibility, scalability, and this will reduce its operation cost (Victor, 2010).

Deletion of data: There is fear of deletion of data stored on cloud. Therefore, it is advisable that SMEs that have not adopted cloud computing in Kenya to make it a priority given. This is because cloud computing in the global market grows at an annual rate of 28% since 2014 (FSD Kenya, 2015). Therefore, this means that over a million companies in the world are spending on cloud services to enhance their business operation. As such, this makes cloud computing a major trend in the business industry and a business strategy for organizations that want to improve their performance.

Cloud computing adoption in Kenya also suffers given that because there was no provision of a guideline that SMEs could adopt in implementing cloud computing.

Users are always concerned about the security and privacy of data so to overcome this issue, providers should assure the users that their employers are aware of their responsibilities related to the confidentiality, integrity, availability of data and information systems and the confidentiality and/or system access credentials are protected. The nature of technology is very dynamic so what applied five years ago may be irrelevant in the current age. However, despite the various challenges, the cloud computing platforms promise 99.9% uptime meaning that they hardly go off. The only thing an organization will therefore need to invest in is good internet. In addition, cloud computing has been observed to be greener. This is because cloud computing in the global market grows at an annual rate of 28% since 2014 (FSD Kenya, 2015). Therefore, this means that over a million companies in the world are spending on cloud services to enhance their business operation. As such, this makes

cloud computing a major trend in the business industry and a business strategy (e.g. encrypted) from unauthorized interception (John, 2010).

Data Confidentiality and Audit ability: This aspect concerns customer's worries that data kept in a public cloud is exposed to more attacks and could be intercepted by a third party to compromise data integrity in the absence of adequate security (Mather et al. 2009).

Network: For the appropriate use of cloud computing usage there is a reason of high speed internet link. This is because cloud computing in the global market grows at an annual rate of 28% since 2014 (FSD Kenya, 2015). Therefore, this means that over a million companies in the world are spending on cloud services to enhance their business operation. Lack of speed and high bandwidth are the causes for not accessing the cloud services, so still there are a lot of questions regarding the cloud computing. Likewise, network breakdown can upshot in loss to the firm by creating wide time setback (Weiss, 2007).

Control seek to address this challenge as the implementation and operation costs are greatly reduced since the users are now paying for the service rather than infrastructure and software costs. Gartner Research Circle survey conducted in September 2013 shows the willingness of a few societies to shift their core application systems to the cloud. In this regard, it is advisable that SMEs in Nairobi adopt cloud computing as a paradigm that will add value to their business operations. For instance, cloud computing will increase SME's flexibility, scalability, and this will reduce its operation cost (David, 2009).

2.6 Cloud Computing and Organizational Performance

Cloud computing has transformed organizations all over the world due to its many benefits. Cloud computing help organizations run their business better, improving efficiency, providing accuracy in reporting and improved customer and supplier relationships. The flexibility of access using the internet makes it easier for access of the systems by the users from wherever they are through the use of an internet enabled device. It is notable that organizations' biggest challenge is maintaining its

operations cost because feasible studies indicate that most SMEs spend a lot of money in implementing proper information technologies.

Cloud computing seek to address this challenge as the implementation and operation costs are greatly reduced since the users are now paying for the service rather than infrastructure and software costs. Gartner Research Circle survey conducted in September 2013 shows the willingness of some organizations to move their core application systems to the cloud. In this regard, it is advisable that firms in Nairobi adopt cloud computing as a paradigm that will add value to their business operations. For instance, cloud computing will increase SME's flexibility, scalability, and this will reduce its operation cost. Most importantly, cloud computing will enhance the company competitive advantage by enabling it to access sophisticated technologies that will improve its business operation in the global market. In addition, these benefits will help firms attain business growth as they become more productive and innovative and this helps the organization focus on its core business (Bois, 2010).

It is notable that cloud computing is applicable for both starting firms and the existing ones because cloud service providers give software application and network facilities that are tailor made to fit the unique needs of an organization.

