

**BUSINESS INTELLIGENCE AND COMPETITIVE ADVANTAGE IN
INSURANCE FIRMS IN KENYA**

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DECLARATION

This project is my original work and has not been submitted for examination to any other academic body.

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DEDICATION

I would like to dedicate this research work to my family who are my pillars and sources of great inspiration. My parents for their continuous prayers for God's wisdom upon me to be the best I can. To my brothers and sisters who have been patient with me and supported me during my studies- God bless you.

ABSTRACT

The study focused on how business Intelligence helps firms sustain and develop distinct competitive advantages by using the entire organization and its networks to develop actionable insights about the environment that is the customers, competitor, regulators, technology and many other stakeholders. Due to the current environmental changes in the market, there is a need for a study to be carried out to investigate what extent does business intelligence practices plays in achieving competitive advantage in the insurance sector. The study sought to establish the relationship between business intelligence application and competitive advantage in insurance firms in Kenya. This research employed descriptive survey design. The population of the study consisted of 43 listed insurance companies in Kenya. Primary data was collected using questionnaires. The respondents were information technology (IT) managers, marketing managers, customer service, finance managers and sales and marketing in the insurance firms. Descriptive statistics were used to analyse the data because this study was modelled on a descriptive framework. Mean scores of the like scale was used to determine impact of competitive strategies employed by firms. In addition, the researcher conducted a multiple regression analysis. The findings were presented using tables and charts. The study also found that the various business intelligences have been used for competitive advantage by the insurance firms in Kenya. There are various challenges encountered by insurance firms in Kenya while using business intelligence for competitive advantage. The study also found that the use of business intelligence in various applications in the organization contributed to competitive advantage for the organizations. The study recommends that it is critical for insurance firms to set clear Business Intelligence (BI) objectives which must be aligned to firms' objectives. The objectives and the mission of the Business Intelligence together with the alignment to business objectives should form the Business Intelligence (BI) strategy. People roles should then be established at the very onset of the project. The study recommends that there should be more awareness on the use and Business Intelligence (BI) systems in the insurance firms in Kenya. There is need for the insurance firms in Kenya to explore what other ways they can leverage more on these systems.

TABLE OF CONTENTS

DECLARATION	ii
ACKNOWLEDGEMENT	iii
DEDICATION	iv
ABSTRACT	v
LIST OF TABLES	ix
LIST OF FIGURES	x
LIST OF ABBREVIATIONS	xi
CHAPTER ONE: INTRODUCTION	1
1.1 Background of the Study.....	1
1.1.1 Business Intelligence	1
1.1.2 Competitive Advantage	2
1.1.3 Relationship of Business Intelligence Use and Competitive Advantage	4
1.1.4 The Insurance Industry in Kenya.....	5
1.2 Statement of the Problem	6
1.3 Research Objectives	8
1.4 Value of Study.....	8
CHAPTER TWO: LITERATURE REVIEW	9
2.1 Introduction	9
2.2 Theoretical Orientation	9
2.3 Business Intelligence Process	13
2.4 Challenges of using Business Intelligence in organizations	14
2.5 Business Intelligence Practices and Competitive Advantage	15
2.6 Summary	18
2.7 Conceptual Framework	18
CHAPTER THREE: RESEARCH METHODOLOGY	19
3.1 Introduction	19
3.2 Research Design.....	19
3.3 Target Population	19
3.4 Data Collection.....	19

3.5 Data Analysis	20
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CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND INTERPRETATION

.....	21
4.1 Introduction	21
4.2 Questionnaire Return Rate	21
4.3 Background Information	22
4.3.1 Gender of the Respondents.....	23
4.3.2 Age of the Respondents.....	23
4.3.3 Level of Education.....	24
4.3.4 Job Title in the Organizations.....	25
4.3.5 Working Experience in the Insurance Firms	25
4.3.6 Firms’ Length of Operations	26
4.3.7 Asset Base of the Firm.....	26
4.3.8 Number of Staffs Employed in the Insurance Firms	26
4.3.9 Ownership Structure of the Firms	27
4.4 Business Intelligence.....	27
4.5 Use of Business Intelligence Tools	28
4.6 Challenges Involved In Business Intelligence Process	29
4.7 Business Intelligence Application.....	31
4.7.2 Influence on Competitive Advantage.....	32
4.7.3 Regression Analysis	33

