ICT BUSINESS CONTINUITY PLAN AND SERVICE DELIVERY IN INSURANCE COMPANIES IN KENYA

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DECLARATION

I hereby declare that this is my original work and has not been submitted for examination to any other academic body.

Sign _____ Date_____

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Supervisor

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

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I thank the almighty God for giving me the ability, capacity, energy and wisdom from the start of this project to this point. Without Him, I will not have made it this far.

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DEDICATION

I dedicate this project to all the women who dare to be different by working hard and not giving up on their dreams for education, career and continuous search for knowledge. This especially is for those women who tirelessly work in ICT environments and study ICT related courses.

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ICT Information Communication Technology

BCP Business Continuity Plan

ISO International Organization for Standards

ABSTRACT

Information and communication Technology (ICT) has become a very important aspect of businesses across the globe. It includes information systems, hardware, software, infrastructure, and communication technologies. These systems and technologies fail at some point in time due to foreseen and unforeseen disasters or causes. Being a very critical aspect in business operations, there is need to ensure that the ICT systems are recovered and brought into operations with minimum downtimes. The speed of recovery of services operations ensures the businesses are ahead of competitor and service satisfactory level of customers. ICT business continuity plan is a set of processes, rules, procedures with proactive planning that ensures critical services that depend on ICT are restored when a disaster occurs. It is during an ICT business continuity plan that resources which involve software, hardware, technical expertise, monitory, time and other infrastructure are planned in readiness for any system outage. It enables the organization to make important strategic, tactical and operational decisions regarding critical systems availability. The general objective of the study was to investigate the influence of ICT business continuity plan on service delivery in Insurance companies in Kenya. The research design employed in the study was descriptive. It focused on major insurance companies in Kenya with motor and medical insurance services as they represent registered insurance companies with critical services offered by insurance companies in Kenya. This study employed questionnaire method of design. The survey targeted 60 employees in the insurance companies. The data collected was presented in tables, percentages, bar graphs, frequencies, proportions, pie charts, regression analysis and other presentation tools from questionnaires. The study concludes that many insurance companies depend on ICT systems to perform their critical tasks and many have ICT business continuity plans. However, the ICT business continuity plan has not been fully implemented. Many of these insurance companies' biggest challenge was ICT business continuity plan was ignored as it was not considered a strategic aspect of the company. The key benefit of the ICT business continuity plan for the insurance companies was that ICT business continuity plan reduced system failures and improved recovery time. The study also concludes that ICT business continuity plan does not affect service delivery in Kenyan insurance companies. Other aspects of the business that company characteristics which includes size of the company, local or international ownership, years of operation affected service delivery. There is need for insurance companies in Kenya to fully implement the ICT business continuity plans for their effect to be felt on service delivery.

CHAPTER ONE: INTRODUCTION

1.1 Background

Information Systems has become a focal point in daily life operations (Ito & Howe, 2016). World economies, businesses, transport, security, markets and all other tasks across the globe depend on technology; which rely on Information Systems. The world has grown from manual processes to automated processes with a significant growth in accuracy, process dependability, improved process flows, increased service delivery speeds, reduced errors, reduced human intervention and increased sustainable growth. Information Systems at one point or the other fail or face a disaster from unforeseen factors like flooding, terrorism, political violence, theft, viruses, hackers, power failures, impulsive law enforcement and earthquakes to computer related factors like cybercrime, careless handling, server crash, system crash and computer crash (Kelly, 2016).

ICT business continuity plans are used to support, manage and effectively recover failed Information systems, hardware, technologies and infrastructure. The ability of the company to keep delivering services even in an event of failure improves its performance and dependability. The continent has an increasing use of technology with a big number of companies depending on technology to deliver services (Laudon & Laudon, 2007).

Insurance companies in Kenya are key players in the economy; in their operations, they depend on ICT platforms and various information systems. If a disaster occurs, they require operational ICT business continuity plans in order to ensure continuity and stability. Technology and systems for insurance companies in Kenya are built

with abilities to provide backups in case of failures (Delloite, 2015). This is because the company's resilience depends on ability to resume operations in the most effective, efficient, faster and reliable manner. The ability to recover in time as per set criterion describes the ability of the company to meet client's needs. The faster the recovery time, the faster the service delivery, continuity as well as restoration.

1.1.1 ICT Business Continuity Plan

Information systems business continuity is a strategic plan that allows core business systems to continue rendering services to the business after a disaster (Lacey, 2012). Furthermore, it is a documented collection of procedures, data and information followed by a business in order to resume service and products delivery within a predefined duration. It is a systematic process that prevents, predicts and manages ICT disaster incidents that have ability to disrupt business services that are rendered through ICT. To guide this study, this definition will be adapted. This plan usually results in more resilient ICT services aligned to other department's requirements and the business as a whole.

Many people interchangeably use ICT disaster recovery with ICT business continuity plan. Dell this year ungues thatICT disaster recovery is the ability to restore data, applications and information that the business runs if the data center or infrastructure get destroyed whereas ICT business continuity plan is the strategy that the business uses to operate with minimal or no service outage. Dell continues to assert that ICT disaster recovery is mainly concerned with restoring the ICT systems used by the business back to operations while the ICT business continuity plan keeps into consideration the strategy used to recover the business from ICT failures with the entire business departments put into consideration. One key concern for a disaster

recovery is the speed of recovery of the applications, systems and services while for business continuity the key concern is the strategies and plans for recovering and restoring the organizations technological infra-structure and capabilities after a serious interruption (Bird, 2011). The ICT disaster recovery plan can be planned, managed and wholly executed within ICT department while the ICT business continuity plan involves all other key business stakeholders from the planning, execution and management. It also involves a whole documentation of the entire process from the time the disaster occurs to restoration of services.

Some of the benefits of an ICT business continuity plan according to Storkey (2011) include; it enables Insurance companies to effectively manage the recovery and continuity of information systems, it ensures service rendering platforms can be resumed and accessed all the time, it ensures infrastructure that support operations along with the systems are able to continue operations in the event of a disaster, it allows the business to align its strategy with ICT operations and make it part of business as usual operations, it provides tested and proven methods for recovering the bossiness' critical operations and it keeps risks at bay by planning for them in advance while providing mitigation mechanisms. The business is also able to identify and document critical business functions and their business impact hence ability to lay clear understanding of what is priority and what isn't (Hall, 2007).

Some of the challenges of an ICT business continuity plan include; the plan is cost intensive, it is time consuming, it is difficult for ICT Business Continuity Plans to be kept up to date and per recommended standards and an effective ICT business continuity plan requires frequent testing and confirmation for its reliability but due to

resource constraints, testing has become a difficult goal to achieve (Clark, 2015).It is difficult to reach an agreement on the rules, policies, procedures and schedules for an ICT business continuity plan since all business departments are supposed to be involved in the process, the process of choosing critical activities and processes to be prioritized for restoration during outages is an intensive and challenging exercise and organizations face a wide spectrum of risks and they should efficiently manage, audit and plan to ensure continuity (Leitch, 2008).

1.1.2 Service Delivery

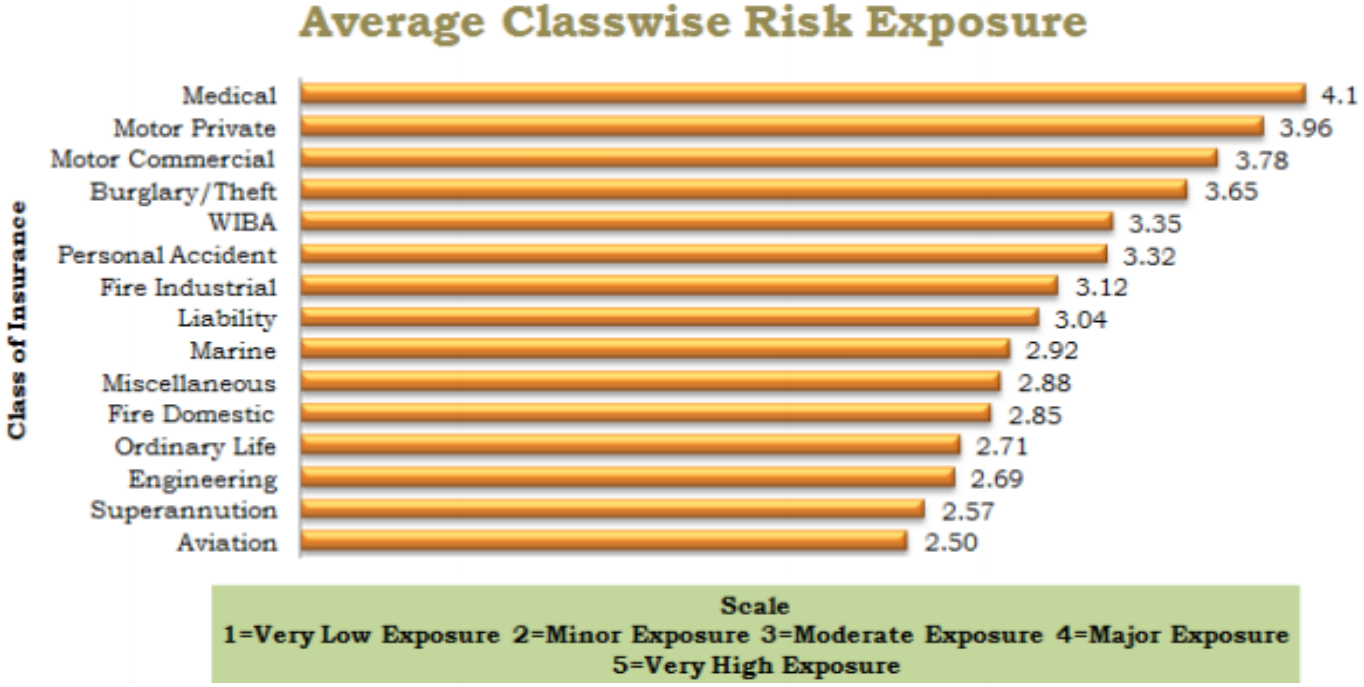
According to Mundt, Smith, & Egan (2014), service delivery looks at results which are described by availability, consistency, efficiency, quality and reliability. The further assert that service delivery is the availability of products and services at and when they are needed. Fogli & Salas (2006) assert that service delivery frameworks are used in many companies to ensure seamless delivery. The framework has standards, policies to be followed during delivery with the constraints and challenges like system outages. ICT service delivery follows a set of rules and process contained in a service delivery framework and catalogue. They describe the duration of downtime that is acceptable for the business and what services must be recovered as priority with the mechanisms used.