The cloud service providers rely on massive centralized data centers that help the SMEs to achieve the desirable economic of scale. Therefore, it is advisable that SMEs that have not adopted cloud computing in Kenya to make it a priority. This is because cloud computing in the global market grows at an annual rate of 28% since 2014 (FSD Kenya, 2015). Therefore, this means that over a million companies in the world are spending on cloud services to enhance their business operation. As such, this makes cloud computing a major trend in the business industry and a business strategy for organizations that want to improve their performance. In fact, a study carried out by Deloitte (2011) cited that tax and cost advantages as the significant reason why SMEs in Kenya continue to uptake cloud computing. Despite these benefits, the survey reports cloud computing adoption in SMEs is still limited with legislation issues, data privacy and lack of IT knowledge within organizations.

2.7 Conceptual Framework

The conceptual framework has two sets of variables namely the dependent and independent variables. The independent variable is the Cloud Computing adoption. The dependent variable is the relationship of Cloud Computing adoption to the organizational performance. The model is shown in Figure 2.7

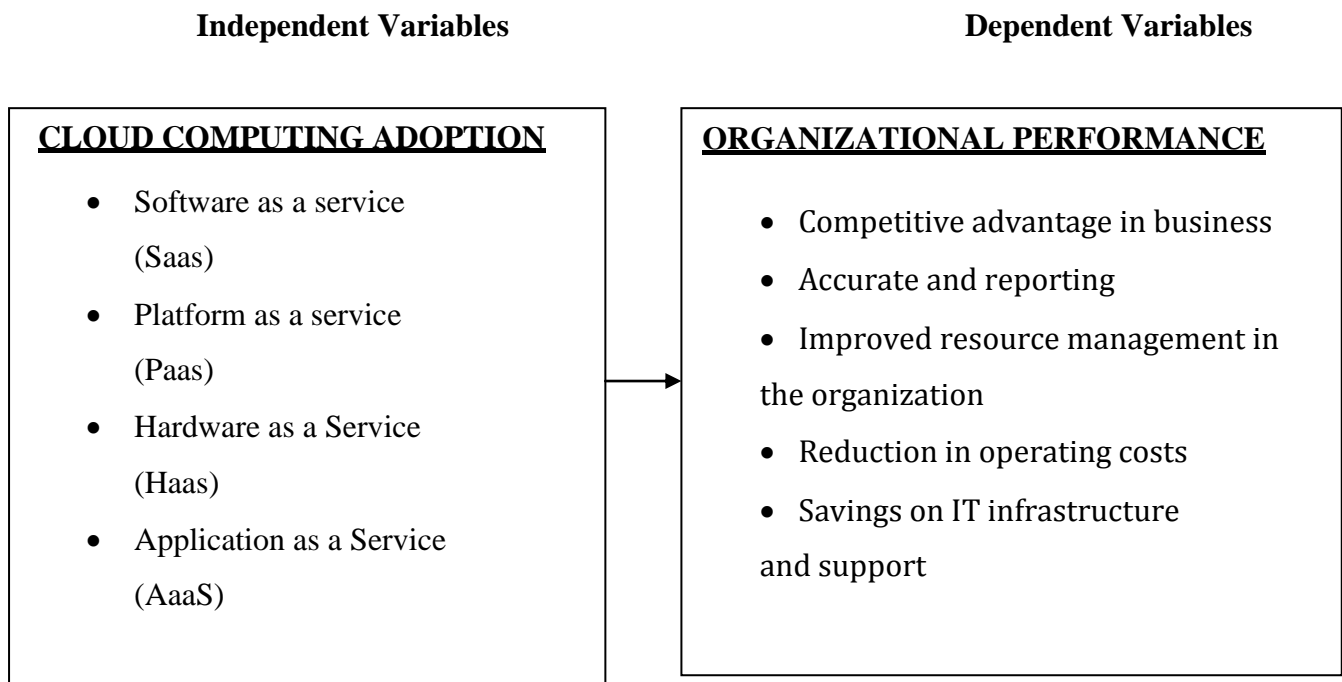


Figure 2.7 Conceptual Framework: Researcher (2017)

2.9 Literature Review Summary

There is little information available in the Kenyan academia on the importance of Cloud Computing in adding value to SME's business performance (Rodríguez-Pose, 2008). In this regard, most SMES adopting Cloud fail to understand the drivers and its challenges and this makes it hard for SMEs to utilize fully the system. If available information on Cloud Computing services is provided, SMEs will understand the concept of cloud computing and this will add strategic and technical value to the enterprise. Therefore, this research paper seeks to illustrate how Cloud Computing can add business value to the SMEs in Kenya. The literature however suggests that Cloud Computing being adopted albeit slowly across the globe especially by small organizations with limited financial resources to help them in their day to day operations of the businesses.