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....35

5.1 Introduction	35
5.2 Summary	35
5.3 Conclusions	37
5.4 Recommendations for Policy and Practice.....	37
5.5 Limitations of the Study.....	38
5.6 Suggestions for Further Study.....	39

REFERENCES.....40

Appendix I: Questionnaire to business Intelligence process in the insurance industry	i
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Appendix II: List of Licensed Insurance Companiesvi

LIST OF TABLES

Table 4.2: Response Rate.....	22
Table 4.3.1: Gender of the Respondents.....	23
Table 4.3.2: Age Brackets of the Respondents.....	23
Table 4.3.3: Level of Education.....	24
Table 4.3.5: Duration Worked in the Insurance Firms in Kenya.....	25
Table 4.3.9: Ownership Status of the Firms.....	27
Table 4.4.1: Funding of Business Intelligence.....	27
Table 4.4.2: People Responsible for Undertaking Business Intelligence.....	28
Table 4.5: Extent to which Business Intelligence Tools are Used in Insurance Firms.....	29
Table 4.6: Challenges Faced by Insurance Firms in Implementing Business Intelligence.....	30
Table 4.7: Extent to which BI Applications Contribute to Competitive Advantage.....	31
Table 4.7.2: Effects of Business Intelligence Applications on Competitive Advantage.....	32
Table 4.7.3.1: Model Summary.....	33
Table 4.7.3.2: Multiple Regression Analysis.....	34

LIST OF FIGURES

Figure 4.3.2: Age Brackets of the Respondents.....	24
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LIST OF ABBREVIATIONS

AKI	–	Association of Kenya Insurance
BI	–	Business Intelligence
CA	–	Competitive Advantage
CRM	–	Consumer Relationship Management
IRA	–	Insurance Research Association
IT	–	Information Technology
SPSS	–	Statistical Package for Social Sciences
TAM	–	Technology Acceptance Model

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Business intelligence (BI) as a strategic business tool has long been proposed in an effort to increase a company's competitiveness (Porter, 1980). It is an important aspect of strategic management because it serves as the first link in the chain of perceptions and actions that permit an organization to adapt to its environment. Being a relatively new management tool in the business world, Business intelligence plays an important role to support managers today for better decision making and strategic planning.

Hannula and Pirttimaki (2003) argue that a competitive edge is gained through the ability to anticipate information, turn it into knowledge, craft it into intelligence relevant to the business environment, and actually use the knowledge gained from it (Calof and Wright, 2008). The intent of any business intelligence System is simply to provide a system for developing or improving processes through a structured approach, effective deployment and better control.

A firm which does not rigorously monitor and analyze key competitors is poorly equipped to compose and deploy effective competitive strategy and this approach leaves the firm and its markets vulnerable to attack and its performance decline (Prescott and Bharwajh, 1995). Failure to collect, analyze and act upon competitive information in an organized fashion can lead to the failure of the firm itself (Marceaus and Sawka, 2001).

1.1.1 Business Intelligence

Business Intelligence (BI) is defined by Nemati (2005) as a suite of tools and technologies that enhance the decision making process by transforming data into valuable and actionable knowledge to gain a competitive advantage. According to (Hannula and Pirttimaki, 2003), Business Intelligence (BI) can broadly be defined as an organized and systematic process which is used to acquire, analyze and disseminate information which is significant to their business activities.

Business Intelligence (BI) is also defined as a set of technologies that gather and analyse data to improve decision-making Herschel et al., (2005). Several characteristics of Business Intelligence (BI) emerge from these definitions, that is, it refers to both internal and external information gathering, analysis and dissemination of valuable information for decision making.

