

**ADOPTION OF CLOUD SERVICES AND PERFORMANCE OF
INSURANCE FIRMS IN KENYA**

BY

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DECLARATION

This research project report is my original work and has not been presented for award of any degree in any University.

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DEDICATION

Dedication to God for his love, care and grace. To my family for encouraging me, patience and support as it was not easy as I spent countless hours from them in pursuit of exemplary academic excellence.

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ABBREVIATIONS AND ACRONYM

AKI	-	Association of Kenya Insurers
DRs	-	Data Recovery Sites
GB	-	Gigabyte
IaaS	-	Infrastructure as a Service
IBM	-	International Business Machines
IDT	-	Innovation Diffusion Theory
IRA	-	Insurance Regulatory Authority
IT	-	Information Technology
MM	-	Motivational Model
MS-DOS	-	Microsoft Disk Operating System
PaaS	-	Platform as a Service
SaaS	-	Software as a Service
SI	-	Social Influence
SLA	-	Service Level Agreement
TAM	-	Technology Acceptance Model
TB	-	Terabyte
TPB	-	Theory of Planned Behavior
TRA	-	Theory of Reasoned Action
UTAUT	-	Unified Theory of Acceptance And Use of Technology

ABSTRACT

Traditionally many organizations used to render their services in-house from on-premises environments using on-premises software that was installed locally on the organizations own computers and servers . Organizations nowadays are outsourcing their IT computing needs to cloud providers for a per user pay service which translates to an operational expenditure and with little or no capital expenditure. The headache of deploying, building, maintaining, upgrading and operating the data centers becomes the sole responsibility of the cloud vendor, and this gives the organization flexibility and choice without having to be locked to one vendor thus avoiding vendor lock in. Insurance industry has always been in the business of collecting data since its inception. Data management in Insurance is crucial because the data collected has impact on revenue, growth and profitability. Data and information gathered in the claims process through email or other forms will help in guiding the claims team in deciding whether the claim is valid or not and the amount to be settled. Review of claims over a given time will assist the insurer in deciding whether to make such payments. 40% of payment of claims here in Kenya are made up of payments that are considered to be fraudulent. Insurance companies that will strategically position themselves for cloud computing transformation will reap big in leaps and bounds and avoid payment of fraudulent claims which eats into revenue. By tackling the challenges of on-premises legacy systems and applications as well the adoption of cloud computing services and its benefits, industry leaders will gain insights as to whether to adopt cloud computing strategies for their organizations or decide to stick to traditional on-premises line of business systems and application software.

CHAPTER ONE: INTRODUCTION

1.1 Background

Traditionally many firms rendered their services internally from on-premises (abbreviated as “on-prem”) environments using on-premises software that was installed locally on the organizations own computers and servers (Madden, 2014). On-premises software is software that is installed locally on the organizations server or computers that exist in the building or premises where the organization is located as opposed to a remote location such as the cloud (Sherpa, 2018). Use of on-premises software meant that these organizations had to maintain a Server room in-house. A Server room is a physical space or room in-house that is air conditioned and used to power, store and operate computer servers and their associated components and houses all data running through the network (Techopia, 2018). Designing and maintaining a server room was a daunting task as many factors and standards had to be considered. Some of the factors that were considered in designing a server room included the room having a drop ceiling to exhaust heat, air conditioning, fire monitors, cooling equipment and having separate back-up power (Mike, 2018).

Looking back at the early ‘60s and ‘70s most organizations used a centralized computing model that consisted of supercomputers that were located behind glass walls of an internal data center (Krishnan, 2018). These supercomputers were very expensive and only large enterprises could afford them. The year 1975 is when Microsoft came to rise when it developed software for the Altair 8800 microcomputer and later released MS-DOS (Krishnan, 2018). Come the ‘80s demand increased for less expensive and more powerful microprocessors and personal computers, and this helped to pave the way for simplicity and low costs. In the early 1990s Grid and Utility computing was born with boom of the World Wide Web and Internet and changed the game from

centralized client-server model to internet-based computing (Cetrom, 2018). In an endeavor to take advantage of the internet, the late '90s saw growth of quite a vast number of startups. In 1999 the term "The cloud" became a business-world trend when Salesforce launched and became the first real cloud company (Krishnan, 2018).

Cloud computing is the process of accessing services such as software, storage, applications and servers through the Internet at a fee making use of another third-party vendor's remote services. Vendors or third-party providers that deliver software as a subscription to computers as a service as opposed to buying and installing the software directly to the computer hardware, instead you subscribe to the service is referred to as Software as a Service (SaaS) (Watts, 2017). Some of the top, powerful and influential cloud-computing vendors include Microsoft, Google, Amazon, IBM, Salesforce, SAP, Oracle etc. (The Top 5 Cloud-Computing Vendors, 2017). Cloud based solutions are solutions that use the internet to access them and are usually provided by a given vendor. SaaS has disrupted the way software is sold and distributed to businesses.

Organizations nowadays are outsourcing their IT computing needs to cloud providers for a per user pay service which translates to an operational expenditure (opex) and with little or no capex (capital expenditure) (Peham, 2018). The headache of deploying, building, maintaining, upgrading and operating the data centers becomes the sole responsibility of the cloud vendor, and this gives the organization flexibility and choice without having to be locked to one vendor thus avoiding vendor lock in (Peham, 2018). Ultimately the organization can concentrate on the core of their business and thus increasing productivity and performance. Currently there is a reduction in the use of traditional managed services (Peham, 2018). Use of cloud computing means that any organization can identify and pick a cloud vendor/provider, pay for licenses based on its usage and terminate the service whenever business priorities change. What this

means is that the organization won't be stuck with computers, server rooms and data centers that they don't need (Peham, 2018).

1.1.1 Cloud Services

Virtualization with a pool of computer resources is known as Cloud computing (Pan, 2018). Different workloads can be hosted by cloud, allowing the workloads to be scaled-out on-demand or deployed by provisioning the physical or virtual machines rapidly. Cloud computing allows recovery of the workloads in the event of software or hardware failures and rebalances allocations (Pan, 2018). The idea behind cloud computing is moving computing from on-premises desktop platforms to a service-oriented platform using the vendors datacenters and server clusters. Services provided by cloud computing may be divided into utility SaaS, managed services, computing, web services and PaaS (Kim, 2009). The ability of individuals to access these services from the browser using an Internet connection makes them "cloud" services (Kim, 2009).

1.1.2 Performance of Organizations

Organizations are open systems, hence environment-serving and environment dependent organizations (Ansoff & Sullivan, 1993). Organizations respond to things like fluctuation of resources and competition etc. Organizational survival is reliant upon it being able to adapt based on various demands arising from the external environment. Organizational performance is about how effectively an organization transforms inputs into outputs (Thursby, 2000). A firm's performance is the ability of the firm to prevail (Liptons, 2003). According to TRADE (2000) six categories can be used to group performance measures and they are safety, timeliness, effectiveness, quality, efficiency and productivity. It is very important to identify and choose appropriate measures and

targets of performance (Franco-Santos & Bourne, 2005). Kaplan and Norton (1992) state that performance measures should be multidimensional covering non-financial and financial measures, using the balanced score-card.

To analyze organizational value, measures of organizational performance have been greatly used and especially economic measures (Algrari, 2017). Additional measures of performance include growth in market share, productivity, profit ratios, product quality, capacity utilization and consumer welfare (Algrari, 2017). To evaluate information systems value, productivity of organizations is largely used.

1.1.3 Insurance Industry in Kenya

Kenya has about 55 Insurance companies (see appendix III) (Authority, Licenced Insurance Companies , 2018). The Insurance Industry in Kenya consists of Insurance companies, intermediaries including insurance agents and brokers, loss adjusters or risk managers and reinsurance companies (Kiragu, 2014). Established in the year 2008, IRA which stands for Insurance Regulatory Authority regulates the Industry. Its work entails developing, regulating and supervising the Industry (Authority, Insurance Regulatory Authority, 2018). Established in the year 1987, the Association of Kenya Insurers (AKI) acts as an advisor to insurance companies (Kiragu, 2014). Gross premiums of \$1.75 billion were gotten from the insurance industry in 2015/2016 and the bulk of this being from General insurance (Jackson, DeSouza, Leahy, & Norman, 2016).

Life Insurance and General Insurance are the two broad categories of Insurance business (Kiragu, 2014). A contract where the insurance company agrees to reimburse the policy holder in the case of liability or property damage is known as a Non-Life insurance or General Insurance (Insurers, 2018). All other insurances are covered under

General insurance with the exemption of life. Commercial insurance and Personal are the two broad categories of General Insurance (Insurers, 2018). Covers taken by individuals are called Personal Insurance covers and include golfer's insurance, personal accident etc. (Insurers, 2018). Covers by commercial groups are called Commercial Insurance and include covers like product liability, medical, motor, fire etc. Legal liabilities are covered by Liability insurance arising out of negligence for example Motor Vehicles Insurance (Insurers, 2018).

A contract between a policy holder and an insurance company is known as Life insurance. Policy premiums are paid by the policy holder and when an insured event occurs the insurance company pays the beneficiary (Insurers, 2018). Common types of Life insurance include Term Assurance, Endowment, Whole Life, Unit Linked / Investment insurance policies and Last expense (Insurers, 2018). The Insurance Industry was selected because some of them are already using cloud services for example Jubilee Insurance Company Limited and CIC Insurance Group Limited.