As per the objectives which are to establish the extent to which Cloud Computing has been adopted, studies show that Cloud Computing usage has gained popularity and the various common services such as software as a Service, Hardware as a Service, platform as a Service and Application as a Service are being adopted as drivers of Cloud Computing adoption. The literature shows that the major challenges of Cloud Computing adoption is bandwidth limitation and security concerns by the Cloud users. If those factors are not managed well, it may hinder the adoption rate of Cloud Computing, which will affect organization performance.

CHAPTER THREE: RESEARCH METHODOLOGY

This chapter presents the strategy to be used to conduct the research. The chapter outlines the: research design, study's population, sample and sampling techniques, and data collection procedure and data analysis.

3.1 Research Design

This research used a descriptive survey design. It was used to describe the behavior of the subject being studied. The study showed how adoption of cloud computing leads to increase in organization performance of Small and medium Enterprises Nairobi County.

3.2 Population

The research focus population was done to all SMEs within Nairobi County which have adopted cloud computing. Nairobi County is composed of over 101,450 registered Small and Medium Enterprises (PPOA, 2016).

3.3 Sampling

A sample of 40 Small and Medium Enterprises (SMEs) in Nairobi that are using cloud computing services was selected for study on judgmental basis. A Small and Medium Enterprise is described as an organization that has employees between 10 and 250 (FSD, 2016). This was to give an opportunity to select Small and Medium Enterprises (SMEs) that are using cloud computing services and therefore have the experience that the study seeks.

3.4 Data Collection

The data was collected using questionnaires. The method used was "drop and pick later". The respondents were IT managers, finance managers, owners, supervisors and employees from the 40 SMEs in Nairobi County. Section A dealt with demographics. Section B dealt with Extent of Cloud Computing adoption. Section C dealt with drivers that influence adoption of Cloud Computing. Section D dealt with challenges facing Cloud Computing adoption and Section E dealt with the relationship between cloud computing and organizational performance.

3.5 Data Analysis

This was the process of evaluating the data that was collected and giving results. The collected questionnaires were analyzed for completeness and accuracy. The questionnaires were divided into four sections. Section A, which covered demographics, was analyzed using frequency and percentages. The extent of cloud computing adoption was covered in Section B. It was analyzed using mean frequencies and standard deviation. Section C, covered the drivers influencing the decision to adopt cloud computing in Nairobi County it was analyzed using mean frequencies and standard deviation. Section D, which covered challenges that inhibit Cloud Computing adoption it was analyzed using mean, frequencies and standard deviation. The relationship between adoption of Cloud Computing and organization performance was covered in Section E and was analyzed using regression testing.

The regression model was as follows.

$$Y = a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_5X_6 + \beta_5X_7 + \varepsilon$$

Where,

Y = Organizational Performance

ε = Error

X1 = Software as a service(SaaS)

X2=Platform as a service(PaaS)

X3=Hardware as a Service(HaaS)

X4=Application as a service(AaaS)

a= y-Intercept

$\beta_1 \dots \beta_5$ = Parameters

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

This chapter presents the analysis results and interpretations of the study findings guided by the research objectives of the study. Data analysis was done using statistical analysis, descriptive statistical analysis and regression analysis.

Out of 40 questionnaires administered 35 were filled and returned resulting to 87.5 % response rate. This is more than 70% which is very good and therefore suitable for the study. According to Mugenda and Mugenda (2003), a 50% response rate is adequate, 60% good and above 70% very good. The results of analysis are presented as follows: background information, extent of cloud computing adoption, drivers for cloud computing adoption, challenges of cloud computing adoption, and relationship between cloud computing and organizations performance.

4.2 Background Information

Background Information covers the gender, age, years that the firms have been in operation, the years the employees have worked in the organization, the number of employees in the organization and the number of years that the Cloud Computing systems have been in use.

4.2.1 Gender

The respondents were asked to indicate their gender in the questionnaires. The results are as in Table 4.2.1.

