



Strathmore
UNIVERSITY

Strathmore University
SU+ @ Strathmore
University Library

[Electronic Theses and Dissertations](#)

2019

Technological innovations adoption and its influence on organisational growth among insurance companies in Kenya

Grace A. Makayoto
Strathmore Business School (SBS)
Strathmore University

Follow this and additional works at <https://su-plus.strathmore.edu/handle/11071/9517>

Recommended Citation

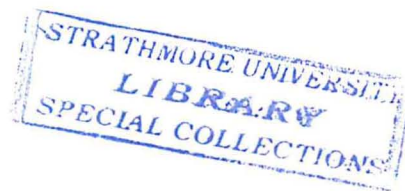
Makayoto, G. A. A. (2019). *Technological innovations adoption and its influence on organisational growth among insurance companies in Kenya* [Thesis, Strathmore University]. <https://su-plus.strathmore.edu/handle/11071/9517>

This Thesis - Open Access is brought to you for free and open access by DSpace @Strathmore University. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of DSpace @Strathmore University. For more information, please contact librarian@strathmore.edu

**TECHNOLOGICAL INNOVATIONS ADOPTION AND ITS
INFLUENCE ON ORGANISATIONAL GROWTH AMONG
INSURANCE COMPANIES IN KENYA**

Grace Adhiambo Akumu Makayoto

MBA/99485/2017



**A Dissertation Submitted in Partial Fulfilment of the
Requirements for the Degree of Master of Business
Administration at Strathmore University.**

June, 2019

DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the dissertation itself.

© No part of this dissertation may be reproduced without the permission of the author and Strathmore University

Grace Adhiambo Akumu Makayoto

June, 2019



Approval

The dissertation of Grace Makayoto was reviewed and approved by the following:

Dr. Everlyne Makhanu

Strathmore University Business School

Dr. George Njenga

Executive Dean,

Strathmore University Business School

Prof. Ruth Kiraka

Dean, School of Graduate Studies

Strathmore University Business School

ABSTRACT

The growth of Kenya's insurance industry has been erratic despite a favourable economic environment. Industry reports have shown that most of the insurance firms in Kenya have lagged in the adoption of new technologies to support their products and processes. This study sought to determine the influence of technological innovations adoption on organisational growth within the industry. The study specifically examined the effect of adoption of marketing technological innovation, product technological innovation and service technological innovation on insurance growth. The study was premised on the technology organization environment theory and the dynamic capabilities theory and adopted a descriptive research design. The target population of the study were the heads of the technology and marketing departments within the registered insurance firms. The unit of observation was the selected personnel. The research employed purposive sampling in selecting the chief technology officer and marketing manager. The research used a census survey of the respondents and utilised primary data. The primary data was collected using structured questionnaire. Pilot testing was conducted to enable reliability and validity testing. The collected data was analysed using descriptive and inferential statistics. The analysed data was presented using tables. The findings of the research indicated a positive correlation between technological innovations adoption and insurance growth. The study concludes that adoption of marketing technological innovation and service technological innovation had a positive effect on insurance growth while adoption of product technological innovation had a negative effect on insurance growth. The study recommends that insurance firms should innovatively utilise technology to expand their service engineering, online marketing campaigns and market segmentation. The research further recommends that insurance firms should expand their offering of digitalized products to expand product innovation.

Keywords: *Insurance growth, marketing technological innovation, product technological innovation, service technological innovation*

DEDICATION

I dedicate this work to my parents Edwin and Susan Ochieng', as well as my siblings and friends who have been with me throughout the research process.

ACKNOWLEDGEMENTS

I would like to thank God and all the people whose support was instrumental in this study. I am especially grateful to Dr. Everlyne Makhanu, for her sincere support, encouragement and guidance. I am also extremely grateful to my classmates and family for encouraging and supporting me during the course of the MBA program.

TABLE OF CONTENTS

DECLARATION	ii
ABSTRACT	iii
DEDICATION	iv
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS	vi
LIST OF TABLES	ix
LIST OF FIGURES	x
LIST OF ABBREVIATIONS AND ACRONYMS	xi
DEFINITION OF TERMS	xii
CHAPTER ONE	1
INTRODUCTION TO THE STUDY	1
1.1 Background information	1
1.1.1 Technology Innovation	2
1.1.2 Organisational Growth in the Insurance Industry in Kenya.....	3
1.1.3 Technological Innovations Adoption and Insurance Growth	5
1.2 Statement of the Problem	6
1.3 Research Objectives	7
1.4 Research Questions	7
1.5 Significance of the Study	8
1.6 Scope of the Study.....	8
CHAPTER TWO	9
LITERATURE REVIEW	9
2.1 Introduction	9
2.2 Theoretical Review	9
2.2.1 Technology, Organization and Environment Theory	9
2.2.2 Dynamic Capabilities Theory	10
2.3 Empirical Review.....	11
2.3.1 Insurance Growth	11

2.3.2 Marketing Technological Innovations Adoption and Insurance Growth..	12
2.3.3 Product Technological Innovation Adoption and Insurance Growth	14
2.3.4 Service Technological Innovation Adoption and Insurance Growth	16
2.4 Summary of Literature and Research Gaps	19
2.5 Conceptual Framework	20
2.6 Chapter Summary.....	22
CHAPTER THREE	23
RESEARCH METHODOLOGY	23
3.1 Introduction	23
3.2 Research Design.....	23
3.3 Population and Sampling	23
3.3.1 Target Population	23
3.3.2 Sampling and Sample Size.....	24
3.4 Data Collection Methods	24
3.4.1 Pilot Testing	24
3.4.2 Reliability Tests	25
3.4.3 Validity Tests	25
3.5 Data Analysis	25
3.5.1 Diagnostic Tests	26
3.6 Ethical Issues.....	27
CHAPTER FOUR.....	28
PRESENTATION OF RESEARCH FINDINGS.....	28
4.1 Introduction	28
4.2 Response Rate	28
4.3 Marketing Technological Innovations Adoption and Insurance Growth.....	29
4.3.1 Marketing Technological Innovation descriptors	29
4.3.2 Relationship between Marketing Technological Innovation and Insurance Growth	31
4.4 Product Technological Innovations Adoption and Insurance Growth.....	32
4.4.1 Product Technological Innovation descriptors	32

4.4.2 Relationship between Product Technological Innovation and Insurance Growth	33
4.5 Service Technological Innovations Adoption and Insurance Growth	34
4.5.1 Service Technological Innovation descriptors	34
4.5.2 Relationship between Service Technological Innovation and Insurance Growth	35
4.6 Insurance Growth	36
4.7 Overall Relationship between Technological Innovations Adoption and Insurance Growth	36
4.8 Chapter Summary	37
CHAPTER FIVE.....	38
DISCUSSION, CONCLUSION AND RECOMMENDATIONS.....	38
5.1 Introduction	38
5.2 Discussion of Findings	38
5.2.1 Marketing Technological Innovation and Insurance Growth	38
5.2.2 Product Technological Innovation and Insurance Growth.....	39
5.2.3 Service Technological Innovation and Insurance Growth	40
5.3 Conclusions	40
5.4 Recommendations	41
5.5 Areas for Further Research	41
REFERENCES	43
APPENDICES	49
Appendix IA: Strathmore University Introduction Letter.....	49
Appendix IB: Strathmore University Ethical Clearance	50
Appendix IC: NACOSTI Approval	51
Appendix ID: Plagiarism Checker	53
Appendix IE Researcher Introduction Letter	54
Appendix II: Questionnaire.....	55
Appendix III: List of Insurance Firms	58

LIST OF TABLES

Table 2.1 Research Gaps.....	19
Table 2.2 Operationalization of Variables	21
Table 3.1 Target Population.....	244
Table 3.2 Reliability Tests	255
Table 4.1 Managerial position within the Firm.....	28
Table 4.2 Respondents education level.....	299
Table 4.3 Number of years in the Firm	299
Table 4.4 Marketing Technological Innovation Descriptive	30
Table 4.5 Relationship between Marketing Technological Innovation and Insurance Growth	31
Table 4.6 Product Technological Innovations Descriptive	32
Table 4.7 Relationship between Product Technological Innovation and Insurance Growth	33
Table 4.8 Service Technological Innovations Descriptive	34
Table 4.9 Relationship between Service Technological Innovation and Insurance Growth	35
Table 4.10 Insurance Growth Descriptive	36
Table 4.11 Overall Regression Summary	36

LIST OF FIGURES

Figure 2.1 Conceptual Framework.....	20
--------------------------------------	----

LIST OF ABBREVIATIONS AND ACRONYMS

AKI	Association of Kenyan Insurers
ANOVA	Analysis of Variance
DEA	Data Envelopment Analysis
GDP	Gross Domestic Product
ICT	Information and Communication Technology
IRA	Insurance Regulatory Authority
SPSS	Statistical Package for Social Sciences
TOE	Technology, Organization and Environment
VIF	Variance Inflation Factor

DEFINITION OF TERMS

Insurance	This is the contractual agreement between two parties, the insured and insurer. At an agreed fee (premium), the insured transfers their risk to a third party, the insurer/underwriter (Reavis, 2012).
Innovation	A new or materially improved product (good or service) introduced to the market (Letangule & Letting, 2012)
Insurer	The provider of protection; the risk carrier. In other words the insurance firm (Reavis, 2012).
Insurance Growth	This is the projected increase in the uptake, retention and performance of the insurance industry (Swiss Re, 2017)
Market Innovation	This is the execution of new marketing methods involving product placement, promotion and pricing (Verhoef, 2016).
Product Innovation	This is the introduction of new products development or modification of the existing product lines (Verhoef, 2016).
Service Innovation	This refers to the modification of the service offering and processes within a firm (Verhoef, 2016).
Technology	Knowledge which is embodied in the three P's: products, processes, practices (Tornatzky & Fleischer, 1990)

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Background information

The technological boom in the 21st century has contributed to increase in innovations and transformations in the modern business environment (Ombati, Magutu, Nyamwange, & Nyaoga, 2012). Oke and Goffin (2011) note that developed countries in Europe and the United States have leveraged on technology innovation over the last 5 or more decades to revolutionize their markets and spur organization growth. Technology can be defined as the application of knowledge to perform work (Dasgupta, Gupta, & Sahay, 2011) or the theoretical and practical skills, artefacts and knowledge that can be used to develop products as well as their delivery and production system. Technology innovation involves developing of new products or firms by introducing new production processes through incorporating new technologies to improve company operations (Lawrence, 2010).

According to Jolly (2011), adoption is a decision of complete use of an innovation as the best alternative available. Technological innovation is defined as the new processes, products, and services that are brought about as a result of changes in technology (Letangule & Letting, 2012). The current study was based on the latter definition of technological adoption which focuses on integration of the technologies in the process, product and service dimensions of the firm. Commercial banks initiated adoption of technology innovation while the insurance industry has over time in the recent past advanced its integration of technology in its products and services offering (Yttapong, 2012).

Insurance provides financial security through facilitation of investments thus decreasing the capital needed by individuals and businesses as protection from unforeseen events. An agreed consideration known as premium is paid upon which the risk is transferred to a third party referred to as the insurer or underwriter (Reavis, 2012). Universally, insurance is associated with risk be it fire, accident, health or life. Subsequently, insurance is made up of two divisions, life and non-life insurance. Life

insurance involves both protection and investments while non-life insurance is comprised of motor, property, health and accident covers (Olopade & Frolich, 2012).

As the global insurance industry continues to gradually recover from the effects of the 2008 global financial crisis, the focus of insurers is shifting from sustenance to driving growth (Ernst & Young, 2016). According to Swiss Reinsurance Company (2017) the global insurance penetration (premiums as a percentage of gross domestic production) in 2017 averaged at 6.1%, with emerging markets penetration averaged at 3.3%. In Africa alone the total recorded insurance premiums were roughly US \$67 billion which translates to a penetration rate of 3.0%. McKinsey (2014) reports that from a global perspective insurance has been shrinking compared to nominal GDP growth.