1.2 Statement of the Problem

Insurance industry has always been in the business of collecting data since its inception (Andaro, 2014). Data management in Insurance is crucial because the data collected has impact on revenue, growth and profitability (Andaro, 2014). Data and information gathered in the claims process through email or other forms will help in guiding the claims team in deciding whether the claim is valid or not and the amount to be settled (Mburu, 2014). Review of claims over a given time will assist the insurer in deciding whether to make such payments (Mburu, 2014). In the event that the overall claims ratio is favorable then a payment is made. It's estimated that up to 40% of all insurance costs arise from fraudulent claims and this cannot be proved in the event of data loss such as an email loss (Mburu, 2014). Insurance companies are finding themselves

incurring costs by paying claims all because they for example lost an email or due to data loss.

40% of payment of claims here in Kenya are made up of payments that are considered to be fraudulent (Irungu, 2012). In a 2010 Industry Annual report by the Association of Kenya Insurers (AKI's), Ksh.40.07 billion was the net incurred claims and 40 % that is Ksh.16.02 billion is the estimated claims costs that were looked at as being fraudulent (Irungu, 2012).

Several studies have previously been done in this area. One important study “Improving Claims Management Through Cloud Computing” by James DeRosa highlighted that performance benefits of the cloud include reliability, agility and cost savings and its does not make business sense building core systems internally (DeRosa, 2014). Another important study done in the area is “Cloud Computing Adoption in Insurance Companies in Kenya” by Akhusama Meshack and Moturi Christopher highlighted that 58% indicated that platforms they were using included SaaS (database access, email, back-up etc.) and PaaS (software's systems) (Akhusama & Moturi, 2016). They also noted that additional investigation is required in the insurance industry on Cloud Computing impact (Akhusama & Moturi, 2016).

Another important study “e-Insurance Trend with Benefit Illustration in a Cloud Computing Environment” by Prachi Sontakke highlighted that a central location known as the cloud is where information such as policies, plans and website details of insurance companies is gathered (Sontakke, 2014). According to Prachi cloud storage can be used to keep very enormous data amounts which can be accessed by users through queries. Using SaaS an application is provided to end users connected to the cloud (Sontakke, 2014). None of the above studies look at adoption of cloud services

and Insurance firm's performance. This study shall assist by filling this knowledge gap and to answer the research question, does using cloud services by Insurance Companies have any influence on the Insurance firm's performance in Kenya?

1.3 Research Objectives

General objective of this study is to investigate adoption of cloud services and Insurance firm's performance in Kenya. Specifically, to:

- a) Determine the degree with which Insurance companies have adopted cloud services.
- b) Establish the benefits of using this platform.
- c) Determine the challenges/ barriers of using this platform.
- d) Establish the relationship between the usage of the platform and Insurance company's performance.

1.4 The value of the study

Findings of the study shall have foremost importance to the Kenyan Insurance companies and world at large. Essentially this is attributed to the fact that customers are demanding better and more efficient services, internet access is becoming readily available, technology is changing at a very rapid pace and there's more stiff competition in the insurance industry than ever before as fresh players are entering the market. Insurance companies that will strategically position themselves for this transformation will reap big in leaps and bounds. By tackling the challenges of on-premises legacy systems and applications as well the adoption of cloud computing services and its benefits, industry leaders will gain insights as to whether to adopt cloud computing strategies for their organizations or decide to stick to traditional on-premises line of business systems and application software.

This study shall assist the Insurance Regulatory Authority (IRA) in its endeavor in stabilizing and regulating the Insurance Industry and in establishing efficient policies, regulations and standards that will cut across the entire sector leading to better performance of the sector.

This study shall add on knowledge in cloud computing and SaaS that will be leveraged by various scholars and academicians in their studies as the future is cloud.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Chapter two covers SaaS and cloud computing with focus on the Insurance Industry. It also highlights the benefits and challenges of use of Software as a Service (SaaS) by organizations.

2.2 Theoretical Review

To inform my study I have used theories that include TAM, UTAUT and IDT (Lim, Saldanha, Malladi, & Melville, 2013).

2.2.1 The Unified Theory of Acceptance And Use of Technology

(UTAUT)

UTAUT was developed by Venkatesh et al (2003). It's a unified model that combines 8 IT research acceptance models. UTAUT includes dimensions of TAM , MM and TRA (Davis et al., 1992). However, TPB combines constructs of TPB (C-TAM-TPB) and TAM and is a model that is a hybrid (Taylor & Todd, 1995). The UTAUT model states that effort and performance expectancy, facilitating conditions and social influence determine behavior of people to adopt technology use (Rahia, Ghanib, Alnasera, & Ngahc, 2018). According to Taiwo and Downe (2013) UTAUT has 4 intention and usage determinants including social influence, facilitating conditions, performance and effort expectancy. 4 moderators also exist which are voluntariness of use, age, experience and gender.

Users expectation on technology performance influences their intention to adopt the technology (Sarfaraz & Alzubi). According to Zhou et al. (2010), expectancy of performance reflects perception of a person towards improvement through usage of cloud

computing like flexibility and convenience, service effectiveness and fast response. Effort expectancy (EE) can be defined as ease relating to cloud services usage. If people have a feeling that cloud services are simple to learn and use without any effort then people will automatically have high expectation towards getting the performance expected (Rahia, Ghanib, Alnasera, & Ngahc, 2018). Environmental factors such as friends and family's opinion is known as SI (Social influence) (Venkatesh et al., 2003). Chaouali et al. (2016) states that people who believe and value other people's views and opinions will be more inclined to use new technology.

2.2.2 Technology Acceptance Model (TAM)

TAM was expanded from Fishbein and Ajzen's TRA (Priyanka & Kumar, 2013). Initiation of TAM was done in 1986 by Fred Davis. It aims as describing factors that lead to information technology usage behavior and acceptance of technology (Bertrand & Bouchard, 2008). The Technology Acceptance Model includes Perceived Ease of Use and Usefulness which determine behavior and acceptance of technology by users (Durodol, 2016). In Technology Acceptance Model, motivation of people to adopt latest technology is explained using usefulness, ease of use and attitude towards system use (PEU) (Pinho, Soares, José, & Ana, 2011).

A user's perception of usefulness and ease of use of a technology determine incentive for people to accept information technologies (V, Prabhakar, Santhanalakshmi, & Dr. K. Maran, 2016).

2.2.3 Innovation Diffusion Theory (IDT)

An innovation can be looked at as “an idea, practice, or object that is perceived as new by an individual or another unit of adoption” (Rodgers, 1995). Diffusion is “the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rodgers, 1995). Innovation diffusion theory’s main focuses is on the rate at which and why innovative technologies and ideas spread in social systems (Wani & Ali, 2015). IDT includes 5 important innovation characteristics: observability (OBS) , relative advantage (ADV), trialability (TRI), complexity (CPL) and compatibility (CPA) (Tran & Cheng, 2017).

IDT is an important theory in technology diffusion study (Wani & Ali, 2015). I have used the Innovation Diffusion Theory for the study of cloud computing diffusion and SaaS with a focus on adoption of cloud services in the Insurance Industry in Kenya.

2.3 Software as a Service (SaaS)

SaaS is a software delivery and licensing model that provisions software services on demand and users are billed based on usage (Rajegore & kadam). Software as a Service can be looked at as a service whereby cloud users can get access to software from the web browser without having to worry about installation, deployment or maintenance (Kumar, 2014). Once a cloud application is started, documents are based on the cloud servers and appear as though they are available on the desktop as normal applications (Badidi, 2013).

2.3.1 Challenges of SaaS

Cloud computing is facing an adoption challenge as user are afraid of its authenticity. Some of the major challenges preventing SaaS adoption include Security, whereby users tend to

be weary of data loss, phishing and botnets (Rajegore & kadam). SaaS is a service model whereby users need a good reliable and fast internet connection, thus in places where there is no good internet connection this can be a disadvantage (Kumar, 2014). Another challenge is that at times the expenses incurred in moving organizational data from and to the cloud can be quite enormous (Rajegore & kadam). It's important for costumers to get commitments from service providers on delivery of services and this is usually through SLAs between cloud providers and customers, whereby SLAs are not in place it could lead to service delivery challenges (Rajegore & kadam). Cloud interoperability issue amongst various vendors which hinders development of cloud ecosystems and forces vendor lock in thus subsequently prohibiting users the ability to choose from alternative vendors.

2.3.2 Benefits of Software as a Service (SaaS)

SaaS provides numerous benefits amongst its users. Some of the benefits include users being able to access their files and documents at any time and from where they want, as opposed to being tied down to their office setting (Badidi, 2013). Amount of storage is bigger, and people can keep huge amounts of data in the cloud as opposed to on laptops or personal computers (Badidi, 2013). A user's files and documents are stored permanently in the cloud and they exist even if something happens to a user's computer systems, such as if it gets stolen or it crashes. (Badidi, 2013). Another benefit is that SaaS enables collaboration and people from diverse regions can co-author and work on the same documents together at reduced costs (Badidi, 2013).