1.1.3 Insurance Industry in Kenya

The insurance industry is regulated by the Insurance Regulatory Authority of Kenya and it is governed by the Insurance Act. There are more than forty (40) registered insurance companies in Kenya (see Appendix 1).They offer a range of services which include financial services which include money markets, medical insurance, motor

insurance, life insurance and other general insurance products like motor, pension, personal, group accident covers, asset and marine insurance (PWC Kenya, 2013). This study will focus on some key services that require insurance provider's systems to be running at all times. They include Medical and Motor insurance services. Medical insurance services involve issuing authorizations for client's discharges, admissions, treatments and other medical support approvals. Motor insurance involves serving customers on motor accident claims, repairs and treatments for accident in case of party injuries. Jerry & Richmond (2007) assert that ICT business continuity plan study is important to insurance companies because it enables them effectively manage the recovery and continuity of information systems since their service's backbones rely on ICT systems and technology. According to Kuloba (2013) the insurance outlook on risk exposure to their business outlook is in the below diagram for combined industry risk.

Figure 1.1: Insurance Business Risk Exposure Outlook



Source: IRA(Insurance Regulatory Authority), (2013).

The industry is required to put more mitigation measures in place to prevent closure and losses caused by risks. Some risks are predictable while others are not. ICT business continuity plans put into consideration both classes of risks (Marchetti, 2005). The risks can be transferred, retained or mitigated. ICT disasters are usually mitigated and worked on to prevent diverse effects. Most ICT disasters can be foreseen and prevented while the unforeseen disasters are prepared for possible solutions in advance. The insurance companies' ICT departments with stakeholders continuously review areas of risk to ensure proper preparation and management of the ICT business continuity plans.

1.2 Problem Statement

Technology is a dynamic aspect of the business. To realize its full value and impact, developers improve and change it every other time (Godbole, 2014). However, older technologies are not supported by vendors and are usually prone to failure which makes them less reliable. Technologies also fail due to other risk exposures and disasters (Jones & Oz, 2008). A company's key operational services will go to a complete stand still if networks and technological platforms are not in operation (Straub & Chervany, 1999).

A number of studies have been done in the area of study. This year, BSI UK which is a business standards company carried out a study on Wordplay which is a payment processing specialist. The study was to find out how certifications to key standards improve business resilience and boost competitive advantage. The study found out that certification to key standards like ISO required the company to also have a

business continuity plan in place to increase business resilience (BSI, 2017). In 2013 IEEE carried out a study on E-business continuity and disaster recovery plan in Kuwait Government entities. The study revealed that cyber-attack exposes data to risk and organizations have to define these risks and be able to appraise their impact and mitigation. It further revealed that disaster recovery plan and business continuity plan are developed to prevent businesses from interruptions. As a result, large ratios of Kuwait Government entities have business continuity plans (Al-Enezi, Al-Shaikhli, & Al-kandari, 2013). DisasterRecovery.org which is an indepenedent organization that provides guidance on business continuity plan carried out a study in 2015 in a large banking institution based in Frankfurt, Germany to analyze the effect of its link redundancy in business continuity. The case study revealed that access and connectivity downtimes went down with the introduction of the redundant links (DisasterRecovery.org, 2015).

VM ware which is an ICT virtualization company in 2016 carried out a study in Kenya on ICT Business Continuity Plan about what happens when a disaster occurs. The findings were that most companies were unprepared for disasters and did not have a business continuity plan in place. Many companies ended up closing after major outages and disasters caused by lack of an ICT business continuity plan (VMWare, 2016). Odiyo (2015) carried out a study concerning the role of Disaster Preparedness on Business Continuity Management for Corporate Organizations. The findings indicated that most companies were not prepared for disasters despite having business continuity plans in place. The study was centered on finding out if companies have business continuity plans in place and if the companies were prepared for disasters. Maina (2012) also carried out a study on Business Continuity Planning

as a Strategy for Building Resilience Amongst Deposit Taking Microfinance Institutions in Kenya. This study centered on strategic planning on business continuity plan. The findings indicated that most companies did not strategically plan for business continuity despite being aware of the importance of a business continuity plan. All these studies carried out did not find out the effect of ICT business continuity plan in service delivery on insurance companies in Kenya. This study will fill this knowledge above by answering the following research question; What relationship is there between ICT business continuity plan and service delivery?

1.3 Objectives of the Study

The general objective of the study was to investigate the influence of ICT business continuity plan on service delivery in Insurance companies in Kenya.

Specifically to:

a) Establish the extent to which insurance companies in Kenya had implemented ICT business continuity plans.
b) Determine the challenges encountered in Kenyan insurance companies when implementing ICT Business Continuity Plans.
c) Establish the benefits of ICT business continuity plan for insurance companies.
d) Determine the effect of ICT business continuity plan on service delivery in Kenyan Insurance companies.

1.4 Value of the Study

The findings of the research added to the body of knowledge in the field of the research. It was to help Insurance companies in decision making on how to ensure their services were always available hence aid in meeting customer expectations. The policy makers who are majorly regulatory bodies were to benefit from the knowledge extracted from the study. Insurance companies in Kenya were to use this study to plan ahead for resource planning and prevent failures through the use of Business Continuity Plans. The advantages of ICT Business Continuity Plan highlighted from the study were to give insights to Kenyan insurance companies which did not have the plan to consider and strategize. Challenges of the Business Continuity plans revealed were to enable Insurance companies identify areas of weakness and work on resolutions for effective plans.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter covers what has been previously published and the available knowledge contributing to ICT business continuity plan and service delivery in Insurance companies. Several theories are explained with the extent to which they are used in ensuring business continuity in Insurance companies. The ICT business continuity plan concept is explained to shed light on its conceptual framework. Benefits and challenges of ICT business continuity plan are critically analyzed. Finally, this chapter analyzes the empirical studies relating to the ICT business continuity plan and service delivery.

2.2 Theoretical Framework

Various scholars have given insights on ICT business continuity plans and service delivery in general ways through several theories. The appropriate theories that help explain include soft systems, complexity, chaos and institutional theories.

Soft systems theory was developed by Peter Checklandin the 1960's. He asserts that there are soft and hard problems both having unique characteristics. Hard problems being easy to define and determine as they have the "what and how" in a research design methodology. Definite solutions exist with objectivity and constitute the ideological approach of systems engineering. Soft problems are hard to define and quantify. They consist of social and political elements that define or give solution to the problems (Checkland, Wiley, & Sons, 1981). To address the soft systems approach problem, Peter Checkland developed a Soft Systems Methodology that has stages totaling to seven. The soft systems methodology is used to address issues that

are more human than technical. An efficient ICT business continuity planshould put into consideration soft systems methodology in order to ensure the critical non-technical aspects of ICT like service delivery are met (Atkinson, 2000).

Complexity theory is a body of knowledge that analyzes complex systems. Senge (1994) asserts that dynamic complexity occurs when obvious interventions give rise to non-obvious consequences (Ferreira, 2011). Complexity theory was developed as part of the computation theory that deals with resources used to resolve a problem. The resources include time, space and processors (Cook, 2008). This theory deals with decision problems of yes or no. The complexity of a problem can be of class P which means problems are deterministic in a polynomial time or be of class NP which is solved in a non-deterministic polynomial time (Aslan, 2004). Complexity theory comes out clear in disaster recovery for information systems as the emergencies become more complex because of the growing number of people affected, involved stakeholders, resources increase, time constraints and risks. Six complexity types involved here are the human complexity, technological complexity, event complexity, interaction complexity, decision making complexity and cultural complexity (Byrne, 2013).