In Kenya, the IRA (2017) reported that the longterm sector in the insurance business experienced a revenue growth of 12.6% in 2017 as compared to the previous year while the general segment grew by 2.5% . The insurance premium for the industry in 2017 stood at Shs. 209 billion representing a 6.3% growth. The insurance penetration on the other hand stood at 2.68% down from 2.71% in 2016. This depicts mixed performance of insurance coverage parameters in 2017. Despite the importance of insurance for economic development, many African countries lack access to insurance products. The populace is also struggling to meet basic needs thus relegating the consideration of insurance as a luxury (KPMG, 2014). In terms of insurance density, which is premiums paid per capita, Sub-Saharan Africa, with the exception of South Africa, significantly lags behind other emerging markets with a density of USD 54 against a world average of USD 650 (Swiss Re, 2017).

1.1.1 Technology Innovation

Technological innovation is of utmost importance to the performance and growth of the globalized economy and consequently the development of states (Oke & Goffin, 2011). Gerguri and Ramadani (2010) argue that technological innovation provides new technologies and products to address challenges in the global production system as well as introducing safer, faster, cheaper and better ways of producing, delivering and consuming goods and services.

Innovation advancement is a vital determinant of an organisation's capabilities. In addition, the advancement proposes that the degree of development reflects the degree of unused information implanted in a development (Dewar & Dutton, 2006). The adoption of technological innovations is associated with positive change but concerns about the negative consequences of technology-driven industrialism and the assumptions underlying its practice are growing (Ombati, Magutu, Nyamwange, & Nyaoga, 2012). Siami (2006), notes that different technological innovations have different probabilities of adoption and hence different adoption rates.

Bain and Company (2015) recognise that most firms within the insurance sector have been slow to implement digital tools, in comparison with other sectors, such as retail banking, travel, retail and media. One of the reasons cited for the slow adoption of digital technology is that general insurance lacks continuous client engagement during the course of the insurance policy, resulting in an inability to monitor and anticipate changing customer needs.

Majority of the insurers would admit that they have not been proactive in leading the way through digitization of their processes and hence are trailing when it comes to client engagement and effective adoption of mobile social media when compared to other financial services providers (Kiama, 2015). It is important to note that there could be various reasons why insurers take a cautious approach. These include market instability due to catastrophic losses from natural phenomenon and the dynamic different needs of the end-customers (KPMG, 2015). This notwithstanding, it remains the responsibility of the insurance companies to work around these challenges and adopt relevant technologies if they are to meet customer needs (Gitau, 2013). In the current research technology innovation adoption was contextualized in terms of market innovation, product innovation and service innovation within the Kenyan Insurance Industry based on the definitions of (Letangule & Letting, 2012) and (Jolly, 2012) on technology innovation adoption.

1.1.2 Organisational Growth in the Insurance Industry in Kenya

Growth of a business has been conceptualised by many scholars; Kruger (2014) indicates that growth is measured by the amount of revenue generated and the volume

of business conducted within a given time period. Gilbert (2010) indicates that growth of a business is a vital indicator of the utilization of resources, personnel capabilities and other core practices of the organization that can be measured by the extent of productivity and financial gains.

Insurance growth is the projected increase in the uptake, retention and performance of the insurance industry (Swiss Re, 2017). Alhassan and Biekpe (2015) define the gross written premiums as the total direct and assumed premiums written by an insurer before deductions of reinsurance. Reavis, 2012 noted that gross written premiums are the revenues earned by an insurer.

Olayungbo and Akinlo (2016) note that the insurance penetration rates and the insurance density were central to assessment of the performance of the insurance firms. Insurance penetration is the ratio of gross direct premium to the gross domestic product in a given year for a given country or region while insurance density is defined as the ratio of gross direct premium to the total population of a country or region. These two measures indicate the level of development of the insurance sector in a country (AKI, 2017)

The insurance industry in Kenya recorded growth in the gross written premium of 20.4% in 2013 in comparison with 2012. The gross written premium for general insurance was KShs. 86.64 billion in 2013 compared to KShs. 71.46 billion in 2012, while that for life insurance was KShs. 44.01 billion in 2013 up from KShs. 37.08 billion in 2012. Total underwriting profit in general insurance side rose to KShs. 3.42 billion in 2013 from KShs. 2.78 billion in 2012. Revenue from investment and other income grew by 17.1% in 2013 compared to 2012, while the cumulative profit before tax for the industry increased by 24.3% over the same period (AKI, 2013).

AKI (2017) annual report showed that there was slow but steady growth of the insurance industry through written premiums of KShs.210 billion in 2017 up from KShs. 197 billion in 2016. However, insurance penetration was 2.71% in 2017 against 2.75% in 2016 while on a global scale, this figure stood at 6% in 2016. In the current study the growth of the insurance industry was measured in terms of revenues, insurance penetration and the insurance density.

Many Kenyans lack the knowledge about insurance products, their value and benefits. This is due to their complexity, how to acquire them, how they are paid in case of a claim and what happens when a customer defaults on premium payment (Kiama, 2015). There is a level of psychological distrust in the industry and its agents by the people. There have been reported cases where agents have given wrong policy interpretation and worse stolen clients' premiums (Mwiti, 2016). This among other factors have contributed to the diminishing growth of the insurance industry (IRA, 2017).

The insurance industry in Kenya is in the financial services sector. According to IRA (2017) the sector comprises of 52 registered insurance companies, 4 reinsurers, and 231 insurance and reinsurance brokers. Within the year the insurance penetration level dropped from 2.71% in 2016 to 2.68% in 2017. The gross direct premiums stood at 209 billion shillings while the insurance density was 4,455 KES. The research contextualized growth based on the principles of Kaplan and Norton (2008) focusing on both financial perspective and growth perspective within insurance firms.

1.1.3 Technological Innovations Adoption and Insurance Growth

The embracing of new technologies in the business process has the capability of ensuring that manual processes are automated and new functionalities created (Kasae, 2014). The elimination of the manual processes through the use of technology enables quicker turnaround timeframes on service issues and better accuracy on routine work (Kyengo, 2014). The use of the technology also creates new functions that improve on the workflow in an organization in the context new technologies are often developed to address existing challenges in the industry (Nduna, 2013).

Izquierdo-Yusta, Jiménez-Zarco, and Méndez-Aparicio, (2017) examined the end customer expectations on online services in the Spanish Insurance Industry. The researchers indicated that innovations in service delivery, product packaging and ease of use enhanced the demand levels. Kumbhar's (2012) study in India on the technology innovations and operational performance established that self-service technologies had least impact on operational performance.

Owolabi (2018) in a research in Nigeria examined insurance products and noted that adoption of new insurance delivery systems and innovation in product development enhanced the growth of the insurance sector. Sharew and Fentie (2018) conducted a Data Envelopment Analysis on efficiency of insurance firms in Ethiopia. The results of the research indicated that technological advancements, company size and number of branches were significantly affecting efficiency of insurance firms.

Muli (2014) studied the effect of adopting alternative channels of service delivery on the performance of Kenyan commercial banks and established adopting alternative channels of service delivery enhanced their performance. Kiragu (2016) in her study on the influence of innovation on performance of insurance companies in Kenya noted a positive correlation between product and process innovations and performance, and an insignificant relationship between market innovation and performance. The study however failed to examine how different technological innovations can foster the insurance industry's growth. Ombaka, Machuki, Awino, and Wainaina (2015) examined organizational resources, innovation and performance of insurance companies in Kenya. Results indicated that the relationship between and performance of Kenyan insurance companies was positive.

1.2 Statement of the Problem

In recent sector data published by IRA Q3 (2018) the insurance uptake dropped to 2.68% signalling further decline within the sector. IRA (2018) indicated that the poor penetration rates in the country was partially due to poor marketing efforts by insurers, lack of product differentiation and inadequate service innovation as well as customer awareness. Technological innovation has been touted as the next arena for business organizations to launch their new products, service lines and new market delivery channels (Owino, Senaji, Eng, & Ntara, 2017). However, most firms in the developing world have failed to leverage on the competitive edge offered by technology thus continue to lag behind in terms of growth (Cytonn Investments, 2015). Innovation is key to the survival of a firm since it enables the firm to adopt to external changes such as regulation in a reaction to changing customer preference (PwC 2014).

Kiragu (2016) examined the effect of innovations on the performance of the insurance industry and concluded that lack of market and process innovation had a negative effect while there was no effect of product innovation on performance. The study however did not narrow down to the technological aspect. In a separate report, Cytonn Investments (2015) examined listed insurance firms and concluded that poor market innovation, product innovation and service innovation all contributed to the sluggish performance in the industry. IRA (2018) indicated that the poor penetration rates in the country was as a results of poor marketing efforts by insurers, lack of product differentiation and inadequate service innovation as well as customer awareness. While several studies on the financial sector indicate that technology innovations have a positive effect on performance there is inconclusive empirical evidence relating to the insurance industry. This study sought to expand on the limited knowledge within the insurance industry by investigating the effect of the adoption of technological innovations on the growth of the industry.

1.3 Research Objectives

The main objective of the study was to examine technological innovations adoption and its influence on insurance growth in Kenya.

- i. To determine the effect of marketing technological innovations adoption on the growth of the Kenyan insurance industry.
- ii. To establish the effect of product technological innovations adoption on the growth of the Kenyan insurance industry.
- iii. To examine the effect of service technological innovations adoption on the growth of the Kenyan insurance industry.

1.4 Research Questions

- i. What is the effect of marketing technological innovations adoption on the growth of the Kenyan insurance industry?
- ii. What is the effect of product technological innovations adoption on the growth of the Kenyan insurance industry?
- iii. What is the effect of service technological innovations adoption on the growth of the Kenyan insurance industry?

1.5 Significance of the Study

The results of the study will be of importance to the policy formulation within the insurance industry in Kenya. The results will guide the regulator in examining the practical solutions to stimulating growth within the industry. The findings of the study will be of significance to the management teams of individual insurance firms within the country. The study will offer a wealth of information on the key technology innovations that can be adopted in the management practice to enhance the growth of the institutions. The findings of the research will be of practical relevance to technology firms in designing new technological innovations that can be adopted by insurance firms in Kenya. The results of the research will enhance the public awareness on the technological dimensions within the insurance industry and awareness on the growth of the industry. The findings of the study are also expected to enhance the available empirical evidence on the effect of technology innovations on the growth of the Kenyan insurance industry. This will be of importance to future scholars as well as academicians seeking to expand their knowledge and as reference material for future studies.

1.6 Scope of the Study

The contextual scope of the study was constrained to an examination of technological innovations adoption and the growth of the insurance industry. Technological innovations adoption were measured by the market technological innovations, product technological innovation and the service technological innovations. The growth of the insurance industry was measured by the penetration level and the insurance density. The study was geographically limited to insurance firms operating within Nairobi County and was conducted between March and April 2019. The respondents for the research were selected from insurance firms registered with IRA as of December 2018. The study relied on descriptive research design with quantitative data being utilised in solving the research problem.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the review of relevant literature. The chapter specifically contains the various theories related to technological innovation, the empirical review of related studies, the literature gaps, research gaps and the conceptual framework underpinning the research.

2.2 Theoretical Review

The theoretical framework of a research study is the structure can hold a relevant theory and guide the entire study. Thus, the theoretical framework is but a theory that serves as a foundation for conducting the research. (Khan, 2015). The study was premised on the technology organization and environment theory which was supplemented by the dynamic capabilities' theory.

2.2.1 Technology, Organization and Environment Theory

In this study, the Theory of Technology, Organization and Environment is linked to the influence of technology innovation on the insurance growth. The Technology, Organization, and Environment (TOE) framework states that there are three aspects which influence adoption and implementation of technological processes. These contexts may be technological, organizational, and environmental in nature (Tornatzky & Fleischer, 1990). Managing an organization's strategy execution process normally entails, inter alia, building and strengthening strategy-supporting resources and competitive capabilities. Ample resources must be allocated to the activities to enable the realisation of the strategic objectives of the company (Taiwo & Idumu, 2008).

The technological context defines the internal and external technologies that are applicable to the firm (Thompson, 1967) in addition to the current practices and equipment internal to the firm (Starbuck, 1976). Organizational context are aspects of an organization such as managerial structure, size and scope. Environmental context

refers to the domain in which a firm operates, its industry, competitors, and government relations (Tornatzky & Fleischer, 1990).

The TOE framework is useful when studying the adoption of information technology. It provides a logical framework for studying the adoption and integration of information technology innovation. The TOE framework has a solid theoretical basis and the potential of application to information systems innovation domains. This theory according to Rogers (2002) emphasizes the distinct characteristics that are internal and external to the organisation, as the influencers for a firm's innovativeness. Organisations that adopt information technology are able to increase their productivity and thus are considered competitive compared to its competitors who partially or do not adopt information technology at all (Dewar & Dutton, 2006). This theory is integral in examining the technological innovations (market, product and service) and its effect on the growth of the Kenyan insurance industry.