Companies whether big or small can take advantage and benefit from cloud infrastructure by just subscribing to the service without the implementation and headache of administering it directly (Badidi, 2013). Multiple and numerous data centres can be

accessed by companies from all over the world and huge amounts of data can be stored in the cloud as opposed to on-premise environments (Badidi, 2013). SaaS guarantees that personnel in the organizational setting no longer have the headache of maintaining the systems, routine maintenance and upgrading of the system is not required and thus are able to concentrate on the core of their businesses (Badidi, 2013). Another benefit is that the vendor includes software updates so that the organization will always be running the latest versions of software (Badidi, 2013). With cloud deployments the vendor guarantees uptime and usually have systems in place to ensure quick recovery thus preventing downtime. With SaaS, the vendor conducts automatic backups and replicates it across several Data Recovery Sites (DRs) for recovery, meaning that the organization does not have to worry about backups.

Software as a Service (SaaS) benefits can be divided into two groups and they are cloud provider benefits and cloud user benefits (Kumar, 2014). The user benefits include lower costs, ability to customize, decentralization and on the fly pay as you go. On the other hand, provider benefits include cost flexibility which is normally based on consumption, applications being scalable and maintenance being easy.

2.4 SaaS and Performance of Organizations

Cloud Computing can be looked at as a situation whereby you use another person's network to get full computing and the hardware and software ownership belongs to an external provider (Ahmed & Hossain, 2014). Recently, the area of Cloud computing has had an increasing number of studies conducted (Senyo, Addae, & Boateng, 2018). Terms such as IaaS , PaaS and SaaS have been introduced in the computing world and with the evolution of cloud computing (Ahmed & Hossain, 2014).

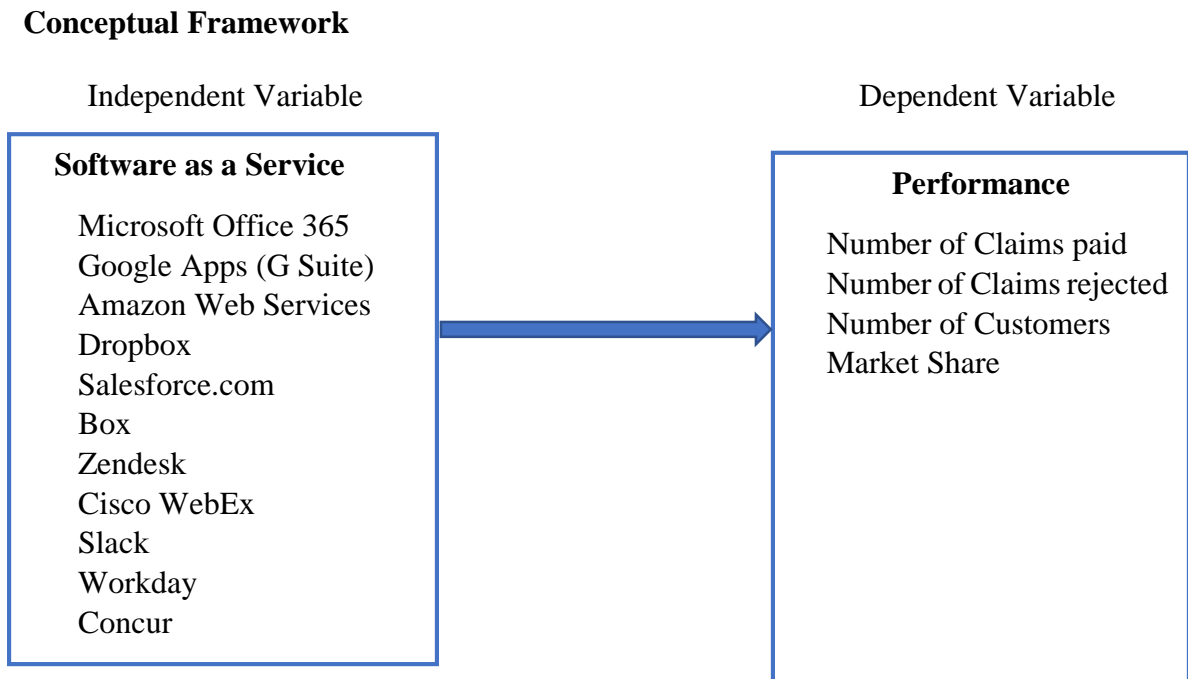
Several studies have previously been done in this area. One important study “The Impact of Cloud Computing Technology on Organizational Performance; Financial, Customer, Operational (Case Study: Zarin Iran Porcelain Industries Co.)” by Khoorasgani (2016) highlighted that performance of companies has been greatly impacted by technology in cloud computing and concluded that organizational performance will be promoted by cloud computing usage in the organization. Outsourcing of technology systems to cloud vendors improves financial performance of the organization and decreases support costs of technology sector (Khoorasgani, 2016). Cloud computing offers a simple and fast way to access resources through a browser, helps in saving costs and offers flexibility thus reducing various concerns like scalability (Khoorasgani, 2016).

Another important study “The Impact of Cloud Based Information Systems on Organization's Performance” by Dr. Ahmed Yass Algrari (2017) highlighted that information systems that are based in the cloud usually are of a very important role in its performance and business value. Improvements in information system processes that were perceived as indicated by performance of the organization were a representation of perceived value (Algrari, 2017).

Another important study “Impact Study of Cloud Computing On Business Development” by Devasena (2014) highlighted Small and Midmarket Enterprises (SMEs) were impacted by cloud computing. Convenience and ease of use were the factors stated by Small and Midmarket Enterprises as being the reasons they adopted cloud usage (Devasena, 2014). Security improvement and privacy was the other factor that affected cloud use and adoption. Reduction in costs and expenditure was the other significant factor that led to cloud adoption (Devasena, 2014). The cloud is reliable and enables sharing and

collaboration (Devasena, 2014). According to Devasena (2014) cloud technology adoption leads to development of businesses.

Figure 2. 1: The Conceptual Framework



From the figure 2.1 above, the assumption being portrayed is the relationship between usage of SaaS and Insurance company's performance.

2.5 Summary of Literature Review

This chapter covered some theories which included TAM, IDT and UTAUT that would be used to inform this study. It also covered aspects of SaaS with great focus being on the Insurance Industry. It also highlighted the benefits and challenges of using Software as a Service (SaaS) by organizations.

CHAPTER THREE: RESEARCH METHODOLOGY

Chapter three covers methodology and population determination.

3.1 Research design

Research design can be looked at as the plan that is created to help in answering the research question and in controlling variance (Dulock, 1993). Procedures and tools to be used are looked at in the research for example the methods of survey (Wyk, 2018). To describe a phenomenon accurately use descriptive research (Atmowardoyo, 2018).

3.2 Population

All the items or people that one wants to investigate or understand is known as the Population. Selection of segments for investigation from the population one is investigating is known as Sampling (Rahi, 2017). The population of study is all the Insurance firms in Kenya. Kenya has 55 Insurance firms (Authority, Licenced Insurance Companies , 2018).

3.3 Census

Sampling is the selection of segments from the population that one is investigating (Rahi, 2017). A census will be carried out since the population size is relatively small based on the fact that there are 55 Insurance companies in Kenya (Authority, Licenced Insurance Companies , 2018). The research will carry out research on all the 55 Insurance companies using census as the population size is relatively small.

3.4 Data collection

Gathering data systematically from given sources is referred to as data collection (Rimando, et al., 2015). The data shall be collected from one employee per Insurance company.

A questionnaire will be used to collect the data. It will be sub-divided into various sections, including section a, b, c, d and e. Section A will capture demographic information, B will capture cloud services usage, section C will capture the benefits of using cloud services, section D will capture the challenges of using cloud services while section E will capture performance.

3.5 Data Analysis

Data analysis is aimed at discovering trends, patterns and relationships of a study (Albers, 2017). The analysis of data must “get it right” (William & Sonia, 2001). Data on objective a, b and c will be analyzed using descriptive statistics. Data on objective d will use the following regression model:

$$Y = a_0 + X_1a_1 + a_2 + e$$

Whereby

Y= Performance of an Insurance Company

X₁= Cloud Services Use

e= Error term

a₀, a₁, a₂ = Regression Coefficients or Parameters to be estimated.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

Chapter four covers analysis of data, findings discussions and results.

4.1 Introduction

Here we cover data analysis and discuss study findings. Findings presentation is according to methodology and study objectives such that it answers the research questions. Collection of data was via a questionnaire and data was analyzed to present results. More than 55 questionnaires, including online questionnaires that included a link to the questionnaire, were circulated targeting the Information Technology (IT) team members, claims department members and Human Resources (HR) department as they were more knowledgeable about the use of SaaS in their Insurance firm, benefits and challenges of using SaaS, claims paid and those rejected and also the market share of that respective firm.

4.2 Response Return Rate

Among the 55 questionnaires circulated and shared out to the Insurance firms in Kenya, 40 of them were completed. This translated to a response rate of 72.7% and this was deemed as being appropriate to enable a conclusion and recommendation. Non-response of the 15 Insurance firms was attributed to the fact that they considered the company information confidential especially the information requested in the last section of the questionnaire that related to performance of the firm, thus they were unwilling to divulge any information and chose not to respond and participate in the survey.

4.3 Descriptive Statistics

Descriptive statistics are normally used to summarize data in meaningful ways for the intended users of the data. Percentages, frequency and means shall be used in summarizing the findings.

4.3.1 Demographic Information

Distribution of companies from which respondents were from is as shown in table 4.1 below. The total number of respondents was 40, one from each company.