Chaos thoery was developed by Edward Lorenz in 1961 through his works on weather prediction using a simple digital computer in running weather simulations. According to this theory, deterministic systems' behaviors can be predicted and chaotic systems are predictable in the beginning then become random (Chang, 2008). The moment meaningful detections and predictions cannot be made; the system becomes random. According to Tabor (2009), for a system to be chaotic, it should and must have been

sensitive to initial conditions, be topologically mixable and have dense periodic orbits. Chaos prevents a stable strategy of problem solving. Disasters that don't occur in a straight line; they are non-linear in that variables are not stable and don't respond to changes proportionately (Tabor, 2009) during an ICT disaster occurrence, chaos occurs.

Philip Selznick was among the original developers of the institutional theory. He was a student at Merton's in Columbia. This theory considers the processes by which structure like the rules; procedures and routines convert to the authoritative operational guidelines of social behavior. According to Richard 2004, this theory looks at how the diffusion, adoption and creation of the guidelines and how they eventually decline and become less useful. This theory deals with the policy making process. This theory looks at the elements which comprise of the basis of compliance, the mechanisms, the logic, the indicator and the legitimacy. It also looks at the regulative aspect which consists of experience, coerciveness, instrumentally, rules, laws, sanctions and legal sanctions. The normative aspects of this theory include the social obligation, appropriateness, and accreditation and morally governed. The other schema of the theory is the cognitive aspect that include taken for granted, mimetic, orthodox, isomorphism and conceptually correct (Bjorck, 2004). This theory can be used to analyze the structural schemes, the rules, norms and routine processes adopted by organizations for ICT business continuity.

2.3 The concept of ICT Business Continuity Plan

ICT business continuity plan is a company-wide practice that is used strategically to ensure continuity in case of a disaster (Godbole, 2014). Furthermore, it is widely used

for guiding and managing ICT disaster recovery plans. When there is an outage in operations, Insurance companies suffer major loses from losing businesses. This is caused by effects of clients dying due to inability to access services. Automation has changed the way Insurance companies do businesses. The backbone of current innovations relies on ICT. ICT business continuity plan manages disaster recovery plans by ensuring all stakeholders are aware of recovery plans and policies. It also ensures that stakeholders are conversant with their roles in the recovery plans. It enables the business to frequently test for its disaster preparedness and put measures in place meant to improve the status of recovery. An ICT business continuity plan allows the company to plan for human, technological, infrastructural, time and financial resources to help the business resume from a disaster as fast and possible.

Without innovation, competition sweep insurance companies out of profitability. The foundation of successful innovation is ICT (Straub & Chervany, 1999). They assert that speed of service delivery is completely dependent on technology through quick access to insurance products and applications which are available even on mobile phones, portable devices and the internet. Insurance companies' growth and expansion in Kenya has witnessed a major boost through the use of technology. Branches are being set in different, remote locations connected and able to access applications at a click of a button, all powered by technology and connectivity. It is with these regard that the need for a standard and operational ICT business continuity plan becomes unavoidable in service delivery.

ICT being the core of insurance business operations, it is expected that it supports the business without fail. For continuity, systems are made available at different locations

in case of failure using network connectivity media like the internet, point to point and MPLS (Multi-protocol level switching). Redundant applications are made available on ICT infrastructure which includes hardware (servers, switches, routers and storage devices), software (systems and applications) and people resources (technical staff, developers and administrators). Furthermore, other technological resources involve the use of emerging technologies like cloud services through software and hardware as a services in order to ensure no ICT point of failure during disasters (Al-Enezi, Al-Shaikhli, & Al-kandari, 2013).

Information systems are the most invested for resources in all organizations like insurance companies. Insurance companies in Kenya are required by the government to have risk and audit departments to ensure sustainability. These departments also work hand in hand with IT departments to ensure availability of redundancy plans, testing of the plans and maintenance of systems and resources. According to Sambo & OluBankole (2016), businesses expand and grow faster because of technological support and reliance. As a result, they are exposed to major business interruption when technologies fail. Dependency on technology will continue to grow as economies; industries and innovation continue to exist hence the need for continued service delivery.

2.4 Benefits of ICT Business Continuity Plan in Kenyan Insurance Companies

Technology being used to support business functions and services in Kenyan Insurance companies brings about the need for an ICT business continuity plan. It ensures effective planning of resources for the business. A business has a number of

functional units, among them service departments, operational departments and sales departments. These functional units depend on ICT to deliver products and services for the business. Having an ICT business continuity plan will ensure that financial resources, human resources, technical and infrastructural resources are allocated in the event a disaster occurs (Lucey, 2015). This is because the plan involves the items needed for a continuity plan to be effective leading to early approval of costs and related items for support services.

An ICT business continuity plan reduces losses caused by unplanned disasters. This is because risks are stipulated and forecasted in time while putting in place mechanisms to mitigate and eliminate the same. When a disaster occurs, the preventative measures and recovery measures are quickly put in place leading to minimal or no losses. According to (Chaffey & Wood, 2011), Insurance companies with effective ICT business continuity plans will have a strategically agreed threshold of the maximum allowable time, data and infrastructure loss beyond which it is not acceptable for the business. This ensures that the plan is executed and tested regularly to be compliant with the policy in place.

Being able to have a road map of how to resume operations in case of a disaster means a well-planned and organized management of an insurance company. Acknowledging risks and allowing best practice and benchmarks of operations to be exercised allows the insurance company to have a competitive advantage against external environment. This plan prevents long duration failures that lead to customers shifting to computers. Quick response at all times means key systems operating at all times hence increased customer retention (Farmer, 2008).

The business realizes its value by ensuring the chain of supply is continuous as planned. Employees continue to deliver in their jobs without fear of losing the company or services caused by system failures. Peace of mind occurs when the feeling of safely is available. A working ICT business continuity plan creates a sense of insurance hence stability of the company and employees. Most valued companies have employees who hold strong and trust in the foundation and stability of the company and its operations (Burnes, 2004). Insurance companies are in most cases challenged by little trust from customers hence they should thrive to put mechanisms in place to ensure strong foundation created by efficient ICT business continuity plans.

It creates team work and systems understanding through the employee engagement plans. An ICT business continuity plan has all stakeholders involved due to the segregation of duties for action when executing an ICT business continuity plan. All departments and key sections are able to be involved as team members when explained about what their roles are and how they affect the business and service delivery. The ICT systems to be recovered and used in the plan are also explained for understanding their use and recovery mechanisms. These bring a sense of ownership, belonging and understanding of the business by employees (Kronke, 2010).

Technology changes all the time, for an ICT business continuity plan to bring more value and realize result for insurance companies in Kenya, it has to change every other time (Jones & Oz, 2008). This forces insurance companies in Kenya to continue

improving and applying the latest and best technologies. As a result, better and more secure ICT business continuity plans are continuously tailored and adopted.

Well planned and tested ICT business continuity plans ensure that in case of a disaster, recovery period for systems is reduced significantly. Some advanced continuity plans have no tolerance to extended outages hence have seamless cross over to back up sites and systems. Insurance companies can drastically reduce recovery time by following the agreed continuity plans without fail. Resources involved should follow to the later the policies and ensure nothing is falling out of the agreed period and threshold (Foray, 2009). With this, there is increase customer satisfaction due to the always available service.

2.5 Challenges of an ICT Business Continuity Plan

There are four major challenges faced by an ICT business continuity plan. The first is the resource challenge because a fully functional ICT business continuity plan requires resources from all corners of the business. Key resources needed for an operational and up to date business continuity plan include infrastructural, human, financial and technical. Most ICT business continuity plans are put in place to be used for testing disasters and waiting for failure to occur. This in most cases paint a picture of wasteful resource utilization. With Insurance companies in Kenya being faced by hard economic times caused by high claims and operational costs, it has become very expensive to manage and run an effective business continuity plan (Luftman, 2006).

ICT business continuity plan requires heavy planning and it is time consuming. Testing for a working business continuity plan involves putting in place working

environments to simulate a disaster. This needs a lot of time and resources for developing. The policies to guide the plan require company-wide stakeholder involvement. Schedule for testing and actual testing requires full participation of the key stakeholders. Results of the testing and analysis require time to interpret and correct both errors and areas that don't pass the tests. Training for the stakeholders involved requires financial resources and time (Surie, 2008).

Thirdly the continuously changing technologies hinder smooth operation of the ICT continuity plans because they are rendered obsolete within a short cycle. Failure to upgrade or change the technology leads to a failed plan. The changing technology requires new costly acquisitions, trainings and setups which require a lot in terms of company time and engagement to the continuity plan (Robertson, 2011). ICT business continuity plans fail to materialize or pass the testing criterion because of old unsupported systems and infrastructure which at some point in time were very efficient.

Finally, there are insurance companies in Kenya which don't consider ICT business continuity plans as strategic elements of the business. There is therefore no involvement or seriousness applied to the continuity plans because there is no support from the top chain of management. Risk and audit departments identify challenges every time but they are usually not fully corrected. As a result, business suffers when disasters occur leading to low customer satisfaction and retention. This creates poor public image that translates to poor pay and less motivated employees. According to Hailey (2008), ICT business continuity plan need to be rooted from the management level to the junior levels in order to produce expected results.