2.2.2 Dynamic Capabilities Theory

The dynamic capabilities theory was proposed by Teece, Pisano, and Shuen (1997) as the consolidation, building, and modification of internal and external abilities in addressing rapid changes in the surroundings. It combines a company's resources and abilities to change in order to acquire a sustainable competitive advantage. The dynamic capability indicates the potential of a firm to solve problems that may arise and this is enabled by its ability to identify threats and opportunities, make proper and timely management decisions (Barreto, 2010; Di Stefano, Peteraf & Verona, 2010) through utilization of unique capabilities at its' disposal. This theory not only informs the innovative capability of firm but also the adoption process for the relevant technological innovations that will enhance the firm's competitive advantage.

Wang and Ahmed (2007) expanded this theory to include three factors that are replicated across organisations, namely: innovative capability, adaptive capability, and absorptive capability. Adaptive capability is the capacity to take lead and seize market opportunities. Innovation capability refers to an organization's capacity to build products and/or markets for purposes of commercial gain while absorptive capability is the ability to competitively identify and use external information.

The dynamic capabilities theory is applicable when changing a firm's existing resource base and therefore enhancing its competitive advantage. The theory derives its significance from the eventual creation of new resources. (Ambrosini & Bowman 2009). Dynamic capabilities theory plays various roles in organizations by simply altering resource allocation, knowledge expansion, organizational processes and decision making (Easterby-Smith & Prieto, 2008). This theory is integral in expanding the knowledge on the capacity required within a firm in undertaking technological innovations. The theory indicates that the resource capability of the firm is central to the innovation capability of a firm hence it enhanced the examination of technology innovation and growth of insurance sector.

2.3 Empirical Review

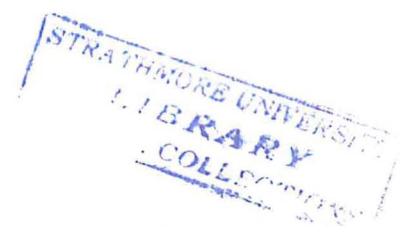
The current section reviewed the relevant empirical literature. The section was arranged in line with the research objectives.

2.3.1 Insurance Growth

Olayungbo and Akinlo (2016) examined the growth of insurance firms in relation to economic growth in Africa and noted a positive relationship for Egypt, while short-run negative and long-run positive effects were found for Kenya, Mauritius, and South Africa. The level of insurance penetration according to Mazviona, Dube and Sakahuhwa (2017) depicts the level of development of the insurance sector in Kenya. KPMG (2013) reported that in 2011, total premiums in Kenya were equal to 3.2% of GDP. A report by UAP Insurance Kenya (2013) on delivering insurance through Mobile platform indicated that Insurance penetration is at 3.4% in Kenya and most companies have not adopted innovative strategies.

In Kenya, 53% of Kenyans who have incomes between US\$ 2 and US\$ 10 per day, representing 10.8 million adults do not have any form of insurance and Insurance companies have not come up with products to tap this market and also that below US\$ 2 a day mark (Smith, Chamberlain, Smit, Ncube, & Chelwa, 2010).

Insurance penetration in many developing countries remains at very low levels as majority of the population are excluded from formal insurance (AKI, 2013). IRA



(2016) reports that Kenya's insurance penetration stands at 2.8% whereby the current uptake is mostly by the population in the formal sector of the economy who are a minority in Kenya since the informal sector employs more people.

2.3.2 Marketing Technological Innovations Adoption and Insurance Growth

Chen, Wang, Huang, and Shen (2016) examined service innovation on new product performance focussing on market linking capabilities and turbulence. The study sampled 170 service-centred firms within the Chinese markets. The study employed both qualitative and quantitative methodologies. The findings of the research indicated that combining high market-linking capabilities with high market turbulence increases market performance of new products. The study was based on the general service industry firms while the current study focussed on insurance firms in Kenya.

Rajapathirana and Hui (2018) studied how innovation capability and type influence the performance of firms. The study sampled senior managers within the industry. The research utilised both descriptive and inferential statistics in examining the association between the study variables. Study findings showed that the link between marketing innovation capability and firm performance is strong and positive. The researchers concluded that access to information on prospective customers, consumer expectations and needs is useful in generation of marketing innovation activities, increasing performance. The study, however, was based in Sri Lanka while the current is based on the Kenyan market.

Alhassan and Biekpe (2015) conducted a research on efficiency, productivity and returns to scale economies in the non-life insurance market in South Africa. The study focused on non-life insurance for the period 2007-2012. The Malmquist index was used to analyse productivity growth. The findings of the study indicated that market diversification in product offering fostered efficiency within the non-life insurance markets. The study further indicated that firms leveraging on new marketing technologies have achieved better productivity and increase market scales. The study however did not consider the growth of the insurance industry which is the focus of the research.

Aduloju, Olowokudejo, and Obalola (2014) studied the effect of IT on satisfaction of customers among Nigerian insurance companies. The research employed a descriptive research design that relied on a structured questionnaire. The collected data was analysed using a mix of descriptive and inferential statistics. The study indicated that marketing innovation as contextualized in terms of new marketing channels and allocating sufficient resources to the marketing teams fostered customer service performance within the Nigerian insurance firms. The study however examined customer service performance whereas the current study examined market technological innovation and insurance growth in Kenya.

Alhassan, Addisson, and Asamoah (2015) examined the effect of market structure and efficiency on profitability of Ghanaian insurance firms. The study utilised a panel data of 14 life and 22 non-life insurers between 2007 and 2011. The research further adopted Herfindahl Hirschman Index and concentration ratio as proxies of structure conduct performance. The results of the research indicated that understanding market behaviours and adopting new technologies that will foster the marketing capacity of insurance firms enhanced the profitability of the insurance firms. The research however focused on profitability measures whereas the current study examined the growth in the insurance industry.

Brown (2017) conducted a study on the determinants of reinsurance demand in the Ghanaian insurance market. The study relied on secondary data extracted from financial reports of insurance companies and macroeconomic variables from the Bank of Ghana database for a period of 7 years (2007-2013). The collected data was analysed using the panel random effect regression. The findings of the research indicated that leveraging on a larger firm size insurance firms were able to deploy new marketing strategies that fostered reinsurance demand in the Ghanaian insurance market. The study however only utilised secondary data whereas the current study adopted both primary data and secondary data.

Maina (2016) studied the effect of innovation strategies on insurance firm performance. The study adopted a descriptive analysis with data being collected using semi-structured questionnaires. The collected data was analysed using descriptive and

inferential statistics. The study established that there was a strong relationship between insurance innovation strategies and the performance of insurance firms in Kenya. The findings of the study indicated that marketing innovation strategies resulted in a positive change in the performance of insurance firms. The study focused on performance of the insurance firms whereas current study scope examined the growth of the insurance industry.

Mugo (2017) studied the strategies affecting performance of health insurance companies in Kenya: A Case of Jubilee Insurance Company in Nairobi. The study utilised primary data collected by administering open and close-ended questionnaire to the respondents. The quantitative data collected was analysed using ANOVA and regression analysis to determine the relation between the performance and other variables of the study. The results of the study showed that firms have improved efficiency through specialization, and targeting special segments hence affecting firms' profitability. The researcher showed that this fostered penetration into new markets and enhanced customer attention to new products and service. The study however conducted a case study of a single insurance firm whereas the current study focussed on the entire insurance industry.

2.3.3 Product Technological Innovation Adoption and Insurance Growth

Adams, Upreti, and Chen (2019) studied the product-market strategy and underwriting performance in the United Kingdom's property-casualty insurance market. The study employed panel data analysis on the motor insurance and the liability insurance in the UK. The findings of the study showed that execution of product-market strategies fostered the performance of the motor and liability insurance as measured by the underwriting levels. The study was limited to underwriting whereas the current study examined the penetration levels, the insurance density as well as premiums.

Lee (2017) conducted a research on business structure, product diversification and performance of property and liability firms operating in the insurance sector. The research utilised panel data, with ordinary least squares regression model, random effects model and fixed effects model being utilised to examine how diversification of products and change in business structure affects performance of firms. The results of

the research showed that product diversification fostered the performance of large size firms in Taiwan whereas smaller insurance firms were not able to leverage on the advantages of product diversification. The study however focused on Taiwanese insurance firms whereas the current study concentrated on the Kenyan insurance industry.

Verhoef (2016) examined innovation and expansion: Product innovation and expansion in insurance in South Africa. The study conducted a case study research design focusing on Sanlam insurance firm. The study focused on the strategies adopted by Sanlam in a market dominated by British insurance companies. Research findings indicated that adoption of new product development strategies fostered the competitive advantage of the firm. The study further indicated that alliances with other firms in the financial sector further fostered creation of new products. The research however focused on Sanlam whereas the current study incorporated the whole insurance industry in Kenya.

Ajagbe, Long, and Solomon (2014) examined the impact of sales promotion and product branding on company performance: A case study of AIICO insurance Nigerian PLC. The study utilised 60 survey questionnaires within the firm. The collected data was analyzed using the chi-square method. The results of the analysis showed that product branding and sales promotion affect organizational growth of the insurance firm. Study findings showed that brand creation was had a significant effect on company performance. The study adapted a case study research design whereas the current research adopted a descriptive research design.

Gitau (2013) studied strategies that Kenyan insurance companies adapt to assuage low levels of insurance penetration. The study used a descriptive research design and employed a semi-structured questionnaire. The research showed that the limited penetration of insurance service in the country was caused by lack of knowledge on insurance products, poor review and product development and inadequate research and development within the industry. The study only considered insurance penetration and did not examine insurance density and revenues which the current study examined.

Ngure, Maina, and Kariuki (2017) studied how product innovation affects performance in an organization. The basis of the study was a cross sectional descriptive research design that targeted the registered SACCOs in Kirinyaga County, relying on primary and secondary data. Findings showed that product innovations was positively correlated to financial performance. The research also noted that introduction of new product offers as well as reviewing existing products improved performance. The study however was concentrated on SACCOs whereas the current research was limited to insurance firms.

Muia (2017) studied how competitive strategies affect performance of Insurance Companies in Kenya. The study employed a descriptive research design with a target population consisted of all strategic planning department in the 47 Kenyan insurance companies operating in the region. The study results indicated that differentiating products, offering a wide range as well as introducing new products had a positive effect on performance. The research however focused on competitive strategies whereas the current study focussed on the technological innovation within insurance companies.

2.3.4 Service Technological Innovation Adoption and Insurance Growth

Salehi and Alamdari (2018) studied the relationship between financial performance and knowledge exchange in Iranian insurance firms. The research employed a descriptive-correlational research. Descriptive and inferential statistical methods such as the mean, standard deviation, median, mode, Pearson correlation coefficient and multiple regression were utilised in the research. The findings of the research showed that knowledge creation, knowledge sharing and retention fostered the quality service provision within the insurance industry which was a key predictor of the industry financial performance. The research however focused on the Iranian insurance industry whereas the current study examined the Kenyan market.

Fadun (2013) conducted an examination of the effect of Information and Communication Technology (ICT) on profitability among insurance companies in Nigeria. The research utilised an empirical examination of 152 respondents drawn from the insurance companies. The main research instrument utilised was a structured

questionnaire. The findings of the study showed that adoption of ICT by insurance companies can enhance the quality of service delivery, efficiency and profitability. The study findings also showed that integration of ICT in the service systems was also integral in enhancing the profitability of the firms. The study however utilised only primary data whereas the current study employed a mixed research methodology.

Tadesse (2017) conducted an assessment of the performance of Nile Insurance Company in Ethiopia. The study employed documentary analysis which covered ten years period ending June 2016 (2006 to 2016). The research found that the degree of customer and employee satisfaction is slightly above average within the commercial bank due to improved service offering and innovative work environment respectively. The results further showed that service automation was key to fostering better firm performance as a result of the efficiency achieved. The research however utilised secondary data only and the current study employed a mixed research methodology.

Mudaki, Wanjere, Ochieng, and Odera (2012) studied how operational factors affect organizational performance in the Kenyan insurance industry. The study which adopted a descriptive census survey on the registered insurance companies as at August 2010, showed that acquisition of modern infrastructure would foster customer acquisition and claims settlement. The results further indicated that adoption of new technologies enhanced the service delivery and reduced customer complaints. The study however examined organisation performance whereas current study focussed on insurance growth in the country.