Table 4.2.1 Gender Distribution

Gender	Frequency	Percent (%)
Male	12	34.3
Female	23	65.7
Total	35	100

The female gender were majority respondents (65.7%) male were at close with 34.3% this indicates that more female employee were engaged in small and medium enterprises compared to male.

4.2.2 Age

The respondents were also asked to indicate their ages in the questionnaire. The distribution is as shown in Table 4.2.2

Table 4.2.2

Age	No. of respondents	Percentage(%)
Less than 25 years	3	8.6
26 – 35 years	8	22.9
36 – 45 years	12	34.3
Above 45 years	12	34.3
Total	35	100

The age bracket for respondents show that majority were between 36-45 years with 34.3% and above 45 years with same 34.3% the least been less than 25year with 8.6%

4.2.3 Position

The respondents were also asked to indicate their Job position in the questionnaire. The distribution is as shown in Table 4.2.3

Table 4.2.3: Position

Position	No. of respondents	Percentages(%)
Owner	3	8.6
Managerial	10	28.6
Supervisor	1	2.9
Employee	21	60
Total	35	100

The study showed that majority of respondents were employees with 60% and the least been the owner with 8.6%.

4.2.4: Number of Employees

The respondents were also asked to indicate the number of employees in the organization. The distribution is as shown in Table 4.2.4

Table 4.2.4: Number of Employees

Employees	No. of respondents	Percentages(%)
Up to 5 employees	5	14.3
6 – 10 employees	4	11.4
16 – 20 employees	7	20
>20 employees	19	54.3
Total	35	100

In terms of the number of employees by their business the study show that more than 20 employees were on permanent basis with 54.3% and the least been engaged on permanent were 6-10 employees with 11.4% .

4.2.5: Type of Industry

The respondents were also asked to indicate the type of industries they worked in the questionnaire. The distribution is as shown in Table 4.2.5

Table 4.2.5: Types of Industries

Industries Worked	No. of respondents	Percentages (%)
Hospitality (hotel)	3	8.6
Travel and accommodation	3	8.6
Retail Trade (e.g. shop)	5	14.3
Manufacturing	12	34.3
Service (consultancy)	9	25.7
Any other	3	8.6
Total	35	100

The study shows that the majority of respondents belong to manufacturing 34.3%, followed by service industries with 25.7% and least been hospitality, travel and accommodation and others with 8.6%

4.3 The Extent to which Cloud Computing has been Adopted

The respondents were asked to select the extent to which they have adopted Cloud Computing. A five-point scale was used where 1 represents No Extent, 2 represents Little Extent, 3 represents Moderate Extent, 4 represents Large Extent and 5 represents Very Large Extent the responses were as obtainable in Table 4.3. Based on the mean values, the five-point scale ranges are as follows: mean scores of less than 1.5 represents no extent; mean scores of 1.5 but less than 2.5 represents little extent; mean scores of 2.5 but less than 3.5 represents moderate extent; mean scores of 3.5 but less than 4.5 represents large extent; mean scores of 4.5 to 5 represents very large extent as shown below

Table 4.3: Extent of Cloud Computing Adoption

Extent of adopted cloud computing	1	2	3	4	5	Mean	Std. Deviation
Software as a service(Saas)	1	0	5	8	21	4.3714	.94202
Platform as a service(Paas)	0	0	10	17	8	3.9429	.72529
Hardware as a Service(Haas) e.g network servers	1	1	7	18	8	3.9429	.83817
Application as a Service(Aaas)	0	2	7	17	9	3.8857	.90005

N=35

Based on the mean, Software as a Service having a mean of (4.3714) has large extent among the SMEs. This is followed by Platform as a Service mean (3.9429) and Hardware as a Service (3.9429), the least is Application as a Service (3.8857).

4.4 Drivers that Influence the Decision to Adopt Cloud Computing

The respondent were asked to give Drivers that influence the decision to adopt cloud computing. A five-point scale was used where 1 represents Strongly disagree, 2 disagree, 3 represents Neutral, 4 represents agree and 5 represents Strongly agree. Based on the mean values, the five-point scale ranges are as follows: mean scores of less than 1.5 represents strongly disagree; mean scores of 1.5 but less than 2.5 represents disagree; mean scores of 2.5 but less than 3.5 represents Neutral; mean scores of 3.5 but less than 4.5 represents agree; mean scores of 4.5 to 5 represents Strongly agree.