Table 4. 1: Company Response

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	AAR Insurance Company Limited	1	2.5	2.5	2.5
	Allianz Insurance Company of Kenya Limited	1	2.5	2.5	5.0
	APA Insurance Limited	1	2.5	2.5	7.5
	APA Life Assurance Company Limited	1	2.5	2.5	10.0
	Barclays Life Assurance Kenya Limited	1	2.5	2.5	12.5
	Britam General Insurance Company (K) Limited	1	2.5	2.5	15.0
	Britam Life Assurance Company (K) Limited	1	2.5	2.5	17.5
	Capex Life Assurance Limited	1	2.5	2.5	20.0
	CIC General Insurance Company Limited	1	2.5	2.5	22.5
	CIC Life Assurance Company Limited	1	2.5	2.5	25.0
	Continental Reinsurance Limited	1	2.5	2.5	27.5
	Directline Assurance Company Limited	1	2.5	2.5	30.0
	Fidelity Shield Insurance Company Limited	1	2.5	2.5	32.5
	First Assurance Company Limited	1	2.5	2.5	35.0
	GA Insurance Limited	1	2.5	2.5	37.5
	GA Life Assurance Limited	1	2.5	2.5	40.0
	Geminia Insurance Company Limited	1	2.5	2.5	42.5
	Heritage Insurance Company Limited	1	2.5	2.5	45.0
	ICEA Lion General Insurance Company Limited	1	2.5	2.5	47.5
	ICEA LION Life Assurance Company Limited	1	2.5	2.5	50.0

Intra Africa Assurance Company Limited	1	2.5	2.5	52.5
Jubilee Insurance Company Limited	1	2.5	2.5	55.0
Kenya Orient Insurance Limited	1	2.5	2.5	57.5
Kenya Orient Life Assurance Limited	1	2.5	2.5	60.0
Kenya Reinsurance Corp Limited	1	2.5	2.5	62.5
Kenyan Alliance Insurance	1	2.5	2.5	65.0
Liberty Life Assurance Kenya Limited	1	2.5	2.5	67.5
Madison Insurance Company Limited	1	2.5	2.5	70.0
Mayfair Insurance Company Limited	1	2.5	2.5	72.5
Pacis Insurance Company Limited	1	2.5	2.5	75.0
Prudential Life Assurance Company Limited	1	2.5	2.5	77.5
Resolution Insurance Company Limited	1	2.5	2.5	80.0
Sanlam General Insurance Company Limited	1	2.5	2.5	82.5
Sanlam Life Assurance Company Limited	1	2.5	2.5	85.0
Takaful Insurance of Africa Limited	1	2.5	2.5	87.5
The Monarch Insurance Company Limited	1	2.5	2.5	90.0
Trident Insurance Company Limited	1	2.5	2.5	92.5
UAP Insurance Company Limited	1	2.5	2.5	95.0
UAP Life Assurance Company Limited	1	2.5	2.5	97.5
Xplico Insurance Limited	1	2.5	2.5	100.0
Total	40	100.0	100.0	

The distribution of gender of respondents is as illustrated in table 4.2 below. 21 were male while 19 female and this totaled up to 40 respondents. 52.5% were male while 47.5% female.

Table 4. 2: Gender of the respondents

		Gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	21	52.5	52.5	52.5
	Female	19	47.5	47.5	100.0
	Total	40	100.0	100.0	

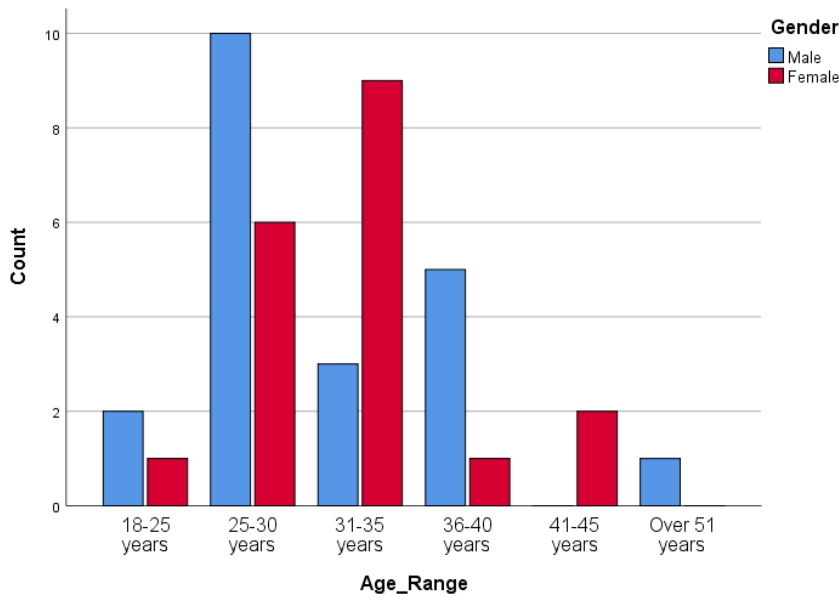
The distribution of age range of the respondents is as illustrated in table 4.3 below. The results show that the largest single proportion of the population based on age structure were between twenty-five and thirty years (40%) followed by those between thirty-one and thirty-five years of age (30%).

Table 4. 3: Age range of the respondents

		Age_Range			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25 years	3	7.5	7.5	7.5
	25-30 years	16	40.0	40.0	47.5
	31-35 years	12	30.0	30.0	77.5
	36-40 years	6	15.0	15.0	92.5
	41-45 years	2	5.0	5.0	97.5
	Over 51 years	1	2.5	2.5	100.0
	Total	40	100.0	100.0	

Respondents distribution by gender and age is as illustrated in figure 4.1 below. The results show that the highest proportion of male responses was from the 25-30 years age range while the highest proportion of female respondents was from the 31-35 years age range.

Figure 4. 1: The distribution of respondents by Gender and Age



Distribution of academic qualification of the respondents is as illustrated in table 4.4 below.

The results show that for academic qualification 65% of respondents had a bachelor's degree, 7.5% had a diploma and 27.5% had a post-graduate degree (Masters/Ph.D.).

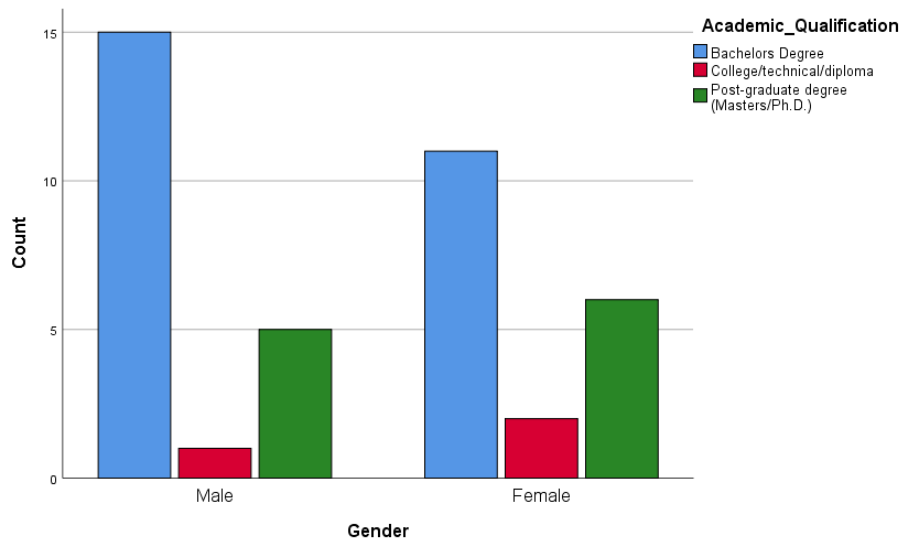
Table 4. 4: Academic qualification of respondents

		Academic_Qualification			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelors Degree	26	65.0	65.0	65.0
	College/technical/diploma	3	7.5	7.5	72.5
	Post-graduate degree (Masters/Ph.D.)	11	27.5	27.5	100.0
	Total	40	100.0	100.0	

Respondents distribution by gender and academic qualification is as illustrated in figure 4.2 below. The results show that fifteen male and eleven females have a bachelor's degree,

one male and two females have a diploma while five males and six females have a post-graduate degree (Masters/ Ph.D.)

Figure 4. 2: The distribution of respondents by Gender and Academic qualification



The distribution of the job category of the respondents is as illustrated in table 4.5 below. The results show that for the job category 7.5% were in senior management, 37.5% were in mid management, 22.5% were team leaders while 32.5% were team members.

Table 4. 5: Respondents Job Category

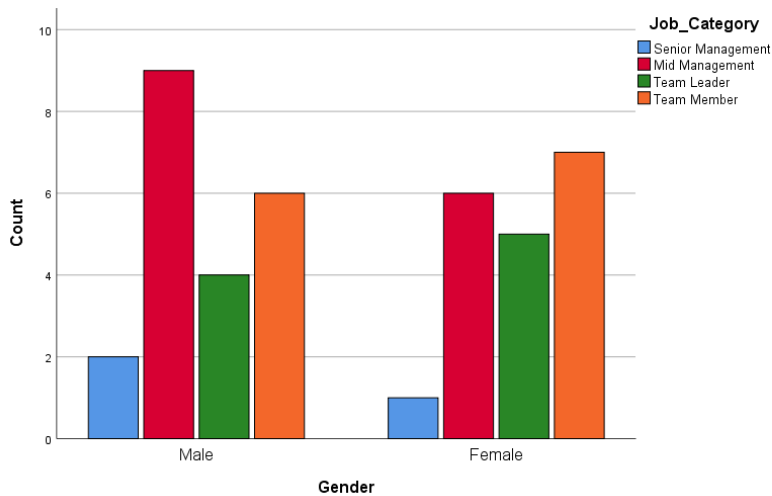
		Job_Category			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Senior Management	3	7.5	7.5	7.5
	Mid Management	15	37.5	37.5	45.0
	Team Leader	9	22.5	22.5	67.5
	Team Member	13	32.5	32.5	100.0
Total		40	100.0	100.0	

Respondents distribution by gender and job category is as illustrated in figure 4.3 below.