Liyai (2014) examined strategy and performance of British American insurance company Kenya Limited. The research data collected was analysed through the content analysis and it was determined that service automation, adoption of new technological as well as process innovation had an effect on firm performance. The findings also indicated that a supportive regulatory environment towards innovation in the industry had supported better firm performance. The study however only considered a single firm whereas the current research focussed on the entire insurance industry.

Pamba (2017) examined competitive strategies and performance of Liaison Group Insurance Brokers, Kenya Ltd. The research utilised a case study research design

anchored on both primary and secondary data where qualitative data was collected using a key informant interview schedule. The results of the content analysis showed that tailor-made products and services enhanced firm performance. The findings of the research further showed that increased investment in research and development enhanced the development and modification of older products on offer which was key to enhancing firm performance. The study however used only qualitative data whereas the current research adopted quantitative data.

2.4 Summary of Literature and Research Gaps

The following section outline the knowledge, contextual and methodological gaps that the research sought to fill.

Table 2.1 Research Gaps

Author	Title	Findings of the Study	Research Gaps
Chen, Wang, Huang, and Shen (2016)	Service innovation and new product performance: The influence of market-linking capabilities and market turbulence	The findings of the research indicated that high market-linking capabilities combined with high market turbulence reinforces new product development performance	The study focused on general service industry firms whereas the current research focussed on insurance firms in Kenya.
Lee (2017)	Product diversification, business structure, and firm performance in Taiwanese property and liability insurance sector	The results of the research showed that the diversification of products fostered the performance of large size firms in Taiwan	The study focused on Taiwanese insurance firms whereas the current study focussed on the Kenyan insurance industry.
Maina (2016)	The effect of innovation strategies on the performance of insurance firms in Kenya	The research results showed that marketing innovation strategies resulted in .363 unit change in the performance of insurance firms	The research focused on performance of the insurance firms whereas the scope of the current study was the growth of the insurance industry.
Muia (2017)	The effect of competitive strategies on the performance of Insurance Companies in Kenya.	The study results showed that differentiating their product, offering a variety of products as well as introducing new products had a positive effect on the insurance companies.	The research focused on competitive strategies whereas the current study focussed on the technological innovation within insurance companies.
Rajapathirana and Hui (2018)	Relationship between innovation capability, innovation type, and firm performance.	The findings indicated that there was a strong link between marketing innovation capability and the firm performance of insurance firms.	The study was conducted in the insurance sector in Sri Lanka while the current study focuses on the Kenyan market.
Salehi and Alamdari (2018)	The relationship between knowledge exchange and the insurance and financial performance of Iran Insurance agencies	The findings showed that knowledge creation, knowledge sharing and retention fostered the quality service provision within the insurance industry	The research focused on the Iranian insurance industry whereas the current study examined the Kenyan market.

Source: Researcher (2019)

2.5 Conceptual Framework

A conceptual framework represents the relationships between variables in the study. It is a model of graphically or diagrammatically presenting this relationship (Bryman & Bell, 2007). The study hypothesized the interaction between technological innovations and insurance growth in Kenya.

Independent Variables

Dependent Variables

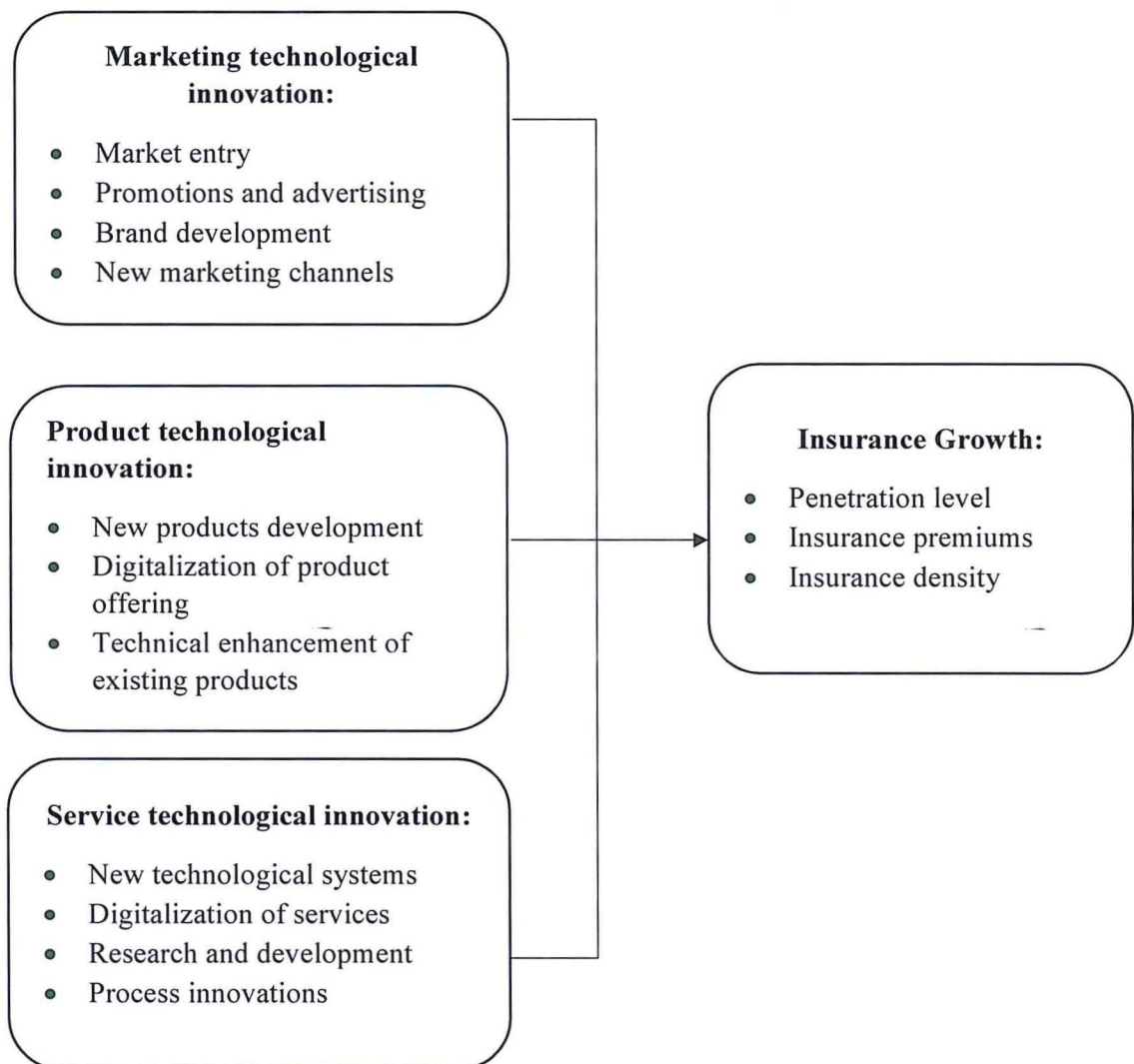


Figure 2.1 Conceptual Framework

Source: Researcher (2019)

The above conceptual framework presents the hypothesized interaction between technological innovation and insurance growth in Kenya. The technological innovations were measured using three main aspects; marketing technological innovations, product technological innovation, service technological innovation. The insurance growth was measured by the penetration level, the insurance premiums, and the insurance density.

Table 2.2 Operationalization of Variables

Objective	Variable	Measurement	Data Collection Instrument	Data Analysis
To determine the effect of marketing technological innovations adoption on the growth of the Kenyan insurance industry.	<ul style="list-style-type: none"> • Market entry • Promotions and advertising • Brand development • New marketing channels 	Quantitative data Qualitative Data 5-point Likert scale	Semi-Structured questionnaire	Descriptive Correlation tests Regression tests
To examine the effect of product technological innovations adoption on the growth of the Kenyan insurance industry.	<ul style="list-style-type: none"> • New products development • Digitalisation of product offering • Technically enhancing existing products 	Quantitative data Qualitative Data 5-point Likert scale	Semi-Structured questionnaire	Descriptive Correlation tests Regression tests
To examine the effect of service technological innovations adoption on the growth of the Kenyan insurance industry.	<ul style="list-style-type: none"> • New technological systems • Digitalization of services • Research and development • Process innovations 	Quantitative data Qualitative Data 5-point Likert scale	Semi-Structured questionnaire	Descriptive Correlation tests Regression tests

Source: Researcher (2019)

2.6 Chapter Summary

The second chapter of the study reviewed the relevant theoretical and empirical literature that informed the study. The study was grounded on both the technological organization and environment theory and the dynamic capabilities theory. The review of previous empirical literature identified knowledge, contextual and methodological gaps that the research sought to fill by examining technological innovations adoption and organization growth of insurance firms in Kenya. From the review of the literature it is evident that numerous studies have been undertaken on the effect of innovation on firm performance; however, the results are inconclusive on the effect of the adoption of the technological innovations on organization growth of insurance firms hence the study sought to address this knowledge gap.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the methods used to collect and analyse data for the study. It specifically examines the research design, the population of the study, the sampling design and sample size, the data collection methods to be adopted as well as the data analysis and ethical considerations.

3.2 Research Design

As described by Bryman and Bell (2007), a research design is a broad plan that structures the chosen techniques and procedures to be used in the collection and analysis of data. The study employed a descriptive research design. A descriptive research design gives a good account of the what, when and how under study. It safeguards relevance of the study and ensures economical procedures are used.

3.3 Population and Sampling

The section outlined the population that the research considered in answering the research problem as well as the sampling techniques and the sample size determination.

3.3.1 Target Population

A population element or unit of study is the subject on which the measurement is being taken. Cooper and Schindler (2008) defined population as the gathering of all elements upon which the study intends to make inferences. The target population for the study was the 52 registered insurance companies in Kenya representing the unit of analysis (AKI, 2017). The unit of observation was the Chief Technology Officer and the Marketing Managers within each insurance firm. The personnel were selected for the study due to their central role within firms in rolling out technological innovations. The respondents are thus deemed proficient in the providing information needed to solve the research problem.

Table 3.1 Target Population

Category	Number
Chief Technology Officer	52
Marketing Manager	52
Total Population	104

Source: Researcher (2019)

3.3.2 Sampling and Sample Size

Cooper and Schindler (2008), states that a sampling design is the procedure for drawing a sample from a population, and the sample is specific. When it proves impossible to test every single item in population, then a sample is used. In addition, it saves time, money and effort while conducting the research. Statistics (2019) states that, a sampling frame is a list of all the items in your population. It will be the complete elements accessible by the researcher for the study i.e. it may be the whole population or a section of it. The sampling frame for the study was drawn from the personnel working within the registered insurance firms in the country. The study anticipated the information availed was of importance in solving the research problem. The study employed a census survey of all the respondents thus enhancing the representation. The sample size for the study was 104 respondents.

3.4 Data Collection Methods

The study relied on primary data which was collected using a structured questionnaire. The questionnaire was structured using a 5-point Likert scale for each variable being examined. The study adopted a drop and pick method in the data collection process. This enhanced the convenience of the data collection process.

3.4.1 Pilot Testing

In order to foster the effectiveness of the research instrument the study conducted a pre-test of the research instrument. This enabled for the reliability and validity examination of the study instrument. According to Cooper and Schindler (2008) a pilot test with 10%-30% of the sample respondents is adequate for examining the quality of the research instruments. The study conducted a pretest with 10% of the sample respondents; that is 10 respondents.

3.4.2 Reliability Tests

Reliability is a measure of the degree to which the research instruments present consistency of results even after several trials (Mugenda & Mugenda, 2003). The reliability of the research instruments was tested using the Cronbach alpha and all variables with a Cronbach alpha of 0.7 and above was considered for the research. Reliability scores of above 0.7 are deemed excellent for a research instrument as this confirms that internal consistency can be attained in the instrument.

Table 3.2 Reliability Tests

Construct	Cronbach's Alpha	N of Items
Insurance growth	0.074	5
Marketing technological	0.85	9
Product technological	0.93	6
Service technological	0.86	7

Source: Researcher (2019)

The results of the analysis indicated that the research constructs had all attained internal consistency as indicated by the Cronbach Alpha scores of above 0.7 as indicated by the presentation in table 3.2 above hence they were utilised in the main research.