Table 4.4: Drivers that Influence Decision to Adopt Cloud Computing

The drivers that influence the decision to adopt cloud computing	1	2	3	4	5	Mean	Std. Deviation
The benefit of adopting cloud computing outweighs its cost	0	0	6	13	16	4.2857	0.75035
Top management support cloud computing adoption	0	2	8	15	11	4.0286	.82197
The need to have data backup necessitated the move to cloud computing	0	2	8	13	12	4.0000	.90749
Cloud computing services offered are relevant to the company's business or task coupled by risks to data	0	1	10	13	11	3.9714	.85700
The company is ready for cloud computing adoption	0	1	9	15	10	3.9714	.82197
Our customers expect us to use technology such as cloud computing	0	3	7	13	12	3.9714	.95442
Availability of cloud computing services has enabled use adopt the same	0	3	21	13	12	3.9714	.95442
It is easy to use cloud computing	0	2	9	13	11	3.9429	.90563
Competition in the market has made adoption of cloud computing mandatory	0	3	7	14	11	3.9429	.93755
Unreliability of in-sourced IT services drove us into cloud computing	0	2	10	13	10	3.8857	.90005
The human resource is well-trained to handle cloud computing (IT) services	0	4	7	14	10	3.8571	.97446

N=35

Based on the mean, the following are the drivers that influence the decision to adopt Cloud Computing: The benefit of adopting cloud computing outweighs its cost was the highest with a mean (4.2857), the least was human resource are well trained in Cloud Computing adoption with a mean (3.8571).

4.5 The Challenges Facing Cloud Computing Adoption

The respondents were asked to select the challenges facing adoption of cloud computing rated on a five Likert scale, 1-Strongly disagree; 2-Disagree; 3-Neutral; 4-Agree; 5-Strongly agree the responses were as obtainable in Table 4.5.

Table 4.5: Challenges Facing Cloud Computing Adoption

The challenges facing cloud computing adoption	1	2	3	4	5	Mean	Std. Deviation
Lack or limited resources to operate cloud	0	0	6	13	16	4.2857	0.7503
Challenges in replacing the existing system	0	0	4	18	13	4.2571	0.6572
Lack of knowledge on computing services or available options	0	0	7	13	15	4.2285	0.7702
Lack of security when using cloud computing	1	0	6	13	15	4.2	0.8331
Lack of trust in the uptime or speed of cloud services	1	0	7	13	15	4.1714	0.9230
Firms that have adopted cloud services report problems with the system	1	0	7	13	14	4.1142	0.9321
Being discouraged by the IT provider	1	0	7	13	14	4.1142	0.9321
Lack of trust in the effectiveness of cloud service usage and control	0	2	5	17	11	4.0571	0.8381
Cloud computing can expose the firm to data security risks and minimize information privacy	0	2	6	16	11	4.0285	0.8570
Difficulty in assessing the costs involved due to the on-demand nature of the services	0	4	5	13	13	4	1
Cloud providers still lack round-the- clock service resulting in frequent outages	1	4	3	15	11	3.9142	1.0674
Difficulty in migrating in and out of the cloud and switching providers	1	4	5	14	11	3.8571	1.0885
The firm would spend more for the bandwidth than it would on	1	4	7	12	11	3.8	1.1061

N=35

Based on the Mean, the following are the challenges facing cloud computing adoption in descending order: Lack or limited resources to operate cloud had the highest mean(4.285714) and the firm would spend more for the bandwidth than it would on cloud computing, had the lowest mean of (3.8).

4.6 Extent that the Organization’s performance improved due to Cloud Computing adoption

The respondents were asked to indicate the extent to which the organization’s performance had improved due to use of Cloud Computing Rated on a five point scale,1-no extent; 2-Little Extent; 3-Moderate Extent; 4-Large Extent; 5-Very Large

Extent. Based on the mean values, the five-point scale ranges are as follows: mean scores of less than 1.5 represents no extent; mean scores of 1.5 but less than 2.5 represents little extent; mean scores of 2.5 but less than 3.5 represents moderate extent; mean scores of 3.5 but less than 4.5 represents large extent; mean scores of 4.5 to 5 represents very large extent.