2.6 Business Continuity Plan and Service Delivery

According to Caelli, Kwok, & Longley (2011), the empirical study done in Hong Kong revealed that over the past twenty years, organizations depend on ICT and major expenditures are go to ICT infrastructure. According to this study, strategic management, risk analysis, stake holder training, stakeholder awareness and information life cycle management affect the ability of a business continuity plan to be effectively developed and used in organizations. In conclusion, this study revealed that business continuity plans should not only involve the traditional planning but involve strategic management, risk analysis, awareness and information lifecycles management.

A study done in Africa in one hundred and twenty listed companies by Walsh & Rayman-Bacchus (2015) on the Insurance Information Institute revealed that a number of businesses never open after a disaster while others struggle to survive after a disaster. In small businesses, 40 % fail to open after a disaster, 75 % of big business segment has no business continuity plans in place and 26% of small to medium sized business have a business continuity plan. Another empirical study done in the UK in 2016 revealed that 50% of UK organizations have a business continuity plans in place; this is according to Swartz & Elliot (2006), with only 20% believing the plans in place will be effective in case of a disaster. The study revealed that the companies with business continuity plans had improved service delivery.

ICT Business Continuity Plans are put in place to ensure disasters are remedied in and on time. Services can only be delivered with working systems hence the direct relationship of service delivery to ICT Business Continuity Plan. ICT systems are

prone to disasters hence the need to have recovery plans and options in place; this then allows for services to resume using a Business Continuity Plan. This is because most insurance company functions have been automated using technology as the foundation and the core factor. According to Cisco (2009), effective ICT service delivery relies on efficient business continuity plan that involves preparation, planning, designing, optimizing, implementation and operation of key ICT services. Successful Insurance companies focus on customer retention, customer satisfaction, customer number growth, and customer engagement.

2.6.1 ITIL Service Delivery Model

The ITIL (Information Technology Infrastructure Library) framework explains service delivery concept. According to Maitra, Shanker, & Mudholkar (2013), ITIL is divided into service levels which include incident, problem, change, release and configuration management. This framework of knowledge supplements fault management in ITIL processes that exist in Insurance companies in Kenya (Samiotakis, 2013). According to ITILnews this year, the framework is key in ensuring that services are delivered in time without fail and according to the service level agreements put in place.

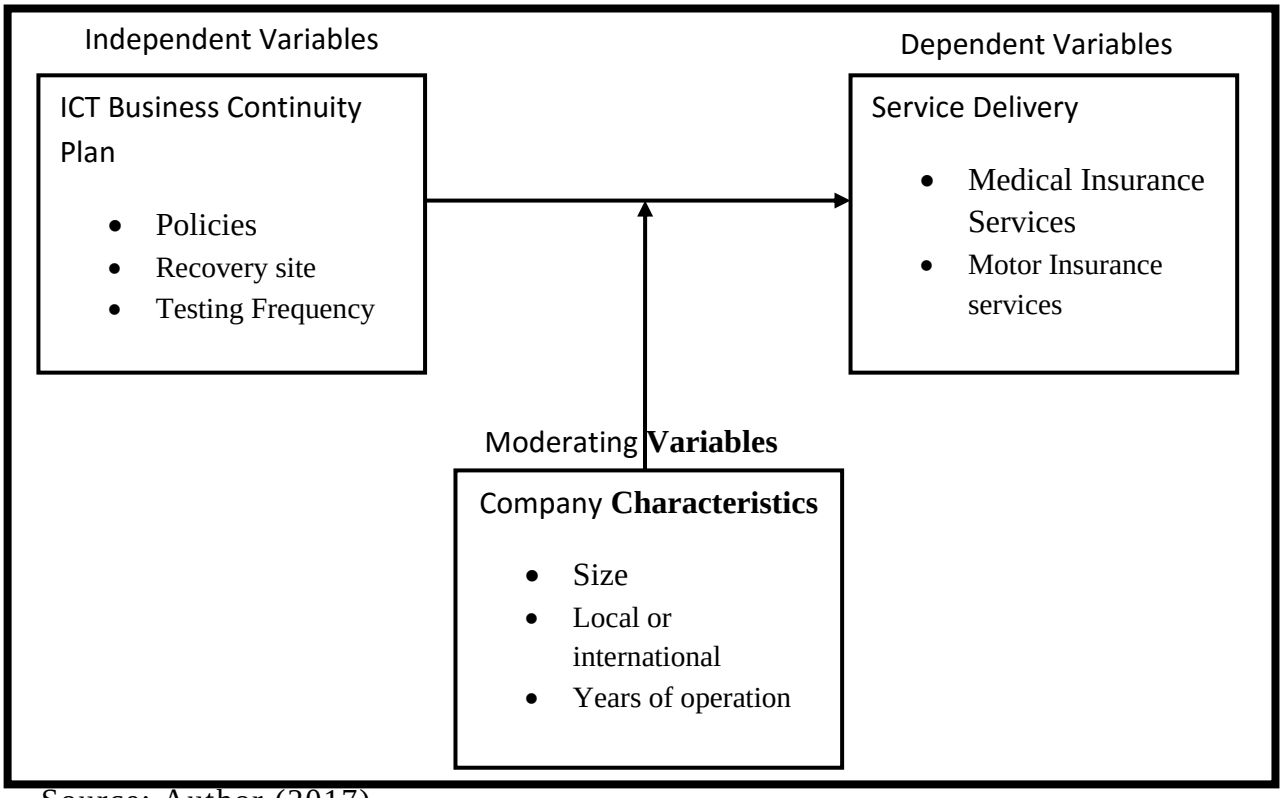
Figure 2.1: ITIL Framework:

Source: International Journal of Emerging Research in Management &Technology, (2016).

2.7 Conceptual Framework

For an ICT business continuity plan to be successful there should be policies, recovery sites and testing. The continuity ensures service delivery for medical and motor insurance operations. These variables are controlled by different companies' characteristics like size, local or international orientation and the years of operation. This framework was used to guide the study.

Figure 2.2: Conceptual Framework



Source: Author (2017)

2.8 Summary of Literature

In the literature review there is the introduction section that introduces the sections of the chapter. The theoretical framework explains what previous scholars have worked on regarding ICT business continuity plans through various theories. The concept of ICT business continuity plan is explained indicating its use widely is due to the continued dependacy on technology. Advantages and challenges of the ICT business continuity are covered in this chapter the empirical studies in this chapter indicate a number of studies have been carried out connecting ICT business continuity plan with service delivery. Finally, this chapter covers the ITIL conceptual framework and a detailed conceptual with dependent, independent and moderating variables framework.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research Design

According to Borrego, Douglas, & Amelink (2009), research design is the way conditions for data collection are arranged in order to get a combined relevance to the purpose of research. The research design type that was adopted for this study was descriptive. Boudah (2017) assert the importance of descriptive study which involved primary data collection in respect to attitudes, ideas, behaviors, intentions and behaviors of a certain target population. It allowed the researcher to assess samples at specific points in time without resulting to inferences. This type of research allowed the researcher get deeper insights on the way insurance companies in Kenya related ICT business continuity and service delivery. In this study, a cross-sectional research design was adopted. In cross-sectional study, a representative subset of a population is used for data collection at a certain point in time whose data is then analyzed (NEDARC, 2016).

3.2 Target Population and sample

A population is a group from which a sample can be extracted from (Kumar, 2014). It can also be referred to items or individuals who meet a certain selection criterion in order to be analyzed or studied (Keller & Creswell, 2010). For this study, the population was all Kenyan insurance companies. The sample consisted of fifteen (15) major insurance companies which had both medical and motor insurance with a sizeable employee base. They included CIC Insurance Group, Resolution Insurance, Britam, Kenya Orient Insurance, UAP Insurance Company, APA Insurance, Fidelity Shield Insurance Company, Old Mutual Life Assurance Company, ICEA LION, AAR Insurance Kenya, Madison Insurance Company Kenya Group, Liberty Life Assurance

Kenya Limited, Geminia Insurance Company, Jubilee Insurance Company Limited and Sanlam. The best placed people who gave feedback to the survey were ICT staff members who supported the business' core systems or networks. This is because the ICT staffs were service providers for the Insurance companies. Kenyan Insurance companies use the ICT systems offered and supported by ICT staff to offer services to clients.

3.3 Data Collection

According to Dudovskiy (2016), data collection is a method of gathering data and information in a systematic manner that enables questions to be answered and outcomes to be evaluated on the subject of study. For this study, four (4) employees in ICT departments in the fifteen (15) Insurance companies in Kenya were selected to respond to the research questions. This is because ICT staff members supported the business' core systems or networks and were service providers for the Insurance companies. As a result, sample size of sixty (60) participated in the study. One (1) questionnaire was issued to the ICT manager, one (1) to the system or network administrator, one (1) to the support technician and one (1) to the ICT client service staff.