The results show that two male and one female are in senior management, nine male and

six females are in mid management, four males and five females are team leaders while six males and seven females are team members. The graph also shows that the majority of male respondents belong to the mid management while majority of the females are team members.

Figure 4. 3: The distribution of respondents by Gender and Job Category



4.4 Survey Results

The results indicate that 80% (n=32) of the surveyed companies have adopted the use of cloud services and Software as a Service (SaaS) while 20% (n=8) are still using on-premises solutions.

4.4.1 Use of SaaS

Distribution of the use of SaaS is as illustrated in table 4.6 below. The results indicate that 80% are using SaaS while 20% are not using SaaS.

Table 4. 6: Use of SaaS

Use_Of_SaaS					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	8	20.0	20.0	20.0
	Yes	32	80.0	80.0	100.0
	Total	40	100.0	100.0	

4.4.2 Types of SaaS

Types of SaaS that the companies are using include Microsoft Office 365, Google Apps (G Suite), Amazon Web Services, Dropbox, Salesforce, Box, Zendesk, Cisco WebEx, Slack, Workday and Concur.

The distribution of the use of Microsoft Office 365 is as illustrated in table 4.7 below. The results indicate that 60% are using Microsoft Office 365 while 40% are not using it.

Table 4. 7: Use of Microsoft Office 365

Microsoft_Office_365					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	16	40.0	40.0	40.0
	Yes	24	60.0	60.0	100.0
	Total	40	100.0	100.0	

The distribution of the use of Google Apps (G Suite) is as illustrated in table 4.8 below.

The results indicate that 37.5% are using Google Apps while 62.5% are not using it.

Table 4. 8: Use of Google Apps (G Suite)

Google_Apps_G_Suite					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	25	62.5	62.5	62.5
	Yes	15	37.5	37.5	100.0
	Total	40	100.0	100.0	

The distribution of the use of Amazon Web Services (AWS) is as illustrated in table 4.9 below. The results indicate that 7.5% are using Amazon Web Services while 92.5% are not using it.

Table 4. 9: Use of Amazon Web Services (AWS)

Amazon_Web_Services					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	37	92.5	92.5	92.5
	Yes	3	7.5	7.5	100.0
	Total	40	100.0	100.0	

The distribution of the use of Dropbox is as illustrated in table 4.10 below. The results indicate that 27.5% are using Dropbox while 72.5% are not using it.

Table 4. 10: Use of Dropbox

Dropbox					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	29	72.5	72.5	72.5
	Yes	11	27.5	27.5	100.0
	Total	40	100.0	100.0	

The distribution of the use of Salesforce is as illustrated in table 4.11 below. The results indicate that 12.5% are using Salesforce while 87.5% are not using it.

Table 4. 11: Use of Salesforce

		Salesforce			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	35	87.5	87.5	87.5
	Yes	5	12.5	12.5	100.0
	Total	40	100.0	100.0	

The distribution of the use of Box is as illustrated in table 4.12 below. The results indicate that 2.5% are using Box while 97.5% are not using it.

Table 4. 12: Use of Box

		Box			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	39	97.5	97.5	97.5
	Yes	1	2.5	2.5	100.0
	Total	40	100.0	100.0	

The distribution of the use of Zendesk is as illustrated in table 4.13 below. The results indicate that none of the companies is using Zendesk (100% not using Zendesk).

Table 4. 13: Use of Zendesk

		Zendesk			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	40	100.0	100.0	100.0

The distribution of the use of Cisco WebEx is as illustrated in table 4.14 below. The results indicate that 25% are using Cisco WebEx while 75% are not using it.

Table 4. 14: Use of Cisco WebEx

Cisco_WebEx					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	30	75.0	75.0	75.0
	Yes	10	25.0	25.0	100.0
	Total	40	100.0	100.0	

The distribution of the use of Slack is as illustrated in table 4.15 below. The results indicate that none of the companies is using Slack (100% not using Slack).

Table 4. 15: Use of Slack

Slack					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	40	100.0	100.0	100.0

The distribution of the use of Workday is as illustrated in table 4.16 below. The results indicate that 7.5% are using Workday while 92.5% are not using it.

Table 4. 16: Workday

Workday					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	37	92.5	92.5	92.5
	Yes	3	7.5	7.5	100.0
	Total	40	100.0	100.0	

The distribution of the use of Concur is as illustrated in table 4.17 below. The results indicate that none of the companies is using Concur (100% not using Concur).

Table 4. 17: Use of Concur

		Concur			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	40	100.0	100.0	100.0

The distribution of the other types of Software as a Service (SaaS) that the companies are using is as illustrated in table 4.18 below. The results indicate that some of the other SaaS that the firms are using are Aimsoft for Insurance, Carbonite, DRAAS, eOxygen, EVEREST, ADA Systems and COMPEN.

Table 4. 18: Other types of Software as a Service (SaaS)

		Other_SaaS			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		35	87.5	87.5	87.5
	Aimsoft for Insurance	1	2.5	2.5	90.0
	Carbonite	1	2.5	2.5	92.5
	DRAAS	1	2.5	2.5	95.0
	eOxygen	1	2.5	2.5	97.5
	EVEREST, ADA Systems, COMPEN	1	2.5	2.5	100.0
	Total	40	100.0	100.0	

4.4.3 Use of On-premises platforms

The distribution of the use of on-premises platforms is as illustrated in table 4.19 below. The results indicate that 2.5% are using Exchange server on-premises, 7.5% are using

MDaemon, 5% are using Zimbra while 5% are using cPanel/ Webmail for emails, totaling to 8 companies using on-premises platforms while the other 32 are using cloud services.

Table 4. 19: Use of On-premises platforms

		On_Premises_Platform_Not_Using_SaaS			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Exchange Server on-premise	1	2.5	12.5	12.5
	MDaemon	3	7.5	37.5	50.0
	Zimbra	2	5.0	25.0	75.0
	cPanel/Webmail	2	5.0	25.0	100.0
	Total	8	20.0	100.0	
Missing	System	32	80.0		
Total		40	100.0		

4.4.4 Use of Cloud Based Services

The various cloud-based services that the companies are using include storage, applications, backup, network, database, information, integration, security and management.

The distribution of the use of storage cloud-based service is as illustrated in table 4.20 below. The results indicate that 57.5 % are using storage cloud-based services while 42.5% are not using cloud storage.

Table 4. 20: Use of cloud-based storage

		Cloud_Service_Storage			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	17	42.5	42.5	42.5
	Yes	23	57.5	57.5	100.0
	Total	40	100.0	100.0	

The distribution of the use of cloud-based applications is as illustrated in table 4.21 below. The results indicate that 65% are using cloud-based applications while 35% are not using cloud-based applications.

Table 4. 21: Use of cloud-based applications

		Applications			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	14	35.0	35.0	35.0
	Yes	26	65.0	65.0	100.0
	Total	40	100.0	100.0	

The distribution of the use of cloud-based backup is as illustrated in table 4.22 below. The results indicate that 40% are using cloud-based backup while 60 % are not using cloud-based backup.

Table 4. 22: Use of cloud-based backup

		Backup			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	24	60.0	60.0	60.0
	Yes	16	40.0	40.0	100.0
	Total	40	100.0	100.0	

The distribution of the use of cloud-based network is as illustrated in table 4.23 below. The results indicate that 25% are using cloud-based network services while 75 % are not using cloud-based network services.

Table 4. 23: Use of cloud-based network services

		Network			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	30	75.0	75.0	75.0
	Yes	10	25.0	25.0	100.0
	Total	40	100.0	100.0	

The distribution of the use of cloud-based database is as illustrated in table 4.24 below. The results indicate that 22.5% are using cloud-based databases while 77.5 % are not using cloud-based databases.

Table 4. 24: Use of cloud-based database

		Database			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	31	77.5	77.5	77.5
	Yes	9	22.5	22.5	100.0
	Total	40	100.0	100.0	

The distribution of the use of cloud-based information is as illustrated in table 4.25 below. The results indicate that 20% are using cloud-based information while 80 % are not using it.

Table 4. 25: Use of cloud-based information

		Information			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	32	80.0	80.0	80.0
	Yes	8	20.0	20.0	100.0
	Total	40	100.0	100.0	

The distribution of the use of cloud-based integration is as illustrated in table 4.26 below. The results indicate that none of the companies is using cloud-based integration (100% not using cloud-based integration).

Table 4. 26: Use of cloud-based integration

		Integration			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	40	100.0	100.0	100.0

The distribution of the use of cloud-based security is as illustrated in table 4.27 below. The results indicate that 15% are using cloud-based security while 85% are not using it.

Table 4. 27: Use of cloud-based security

		Security			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	34	85.0	85.0	85.0
	Yes	6	15.0	15.0	100.0
	Total	40	100.0	100.0	

The distribution of the use of cloud-based management is as illustrated in table 4.28 below. The results indicate that 7.5% are using cloud-based management while 92.5% are not using it.