3.4.3 Validity Tests

Mugenda and Mugenda (2003) defines validity as the extent to which the obtained results represent the subject under study. It establishes whether the content in the questionnaire measures the research variables accurately and effectively. The questionnaire was subjected to expert review by the university supervisor. All the research variables were confirmed to have been included questionnaire .

3.5 Data Analysis

The collected data was sorted and coded into SPSS 23 for subsequent quantitative data analysis. Various statistical methods were used to analyse the quantitative data including descriptive statistics – means and standard deviation and inferential statistics such as regression analysis and correlation. Descriptive statistics was used to numerically explain the characteristics of the population making it more precise in

accordance with Saunders, Lewis, and Thornhill (2009) proposition. The study assessed the relationship between the dependent and independent variables using the regression analysis and beta coefficients. The analysed data was presented using tables. The study employed the below regression model;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Where:

Y = insurance growth

{ β_i ; $i=1, 2, 3, 4$ } = The coefficients for the various independent variables

X₁ = marketing technologies

X₂ = product technological innovations

X₃ = service technological innovations

3.5.1 Diagnostic Tests

3.5.1.1 Normality Tests

Normality tests check whether a data set is normally distributed and modelled well. The test calculates the probability that a random variable governing a data set is normally distributed (Denzin & Lincoln, 2008). Normality test were conducted to infer whether the shape of the sample distribution mirrored that of a normal curve. The study utilised the Shapiro-Wilk tests which requires that all the sig value should be above 0.05 for the data to be deemed as normally distributed. The results noted sig. values of 0.89, 0.88, 0.86 and 0.77 for the marketing technological innovation, product technological innovation, service technological innovation and insurance growth variables. This indicates that the data was from a normally distributed sample.

3.5.1.2 Multicollinearity Tests

Multicollinearity occurs where the independent variables are highly correlated. From the perspective of this study this problem was solved by collecting data from the entire population. Two major methods that were used in helping detect the presence of multicollinearity: tolerance test and Variance Inflation Factor (V.I.F.). The decision rule is that VIF values of less than 10 indicate there is no collinearity problems while the tolerance values looks at the significance values that are above 0.01. The VIF

values for the marketing technological innovation, product technological innovation and service technological innovation were 1.447, 1.575 and 1.272 indicating that the independent variables do not depend on each other. The tolerance values were 0.691, 0.635 and 0.786 respectively thus there is no linearity of the variables. The Variance Inflation Factor values were 1.447, 1.575 and 1.272 which are all less than 10 indicating that the independent variables do not depend on each other. The tolerance values were 0.691, 0.635 and 0.786 which are all greater than 0.1 thus there is no linearity of the variables. There was therefore no multi-collinearity problem in the variables.

3.6 Ethical Issues

The requisite ethical considerations were observed during the study. Before undertaking the study, ethical committee clearance was obtained from the university. A research permit from the National Commission for Science Technology and Innovation was also obtained. The collected data was solely utilised for academic purposes. The study ensured confidentiality and protected the respondent's identity as anonymity of the respondents was maintained. The research further ensured that the respondent's consent was obtained prior to undertaking the research.

CHAPTER FOUR

PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

This chapter presents the findings of the study on how the adoption of marketing technological innovations, product technological innovations and service technological innovations influences growth of insurance companies in Kenya. The results of the analysis were presented based on the background information, the descriptive analysis of the study variables and the inferential analysis.

4.2 Response Rate

The study sought to examine 104 respondents drawn from the 52 insurance firms. The study obtained a response rate of 85%. This was deemed adequate for statistical analysis based on the criteria advanced by Mugenda and Mugenda (2003) that a response of above 50% is adequate for statistical analysis. The study further sought to establish the managerial position held by the respondents in the insurance firm. The results are on table 4.1 below:

Table 4.1 Managerial position within the Firm

		Frequency	Percent
Valid	Chief Technology Officer	49	55.7
	Marketing Manager	39	44.3
	Total	88	100.0

Source: Researcher (2019)

The findings showed that 56%, of the respondents were the technology officers within the insurance firms while 44% of the respondents were the marketing managers. This indicated that the respondents were in a position to fill in the required research data.

The study also sought to determine the education qualification of the respondents. The results are presented in table 4.2 below:

Table 4.2 Respondents education level

		Frequency	Percent
Valid	O- Level	1	1.1
	Diploma	5	5.7
	Graduate	49	55.7
	Post Graduate	33	37.5
	Total	88	100.0

Source: Researcher (2019)

The findings of the study indicated that most of the respondents had attained more than a first-degree qualification.

The study further sought to examine the length of service of the respondents within the firm. The findings are shown in table 4.3

Table 4.3 Number of years in the Firm

		Frequency	Percent
Valid	Less than 5	22	25.0
	5-9	26	29.5
	10-15	24	27.3
	Over 15	16	18.2
	Total	88	100.0

Source: Researcher (2019)

The results of the study indicated that the majority of the respondents had served for more than 5 years. This indicates that the wealth of experience among the respondents was adequate for offering feedback that could solve the research problem.

4.3 Marketing Technological Innovations Adoption and Insurance Growth

The first research variable examined the adoption levels of marketing technological innovations and its influence on insurance growth.

4.3.1 Marketing Technological Innovation descriptors

The study conducted descriptive statistics in the tabulation and presentation of the Likert scale questions. A scale of 1-5 was used where 1= neither agree nor disagree, 2= strongly disagree, 3=disagree, 4=agree and 5=strongly agree. The study relied on means, sums and standard deviations. The following criterion was utilised in

interpretation of the means; 0-1.50 being neither agree nor disagree; 1.51-2.50 being strongly disagree; 2.51-3.50 being disagree; 3.51-4.50 being agree and 4.51-5.00 being strongly agree. The results are presented in table 4.2

Table 4.4 Marketing Technological Innovation Descriptive

N = 88	Sum	Mean	Std. Deviation
The firm regularly adopts new marketing orientation	353.00	4.0114	1.10894
The firm utilises technological channels in undertake advertising campaigns	380.00	4.3182	.71992
The firm adopts innovative marketing pricing strategies	315.00	3.5795	1.43616
The firm has adopted an innovative product placement strategy	342.00	3.8864	1.20756
The firm has an interactive web-marketing strategy	359.00	4.0795	1.06373
The firm has adopted social media marketing tools	382.00	4.3409	.85617
The firm promotes the brand image of the firm through digital channels	383.00	4.3523	.95940
The firm has digitised customer awareness programmes	310.00	3.5227	1.43821
The firm employs technological tools in entry to new markets	348.00	3.9545	1.21210

Source: Researcher (2019)

From the above findings, the respondents were generally in agreement on adoption of the marketing technological descriptors. The highest consensus across the firms was in the promotion of brands through digital tools, use of social media for marketing and other technological channels for marketing.

On the firms utilizing technological channels to undertake advertising campaigns, the resulting mean of 4.3182 and deviation of .71992 showed agreement among respondents with slight variations. Regarding firms promote their brand image through digital channels, there was consensus evidenced by the mean of 4.3523 and low deviation of .9594. The respondents showed the least consensus on the firms having digitised customer awareness programmes with a mean of 3.5227 and a deviation of 1.43821.

4.3.2 Relationship between Marketing Technological Innovation and Insurance Growth

The study sought to determine the relationship between marketing technological innovations adoption and insurance growth, using Pearson correlation and regression analysis tests. The results of the tests are presented in table 4.3

Table 4.5 Relationship between Marketing Technological Innovation and Insurance Growth

Pearson Correlation Test					
		Insurance growth			
Marketing technological innovations adoption (N=88)	Pearson Correlation	.318**			
	Sig. (2-tailed)	.003			
Regression Coefficients					
Model		Unstandardized Coefficients		T	Sig.
		B	Std. Error		
1	(Constant)	13.286	2.650	5.014	.000
	Marketing technological innovations	.226	.073	3.108	.003
	R Square	.101			
**. Correlation is significant at the 0.01 level (2-tailed).					
a. Predictors: (Constant), Marketing technological Innovations					
b. Dependent Variable: Insurance growth					

Source: Researcher (2019)

The correlation test results indicate a moderate relationship with a significant positive effect of marketing technological innovations on insurance growth $p=.318$, $sig = .003 < .05$. The study also sought to establish the magnitude of effect of marketing technological innovations on insurance growth. The results of the regression analysis between marketing technological innovations adoption and insurance growth indicated that a 10.1% ($R^2=.101$) insurance growth was determined by the marketing technological innovations adopted.

The resultant regression model was:

$$Y = 13.286 + .226X_1 + 2.650$$

The test results show a constant $\alpha = 13.286$, which is significantly different from 0 since the p-value of $.000 < .05$. The beta value (β) = $.226$ is significantly different from 0 since the p-value $.003 < .05$. This indicates a statistically significant positive effect of

marketing technological innovation on insurance growth. This means that changing 1 unit in marketing technological innovation will result in a .226-unit change in the insurance growth.

4.4 Product Technological Innovations Adoption and Insurance Growth

The second research variable examined the adoption levels of product technological innovations and its influence on insurance growth.

4.4.1 Product Technological Innovation descriptors

The respondents were requested to rate adoption levels of product technological innovations within the insurance firms. A scale of 1-5 was used where 1= neither agree nor disagree, 2= strongly disagree, 3=disagree, 4=agree and 5=strongly agree. The results are presented in table 4.4.

Table 4.6 Product Technological Innovations Descriptive

N = 88	Sum	Mean	Std. Deviation
There is new product invention within the firm	345.00	3.9205	1.14693
Better technical specifications have been introduced in the firm products	346.00	3.9318	.96841
There are quality improvements in the products offered by the firm	376.00	4.2727	.89349
There is inclusion of new components within the products offered by the firm	367.00	4.1705	.91251
Desirable functions have been introduced in the new firm products	354.00	4.0227	1.06109
The firm is introducing new digitalized product offers	317.00	3.6023	1.42667

Source: Researcher (2019)

The respondents were majorly in agreement across the firms was in the promotion of brands through digital tools, use of social media for marketing and other technological channels for marketing.

On quality improvements in the products offered by the firms, the agreement among respondents was high, with minimal variations in response as indicated by the mean of 4.2727 and a low deviation of .89349. The results on inclusion of new components within the products offered by the firms also showed high levels of agreement with a mean of 4.1705 and a deviation of .91251. There was agreement among respondents on desirable functions having been introduced in the new products as indicated by a

mean of 4.0227 and a deviation of 1.06109. The least consensus regarded firms introducing new digitalised product offers with a mean of 3.6023 and a deviation of 1.42667 indicating differences in the responses.

4.4.2 Relationship between Product Technological Innovation and Insurance Growth

The study sought to determine the relationship between product technological innovations adoption and insurance growth, using Pearson correlation and regression analysis tests. The results of the correlation between product technological innovations adoption and insurance growth are presented in table 4.5

Table 4.7 Relationship between Product Technological Innovation and Insurance Growth

Pearson Correlation Test						
		Insurance growth				
Product technological innovations adoption (N =88)	Pearson Correlation	.207				
	Sig. (2-tailed)	.053				
Regression Coefficients						
Model		Unstandardized Coefficients			T	Sig.
		Beta	Std. Error			
1	(Constant)	16.741	2.421	6.916	.000	
	Product technological innovations	-.196	.100	1.964	.000	
	R Square	.043				
a. Predictors: (Constant), Product Technological Innovations						
b. Dependent Variable: Insurance growth						

Source: Researcher (2019)

The results shows a weak relationship between the variables as there is an insignificant positive effect of product technological innovations on insurance growth $p=.207$, $sig =.053 > .05$.

The study further sought to establish the magnitude of the effect of product technological innovations on insurance growth. The regression results reveal that a 4.3% ($R^2=.043$) change in insurance growth was determined by the adoption of product technological innovations. The regression model was derived as:

$$Y = 16.741 + -.196X_2 + 2.421$$

The test results show a constant $\alpha = 16.741$ which is significantly different from 0 since the p-value $.000 < .05$. The beta value (β) = $-.196$ is significantly different from 0 since the p-value $.000 < .05$. This indicates a unit change in product technological innovations will result in a $-.196$ unit change in the insurance growth.

4.5 Service Technological Innovations Adoption and Insurance Growth

The third research variable examined the adoption levels of service technological innovations and its influence on insurance growth.