Previous study carried out by Boro (2013) on KCB Ltd applies market knowledge management practice to facilitate provision of quality financial services to customers. Market knowledge management has facilitated the development of adequate organizational mechanisms for information acquisition, effective utilization that enhances the identification and adaptation to new markets.

1.1.2 Competitive Advantage

According to Porter competitive advantage exists when a firm's strategy gives it an edge over rivals in attracting customers and defending against competitive forces in order to maintain superior profitability. Competitive advantage grows fundamentally out of value a firm is able to create for their buyer that exceeds the firm's cost of creating it (Porter, 1998:3). Cost advantage and differentiation are the two basic types of competitive advantage (Porter, 1980, 1985) stemming from industry structure. "The two basic types combined with the scope of activities for which a firm seeks to achieve them lead to three generic strategies for achieving above-average performance: cost leadership, differentiation and focus/niche" (Porter, 1998).

The notion underlying the concept of generic strategies is that competitive advantage is at the heart of any strategy, and achieving competitive advantage (CA) requires a firm to make a choice: about the type of competitive advantage (CA) it seeks to attain and the scope within which it will attain it. Rothschild (1984) developed a framework that is based on proved and tested techniques and concepts for gaining and maintaining the competitive advantage in business. The framework emphasis is on competitive assessment as the key in determining competitive advantage.

Approaches to developing sustainable differentiation strategy include: Quality option approach and building strong brand approach. Quality option approach focuses on developing a reputation for good quality and promise to deliver quality superior products or services to customers. Building strong brand approach to sustainable differentiation focuses on building brand equity. Brand equity generates value to customers and provides the firm a space to adopt premium pricing and develop enhanced brand loyalty (Porter, 1985). Differentiation as a rule yields a longer lasting and more profitable competitive edge when it is based on new product innovation, technical superiority, product quality and reliability and comprehensive customer service (Thompson et al., 2007).

Previously carried studies carried out on competitive advantage in The Mayfair Group of Companies Kenya by Tindi (2013), has employed differentiation and niche strategies to achieve above-average performance and attain competitive advantage. The study established the configuration of Mayfair Group value chain activities that produce value and costs contributing to competitive advantage.

A study carried by Cheron (2014) on the Standard Group Ltd found out that they face the normal external challenges affecting all other media houses like poaching of staff, regulatory framework, competition, changing customer needs and preferences and technological advancements. In conclusion, sustainable competitive advantage is no doubt not easy for any company in any industry to achieve. For a company to remain competitive in the long run, it must have strategies in place that cannot be easily imitated by other players. It must ensure that its competitiveness stems from uniqueness. Therefore, there must be a fit between the day to day operations of the company and its drivers of competitive advantage. Resources must be mobilized to enhance competitiveness. From the resources of the company, there was a high chance of developing through personnel and information technology infrastructure strategies that would be difficult to be imitated by their immediate competitors.

Application of Business Intelligence has several challenges that include: Disconnected and Disjointed Information this problem occurs due to a business using several different Business Intelligence (BI) tools instead of a single integrated Business Intelligence (BI) system. Unfamiliar Interfaces on integrated solutions require using multiple systems, each with a unique user interface which must be learned. Requirement for Specialist Staff many organisations require IT professionals who are specialists in individual systems. Complexity some BI solutions are too complex, which leads to lost productivity. Data Delivery Business Intelligence solutions that provide limited features and limited interfaces create problems when it comes to sharing information according to East (1998).

Business Intelligence (BI) solutions require data from many different, and often disparate, data sources. The unique aspects of each organization require significant time and effort to get them up and running. At the end of the day, there is considerable effort required to stand up and run these solutions. The most common challenge companies are facing in the current competitive business environment is management of its own data (Ponomarjovs, 2013). Once

insight has been gained from the Business Intelligence (BI) solution, there is no clear path to action, and often no link to the underlying detailed data. Acting on the findings is limited, and is especially challenging from the Business Intelligence solution itself.

1.1.3 Relationship of Business Intelligence Use and Competitive Advantage

Business intelligence practices and performance in firms are greatly involved in new market intelligence, product intelligence, technology intelligence and strategic alliances intelligence. Business intelligence is engaged in developing customer related strategies that are aimed at increasing the size of the market to increase competitive advantage of a given financial institution (Herring, 1998).