According to Gill, Stewart, Treasure, & Chadwick (2008) questionnaires comprise of both structured and unstructured data. In this study, the structured closed-ended questionnaires were used to limit the respondents to the area of study while the unstructured open-ended questions were used to give the respondents room to express themselves by giving more information relating to the area of study. Likert scale questions like the 1 to 5 scales were used. This is a non-comparative scaling method

that gives flexibility to the responded in order to give their agreement or disagreement levels (Cooper & Schindler).The questionnaires had five sections. Section A collected company profile data of respondents, section B formed objective A, section C formed objective B, section D formed objective C and section E formed objective D.

3.4 Data Analysis

Quantitative data which is measurable and numerical together with qualitative data which is aimed at getting more in-depth details and is not measurable was analyzed (Barbour, 1998).Objective A, B, C was analyzed using descriptive statistics which includes tables, bar graphs, frequencies, pie charts and percentages. Objective D used the following question model:

$Y = a + b_1X_1 + b_2X_2 + e$

Y was Service delivery

a was the constant (coefficient of intercept)

X_1 was ICT Business Continuity Plan

X_2 was Company Characteristics

b_1.....b_2 were the regression coefficients of the variables

e was the error term

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The goal of this research was to look into the ICT business continuity plan and service delivery in insurance companies in Kenya. The chapter presents the research findings based on the methodology stated in chapter three. It is comprised of the following sub-sections: response rate, company profile, ICT business continuity plan, challenges encountered in implementation of business plan, benefits of ICT business continuity plan, service delivery as well as inferential analysis.

4.2. Response Rate

There was a target of 60 respondents anticipated by the study to respond to survey questionnaire. However, out of the estimate figure, 46 responded by filling in and returning the questionnaires. Thus, the response rate was 76.7 percent as indicated in Table 4.1. The rate of response recorded by the study was found to be fit for analysis since Mugenda & Mugenda (2010) advocate that any response rate 70% and above is considered excellent for analysis and making conclusions.

Table 4.1: Distribution of Response Rate

Responses	**Frequency (n)**	**Percentage (%)**
Responded	46	76.7
Not responded	14	23.3
Total	**60**	**100**

Source: Author (2017)

4.3 Company Characteristics

4.3.1 Ownership of Insurance Companies

The research sought to establish if the companies were locally owned or if they have foreign ownership. From Table 4.2 below, 71.7% of the companies were locally owned while 28.3% were foreign or internationally owned. This could imply that most companies have a deep understanding of local outfit and needs since they trace their roots locally.

Table 4.2: Company Ownership

Ownership	Frequency (n)	Percentage (%)
Local	33	71.7
Foreign	13	28.3
Total	**46**	**100**

Source: Research Findings

4.3.2 Years of Operation

The study sought to establish the number of years the insurance companies have been in operation and the outcomes are as indicated in Table 4.3. From the finding given, it can be construed that majority (47.8%) of the respondents indicated that their respective companies had been in operation for over 55 years. About 28.3% of the respondents stated that their respective insurance companies had been operating for years between 25 and 35. Those who had been in operation for a period ranging from 10 – 25 years had a representation of 17.4%. However, only 6.5% were found to have operated for a period ranging from 46 – 55 years. This could imply that most of the insurance companies have operated long enough and therefore a sign of sustainability.

Table 4.3: Years of Operation

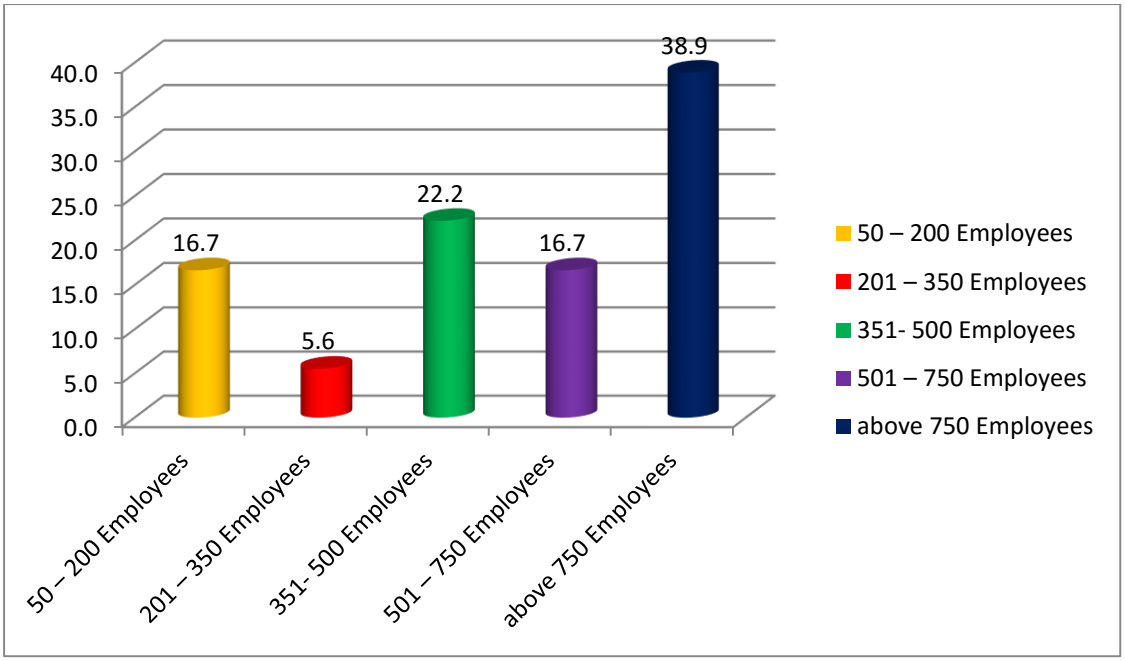
Years	Frequency (n)	Percentage (%)
10 – 25 years	8	17.4
26 – 35 years	13	28.3
46 – 55 years	3	6.5
Above 55 years	22	47.8
Total	**46**	**100**

Source: Research Findings

4.3.3 Number of Employees

The study sought to determine the size of the company by looking at the number of employees. In figure 4.1 below, 16.7% had 50 to 200 employees, 5.6% had 201 to 350 employees, 22.2% had 351-500 employees, 16.7% had 501-750% employees and 38.9% had above 750 employees. This could imply that most of the insurance companies which responded have a strong employee base in terms of numbers.

Figure 4.1: Number of Employees

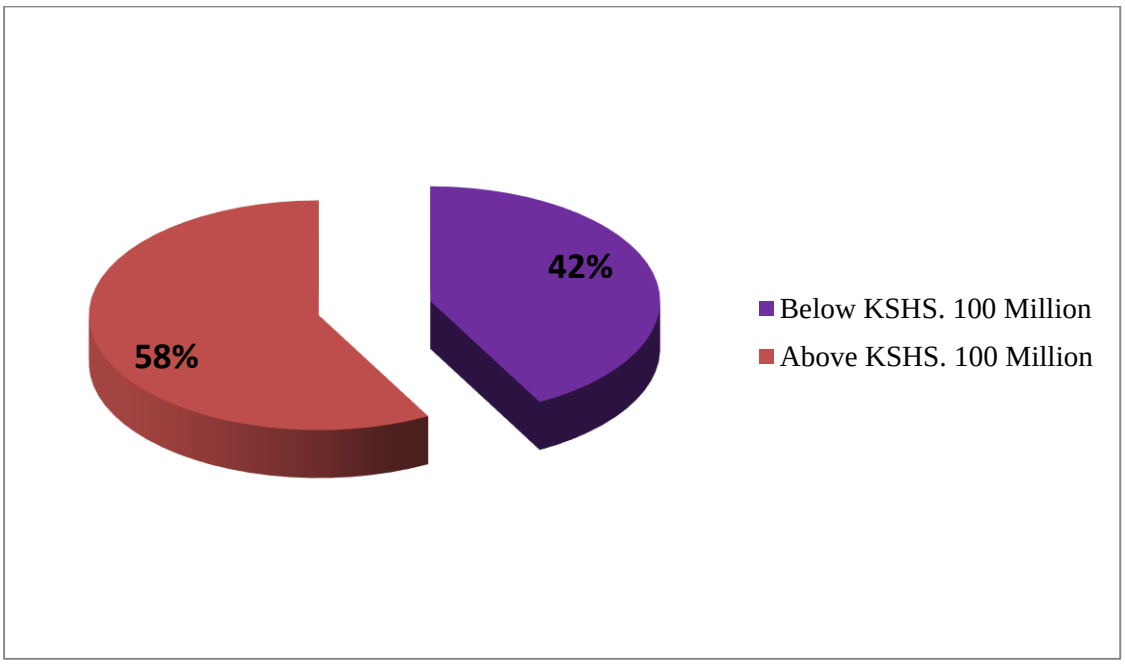


Source: Research Findings

4.3.4 Annual Profits

The study sought to find the companies' profit levels and Figure 4.2 indicates that 42% of the companies had an annual profit rate of below KSHs. 100 Million while 58% had above KSHs. 100 Million per year. This could imply that most of the respondents have large profits hence financial stability.