4.5.1 Service Technological Innovation descriptors

The respondents were requested to assess the level of service technological innovations within the insurance firms. A scale of 1-5 was used where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree respectively. The results are presented in Table 4.6

Table 4.8 Service Technological Innovations Descriptive

N = 88	Sum	Mean	Std. Deviation
The firm has adopted new innovative technologies in service offering	351.00	3.9886	1.10894
The firm has digitised customer service	352.00	4.0000	1.10381
The firm has increased its investment in research and development	351.00	3.9886	.99993
The firm has automated the operation systems	348.00	3.9545	1.11323
The firm has introduced business process reengineering systems	332.00	3.7727	1.31067
The firm has adopted business information technologies in its core systems i.e. ERP	372.00	4.2273	.97941
The firm has adopted process innovation within its operations	340.00	3.8636	1.24274

Source: Researcher (2019)

The respondents were mainly in agreement across the descriptors. The highest consensus was on firms adopting business information technologies in their core systems such as enterprise resource planning resulting in a mean of 4.2273 and a low deviation of .97941.

4.5.2 Relationship between Service Technological Innovation and Insurance Growth

The relationship between service technological innovations adoption and insurance growth was determined using Pearson correlation and regression analysis tests. The results are presented in table 4.7

Table 4.9 Relationship between Service Technological Innovation and Insurance Growth

Pearson Correlation Test						
		Insurance growth				
Service technological innovations adoption (N =88)	Pearson Correlation	.512				
	Sig. (2-tailed)	.000				
Regression Coefficients						
Model		Unstandardized Coefficients			T	Sig.
		B	Std. Error			
1	(Constant)	8.943	2.289	3.907	.000	
	Product technological innovations	.449	.081	5.527	.000	
	R Square	.262				
a. Predictors: (Constant), Service Technological Innovations						
b. Dependent Variable: Insurance growth						

Source: Researcher (2019)

The results of the study indicated a strong relationship between the variables as there is a significant positive effect of service technological innovation on insurance growth $p=.512$, $sig =.000<.05$. The findings reveal that a 26.2% ($R^2= .262$) variation in insurance growth is determined by service technological innovations adoption.

The resultant regression model was derived as:

$$Y = 8.943 + .449X_3 + 2.289$$

The test results in table 4.16 indicate a constant $\alpha = 8.943$ which is significantly different from 0 since the p-value $.000<.05$. The beta value (β) = .449 is significantly different from 0 since the p-value $.000<.05$. This indicates that there is a statistically significant positive effect of service technological innovation on insurance growth. A unit change in service technological innovation will result in a .449 unit change in the insurance growth.

4.6 Insurance Growth

The research further sought to examine the level of insurance growth within the firms. The results are shown on table 4.8

Table 4.10 Insurance Growth Descriptive

N=88	Sum	Mean	Std. Deviation
The penetration levels have improved	384.00	4.3636	.92453
The insurance premiums have improved	379.00	4.3068	1.03233
The insurance density has improved	367.00	4.1705	1.22448

Source: Researcher (2019)

The results of the study showed agreement among the respondents that penetration levels and Insurance premiums have improved with mean scores greater than 4.30 and low variations in responses as shown by deviations. While the respondents agreed that the insurance density was improving there was a deviation of 1.22448 indicating high variations in the responses.

4.7 Overall Relationship between Technological Innovations Adoption and Insurance Growth

The regression analysis sought to examine the magnitude of effect between the independent and dependent variables. The results of the test are shown in table 4.9

Table 4.11 Overall Regression Summary

Model	R	R Square	Std. Error of the Estimate		
1	.542 ^a	.293	3.49654		
a. Predictors: (Constant), Service technological, Marketing technological, Product technological					
Regression Coefficients					
		B	Std. Error	t	Sig.
1	(Constant)	6.829	2.856	2.391	.019
	Marketing technological (X ₁)	.150	.078	1.916	.029
	Product technological (X ₂)	-.118	.109	-1.087	.280
	Service technological (X ₃)	.432	.091	4.761	.000
a. Dependent Variable: Insurance growth (Y).					

Source: Researcher (2019)

The findings of the regression analysis indicated that 29.3% ($R^2 = .293$) variations in insurance growth were determined by technological innovations adoptions while the 70.7% variations were determined by other predictors not considered within the research model.

The research further sought to examine the significance of the relationship between all the variables of technology innovations and insurance growth. The resultant regression model was derived as:

$$Y = 6.829 + .15X_1 - .118X_2 + .432X_3 + 2.856$$

The test results in table 4.11 indicates that there is a statistically significant positive effect of marketing technological innovation on insurance growth. A unit change in marketing technological innovation will result in a .15 unit change in the insurance growth. The test results also indicates that there is a statistically insignificant negative effect of product technological innovation on insurance growth. A unit change in product technological innovation will result in a -.118 unit change in the insurance growth. The test results indicate a statistically significant positive effect of service technological innovation on insurance growth. A unit change in service technological innovation will result in a .423 unit change in the insurance growth.

4.8 Chapter Summary

The study chapter presented the analysis of the research findings. The chapter was arranged in line with the research objectives. The study utilised descriptive and inferential analysis. The findings of the research indicated that 29.3% ($R^2 = .293$) variations in insurance growth were determined by adoption of technological innovations. The coefficients of the regression indicated that both marketing technological innovation and service technological innovation had a positive effect on insurance growth while product technological innovation had an overall negative effect on insurance growth.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter of the research presents the discussion of findings, conclusion and recommendations of the research study.

5.2 Discussion of Findings

5.2.1 Marketing Technological Innovation and Insurance Growth

The respondents were generally in agreement on adoption of the marketing technological descriptors. The study showed that with regard to the firms utilizing technological channels to undertake advertising campaigns, there was agreement among the respondents. The findings are consistent with Chen et al. (2016) who indicated that deploying high-market capabilities enhanced the performance of the firm. Regarding the firms having adopted innovative product placement strategies, there was agreement among respondents, which is supported by Alhassan and Biekpe (2015) who indicated that product offering was central to fostering penetration to larger markets. There was a consensus among the respondents on the firms promoting their brand image through digital channels. Alhassan, Addisson, and Asamoah (2015) also indicated in their study that adoption of new technologies in marketing will enhance the firms bottom-line. Concerning the firms employing technological tools in entry to new markets there was also agreement among the respondents. This conforms with Mugo (2017) who indicated that enhanced customer attention to new products and service through creating customer awareness was critical to the marketing strategies. The findings are also in line with Mazviona, Dube, and Sakahuhwa (2017) who conducted a study in Zimbabwe and indicated that automation of marketing and operational systems reduced the operational costs and contributed positively to the performance of insurance firms.

The study noted a significant positive effect of marketing technological innovations on insurance growth. The above results are consistent with Rajapathirana and Hui (2018) who indicated that there was a strong link between marketing innovation capability and the firm performance of insurance firms. The regression analysis beta indicated a unit change in marketing technological innovation would result in a .226

unit change in the insurance growth. This is in line with Maina (2016) who indicated that marketing innovation had a positive influence on insurance performance. The findings are also consistent with Burca and Batrinca (2014) who examined the Romanian insurance sector and indicated that increased investment in new marketing technologies, development of niche markets and customer-centric marketing techniques was positively related with the performance of insurance firms.

5.2.2 Product Technological Innovation and Insurance Growth

There was agreement among the respondents regarding the first descriptive on new product invention within the firms. The findings are supported by Lee (2017) who indicated that diversifying the product offering was central to enhancing the firm performance. There was consensus on quality improvements in the products offered by the firms. Ajagbe, Long, and Solomon (2014) also indicated that product improvements enhanced the brand recognition and retention among the insurance customers. The results were also similar on desirable functions having been introduced in the new products. Muia (2017) acknowledged that expanding the product offering, diversifying products and offering custom-tailored products were essential in product innovation. Regarding firms introducing new digitalized product offers, there was some agreement among respondents. Ngure et al. (2017) in their study also indicated that digitalization and review of existing products lines was key in product innovations.

The study noted an insignificant weak positive effect of product technological innovations on insurance growth. The results are in line with Muia (2017) who concluded there is a positive association between product innovation and firm performance. The research further that a positive change in insurance growth was determined by the adoption of product technological innovations. Ngure et al. (2017) also indicated that product innovation had a positive effect on insurance financial performance. The regression model noted that a unit change in product technological innovations will result in a -.196 unit change in the insurance growth. The findings are consistent with Gitau (2013) who indicated that poor product diversification and development was limiting insurance industry performance. Kiragu (2016) also indicated that product innovation had a negative effect on performance of insurance firms.

5.3.3 Service Technological Innovation and Insurance Growth

The study noted agreement among respondents that firms have digitised customer service. Fadun (2013) also indicated that digitization of the services offered within insurance firms was critical to enhancing service provision. Concerning the firms increasing investment in research and development, there was agreement among the respondents. Tadesse (2017) acknowledged that a well-funded research and development unit was key to service automation. The respondents further agreed that the firms had introduced business process reengineering systems. Liyai (2014) also indicated that the local insurance industry has enhanced the integration of new technologies in its service offering. The study also noted a consensus that firms had adopted technological process innovations within the operations. Pamba (2017) indicated that increased investment in automation had fostered introduction of new systems within the insurance service offering. Mudaki, Wanjere, Ochieng, and Odera (2012) also noted that adoption of new technologies in services provision had enhanced customer experience.

The study noted a significant positive effect of service technological innovation on insurance growth. The findings are supported by Liyai (2014) who acknowledged that service automation and adoption of new technologies positively influence performance of insurance firms. The findings further revealed a positive variation in insurance growth is determined by service technological innovations adoption. Rajapathirana and Hui (2018) posited that innovation capability was positively related to firm performance. Pamba (2017) also indicated that service automation was positively related to performance of insurance firms.

5.3 Conclusions

On marketing technological innovations, the study established that the insurance firms have come a long way in digitizing their marketing efforts. The introduction of social media marketing and advertising through emerging technologies has fostered the firm's growth. Further the maintenance of interactive websites has enhanced firms outreach. The research concludes that there is a positive effect of market technological innovation adoption on insurance growth.

The study further noted that insurance firms have sought to enhance their integration of technologies in product innovation. However, over duplication of products within

the industry has seen most of the firms fail to reap the benefits of product innovation. Further the insurance firms lack adequate systems to foster product innovation and increase their new products development units. The study determined that there exists a negative effect of product technological innovation adoption on insurance growth.

It can also be concluded that insurance firms have generally improved their service automation. Increased introduction of new digital systems as well as adoption of business engineering tools has contributed to better customer service delivery. Further deployment of new core systems has enhanced the operational performance of insurance firms. The research concludes there is a positive effect of service technological innovation adoption on insurance growth. The overall regression results indicated that technology innovation adoptions were key to enhancing the insurance growth in Kenya.

5.4 Recommendations

Management of insurance firms should enhance innovation in marketing and service technologies as they have greater influence on growth of insurance. The firms can consider leveraging on agile core systems that will help lower operational costs and expanding the financing for their research and development teams as this will enhance service automation.

The research also recommends that both the regulator and the insurance firms should conduct detailed focussed-research to identify why technological innovations in the product offering are not adding value. This will help in expanding their product development. Further the study recommends that insurance firms should avoid over-duplication of products in the market as this will limit their efficiency within the market. The study further recommends that insurance firms should enhance their research into offering digitalized products as this will open a new realm of product innovation.

5.5 Areas for Further Research

Despite increasing evidence from industry analysts and regulators that there is lack of product innovation within the industry; much has not been achieved hence this study suggests that a comprehensive research should be undertaken to examine the challenges to product innovation within the insurance industry. The study relied on

primary data which can be limited by subjective responses; hence the research suggests further research could be conducted on the effect of firm-specific characteristics on the insurance growth with emphasis on adoption of quantitative secondary data.