Table 4. 28: Use of cloud-based management

		Management			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	37	92.5	92.5	92.5
	Yes	3	7.5	7.5	100.0
	Total	40	100.0	100.0	

4.4.5 The benefits of using cloud services

The benefits of using cloud services as ranked by respondents' responses citing them as being relevant to the adoption of cloud services are outlined below.

Table 4. 29: The benefits of using cloud services

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Variance
You have anytime and anywhere access to data enabling you to work at any time and from anywhere on the go	40	1.00	5.00	4.4750	.87669	.769
It is safe, secure and privacy is guaranteed	40	2.00	5.00	4.0000	.84732	.718
It offers free updates and upgrades whereby users are always running the latest version of software	40	2.00	5.00	4.0500	.87560	.767
Provides a financially backed Service Level Agreement (SLAs) that guarantees uptime	40	2.00	5.00	3.9500	.78283	.613
Users are able to collaborate and work on the same documents together	40	1.00	5.00	4.0500	.84580	.715
It offers a per user-based licensing model and pay as you go service so that you only pay for what you need	40	2.00	5.00	3.9250	.82858	.687
Provides larger mailboxes for storage of emails	40	1.00	5.00	4.0500	.98580	.972
Users get larger storage for backing up of documents	40	2.00	5.00	4.0500	.93233	.869
Routine maintenance and upgrading of the system is not required thus organizations are able to concentrate on the core of their business	40	2.00	5.00	4.1000	.81019	.656
Support is readily available	40	3.00	5.00	4.0250	.69752	.487
Valid N (listwise)	40					

Respondents were asked various questions relating to their perceptions towards benefits of using cloud services on a scale ranging from strongly disagree (1) to strongly agree (5).

Table 4.29 above presents the number of responses for each rating and the corresponding means.

Table 4. 30: Summary of the benefits of using cloud services

Benefits	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean Score
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	
You have anytime and anywhere access to data enabling you to work at any time and from anywhere on the go	1	2.5	1	2.5	1	2.5	12	30	25	62.5	4.475
It is safe, secure and privacy is guaranteed	0	0	2	5	8	20	18	45	12	30	4
It offers free updates and upgrades whereby users are always running the latest version of software	0	0	2	5	8	20	16	40	14	35	4.05
Provides a financially backed Service Level Agreement (SLAs) that guarantees uptime	0	0	1	2.5	10	25	19	47.5	10	25	3.95

Users are able to collaborate and work on the same documents together	1	2.5	0	0	7	17.5	20	50	12	30	4.05
It offers a per user-based licensing model and pay as you go service so that you only pay for what you need	0	0	2	5	9	22.5	19	47.5	10	25	3.925
Provides larger mailboxes for storage of emails	1	2.5	2	5	6	15	16	40	15	37.5	4.05
Users get larger storage for backing up of documents	0	0	3	7.5	7	17.5	15	37.5	15	37.5	4.05
Routine maintenance and upgrading of the system is not required thus organizations are able to concentrate on the core of their business	0	0	1	2.5	8	20	17	42.5	14	35	4.1
Support is readily available	0	0	0	0	9	22.5	21	52.5	10	25	4.025

From table 4.30 above 62.5% of respondents strongly agree that with cloud services you have anytime and anywhere access to data enabling you to work at any time and from anywhere on the go and this was the benefit that most respondents seemed to agree with. The fact that cloud offers a per user-based licensing model and pay as you go service so

that you only pay for what you need, was not perceived as a very crucial benefit of using cloud services.

4.4.6 The challenges of using cloud services

Cloud challenges as ranked by respondents' responses citing them as being relevant to the adoption of cloud services are outlined below. Respondents were asked various questions relating to their perceptions towards challenges of using cloud services on a scale ranging from strongly disagree (1) to strongly agree (5). Table 4.31 below presents the number of responses for each rating and the corresponding means. Majority of the respondents considered the fact that some cloud components require an internet connection to function as being a crucial challenge to cloud adoption. Security and privacy was disregarded as a challenge of cloud services as most respondents considered cloud as being very secure and privacy is guaranteed.

Table 4. 31: Summary of the challenges of using cloud services

Challenges	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean Score
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	
Some of its components require an internet connection to function	0	0	0	0	4	10	17	42.5	19	47.5	4.375
It can be difficult to keep up with	1	2.5	4	10	13	32.5	21	52.5	1	2.5	3.425

changing feature set											
Users only use a given percentage of the product and not the full functionality	0	0	4	10	17	42.5	15	37.5	4	10	3.475
It is not secure, and privacy is not guaranteed	8	20	13	32.5	5	12.5	13	32.5	1	2.5	2.65
Migrating to the cloud is very expensive	2	5	13	32.5	11	27.5	9	22.5	5	12.5	3.05
Lack of a Service Level Agreement (SLA) leads to poor service delivery	0	0	9	22.5	12	30	9	22.5	10	25	3.5
Cloud interoperability issue with other vendors leads to vendor lock in	1	2.5	6	15	21	52.5	8	20	4	10	3.2
It is not authentic	9	22.5	11	27.5	14	35	5	12.5	1	2.5	2.45

There is no local support	6	15	11	27.5	12	30	6	15	5	12.5	2.825
Paying the monthly or annual per user license fee is very costly	1	2.5	14	35	13	32.5	7	17.5	5	12.5	3.025

Table 4.32 below presents the number of responses for each rating and the corresponding means for the challenges of using cloud services

Table 4. 32: The challenges of using cloud services

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Some of its components require an internet connection to function	40	3.00	5.00	4.3750	.66747	.446
It can be difficult to keep up with changing feature set	40	1.00	5.00	3.4250	.81296	.661
Users only use a given percentage of the product and not the full functionality	40	2.00	5.00	3.4750	.81610	.666
It is not secure, and privacy is not guaranteed	40	1.00	5.00	2.6500	1.21000	1.464
Migrating to the cloud is very expensive	40	1.00	5.00	3.0500	1.13114	1.279
Lack of a Service Level Agreement (SLA) leads to poor service delivery	40	2.00	5.00	3.5000	1.10940	1.231
Cloud interoperability issue with other vendors leads to vendor lock in	40	1.00	5.00	3.2000	.91147	.831
It is not authentic	40	1.00	5.00	2.4500	1.06096	1.126
There is no local support	40	1.00	5.00	2.8250	1.23802	1.533
Paying the monthly or annual per user license fee is very costly	40	1.00	5.00	3.0250	1.07387	1.153
Valid N (listwise)	40					

4.5 Performance of Insurance firms in Kenya

Factors used to measure performance included the number of claims paid in the last one month, the number of claims rejected in the last one month, the number of customers the firm has and the market share.

4.5.1 Number of Customers

Using the regression model, analysis of the data using SPSS provided the below results. Table 4.33 below represents the model summary, from the table the adjusted R square is 10% meaning that the independent variables (Cisco WebEX, Microsoft Office 365 and Amazon Web Services) can explain 10% of the variations in the number of customers.

Table 4. 33: Model Summary (Number of customers)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.412 ^a	.169	.100	1111802.879

a. Predictors: (Constant), Cisco_WebEx, Microsoft_Office_365, Amazon_Web_Services

b. Dependent Variable: Number_of_customers

From the tables 4.34 and 4.35 below, at the 90% significant level, we are rejecting the null hypothesis that all the independent variables together have no effect on the number of customers. This means that all of them together have a significant effect. However, at 95% we fail to reject the null hypothesis.

Table 4. 34: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.077E+12	3	3.026E+12	2.448	.079 ^b
	Residual	4.450E+13	36	1.236E+12		
	Total	5.358E+13	39			

a. Dependent Variable: Number_of_customers

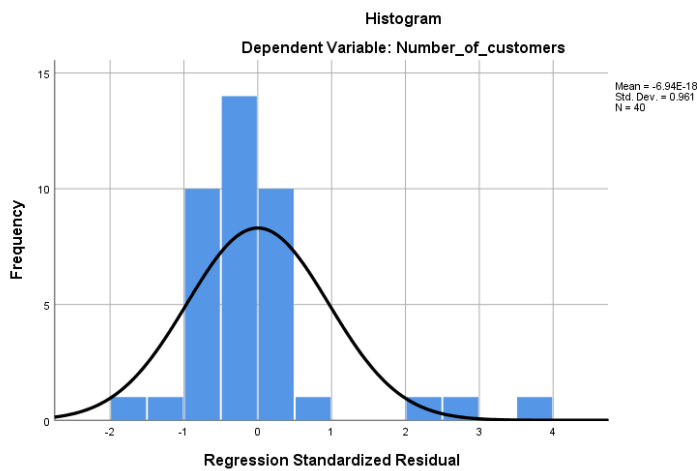
b. Predictors: (Constant), Cisco_WebEx, Microsoft_Office_365, Amazon_Web_Services

Table 4. 35: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	90.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	87217.520	283087.067		.308	.760	-390717.729	565152.768
	Microsoft_Office_365	556883.144	375343.014	.236	1.484	.147	-76807.608	1190573.896
	Amazon_Web_Services	1194133.107	705451.930	.272	1.693	.099	3120.226	2385145.988
	Cisco_WebEx	92649.344	429450.626	.035	.216	.830	-632391.166	817689.854

a. Dependent Variable: Number_of_customers

Figure 4. 4: Histogram (Dependent variable: Number of customers)



Although we looked at various types of Software as a Service (SaaS), Microsoft Office 365, Cisco WebEx and Amazon Web Services appeared to be used more and thus were

included in the model. The other types of Software as a Service (SaaS) were included in the descriptive statistics.