Figure 4.2: Profits per Year



Source: Research Findings

4.4 ICT Business Continuity Plan

4.4.1 ICT Usage

The study sought to determine the extent of ICT computer systems usage in the Insurance companies which lead to the need for an ICT business continuity plan. From Table 4.4 below; 82.6% of the respondents used ICT for all their core tasks while 17.4% did not depend on ICT for all their core processes.

Table 4.4: Extend of ICT Usage

Responses	Frequency (n)	Percentage (%)
Yes	38	82.6
No	8	17.4
Total	**46**	**100**

Source: Research Findings

4.4.2 Failure of ICT Systems

The study sought to determine how frequent ICT systems that insurance companies depended on failed. Table 4.4 below 84.8% indicated that their systems rarely failed while 15.2% had their systems failing sometimes. Disasters that cause system failures never occurred and sometimes occurred for 8.7% of the respondents while 82.6% rarely had disasters.

Table 4.4: Frequency of ICT Systems Failure

	Percentage Distribution of Responses				
System Failure	**Never**	**Rarely**	**Sometimes**	**Always**	**Total**
Your systems fail frequently	0.0%	84.8%	15.2%	0.0%	**100%**
Disasters occur causing system outages	8.7%	82.6%	8.7%	0.0%	**100%**

Source: Author (2017)

4.4.3 Presence of ICT Continuity Plan

The study sought to determine the presence of an ICT business continuity plan to reduce or prevent the effects of system failures caused by disasters. Table 4.5 shows that 97% of respondents had an ICT business continuity plan in place while 2.2% did not have the plan.

Table 4.5: Presence of ICT Continuity Plan

Responses	Frequency (n)	Percentage (%)
Yes	45	97.8
No	1	2.2
Total	**46**	**100**

Source: Research Findings

4.4.4 Extend of ICT Business Continuity Plan Policies

The study sought to determine the extent to which ICT business continuity plans have been implemented by checking if there were any internal policies in place to regulate, manage and control the ICT business continuity plan. 95.7% had policies in in place while 4.3% did not have any policy.

Table 4.5: Regulation of ICT Continuity Plan

Responses	Frequency (n)	Percentage (%)
Yes	44	95.7
No	2	4.3
Total	**46**	**100**

Source: Research Findings

4.4.5 Supplementary Disaster Recovery Site

The study sought to determine the extent to which the ICT business continuity plan had been implemented by finding out if there was an offsite location for disaster recovery. 97.8% of the respondents had disaster recovery sites to improve their recovery while 2.2% did not have a recovery site.

Table 4.6: Supplementary Disaster Recovery Site

Responses	Frequency (n)	Percentage (%)
Yes	45	97.8
No	1	2.2
Total	**46**	**100**

Source: Research Findings

4.4.2 Extend of Testing ICT Business Continuity Plan

The study sort to determine how frequent the ICT Business Continuity Plans are tested and how they are managed.

Table 4.7: Frequency of Testing and extend of ICT Business Continuity Plan

Descriptive Statistics					
Statements	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
ICT business continuity plan involve other non-ICT departments which improves teamwork.	46	2.000	5.000	4.15217	.556473
The company takes ICT business continuity plan to be very important.	46	2.000	5.000	4.04348	.630926
Recommendations are done after tests.	46	1.000	5.000	4.00000	.596285
Recommendations are usually implemented after the tests.	46	1.000	5.000	3.93478	.679940
These ICT business continuity plan tests usually are successful.	46	2.000	5.000	3.86957	.499275
Your ICT business continuity plan is tested.	46	1.000	5.000	3.76087	.765500

Source: Author (2017)

Table 4.7 shows that out of 5, an average of 4.1 of respondents involve other departments for team work, an average of 4.0 took the plan with importance, an average of 3.9 had recommendations for improvement done after tests, an average of 3.8 had the recommendations implemented afterwards and an average of 3.7 frequently tested their ICT business continuity plans.

4.5 Challenges of ICT Business Continuity Plan

The study sought to determine the challenges of and ICT business continuity plan to the insurance companies in Kenya. According to Table 4.8 below, responds with a mean of 4.521 showed that ICT business continuity plan is not considered as a strategic element of the company. The second major challenge had a mean of 3.804 where respondents indicated that ICT business continuity plan is considered as an ICT only role. The other challenge had a mean of 3.586 where the respondents indicated that there was a lack of policies rules that govern the plan was. A mean of 3.586 of the respondents showed that they did not have enough knowledge and information on ICT business continuity plan. A mean of 2.652 had resources constraint as the biggest challenge for ICT business continuity plan. According to respondents with a mean of 2.413, Technologies frequently change leading to frequent need for change of ICT business continuity plans. There was a lot of time and resources needed to run and manage ICT business continuity plans, this was according to respondents with a mean of 1.956. ICT business continuity plans need a lot of planning and input from the companies according to respondents with a mean of 1.565. A mean of 1.5 of the respondents indicated that technical knowledge is required to run the ICT business continuity plan.

Table 4.8: Challenges of ICT Business Continuity Plan

Descriptive Statistics					
Statements	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
ICT business continuity plan is not considered as a strategic element of the company.	46	2.000	5.000	4.52174	.936640
The ICT business continuity plan has been viewed to be an ICT only role and does not include other departments.	46	.000	5.000	3.80435	1.222376
There are no policies put in place to aid the operations of the plan.	46	.000	5.000	3.58696	1.407537
There is not enough information in the company to stakeholders regarding what an ICT business continuity plan is all about.	46	.000	5.000	3.58696	1.184644
Due to insufficient resource ICT business continuity plans don't work.	46	.000	5.000	2.65217	1.139540
Compared to the previous manual processes, ICT systems go down most frequently and they need continuous monitoring.	46	1.000	4.000	2.41304	.932764
Technology changes frequently and ICT business continuity plan cannot be up to date.	46	1.000	5.000	2.26087	.880272
There is too much time needed to implement an ICT business continuity plan.	46	1.000	4.000	1.95652	.987849
ICT business continuity plans require a lot of planning.	46	1.000	4.000	1.56522	.654970
Technical knowledge is needed to run an ICT business continuity plan.	46	.000	4.000	1.50000	.781736

Source: Author (2017)

4.6 Benefits of ICT Business Continuity Plan

The study sought to identify the benefits of ICT business continuity plans in Kenyan Insurance companies. Table 4.9 shows a mean of 1.608 indicated that the company benefited due to reduced recovery time of systems from failure. With a mean score of 1.565 an ICT business continuity plan ensured continues chain of supply. A mean score of 1.565 showed that the company also benefited by being able to forecast need for resources and ensure resilient systems. At a mean of 1.543 the results showed that ICT business continuity plan lead to a well-planned and organized management.

A mean of 1.521 indicated it created team work and systems understanding through employee engagement plans. According to respondents with a mean score of 1.521 points of failures were realized and reduced during ICT business continuity plan testing. A mean of 1.500 confirmed an ICT business continuity plan enabled them to know exactly what to do when a disaster occurred.ICT business continuity plan reduced losses caused by unplanned disasters by a mean of 1.434.1.435 mean score showed that the companies benefited because the plan ensured effective planning of resources for the business in the event of a disaster. Finally, with a mean of 1.413 the companies were more dynamic to ICT and technological changes leading to improved system versions and hardware.

Table 4.9: Benefits of ICT Business Continuity Plan

Descriptive Statistics					
Statements	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
The company can drastically reduce recovery time during failures by following the agreed continuity plans without fail.	46	.000	5.000	1.60870	.977031
The business realizes its value by ensuring the chain of supply is continuous as planned due to the presence of an ICT business continuity plan.	46	.000	4.000	1.56522	1.003376
The company is able to understand and forecast future resources needed to ensure resilient systems.	46	1.000	5.000	1.56522	.834058
An ICT business continuity plan leads well-planned and organized management.	46	1.000	4.000	1.54348	.887106
It creates team work and systems understanding through employee engagement plans.	46	1.000	4.000	1.52174	.912606
Points of failures are realized and reduced during ICT business continuity plan testing exercises.	46	1.000	5.000	1.52174	.722315
We are able to know exactly what to do when a disaster occur causing systems to be inaccessible.	46	1.000	5.000	1.50000	.752773
ICT business continuity plan reduces losses caused by unplanned disasters.	46	1.000	4.000	1.43478	.885743
ICT business continuity plan ensures effective planning of resources for the business in the event of a disaster.	46	1.000	5.000	1.43478	1.025284
The company is more dynamic to changes steered by the ICT technological changes.	46	1.000	4.000	1.41304	.652383

Source: Author (2017)

4.7 Service Delivery

4.7.1 Rating Statements on Service Delivery

The study sough to determine the effects of ICT business continuity plan on service delivery. Table 4.10 shows that the companies had increased profit margins due to better products and services offered with a mean of 3.69, with a mean of 3.65, the companies' customer satisfaction was based on quality of services offered, a mean of 3.65 had service delivery boosted through ICT business continuity plan adopted by the company and a mean of 3.5 had increased profit margins due to better medical and motor insurance services offered.