Table 4.6: Organization’s Performance Improved on Cloud Computing

Organization’s performance improved on cloud computing	1	2	3	4	5	Mean	Std. Deviation
Improved efficiency in the organization	0	1	1	9	24	4.6000	.69452
Overall improvement in resource management	0	1	2	8	24	4.5714	.73907
Accurate data processing	0	1	1	11	22	4.5429	.70054
Reduced operating costs	0	1	2	9	23	4.5429	.74134
Savings on IT infrastructure costs and support	0	1	1	11	22	4.5429	.70054
Improved supplier management	0	1	2	9	23	4.5429	.74134
Improved visibility in the market	0	1	2	9	23	4.5429	.74134
Improved customer relationship	0	1	1	12	21	4.5143	.70174
Timely reporting in the correct formats	0	1	3	9	22	4.4857	.78108

N=35

Based on the findings the following are the factors that affect adoption of Cloud Computing in descending order improved efficiency in organization with a mean of (4.6000) the least was timely reporting in the correct formats with a mean of (4.4857).

4.7 Relationship between Cloud Computing and Organizational Performance

The respondents were asked to indicate the extent which their organization’s performance had improved as a result of using Cloud Computing. These data together with the extent of adoption of Cloud Computing were used to determine the relationships between organization and adoption of Cloud Computing. For this regression was done and results recorded to the following model:

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_5 X_6 + \beta_5 X_7 + \varepsilon$$

Where,

Y = Organizational Performance

ε = Error

X1 = Software as a service(SaaS)

X2=Platform as a service(PaaS)

X3=Hardware as a Service(HaaS)

X4=Application as a service(AaaS)

a= y-Intercept

$\beta_1 \dots \beta_5$ = Parameters

Regression was done giving the following results :

4.7.1 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.603 ^a	0.363	0.279	0.59523
a. Predictors: (Constant), Application as a Service(AaaS), Software as a service(SaaS), Hardware as a Service(HaaS) e.g network servers, Platform as a service(PaaS)				
b. Dependent Variable: Y - Organizational performance				

Figure 4.7.1: Model Summary

The findings shown in Figure 4.7.1 indicate the extent of disparities on the cloud computing adoption and organization performance of small and medium enterprises which are explained by the independent variables. The R^2 value is 0.363. This means that the independent variables explain 36.3% of the disparities in dependent variable. The rest 63.7 percent are explained by other factors.

4.7.2: Analysis of Variance ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.067	4	1.517	4.281	.007 ^b
	Residual	10.629	30	0.354		
	Total	16.696	34			
a. Dependent Variable: organization performance						
b. Predictors: (Constant), Application as a Service(Aaas), Software as a service(Saas), Hardware as a Service(Haas) e.g network servers, Platform as a service(Paas)						

Figure 4.7.2: Analysis of Variance ANOVA

The results in Figure 4.7.2 shows that the independent variables are statistically significant in predicting the cloud computing adoption and organization performance of small and medium enterprises . The study identified a significant value of $p=0.007$ showing a statistical significance relationship.

4.7.3 Regression Coefficients

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.000	.646		3.097	.004
	Software as a service(Saas)	-.006	.137	-.008	-.046	.964
	Platform as a service(Paas)	.285	.293	.295	.973	.338
	Hardware as a Service(Haas) e.g network servers	.200	.229	.239	.873	.390
	Application as a Service(Aaas)	.085	.254	.110	.336	.739
a. Dependent Variable: Y Organization performance						

Figure 4.7.3 Regression Coefficients

The findings in Figure 4.7.3 show the coefficients of the regression. According to the findings, Software as a service ($p=-0,964$), platform as service ($P=0.338$), hardware as

service ($p=0.390$) and application as a service ($p=0.739$) The resulting regression equation was:

$$OP = 0.2 - 0.006X_1 + 0.285 X_2 + 0.200 X_3 + 0.085 X_4 \text{ equation (1)}$$

Y = Organizational Performance

X1 Saas= Software as a service(Saas)

X2 Paas=Platform as a service(Paas)

X3 Haas=Hardware as a Service(Haas)

X4 AaaS=Application as a service(AaaS)

The results indicate that there is a relationship between adoption of Cloud Computing and improved organizational performance for SMEs in Nairobi, Kenya.