REFERENCES

- Adams, M., Upreti, V., & Chen, J. (2019). Product-market strategy and underwriting performance in the United Kingdom's property-casualty insurance market. . *The European Journal of Finance*.
- Aduloju, S. A., Olowokudejo, F., & Obalola, M. (2014). Information technology and customer service performance among insurance companies in Nigeria. *Equity Health Journals*.
- Ajagbe, M. A., Long, C. S., & Solomon, O. (2014). The impact of sales promotion and product branding on company performance: A case study of AIICO insurance Nigerian PLC. . *Procedia-Social and Behavioral Sciences*, , 129, 164-171.
- AKI. (2012). *Insurance Industry Annual Report*. Association of Kenya Insurers.
- AKI. (2013). *Insurance Industry Annual Report*. Nairobi: Association of Kenya Insurers.
- Alhassan, A. L., & Biekpe, N. (2015). Efficiency, productivity and returns to scale economies in the non-life insurance market in South Africa. . *The Geneva Papers on Risk and Insurance-Issues and Practice*, , 40(3), 493-515.
- Alhassan, A. L., Addisson, G. K., & Asamoah, M. E. (2015). Market structure, efficiency and profitability of insurance companies in Ghana. *International Journal of Emerging Markets*, , 10(4), 648-669.
- Ambrosini, V., & Bowman, C. (2009). What are dynamic capabilities and are they a useful construct in strategic management? *International journal of management reviews*, , 11(1), 29-49.
- Bain & Company. (2015). *Global Digital Insurance Benchmarking Report 2015*. . Retrieved from Bain & Company: www.bains.com
- Barreto, I. (2010). Dynamic capabilities: a review of past research and an agenda for the future. . *Journal of Management*, , 36(1), 256-280.
- Brown, B. (2017). Determinants of Reinsurance Demand in The Ghanaian Insurance Market . *Doctoral dissertation, University of Ghana*.
- Bryman, A., & Bell, E. (2007). *Business Research Method. 2nd Edition*. . Oxford: Oxford University Press.
- Burca, A. M., & Batrinca, G. (2014). The determinants of financial performance in the Romanian insurance market. . *International Journal of Academic Research in Accounting, Finance and Management Sciences*, , 4(1), 299-308.
- Chen, K. H., Wang, C. H., Huang, S. Z., & Shen, G. C. (2016). Service innovation and new product performance: The influence of market-linking capabilities and market turbulence. *International Journal of Production Economics*, , 172, 54-64.
- Cooper, D., & Schindler, P. (2008). *Business research methods. (10th Ed.)*. . New York, NY:: McGraw-Hill/Irwin.

- Cytonn Investments. (2015). *Kenya Listed Insurance Companies FY'2015 Report*. . Retrieved from Cytonn Investments: www.cytonn.com
- Dasgupta, M., Gupta, R., & Sahay, A. (2011). Linking Technological Innovation, Technology Strategy and Organisational Factors: A Review. . *Global Business Review*, , 12(2), 257-277.
- De Bruin, G. P. (2006). *The dimensionality of the general work stress scale: a hierarchical exploratory factor analysis*.
- Denzin, N. K., & Lincoln, Y. S. (2008). *Introduction: The discipline and practice of qualitative research*. . Sage Publications, Inc.
- Dewar, R. D., & Dutton, J. E. (2006). The adoption of radical and incremental innovations: An empirical analysis. . *Management Science*, , 32(11), 1422–1433.
- Di Stefano, G., Peteraf, M. A., & Verona, G. (2010). Dynamic capabilities deconstructed. *Industrial and Corporate Change*, , 19(4), 1187–1204.
- Easterby-Smith, M., & Prieto, I. M. (2008). Dynamic capabilities and knowledge management: an integrative role for learning? . *British Journal of Management*,, 19(3), 235-249.
- Ernst & Young. (2016). *Insurance Opportunities in Sub Saharan Africa*. . Retrieved from Ernst & Young: www.ey.com
- Fadun, O. S. (2013). Information and Communication Technology (ICT) and Insurance Companies Profitability in Nigeria. . *JABM Journal of Accounting-Business & Management*, , 20(2).
- Gitau, B. (2013). Strategies adopted by Kenyan insurance companies to alleviate low insurance penetration. . *Unpublished MBA thesis. University of Nairobi*.
- IRA. (2015). *Insurance Industry Annual Report*. Insurance Regulatory Authority.
- IRA. (2017). *Insurance Industry Annual Report*. Nairobi: Insurance Regulatory Authority.
- IRA. (2018). *Insurance Industry Release for Q3 2018*. Nairobi: Insurance Regulatory Authority.
- Jolly, A. (2011). *The innovation handbook (2nd ed)*. London: Kagan Page.
- Kaplan, R., & Norton, D. P. (2008). Linking balance scorecard to strategy . *California Management Review*,, Vol,39.
- Kasae, P. (2014). Energy Efficiency and Operational Performance of Manufacturing Firms in Kenya. . *Journals in Business & Management*, , 2(3), 15–24.
- Kiama, N. (2015). *Promoting insurance penetration in Kenya*. Retrieved from actuaries.or.ke

- Kiragu, R. W. (2016). Influence of Innovation on performance of Insurance companies in Kenya. *Doctoral dissertation, Strathmore University.*
- Kothari, C. (2004). *Research Methodology, Methods and Techniques (Revised Edition)*, . Delhi: New Age International Publishers.
- KPMG . (2015). *East Africa Insurance fraud risk survey 2015: Kenya Country Profile.* . Retrieved from KPMG : www.kpmg.com
- KPMG. (2014). *Sector report; Insurance in Africa.* Retrieved from KPMG: www.kpmg.com
- Kyengo, M. F. (2014). The Relationship between manufacturing strategy and Operational performance within the metal and allied sector in Kenya. . *Journals in Business & Management*, , 2(3), 36–40.
- Lawrence, J. (2010). Technological Change Financial innovation and Financial Regulation in the US, the Challenges for Public policy, . *citeseerx*, doi=10.1.1.155.1655.
- Lee, C. Y. (2017). Product diversification, business structure, and firm performance in Taiwanese property and liability insurance sector. . *The Journal of Risk Finance*, , 18(5), 486-499.
- Letangule, S., & Letting, N. (2012). Innovation Strategies at Standard Chartered Bank Kenya. *International Journal of management and Business Studies*, , 2(3): 75-78.
- Liyai, A. (2014). Strategy and performance of British American insurance company Kenya Limited. . *Unpublished Thesis: University of Nairobi: Kenya.*
- Maina, M. N. (2016). Effect of innovation strategies on the performance of insurance firms in Kenya. . *Unpublished MBA Project.*
- Mazviona, B. W., Dube, M., & Sakahuhwa, T. (2017). An Analysis of Factors Affecting the Performance of Insurance Companies in Zimbabwe. . *Journal of Finance and Investment Analysis*, , 6(1), 1-2.
- McKinsey. (2014). *Global Insurance Pools*, . Retrieved from McKinsey: www.mckinsey.com
- Mehari, D., & Aemiro, T. (2014). Firm specific factors that determine insurance companies' performance in ethiopia. *European Scientific Journal*, , ESJ, 9(10).
- Méndez-Aparicio, M. D., Izquierdo-Yusta, A., & Jiménez-Zarco, A. I. (2017). Consumer Expectations of Online Services in the Insurance Industry: An Exploratory Study of Drivers and Outcomes. . *Frontiers in psychology*,, 8, 1254.
- Mudaki, A. L., Wanjere, D., Ochieng, I., & Odera, O. (2012). Effects of operational factors on organizational performance in Kenyan insurance industry. . *International journal of business and social science*, , 3(17), 237-241.

- Mudaki, A. L., Wanjere, D., Ochieng, I., & Odera, O. (2013). Effects of operational factors on organizational performance in Kenyan insurance industry. . *International journal of business and social science*, 3(17), 237-241.
- Mugo, I. N. (2018). Strategic Management Determinants of Organizational Performance in the Insurance Industry in Kenya. *Doctoral dissertation, JKUAT*.
- Mugo, M. W. (2017). Strategies Affecting Performance of Health Insurance Companies in Kenya: A Case of Jubilee Insurance Company in Nairobi. *United States International University*.
- Muia, F. (2017). Effect of Competitive Strategies on the Performance of Insurance Companies in Kenya . *Doctoral dissertation, United States International University-Africa*.
- Mwiti, L. (2016). *How rogue insurance agents mislead clients in race for life cover commissions*.
- Nduna, A. (2013). Low insurance penetration in emerging economies and way forward – the African experience. . *The 17th Insurance Congress of Developing Countries (ICDC)*.
- Ngure, F. K., Maina, K. E., & Kariuki, S. N. (2017). Product innovations and financial performance of savings and credit co-operatives societies in Kirinyaga County. *Embu University*.
- Oke, A., & Goffin, K. (2011). Technology Adoption and Consumer payments: Evidence from survey data. *Review of Network Economic*, 2(2), 45-62.
- Olopade, M., & Frolich, M. (2012). The Impact of Insurance Literacy Education on Knowledge, Attitude and Behavior --A Randomized Controlled Trial. . *University of Twente*. .
- Ombaka, B. E., Machuki, V., Awino, Z. B., & Wainaina, G. (2015). Organizational Resources, Innovation and Performance of Insurance Companies in Kenya. . *DBA Africa Management Review*, 5(2).
- Ombati, R., Magutu. S.M., Nyamwange, N., & Nyaoga, P. (2012). Technology and Service Quality in the Banking Industry: Importance and Performance of various factors considered in Electronic Banking Services. *African Journal of Business & management*, 1(4): 151-164.
- Owino, P. O., Senaji, T. A., Eng, R., & Ntara, C. (2017). Effect of innovation in revenue collection processes on organizational performance of Nairobi City County. . *International Academic Journal of Human Resource and Business Administration*, 2(3), 361-38.
- Owolabi, A. O. (2018). Insurance Products: Technological Service Delivery Perspective. . *Business and Economic Research*, 8(3), 19-28.

- Pamba, S. Y. (2017). Competitive Strategies And Performance Of Liaison Group Insurance Brokers, Kenya Ltd . *Doctoral dissertation, School Of Business, University Of Nairobi.*
- Rajapathirana, R. J., & Hui, Y. (2018). Relationship between innovation capability, innovation type, and firm performance. *Journal of Innovation & Knowledge*, , 3(1), 44-55.
- Reavis, M. W. (2012). *Insurance concepts & coverage property, liability. Life, Health and Risk Management (1st ed.)*. Canada: : Friesen Press.
- Rogers, E. M. (2002). Diffusion of Preventive Innovations. *Addictive Behaviors*, , 27(6), 989-993.
- Salehi, J., & Alamdari, A. (2018). A Study of the Relationship between Knowledge Exchange and the Insurance and Financial Performance of Iran Insurance agencies in Kohgiluyeh and Boyer Ahmad Province. . *Revista Publicando*, , 5(15), 326-335.
- Saunders, M., Lewis, P., & Thornhil, A. (2009). *Research Methods for Business Students (5th end)* . Chelmsford, United Kingdom: : Pearson Education.
- Sharew, A., & Fentie, G. (2018). Data Envelopment Analysis on Efficiency of Insurance Companies in Ethiopia. . *American Scientific Research Journal for Engineering, Technology, and Sciences (ASRJETS)*, , 48(1), 138-170.
- Siami, Z. A. (2006). Role of electronic banking services on the profits of Jordanian Banks. . *American Journal of Applied Sciences*, , 3 (9) 32-67.
- Starbuck, W. (1976). *Organizations and their Environments*,. Chicago, : Rand McNally.
- Statistics. (2019, 02 16). *Sampling Frame Definition*. Retrieved from Statistics how to. Retrieved from Statistics: www.statisticshowto.com/sampling-frame/
- Swiss Reinsurance Company. (2014). Zurich: Sigma Publication, No. 5/2006.
- Tadesse, A. (2017). An Assessment Of The Performance Of Nile Insurance Company SC(. *Doctoral dissertation, St. Mary's University.*
- Taiwo, A., & Idumu, O. (2008). Impact of Strategic Planning on Organizational Performance and Survival. *Research Journal of Business management* , 1 (1): 62-71, 2007 ISSN 1819-1932.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. . *Strategic Management Journal* , (18) 7, pp. 509-533.
- Thompson, J. D. (1967). *Organizations in Action: Social Science Bases of Administration.*
- Tornatzky, L. G., & Fleischer, M. (1990). *The Process of Technological Innovation.* DC Heath, : Lexington, MA.

Verhoef, G. (2016). Innovation and expansion: Product innovation and expansion in insurance in South Africa. The case of Sanlam, 1920-1998. . *Historia* , 61(1), 66-91.

Yttapong, T. (2012). Factors impacting customers to adopt internet banking. . *Banking Magazine*, 34(2), 43-46.