To maintain competitive advantages, organizations need to carry out strong research and achieve development skills, product engineering skills, creativity and marketing skills, good cooperation with distribution channels, incentives based on subjective measures to communicate the importance of a financial institution characteristics and stressing on continuous improvement and innovation which attract highly skilled and creative people. In the landscape of modern business, organizations persistently strive to create mechanisms for gathering information and developing competitive financial products to improve their financial service delivery, improve customer satisfaction and create competitive advantage for a financial institution (Seng and Lin, 2004).

Business Intelligence helps firms sustain and develop distinct competitive advantages by using the entire organization and its networks to develop actionable insights about the environment that is the customers, competitor, regulators, technology and many other stakeholders. It uses a systematic and ethical process involving, planning, collection, analysis, communication and management (Calof and Wright, 2008). In this ever more competitive environment, the complex relations arising from a situation where information is a basic resource and obtaining intelligence is a requirement for making decisions in search for knowledge to gain competitive advantage over rivals in the market (Tanev and Bailetti, 2008).

A study carried out by Boro (2013) recommends that the commercial banks should make use of technology intelligence among other intelligences to increase their competitiveness in terms of product innovation, customer satisfaction and market orientation. These intelligences

ensure that internal strengths of the financial institution are utilized for the betterment of the firm which leads to profitability.

Karama (2014) found out that Business Intelligence (BI) systems made contribution to value networks and not merely financial benefits, but also knowledge, among other benefits. The study confirmed that Business Intelligence (BI) systems are important investment that institutions need to consider to remain competitive. It is however important to ensure that institutions that choose to invest in the Business Intelligence (BI) systems consider the challenges involved.

1.1.4 The Insurance Industry in Kenya

The insurance industry falls under the Ministry of Finance and they are registered under the Insurance Act, Cap 487, Laws of Kenya, and are therefore required to comply with the requirements therein. The Chief Executive Officer of Insurance Regulatory Authority, who is also a creation of the Act (as amended), regulates the industry. Besides, insurance companies operate under the ambit of other laws governing companies, contracts, trusts, and agency. The main players in the Kenyan insurance industry are insurance companies, reinsurance companies, intermediaries such as insurance brokers and insurance agents, risk managers, loss adjusters and other service providers (Insurance Regulatory Authority, 2010), the following lines of business drive the general insurance industry business in Kenya: Motor Insurance, Fire Insurance, Aviation, Engineering, Theft, Workmen's Compensation, Personal Accident Insurance, Liability Insurance, Marine, and miscellaneous.

The life insurance industry is mainly driven by the following lines of business: Ordinary Life and Superannuation, which includes Group Life Insurance and Deposit Administration, i.e. Industrial Life and Bond Investment (Kenya Insurance Survey, 2004). Financial institutions can be divided into two types: banking financial institutions and non-banking financial institutions. Banking financial institutions include commercial banks whose primary role is to accept deposits and make loans. Non-banking financial institutions include investment banks, insurance companies, finance firms, leasing companies, etc. The primary purposes in depositing funds in banks are convenience, interest income, and safety. Whereas the primary purpose in investing funds in non-banking financial institutions is to gain additional income.

Some of the challenges affecting insurance firms as per PWC websites: -Human Capital: Many insurers are facing mounting skills shortages. Mergers & Acquisitions in an insurance sector that remains fragmented, the case for continued consolidation is strong. Legislation; there are several legislative and taxation changes made in recent years that have had an impact on the Kenyan insurance industry poor attitude towards personal insurance cover in general. Low penetration of insurance in the Kenyan market, relative to other more developed markets is attributable to the following factors: A general lack of a savings culture among Kenyans; Low disposable incomes for the majority of the population, with close to 50% of Kenyans living below the poverty line; Inadequate tax incentives that could encourage the middle classes to purchase life insurance products; and a perceived credibility crisis of the industry in the eyes of the public particularly with regard to settlement of claims.