Table 4.10: Statements on Service Delivery

Descriptive Statistics					
Statements	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Our company has increased its profit margins due to better products and services offered	46	2.000	5.000	3.69565	.756294
Customer satisfaction is based on the quality services delivered	46	1.000	5.000	3.65217	.993700
Service delivery is boosted through ICT business continuity plan adopted by our company	46	2.000	5.000	3.65217	.706081
Our company has increased its profit margins due to better motor and medical insurance services offered	46	3.000	5.000	3.52174	.586482

Source: Author (2017)

4.7.2 Number of Motor Insurance Policies Not Renewed in the Past Year

The study sort to determine the number of motor insurance policies not renewed in the previous year. The respondents had on average 29.86 motor insurance policies not renewed. This could imply that less motor insurance policies were not renewed as more than half were renewed leading to fewer losses.

Table 4.11: Number of Motor Insurance Policies Not Renewed in the Past Year

Descriptive Statistics					
Statement	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
How many motor insurance policies were not renewed in the last one year	46	4.000	100.000	29.86957	33.962954

Source: Author (2017)

4.7.3 Number of Medical Insurance Policies Not Renewed in the Past Year

The study sort to determine the number of medical insurance policies not renewed in the previous year. The respondents had on average 17.43 medical insurance policies not renewed which was just above half of 30 policies.

Table 4.12: Number of Medical Insurance Policies Not Renewed in the Past Year

Descriptive Statistics					
Statements	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
How many medical insurance policies were not renewed in the last one year	46	5.000	30.000	17.43478	9.428323

Source: Author (2017)

4.8 Regression Analysis

Regression analysis was used as a statistical process to estimate the relationship between the independent, dependent and moderating variables in the study. R^2 was used to check the goodness of fit of the model to the data. R^2 being a coefficient of determination, it was used to give the proportion of variance or fluctuation of predictable variable from the other variable. It was used to determine how certain factors were used in making predictions from the model. It is a ratio of explained variation to the total variation. It is such that $0 < R^2 < 1$ and gives strength of linear association between X and Y. Therefore, there is need to find out if independent variable relates to dependent variables. The independent variables included ICT Business Continuity Plan variables which included Policies, Recovery site and Testing Frequency. Dependent variables included Service Delivery for Medical Insurance Services and Motor Insurance services. Moderating variables included company characteristics which had Size, if the company was Local or international and years of operation Years of operation.

4.8.1 Model Summary

Table 4.13 illustrates the linear relationship between the dependent and independent variables with an R value of 0.748 and R2 value of 0.56. This shows that ICT Business Continuity Plan and Company Characteristics can only explain 56% of variations in service delivery in insurance companies in Kenya. This indicates that the remaining 44% percentage can be taken up by other factors other than the ones analyzed in the study.

Table 4.13: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.748[a]	.560	.516	6.562152

a. Predictors: (Constant), ICT Business Continuity Plan, Company Characteristics

Source: Author (2017)

4.8.2 Analysis of Variance (ANOVA)

Further, the study carried out a regression estimate to provide an ANOVA on the model of study shown in Table 4.14. The sum of squares had a higher value of 1094.416 compared to the 861.237 of the residual value and a mean square value of 547.208 compared to 43.062 of the residual value. The F value of the model was 12.707 with a p – value of 0.000. A significance level with p – ≤ 0.05 indicates that the null hypothesis should be rejected. From the ANOVA analysis of this study, it implies that ICT business continuity plan did not affect service delivery.

Table 4.14: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1094.416	2	547.208	12.707	.000[b]
	Residual	861.237	20	43.062		
	Total	1955.652	22			

a. Dependent Variable: Service delivery

b. Predictors: (Constant), ICT Business Continuity Plan, Company Characteristics

Source: Author (2017)

4.8.3 Beta Coefficients

The Beta coefficients used to measure the relationship between independent variables ICT business continuity plan with Policies, Recovery site and Testing Frequency and dependent variables Service delivery for motor and medical insurance services is shown in Table 4.15.

Table 4.15: Beta Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.947	5.542		1.434	.167
	ICT Business Continuity Plan,	3.037	5.345	.093	.568	.576
	Company Characteristics	7.490	1.736	.705	4.314	.000

a. Dependent Variable: Service Delivery

The findings show a constant coefficient of 7.947 (t=1.434) and a p – value of 0.167. The respondent's ICT business continuity plan coefficient of 3.037 (t=0.568) with a p – value of 0.576 which is >0.05 hence ignored in model conclusion. The respondent's company characteristics coefficient had a value of 7.490 with a (t=4.314) with a p – value of 0.000 which is <0,05 hence significant. As per the model, Y = a + b1X1 + b2X2 + e. Y is Service delivery, a is the constant (coefficient of intercept), X1 is ICT Business Continuity Plan, X2 is Company Characteristics, b1..... b2 are the regression coefficients of the variables, e is the error term. Therefore, Y = 7.947 + 3.037X1 + 7.490X2 and from the above analysis, ICT business continuity plan had no significance on service delivery. Hence, the new predictor model indicated that

service delivery was affected by moderating factors which involve company characteristics. Hence the new predictor model includes Y = 7.947 + 7.490X2.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides the summary of the study, findings and conclusion made in relation to the study findings. The chapter also provides the recommendations based on the findings of the study.

5.2 Summary of Major Findings

The study sought to investigate the influence of ICT business continuity plan on service delivery in Insurance companies in Kenya. The research questions were: (i) Establish the extent to which insurance companies in Kenya have implemented ICT business continuity plans (ii) Determine the challenges encountered in Kenyan insurance companies when implementing ICT Business Continuity Plans (iii) Establish the benefits of ICT business continuity plan for insurance companies (iv) Determine the effect of ICT business continuity plan on service delivery in Kenyan Insurance companies. The summary of findings is as follows.

5.2.1 The extent to which insurance companies in Kenya have implemented ICT business continuity plans

The findings revealed that a majority with 82.6% of the respondents used ICT for all their core tasks while 17.4% did not depend on ICT for all their core processes. 84.8% indicated that their systems rarely failed while 15.2% had their systems failing sometimes. Disasters that cause system failures never occurred and sometimes occurred for 8.7% of the respondents while 82.6% rarely had disasters. The findings

also show that 97% of respondents had an ICT business continuity plan in place while 2.2% did not have the plan. An effective ICT business continuity plans should have policies, rules and procedures to support its operation. From the study, 95.7% had policies in place while 4.3% did not have guiding policies. 97.8% of the respondents had disaster recovery sites to improve their recovery while 2.2% did not have a recovery site. out of 5, an average of 4.1 of respondents involve other departments for team work, an average of 4.0 took the plan with importance, an average of 3.9 had recommendations for improvement done after tests, an average of 3.8 had the recommendations implemented afterwards and an average of 3.7 frequently tested their ICT business continuity plans.

5.2.2 Challenges encountered in Kenyan insurance companies when implementing ICT Business Continuity Plans

The biggest challenge with a mean of 4.521 from respondents showed that ICT business continuity plan is not considered as a strategic element of the company, hence often not prioritized. With a mean score of 1.500 the need for ICT technical knowledge required to run ICT business continuity plan was the least of challenges faced. Other challenges were, ICT business continuity plan being viewed to be an ICT only role and does not include other departments, absence of policies put in place to aid the operations of the plan, lack of enough information in the company to stakeholders regarding what an ICT business continuity plan was about, insufficient resources, ICT systems go down most frequently and they need continuous monitoring. Compared to the previous manual processes, ICT systems go down most frequently and they need continuous monitoring, technology changes frequently and ICT business continuity plan cannot be up to date, too much time is needed to

implement an ICT business continuity plan and ICT business continuity plans required a lot of planning.

5.2.3 Benefits of ICT business continuity plan for insurance companies

The study identified the benefits of an ICT business continuity plan and most companies with a mean of 1.608 felt the company benefited due to reduced recovery time of systems from failure. Other benefits included; it ensured continues chain of supply, the company benefited by being able to forecast need for resources and ensure resilient systems, it lead to a well-planned and organized management, it created team work and systems understanding through employee engagement plans, points of failures were realized and reduced during ICT business continuity plan testing, it enabled them to know exactly what to do when a disaster occurred, it reduced losses caused by unplanned disasters, the plan ensured effective planning of resources for the business in the event of a disaster and finally, with a mean of 1.413 the companies were more dynamic to ICT and technological changes leading to improved system versions and hardware.

5.2.4 Effect of ICT business continuity plan on service delivery in Kenyan Insurance companies.

The study sough to determine the effects of ICT business continuity plan on service delivery. Most companies had increased profit margins due to better products and services offered with a high mean score of 3.69. This was followed by a mean score of 3.65 where the companies' customer satisfaction was based on quality of services offered. A few companies agreed that service delivery was boosted by ICT business continuity plan adopted. The lowest mean with of 3.5 showed that the companies had increased profit margins due to better medical and motor insurance services offered.