4.5.2 Claims paid

Table 4.36 below represents the model summary, from the table the adjusted R square is negative 4.4% meaning that the independent variables (Cisco WebEX, Microsoft Office 365 and Amazon Web Services) cannot explain the percentage variations in the number of claims paid in the last one month.

Table 4. 36: Model Summary (Claims paid)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.190 ^a	.036	-.044	807379.5679

a. Predictors: (Constant), Cisco_WebEx, Microsoft_Office_365, Amazon_Web_Services

b. Dependent Variable: Claims_paid_in_the_last_one_month

Table 4. 37: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.832E+11	3	2.944E+11	.452	.718 ^b
	Residual	2.347E+13	36	6.519E+11		
	Total	2.435E+13	39			

a. Dependent Variable: Claims_paid_in_the_last_one_month

b. Predictors: (Constant), Cisco_WebEx, Microsoft_Office_365, Amazon_Web_Services

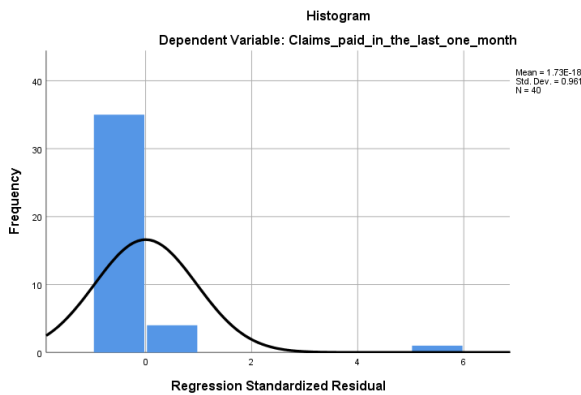
Table 4. 38: Coefficients

		Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	90.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	28011.049	205574.854		.136	.892	-319060.506	375082.604
	Microsoft_Office_365	275171.777	272570.152	.173	1.010	.319	-185007.788	735351.342
	Amazon_Web_Services	-132692.899	512291.779	-.045	-.259	.797	-997593.937	732208.140
	Cisco_WebEx	-220474.891	311862.532	-.122	-.707	.484	-746991.690	306041.909

a. Dependent Variable: Claims_paid_in_the_last_one_month

From the tables 4.37 and 4.38 above, at the 90% significant level, we fail to reject the null hypothesis that all independent variables together have no effect on the claims paid in the last one month.

Figure 4. 5: Histogram (Dependent variable: Claims paid in the last one month)



4.5.3 Claims Rejected

Table 4.39 below represents the model summary, from the table the adjusted R square is negative 5.4% meaning that the independent variables (Cisco WebEX, Microsoft Office 365 and Amazon Web Services) cannot explain the percentage variations in the number of claims rejected in the last one month.

Table 4. 39: Model Summary (Claims rejected)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.164 ^a	.027	-.054	1775.79467

a. Predictors: (Constant), Cisco_WebEx, Microsoft_Office_365, Amazon_Web_Services

b. Dependent Variable: Claims_rejected_in_the_last_one_month

Table 4. 40: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3121020.044	3	1040340.015	.330	.804 ^b
	Residual	113524081.9	36	3153446.718		
	Total	116645101.9	39			

a. Dependent Variable: Claims_rejected_in_the_last_one_month

b. Predictors: (Constant), Cisco_WebEx, Microsoft_Office_365, Amazon_Web_Services

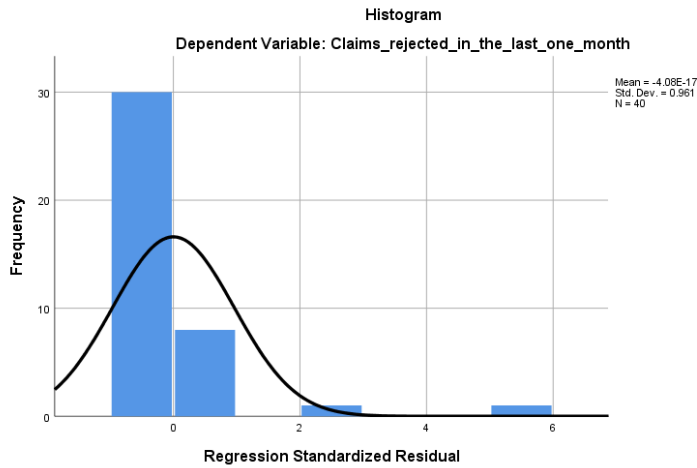
Table 4. 41: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	90.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	724.369	452.153		1.602	.118	-38.999	1487.738
	Microsoft_Office_365	-360.001	599.506	-.103	-.600	.552	-1372.145	652.143
	Amazon_Web_Services	-66.065	1126.762	-.010	-.059	.954	-1968.375	1836.246
	Cisco_WebEx	-395.456	685.927	-.100	-.577	.568	-1553.505	762.594

a. Dependent Variable: Claims_rejected_in_the_last_one_month

From the tables 4.40 and 4.41 above, at the 90% significant level, we fail to reject the null hypothesis that all independent variables together have no effect on the claims rejected in the last one month.

Figure 4. 6: Histogram (Dependent variable: Claims rejected in the last one month)



4.5.4 Market Share

Table 4.42 below represents the model summary, from the table the adjusted R square is 2.7% meaning that the independent variables (Cisco WebEX, Microsoft Office 365 and Amazon Web Services) can explain 2.7% of the variations in the marker share.

Table 4. 42: Model Summary (Market Share)

Model Summary^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.319 ^a	.102	.027	12.91243

a. Predictors: (Constant), Cisco_WebEx, Microsoft_Office_365, Amazon_Web_Services

b. Dependent Variable: Market_Share

Table 4. 43: ANOVA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	681.306	3	227.102	1.362	.270 ^b
	Residual	6002.313	36	166.731		
	Total	6683.619	39			

a. Dependent Variable: Market_Share

b. Predictors: (Constant), Cisco_WebEx, Microsoft_Office_365, Amazon_Web_Services

From table 4.44, to my surprise the usage of Microsoft Office 365 reduces the probability of the Insurance company's market share by 30%.

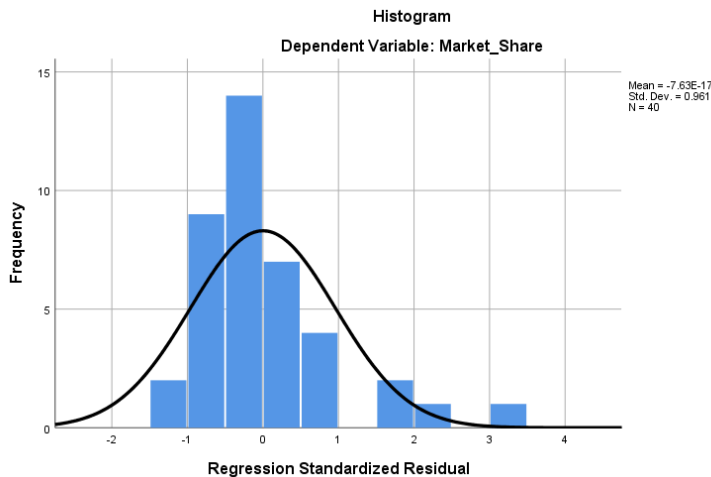
Table 4. 44: Coefficients

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	90.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	14.881	3.288		4.526	.000	9.330	20.432
	Microsoft_Office_365	-8.115	4.359	-.308	-1.861	.071	-15.474	-.755
	Amazon_Web_Services	8.400	8.193	.171	1.025	.312	-5.433	22.232
	Cisco_WebEx	2.451	4.988	.082	.491	.626	-5.970	10.871

a. Dependent Variable: Market_Share

Figure 4. 7: Histogram (Dependent variable: Market share)



4.6 Discussion Of Findings

The results indicate that at the 90% significant level, we are rejecting the null hypothesis that all the independent variables together have no effect on the number of customers. This means that all of them together have a significant effect. However, at 95% we fail to reject the null hypothesis. Although we looked at various types of Software as a Service (SaaS), Microsoft Office 365, Cisco WebEx and Amazon Web Services appeared to be used more and thus were included in the model. The other types of Software as a Service (SaaS) were included in the descriptive statistics.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Chapter five provides the research findings summary, recommendation and conclusions. Study limitations are also pointed out and suggestions for further research provided as well as study implications on practice and policy.

5.2 Summary of the Findings

The research objective was to investigate the adoption of cloud services and insurance firm's performance in Kenya, the benefits of using cloud services as wells as challenges faced in using cloud services. Insurance firms in Kenya have adopted cloud use. The results indicate that 80% of the surveyed companies are using cloud and Software as a Service (SaaS) while 20% are still using on-premises solutions. The various types of Software as a Service that the companies are using include Microsoft Office 365, Google Apps (G Suite), Amazon Web Services, Dropbox, Salesforce and Cisco WebEx. The results indicate that for the firms that are still using on-premises platforms, 2.5% are using Exchange server on-premises, 7.5% are using MDAemon, 5% are using Zimbra while 5% are using cPanel/ Webmail for emails.