APPENDICES

Appendix IA: Strathmore University Introduction Letter



Strathmore Business School

25th March 2019

To Whom It May Concern

Dear Sir/ Madam

RE: FACILITATION OF RESEARCH – GRACE MAKAYOTO

This is to introduce Grace Makayoto who is a Master of Business Administration student at Strathmore Business School, admission number MBA/99485/17. As part of our MBA Program, Grace is expected to do applied research and undertake a project. This is in partial fulfilment of the requirements of the MBA course. To this effect, she would like to request for appropriate data from your organization.

Grace is undertaking a research paper on “**Technological Innovations Adoption and its Influence on Organisational Growth among Insurance Companies in Kenya.**” The information obtained from your organization shall be treated confidentially and shall be used for academic purposes only.

Our MBA seeks to establish links with industry, and one of these ways is by directing our research to areas that would be of direct use to industry. We would be glad to share our findings with you after the research, and we trust that you will find them of great interest and of practical value to your organization.

We appreciate your support and shall be willing to provide any further information if required.

Yours sincerely,

Caroline Tiara.
Manager – Masters’ Programs



Ole Sangale Road, Madaraka Estate
P.O. Box 59857 00200 Nairobi, Kenya
Cell: +254 703 034 414 / 6 / 7
Email: info@sbs.ac.ke or visit www.sbs.strathmore.edu
Twitter: @SBSKenya .

Strathmore Business School is a proud member of:



Appendix IB: Strathmore University Ethical Clearance



27th March 2019

Makayoto Grace
gracemakayoto@gmail.com

Dear Grace,

REF **Protocol ID: SU-IERC0351/19 Student Number: 99485**

TECHNOLOGICAL INNOVATIONS ADOPTION AND ITS INFLUENCE ON INSURANCE GROWTH IN KENYA

We acknowledge receipt of your application documents to the Strathmore University Institutional Ethics Review Committee (SU-IERC) which includes:

1. Participant information sheet and consent form 8 March 2019
2. Cover letter listing all submitted documents 8 March 2019
3. Proposal declaration page signed by supervisors 8 March 2019

The committee has reviewed your application, and your study "TECHNOLOGICAL INNOVATIONS ADOPTION AND ITS INFLUENCE ON INSURANCE GROWTH IN KENYA" has been granted approval.

This approval is valid for one year beginning **27 March 2019** until **27 March 2020**

In case the study extends beyond one year, you are required to seek an extension of the Ethics approval prior to its expiry. You are required to submit any proposed changes to this proposal to SU-IERC for review and approval prior to implementation of any change.

SU-IERC should be notified when your study is completed.

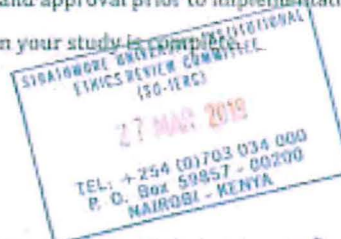
Thank you

Sincerely,

Prof Florence Oloo

Secretary

Strathmore University Institutional Ethics Review Committee



Appendix IC: NACOSTI Approval

THIS IS TO CERTIFY THAT: **MS. GRACE ADHIAMBO MAKAYOTO** of **STRATHMORE UNIVERSITY**, **10536-100 Nairobi**, has been permitted to conduct research in **Nairobi County** on the topic: **EFFECT OF TECHNOLOGICAL INNOVATIONS ADOPTION ON INSURANCE GROWTH IN KENYA** for the period ending: **23rd April, 2020**

Permit No : NACOSTI/P/19/49112/29211
Date Of Issue : 25th April, 2019
Fee Received :Ksh 1000

Grace Adhiambo Makayoto
Applicant's Signature



Grace Adhiambo Makayoto
Director General
National Commission for Science, Technology & Innovation



**NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION**

Telephone: +254-20-2213471,
2241349, 3310571, 2219420
Fax: +254-20-318245, 318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. **NACOSTI/P/19/49112/29211**

Date: **25th April 2019**

Grace Adhiambo Makayoto
Strathmore University
P.O. Box 59857 00200
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Effect of technological innovations adoption on insurance growth in Kenya.*" I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **23rd April, 2020.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a **copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

**GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioner
Nairobi County

The County Director of Education
Nairobi County.

Appendix ID: Plagiarism Checker

technology and insurance

ORIGINALITY REPORT

12% SIMILARITY INDEX	9% INTERNET SOURCES	4% PUBLICATIONS	7% STUDENT PAPERS
--------------------------------	-------------------------------	---------------------------	-----------------------------

PRIMARY SOURCES

1	Submitted to Kenyatta University Student Paper	2%
2	www.emeraldinsight.com Internet Source	1%
3	ijecm.co.uk Internet Source	<1%
4	usiuservicedesk.usiu.ac.ke Internet Source	<1%
5	www.b-ac.info Internet Source	<1%
6	Submitted to KCA University Student Paper	<1%
7	Submitted to Strathmore University Student Paper	<1%
8	Submitted to Maastricht School of Management Student Paper	<1%
9	repository.up.ac.za	

Appendix IE Researcher Introduction Letter

To The General Manager

..... Insurance Firm

Nairobi, Kenya

Re: Research Data

I am a graduate student in the Master in Business Administration degree at Strathmore University. I am conducting a research study in partial fulfilment of the requirements for the award of the degree, as well as to enhance the knowledge within the insurance sector in the country. The study is titled '*Technological innovations adoption and its influence on organisational growth among insurance companies in Kenya*'.

I kindly request your participation in this study. The collected research data will be treated with utmost confidentiality and will be utilised only for academic purposes. The findings of the study will be availed to you on request.

Thank you.

Yours faithfully,

Grace Makayoto

Researcher

Appendix II: Questionnaire

The questionnaire below seeks to collect data that will help in undertaking my research work. I kindly request all participants to answer the questions to the best of their ability and truthfully.

PART A: GENERAL INFORMATION

1) Education Level

O- Level []

Diploma []

Graduate []

Post Graduate []

Other

2) Managerial position in the organization

Chief technology officer []

Marketing Manager []

3) Years of experience in this role/department:

Less than 5 [] 5-9 [] 10-15 [] Over 15 []

PART B: Technology Innovation Adoption and Insurance Growth

4) Please indicate with a tick (√) or a cross (×) the level of agreement on the following statements.

(5= Strongly Agree 4= Agree 3= Disagree 2= Strongly Disagree 1= Neither agree nor disagree)

Marketing Adoption	Technological	Innovation	1	2	3	4	5
---------------------------	----------------------	-------------------	----------	----------	----------	----------	----------

The firm regularly adopts new marketing orientation					
The firm utilises technological channels in undertake advertising campaigns					
The firm adopts innovative marketing pricing strategies					
The firms has adopted an innovative product placement strategy					
The firm has an interactive web-marketing strategy					
The firm has adopted social media marketing tools					
The firm promotes the brand image of the firm through digital channels					
The firm has digitised customer awareness programmes					
The firm employs technological tools in entry to new markets					

5) Please indicate with a tick (√) or a cross (×) the level of agreement on the following statements

(5= Strongly Agree 4= Agree 3= Disagree 2= Strongly Disagree 1= Neither agree nor disagree)

Product Technological Innovation Adoption	1	2	3	4	5
There is new product invention within the firm					
Better technical specifications have been introduced in the firm products					
There are quality improvements in the products offered by the firm					
There is inclusion of new components within the products offered by the firm					
Desirable functions have been introduced in the new firm products					
The firm is introducing new digitalized product offers					

6) Please indicate with a tick (√) or a cross (×) the level of agreement on the following statements

(5= Strongly Agree 4= Agree 3= Disagree 2= Strongly Disagree 1= Neither agree nor disagree)

Service Technological Innovations	1	2	3	4	5
--	----------	----------	----------	----------	----------

The firm has adopted new innovative technologies in service offering					
The firm has digitised customer service					
The firm has increased its investment in research and development					
The firm has automated the operation systems					
The firm has introduced business process reengineering systems					
The firm has adopted business information technologies in its core systems i.e. ERP					
The firm has adopted process innovation within its operations					

7) Please indicate with a tick (√) or a cross (×) the level of agreement on the following statements

(5= Strongly Agree 4= Agree 3= Disagree 2= Strongly Disagree 1= Neither agree nor disagree)

Insurance Growth	1	2	3	4	5
The penetration levels have improved					
The insurance premiums have improved					
The insurance density has improved					
The number of customers has improved					
There has been a reduction in operational costs					

Thank you for taking time to respond to the research

Appendix III: List of Insurance Firms

AAR Insurance Kenya Limited	P.O Box 41766 Nairobi
Africa Merchant Assurance Co. Ltd	P.O Box. 61599 Nairobi
AIG Kenya Insurance Co Ltd	P.O Box 49460 Nairobi
APA Insurance Limited	P.O Box 30065 Nairobi
Allianz Insurance Co of Kenya Ltd	P.O Box 66257 Nairobi
APA Life Assurance Limited	P.O Box 30389 Nairobi
Britam General Ins. Co. (K) Ltd.	P.O Box 40001 Nairobi
Barclays Life Assurance K Ltd	P.O Box 1140 Nairobi
British-American Insurance Co. Ltd.	P.O Box 30375 Nairobi
Capex Life Assurance Limited	P.O Box 12043 Nairobi
Cannon Assurance Ltd	P.O Box 30216 Nairobi
CIC General Insurance Limited	P.O Box 59485 Nairobi
Continental Reinsurance Ltd	P.O Box 76326 Nairobi
CIC Life Assurance Ltd	P.O Box 59485 Nairobi
Corporate Insurance Co. Ltd	P.O Box 34172 Nairobi
EA Reinsurance Company Ltd	P.O Box 20196 Nairobi
Directline Assurance Co Ltd	P.O Box 40863 Nairobi
First Assurance Company Ltd	P.O Box 30064 Nairobi
Fidelity Shield Insurance Co Ltd	P.O Box 47435 Nairobi
GA Life Assurance Ltd	P.O Box 42166 Nairobi
GA Insurance Limited	P.O Box 42166 Nairobi
ICEA LION General Insurance Co Ltd	P.O Box 30190 Nairobi
Geminia Insurance Company Ltd	P.O Box 61316 Nairobi
Intra Africa Assurance Co Ltd	P.O Box 43241 Nairobi
ICEA LION Life Assurance Co Ltd	P.O Box 46143 Nairobi
Jubilee Insurance Co. Ltd	P.O Box 30376 Nairobi
Invesco Assurance Company Ltd	P.O Box 52964 Nairobi
Kenya Orient Insurance Ltd	P.O Box 34530 Nairobi
Kenindia Assurance Co Ltd	P.O Box 44372 Nairobi
Kenya Reinsurance Corp Ltd	P.O Box 30271 Nairobi
Kenya Orient Life Assurance Ltd	P.O Box 34540 Nairobi
Liberty Life Assurance Kenya Ltd	P.O Box 30364 Nairobi

Heritage Insurance Company Ltd	P.O Box 30390 Nairobi
Mayfair Insurance Company Ltd	P.O Box 45161 Nairobi
Madison Insurance Company Ltd	P.O Box 47382 Nairobi
Monarch Insurance Co. Ltd.	P.O Box 44003 Nairobi
Metropolitan Cannon Life Ass Ltd	P.O Box 46783 Nairobi
Old Mutual Life Assurance Co Ltd	P.O Box 30059 Nairobi
Occidental Insurance Co Ltd	P.O Box 39459 Nairobi
Pioneer Life Assurance Company Ltd	P.O Box 20333 Nairobi
Pacis Insurance Company Ltd	P.O Box 1870 Nairobi
Phoenix of EA Assurance Co Ltd	P.O Box 30129 Nairobi
Pioneer General Insurance Ltd	P.O Box 20333 Nairobi
Saham Assurance Company K Ltd	P.O Box 20680 Nairobi
Prudential Life Assurance K Ltd	P.O Box 25093 Nairobi
Sanlam General Insurance Ltd	P.O Box 60656 Nairobi
Sanlam Life Assurance Ltd	P.O Box 44041 Nairobi
Tausi Assurance Company Ltd	P.O Box 28889 Nairobi
Resolution Insurance Company Ltd	P.O Box 4469 Nairobi
UAP Life Assurance Limited	P.O Box 23842 Nairobi
UAP Insurance Company Limited	P.O Box 43013 Nairobi
Takaful Insurance of Africa Limited	P.O Box 1811 Nairobi

Source: IRA (2017)