On average 29.86 out of 100 motor insurance policies were not renewed in the previous year. For medical insurance policies an average of 17.43 out of 30 were not renewed in the previous year. This revealed that losses were generally not high for the previous year's policies. From the analysis done, Service delivery was not affected by ICT business continuity plan as service had other factors of variations apart from ICT business continuity plan which offered a variation of only 56%. ICT business continuity plan variables included the policies followed in managing the plans, the testing frequencies and the availability of recovery site. Beta analysis revealed that moderating variables which were company characteristics of size, local or international ownership and years of operation affected service delivery hence null hypothesis rejected that ICT business continuity plan did not affect service delivery in insurance companies in Kenya.

5.3 Conclusion of the Study

From the findings of the study, ICT has been majorly embraced in Kenyan Insurance companies and the need for systems to be continuously running with minimum failure is evident. ICT business continuity plan is used by most of the insurance companies to ensure reduced system downtimes and outages. Most insurance companies have stable ICT systems uptime based on their ability to continuously deliver services and interestingly, not dependent on ICT business continuity plan. ICT business continuity plan is not fully implemented in most of the Insurance companies. The stumbling blocks in the study were that the ICT business continuity plan had not been considered as a strategic business need hence it was easily ignored or assumed to be an ICT role, it was identified that it was resource intensive and required a lot of time and planning.

5.4 Recommendations of the Study

Based on the findings of the study, recommendations can be drawn as follows:

Insurance companies in Kenya can improve service delivery to a much better position if ICT business continuity plan is taken with seriousness, fully implemented and adopted. This is because in addition to other factors that affect service delivery, ICT business continuity plan will ensure ICT systems are always available to reduce service outage.

ICT business continuity plan requires proper management with clearly set procedures, guidelines and policies, effective testing frequencies, provision of disaster recovery sites, enough resources for time, hardware, software, technologies, technical expertise and team work. Insurance companies should strategize the plan in order to ensure its effectiveness.

Despite of ICT departments working to ensure availability of systems and maintenance of ICT business continuity plan, the business should be more involved in supporting ICT and their strategies to improve service delivery.

5.5 Suggestion for Further Study

This study focused on the effect of ICT business continuity plan to service delivery in Kenyan insurance companies. It centred on ICT business continuity plan testing frequencies, policies and availability of and management of disaster recovery sites. It also analysed moderating factors for company characteristics which include, size, local or international outfit and years of operation. It is therefore recommended to get

further studies on other factors other than the ones used in the study. The study centred its analysis of the dependent and independent variables as whole without focusing on every variable separately. There is need to analyse the effect of every variable on its own in order to identify the level at which every variable affects the ICT business continuity plan. The study was also focused on fifteen Kenyan Insurance companies with a major on medical and motor insurance policy services. There is need to find out the level of ICT business continuity plan in the entire insurance industry.

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APPENDICES

APPENDIX 1: List of Registered Insurance Companies in Kenya

1. AAR Insurance Kenya Limited
2. Corporate Insurance Company Limited
3. Directline Assurance Company Limited
4. East Africa Reinsurance Company Limited
5. Fidelity Shield Insurance Company Limited
6. First Assurance Company Limited
7. G A Insurance Limited,
8. Gateway Insurance Company Limited
9. Geminia Insurance Company Limited
10. ICEA LION Insurance Group
11. Invesco Assurance Company Limited
12. Kenindia Assurance Company Limited
13. Kenya Orient Insurance Limited
14. Kenya Reinsurance Corporation Limited
15. Madison Insurance Company Kenya Limited
16. Mayfair Insurance Company Limited
17. Mercantile Insurance Company Limited
18. Metropolitan Life Insurance Kenya Limited
19. Occidental Insurance Company Limited
20. Old Mutual Life Assurance Company Limited
21. Pacis Insurance Company Limited
22. Pan Africa Life Assurance Limited
23. Phoenix of East Africa Assurance Company Limited

24. Pioneer Assurance Company Limited

25. Real Insurance Company Limited

26. Resolution Insurance Company Limited

27. Shield Assurance Company Limited

28. Takaful Insurance of Africa Limited

29. Intra Africa Assurance Company Limited

30. Tausi Assurance Company Limited

31. The Heritage Insurance Company Limited

32. The Jubilee Insurance Company of Kenya Limited

33. The Monarch Insurance Company Limited

34. Trident Insurance Company Limited

35. UAP Insurance Company Limited

36. Xplico Insurance Company Limited

APPENDIX 2: QUESTIONNAIRE

SECTION A: COMPANY PROFILE

This section willused to get detailsof the insurance company by the respondent.

1. Name (Optional): …….
2. InsuranceCompany Name……
3. Department……
4. Designation ……..
5. Local or Foreign Insurance Company : Local ☐ Foreign ☐
6. Approximate Number of Years in Operation

   10 – 25 years ☐ 46 – 55 years ☐

   26 – 35 years ☐ Above 55 years ☐

   36 – 45 years ☐

7. What is the approximate total number of employees in the entire insurance company?

   50 – 200 Employees ☐ 501 – 750 Employees ☐

   201 – 350 Employees ☐ above 750 Employees ☐

   351- 500 Employees ☐

8. What is the entire company's approximate profit level per annum?

   Below KSHS. 100 Million ☐ Above KSHS. 100 Million ☐

SECTION B: AVAILABILITY OF AN ICT BUSINESS CONTINUITY PLAN

1. Do you use ICT computer systems for all your core insurance processes?

   Yes ☐ No ☐

2. Failure of ICT core systems

Please indicate the frequency using the following: 1- Never, 2- Rarely, 3- Sometimes, 5 - Always

		1	2	3	4	5
1	Your systems fail frequently.					
2	Disasters occur causing system outages.					

3. Is there an ICT business continuity plan in place?

   Yes ☐ No ☐

4. Is there a policy and or a standard operating procedure that guide the ICT business continuity plan?

   Yes ☐ No ☐

5. Do you have a disaster recovery site separate from your office location?

   Yes ☐ No ☐

6. ICT business continuity disaster recovery plans tests and results

Please indicate the frequency using the following: 1 - Never, 2 - Seldom, 3 - About Half the Time, 4 - Usually, 5 - Always

		1	2	3	4	5
1	Your ICT business continuity plan is tested.					
2	These ICT business continuity plan tests usually are successful.					
3	Recommendations are done after tests.					
4	Recommendations are usually implemented after the tests.					
5	The company takes ICT business continuity plan to be very important.					
6	ICT business continuity plan involve other non-ICT departments which improves teamwork.					

SECTION C: CHALLENGES ENCOUNTERED WHEN IMPLEMENTING ICT BUSINESS CONTINUITY PLANS.

Please indicate your agreement rate using the following: 1-Strongly Agree, 2-Agree, 3–Undecided, 4–Disagree, 5-Strongly Disagree

		1	2	3	4	5
1	Due to insufficient resource ICT business continuity plans don't work.					
2	ICT business continuity plans require a lot of planning.					
3	There is too much time needed to implement an ICT business continuity plan.					
4	Technology changes frequently and ICT business continuity plan cannot be up to date.					
5	Compared to the previous manual processes, ICT systems go down most frequently and they need continuous monitoring.					
6	ICT business continuity plan is not considered as a strategic element of the company.					
7	Technical knowledge is needed to run an ICT business continuity plan.					
8	There are no policies put in place to aid the operations of the plan.					
9	The ICT business continuity plan has been viewed to be an ICT only role and does not include other departments.					
10	There is not enough information in the company to stakeholders regarding what an ICT business continuity plan is all about.					

SECTION D: BENEFITS OF ICT BUSINESS CONTINUITY PLAN

Please indicate the likelihood with the following statements: 1 - Definitely, 2 - Very Probably, 3 – Probably, 4 - Possibly, 5 - Definitely Not

		1	2	3	4	5
1	ICT business continuity plan ensures effective planning of resources for the business in the event of a disaster.					
2	ICT business continuity plan reduces losses caused by unplanned disasters.					
3	An ICT business continuity plan leads well-planned and organized management.					
4	The business realizes its value by ensuring the chain of supply is continuous as planned due to the presence of an ICT business continuity plan.					
5	It creates team work and systems understanding through employee engagement plans.					
6	The company is more dynamic to changes steered by the ICT technological changes.					
7	The company can drastically reduce recovery time during failures by following the agreed continuity plans without fail.					
8	Points of failures are realized and reduced during ICT business continuity plan testing exercises.					
9	We are able to know exactly what to do when a disaster occur causing systems to be inaccessible.					
10	The company is able to understand and forecast future resources needed to ensure resilient systems.					

SECTION E: SERVICE DELIVERY

1. To the scale of 1– 5, rate the following statements on service delivery. Rate using the following: 1-Strongly Agree, 2-Agree, 3–Undecided, 4–Disagree, 5-Strongly Disagree

Statements on Service Delivery	**1**	**2**	**3**	**4**	**5**
Customer satisfaction is based on the quality services delivered					
Service delivery is boosted through ICT business continuity plan adopted by our company					
Our company has increased its profit margins due to products and better medical insurance services offered					
Our company has increased its profit margins due to products and better motor insurance services offered					

2. How many motor insurance policies were not renewed in the last one year?

   _____

3. How many medical insurance policies were not renewed in the last one year?

   _____

The End