4.8 Discussion of Findings

The findings show that the significant values are X2, X3 and X4 which are Platform as a Service, Hardware as a Service and Application as a Service. They have the highest adoption rates and contribute greatly to the improved organizational performance, accuracy of data processing and timely reporting as the extent of adoption of Cloud Computing. This agrees with research carried out by Saini et al. (2012) where they cited increased interest in Cloud Computing adoption with the Hardware as a Service, Software as a Service and Application as a Service as the commonly adopted functions as well as the other functions listed.

The findings also show that users consider speed of access and connectivity to the system a high factor in their adoption and use of Cloud Computing. This is consistent with research carried out by Kagwe (2012) where he listed some of the concerns that may cause SMEs not to readily adopt Cloud Computing such as bandwidth limitation which affects speed of access and connectivity.

Bois (2010) showed that SMEs improve their operations and are able to focus on their core functions when they adopt Cloud Computing. This is consistent with the results showing improved overall organizational performance, accuracy in data processing, timely and accurate data processing and reduced operation costs

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter covers the summary of findings, conclusion, recommendations and suggestions for further research on Cloud Computing and organizational performance for SMEs.

5.2 Summary of Findings

In reference to the objectives of the study, and based on the mean, the extent of adoption of Cloud Computing by SMEs in Nairobi, Kenya, are as follows in descending order: Software as a Service, Hardware as a Service, Hardware as a Service and Application as a Service. Based on the findings the following are the drivers of adoption of Cloud Computing in descending order: Speed of access, loss of connectivity, efficiency in providing services, ease of use of the system, online security, IT support from system providers, flexibility and customizations required.

Based on the regression of the results the extent of the Cloud Computing usage on organizational performance indicators, it is evident that the adoption of Cloud Computing has improved organizational performance of the SMEs in Nairobi, Kenya. They are reported to have improved efficiency in the organization, accurate data processing, timely reporting in the correct formats and reduced operating costs.

5.3 Conclusion

The study concludes that adoption of Cloud Computing contributes to improved organizational performance of SMEs in Nairobi, Kenya. Organizations adopting Cloud Computing are able to better serve their customers and have reduced operating costs and increased margins. Organizations are able to focus on their core business without having to worry about the system taking over their time and resources furthermore, the study contributes to the literature on Cloud Computing adoption for organizations. Researchers can carry out extensive research with more funding. This can encourage organizations to reduce their operating costs through adoption of Cloud Computing and to also decentralize their operations and give flexibility to staff of

organizations to be able to operate from wherever they are as long as they have an internet connection. This enhances global interactions as organizations will not be limited to the working hours of their time zones and this could increase trade across countries.

5.4 Recommendations

The study recommends that the challenges inhibiting adoption of Cloud Computing be addressed by the Cloud Computing service providers. Issues to do with connectivity and speed of access should be addressed by the government bodies concerned with internet service provision regulation. Service providers providing internet access should also ensure that the speeds provided are sufficient for the processing that is needed. Service providers should also ensure that the systems are user-friendly and easy to use to enable better adoption across the rest of the SMEs in Kenya.

It is also recommended that the study be extended and sample size increased. This will help in determining on how organizations can improve their efficiency through adoption of Cloud Computing. This can extend to not only SMEs but large corporations as well.

5.5 Limitations of the Study and Further Studies

SMEs cuts across various sectors, for example health, hospitality, manufacturing etc. it would be interesting to focus on particular sectors that may have more need for knowledge management thus need to use cloud computing. This study focused on all the sectors thus no special attention was given to a particular one. A study should also be carried out for SMEs out of Nairobi County e.g. Eldoret, Mombasa, Kisumu, to establish if their take is different from the ones targeted in Nairobi. This will give a nationwide conclusion on the adoption of cloud computing and the challenges therein. Performing further researches in this field of study is highly recommended.

Cloud Computing is a new phenomenon; and not many studies have been conducted in this field. It is recommend that other researchers to test and confirm the proposed conceptual model in other contexts.

Performing a longitudinal study is also useful. Majority of the SMEs who have not adopted cloud computing strongly intend to adopt cloud computing in future. It is useful to recognize whether they actually will adopt cloud computing; or they were intended to adopt cloud computing because of the hype cycle that cloud is in. Longitudinal study also defines whether companies who currently use cloud computing, continue their usage; and whether cloud users are satisfied with the service they received.