The study established that 62.5% of the respondents strongly agree that with cloud services you have anytime and anywhere access to data enabling you to work at any time and from anywhere on the go. The fact that cloud offers a per user-based licensing model and pay as you go service so that you only pay for what you need, was not perceived as a very crucial benefit of using cloud services. Majority of the respondents considered the fact that some cloud components require an internet connection to function as being a very crucial

challenge to cloud adoption. Security and privacy was disregarded as a challenge of cloud services as most respondents consider cloud as being very secure and privacy is guaranteed.

Study results also indicated that at 90% significant level, we are rejecting the null hypothesis that all the independent variables together have no effect on the number of customers. This means that all of them together have a significant effect. However, at 95% we fail to reject the null hypothesis. Although we looked at various types of Software as a Service (SaaS), Microsoft Office 365, Amazon Web Services and Cisco WebEx appeared to be used more and thus were included in the regression model. The other types of Software as a Service (SaaS) were included in the descriptive statistics.

5.3 Conclusion

The study reveals that the benefits of cloud services far outweigh the challenges. Majority of the Insurance firms in Kenya have adopted the use of cloud services and only a small percentage of the firms are still using legacy on-premises solutions/ platforms. This study has examined the adoption of cloud services and performance of insurance firms in Kenya. Previous research done did not focus critically on adoption of cloud services (Software as a Service) and Kenyan Insurance firms' performance. This study has addressed this by studying adoption of cloud services and performance of Insurance firms as well as the benefits and challenges of adoption of cloud services. The results of the study indicate that at the 90% significant level, we are rejecting the null hypothesis that all the independent variables together have no effect on the number of customers (performance). This means that all of them together have a significant effect.

5.4 Recommendations

There is need for Insurance firms in Kenya to adopt use of cloud services in an endeavor to gain a competitive advantage in the market as technology is evolving in a very rapid pace. I would recommend that the firms select a cloud steward that will be responsible for guiding the firm towards cloud adoption. Management should be involved as they are the decision makers and thus need to be involved in the entire process. The firms need to identify the operations and data that will be migrated to the cloud and select the best cloud and vendor to achieve their goals. Consideration must be made in selecting a vendor that offers a Service Level Agreement (SLA) that offers guarantees that are sufficient. The Information Technology team should create policies that will ensure compliance for usage of cloud services across the entire firm. Adoption of cloud services isn't a one-time effort, its crucial to ensure that processes and economic modeling are established , which should be constantly revisited.

5.5 Research Limitations

The study results may have some shortcomings inherent to the industry in which the research was carried out. The research findings and their implications are not without limitations, although industry representation was adequate. Any conclusions are therefore primarily applicable to the Insurance industry but could as well apply for related industries in the technology area, but this would require further research. There was great tendency for the companies to be reluctant and overprotective in divulging sensitive information especially on performance metrics which they felt may be exposed to competitors. Various firm characteristics including years in existence and number of branches should have been

used in moderating the independent and dependent variables relationship in the regression model.

5.6 Areas of Further Research

For this study I was only able to look at SaaS, however, cloud services also includes PaaS and IaaS. Other researchers can address this and explore those areas further. Also, given more time research can be done using longitudinal research over a given period of time as opposed to a cross-sectional analysis.

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APPENDICES

APPENDIX I: Introduction Letter

Dear Respondent,

I am a graduate student undertaking a Master's Degree in Business Administration at the University of Nairobi (UON). As part of my course work, I'm conducting a study of adoption of cloud services and performance of insurance firms in Kenya. I would appreciate if you could take some time to answer the survey questions which will take just 5 minutes of your time.

The information collected is strictly confidential and for academic purposes only. Thank you for agreeing to take part in this survey.

Yours Faithfully

Joram Njuguna Karanja

Student No D61/5020/2017

APPENDIX II: QUESTIONNAIRE

SECTION A: Personal background and demographic information

1. Name of Company?

2. What is your gender?

Male ()

Female ()

3. What is your age range?

Below 18 years ()

18-25 years ()

25-30 years ()

31-35 years ()

36-40 years ()

41-45 years ()

46-50 years ()

Over 51 years ()

4. What is your highest academic qualification?

High school ()

Tertiary college ()

Bachelor's degree ()

College/technical/diploma ()

Post-graduate degree (Masters/Ph.D.) ()

Other (Please specify)

5. What is your current Job category?

Executive () Senior Management ()
Mid Management () Team Leader ()
Team Member ()

SECTION B: General Information

6. Are you currently using Software as a Service?

Yes () No ()

If yes which Software as a Service(s) are you using?

Microsoft Office 365 ()

Google Apps (G Suite) ()

Amazon Web Services ()

Dropbox ()

Salesforce.com ()

Box ()

Zendesk ()

Cisco WebEx ()

Slack ()

Workday ()

Concur ()

7. If no which platform are you using?

Exchange Server on-premise ()

MDaemon ()

Zimbra ()

cPanel/Webmail ()

Other (Please specify) _____

8. Which cloud-based service(s) are you using?

Storage ()

Applications ()

Backup ()

Network ()

Database ()

Information ()

Integration ()

Security ()

Management ()

SECTION C: The benefits of using cloud services

To what extent do you agree with the following as the benefits of using cloud services.

Indicate the extent with a tick (click) using the scale:

1=Strongly Disagree

4=Agree

2=Disagree

5= Strongly Agree

3=Neutral

	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	You have anytime and anywhere access to data enabling you to work at any time and from anywhere on the go					
2	It is safe, secure and privacy is guaranteed					
3	It offers free updates and upgrades whereby users are always running the latest version of software					
4	Provides a financially backed Service Level Agreement (SLAs) that guarantees uptime					
5	Users are able to collaborate and work on the same documents together					
6	It offers a per user-based licensing model and pay as you go service so that you only pay for what you need					

7	Provides larger mailboxes for storage of emails					
8	Users get larger storage for backing up of documents					
9	Routine maintenance and upgrading of the system is not required thus organizations are able to concentrate on the core of their business					
10	Support is readily available					
	Any other benefits					

SECTION D: The challenges of using cloud services

To what extent do you agree with the following as the challenges of using cloud services.

Indicate the extent with a tick (click) using the scale:

1=Strongly Disagree

4=Agree

2=Disagree

5= Strongly Agree.

3=Neutral

	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Some of its components require an internet connection to function					

2	It can be difficult to keep up with changing feature set					
3	Users only use a given percentage of the product and not the full functionality					
4	It is not secure, and privacy is not guaranteed					
5	Migrating to the cloud is very expensive					
6	Lack of a Service Level Agreement (SLA) leads to poor service delivery					
7	Cloud interoperability issue with other vendors leads to vendor lock in					
8	It is not authentic					
9	There is no local support					
10	Paying the monthly or annual per user license fee is very costly					
	Any other challenges					

SECTION E: Performance

How many claims were paid in the last one month?

How many claims were rejected in the last one month?

What is your market share?

Approximately how many customers do you have?

APPENDIX III: List of Insurance Companies in Kenya

Organizations that are there in the Insurance industry in Kenya include:

	INSURANCE COMPANIES (INSURERS)
1.	AAR Insurance Company Limited
2.	Africa Merchant Assurance Company Limited
3.	AIG Kenya Insurance Company Limited
4.	Allianz Insurance Company of Kenya Limited
5.	APA Insurance Limited
6.	APA Life Assurance Company Limited
7.	Barclays Life Assurance Kenya Limited
8.	Britam General Insurance Company (K) Limited
9.	Britam Life Assurance Company (K) Limited
10.	Cannon Assurance Company Limited
11.	Capex Life Assurance Company Limited
12.	CIC General Insurance Company Limited
13.	CIC Life Assurance Company Limited
14.	Continental Reinsurance Limited (Kenya)
15.	Corporate Insurance Company Limited
16.	Directline Assurance Company Limited
17.	East Africa Reinsurance Company Limited
18.	Fidelity Shield Insurance Company Limited
19.	First Assurance Company Limited

20.	GA Insurance Limited
21.	GA Life Assurance Limited
22.	Geminia Insurance Co. Limited
23.	ICEA Lion General Insurance Company Limited
24.	ICEA LION Life Assurance Company Limited
25.	Intra Africa Assurance Company Limited
26.	Invesco Assurance Company Limited
27.	Kenindia Assurance Company Limited
28.	Kenya Orient Insurance Limited
29.	Kenya Orient Life Assurance Limited
30.	Kenya Reinsurance Corporation Limited
31.	Liberty Life Assurance Kenya Limited
32.	Madison Insurance Company Kenya Limited
33.	Mayfair Insurance Company Limited
34.	Metropolitan Cannon Life Assurance Limited
35.	Occidental Insurance Company Limited
36.	Old Mutual Assurance Company Limited
37.	Pacis Insurance Company Limited
38.	Phoenix of East Africa Assurance Co. Limited
39.	Pioneer General Insurance Company Limited
40.	Pioneer Assurance Company Limited
41.	Prudential Life Assurance Company Limited
42.	Resolution Insurance Company Limited

43.	Saham Assurance Company Kenya Limited
44.	Sanlam General Insurance Company Limited
45.	Sanlam Life Assurance Company Limited
46.	Takaful Insurance of Africa Limited
47.	Tausi Assurance Company Limited
48.	The Heritage Insurance Company Limited
49.	The Jubilee Insurance Company of Kenya Limited
50.	The Kenyan Alliance Insurance Company Limited
51.	The Monarch Insurance Company Limited
52.	Trident Insurance Company Limited
53.	UAP Insurance Company Limited
54.	UAP Life Assurance Company Limited
55.	Xplico Insurance Company Limited