Further research on the adoption of Cloud Computing for improved organizational performance should be carried out. The sample size should be increased throughout Kenya and if possible, beyond. It can incorporate large organizations as well as small organizations. This will enrich the research and provide support for adoption of Cloud Computing

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SECTION B: TO WHAT EXTENT HAVE YOU ADOPTED CLOUD COMPUTING

6. To what extent does your organization use cloud computing to support the following functions? Kindly indicate using the scale: 1-no extent; 2-Little Extent; 3-Moderate Extent; 4-Large Extent; 5-Very Large Extent

NO	Indicator	No Extent 1	Little Extent 2	Moderate Extent 3	Large Extent 4	Very Large Extent 5
1	Software as a service(SaaS)					
2	Platform as a service(PaaS)					
3	Hardware as a Service(HaaS)e.g network servers					
4	Application as a Service(AaaS)					
Any other? Please specify:						

SECTION C: DRIVERS THAT INFLUENCE THE DECISION TO ADOPT CLOUD COMPUTING

7. The following are factors that influence adoption of cloud computing. Kindly indicate using the scale: 1-Strongly disagree; 2-Disagree; 3-Neutral; 4-Agree; 5-Strongly agree

	Statement	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
1.	The benefit of adopting cloud computing outweighs its cost					
2.	Cloud computing services offered are relevant to the company's business or task coupled by risks to					
3.	Unreliability of in-sourced IT services drove us into cloud computing					
4.	The need to have data backup necessitated the move to cloud computing					
5.	It is easy to use cloud computing					
6.	Top management support cloud computing adoption					
7.	The company is ready for cloud computing adoption					
8.	The human resource is well-trained to handle cloud computing (IT) services					
9.	Our customers expect use of technology such as cloud computing					
10.	Competition in the market has made adoption of cloud computing mandatory					
11.	Availability of cloud computing services has enabled use to adopt the same					
12.	Any other? Please specify:					

SECTION D: CHALLENGES FACING CLOUD COMPUTING ADOPTION

8. Below are challenges hindering the use and/or adoption of cloud computing.

Kindly rate the level of your agreement as applicable to your firm, using the

following scale: 1-Strongly disagree; 2-Disagree; 3-Neutral; 4-Agree; 5-Strongly agree

No	Statement	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
1	Challenges in replacing the existing system					
2	Lack of knowledge on computing services or available options					
3	Lack or limited resources to operate cloud					
4	Lack of security when using cloud computing					
5	Lack of trust in the uptime or speed of cloud services					
6	Firms that have adopted cloud services report problems with the system					
7	Being discouraged by the IT provider					
8	Cloud computing can expose the firm to data security risks and minimize information privacy					
9	Lack of trust in the effectiveness of cloud service usage and control					
10	Difficulty in assessing the costs involved due to the on-demand nature of the services					
11	Difficulty in migrating in and out of the cloud and switching providers					
12	The firm would spend more for the bandwidth than it would on hardware and in-house software					
13	Cloud providers still lack round-the-clock service resulting in frequent outages					
	Any other? Please specify:					

9. What, in your view, should be done to encourage cloud computing adoption and minimize the challenges to such adoption?

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SECTION E: TO WHAT EXTENT HAS YOUR ORGANIZATION'S PERFORMANCE IMPROVED AS A RESULT OF USING CLOUD COMPUTING?

10. Kindly indicate for each of the following parameters of performance using the scale: 1-no extent; 2-Little Extent; 3-Moderate Extent; 4-Large Extent; 5-Very Large Extent

NO	INDICATOR	No Extent 1	Little Extent 2	Moderate Extent 3	Large Extent 4	Very Large Extent 5
1	Improved customer relationship					
2	Accurate data processing					
3	Timely reporting in the correct formats					
4	Reduced operating costs					
5	Savings on IT infrastructure costs and					
6	Improved supplier management					
7	Improved visibility in the market					
8	Improved efficiency in the organization					
9	Overall improvement in resource management					
Any other? Please specify:						

THANK YOU FOR RESPONDING TO THE QUESTIONS