1.2 Statement of the Problem

In a competitive market place, up-to-date information can make an organization realise what strategies need to be formulated and implemented to achieve competitive advantage over rivals in the market. Contemporary business theory argues that companies must compete to keep or gain competitive advantage. Insurance companies also strive for competitive advantage. In Kenya the insurance industry has about 45 main stream insurance companies competing for almost the same target market. The distribution channel for insurance products is intermediary-driven i.e. Insurance brokers and agents. Banks are the latest entrants to join the insurance distribution channel by offering bancassurance to their customers. All this has led intense competition and insurance companies are now trying to position themselves strategically to be able to compete effectively.

Several studies done include Kak (2002) who examined the potential of and whether an organization's SCA depends on the rareness and inimitability of its resources and capabilities. Hafeez and Essmail (2007) also studied the evaluation of organization core competences and associated personal competences using analytical hierarchy process and established that firms with greater shared vision are more likely to enhance business excellence and success as they utilize the shared vision and cooperation to build innovative products and services, fulfil customer and market requirements, knows when and how to attract, reward, and utilize teams to optimize results, acts to build trust, inspire enthusiasm, encourage others, and help resolve conflicts and develop consensus in creating high performance. The study by Jonsson and

Devonish (2008) in the hospitality sector in Barbados attributed performance to strategic factors like size, technology. The study by Soosayet al., (2010) who investigated the strategies adopted by Australian manufacturing firms to sustain their local production and competitive advantage found a variety of strategic factors driving competitive advantage these factors included quality Performance, product innovation speed of delivery, dependability, flexibility and cost.

Locally, studies done on business intelligence have focussed on insurance, banking and telecommunication industries without focusing on its role in achieving competitive advantage in the insurance sector. For instance, Mugo (2009) carried out a study on business intelligence practices adopted by Equity bank. Wachira (2009) carried out a survey of business intelligence in the insurance Companies in Kenya while Kirigo (2010) carried a study on marketing intelligence practices on product development in the banking industry focusing on Standard Chartered Bank of Kenya limited. Another study carried out by Wesonga (2013) aimed to investigate business intelligence practices adopted by Old Mutual Kenya. From the findings, the study found that there was a positive but weak relationship between the dependent variable and the independent variables. Of all the four independent variables, technology intelligence had the highest relationship with the firm's profitability followed by product differentiation intelligence. New market intelligence had the weakest, while strategic alliance intelligence came third.

Due to the current environmental changes in the market, there is a need for a study to be carried out to investigate what extent does business intelligence practices plays in achieving competitive advantage in the insurance industry. This study therefore sought to bridge the gap that exists in the knowledge gap by determining the extent to which business intelligence practices influence in achieving competitive advantages in insurance institutions. This would answer the question, to what extent does business intelligence practices influence achievement of competitive advantage and challenges of business intelligence for competitive advantage in the insurance industry?

1.3 Research Objectives

The research aimed to:

- i. Determine the extent to which business intelligence has been used for competitive advantage by the insurance firms in Kenya.
- ii. To establish the challenges encountered by insurance firms in Kenya while using Business Intelligence for Competitive advantage.
- iii. To establish the relationship between business intelligence application and competitive advantage in insurance firms in Kenya.

1.4 Value of Study

The study would be important to managers in the insurance sector. It will help them understand the importance of business intelligence and how different insurance companies can achieve competitive advantage by application of business intelligence practices. The study also helps managers in different fields like IT professionals to respond to emerging technologies, manufacturing industry to improve on performance and efficiency, academicians on knowledge management and banks to focus on their niche market and customer satisfaction and generally know the methods used in gathering and applying business intelligence practices, which will help them improve their management styles.

Government policy makers will also find there results of this research useful. This research will establish how multinationals in the insurance market have achieved competitive advantage. The policy makers can then come out with carefully tailored policies that will effectively link the insurance industry with economic development for the benefit of the country.

The study acts as a source of reference material for future researchers on other related topics; it would also help other academicians who undertake the same topic in their studies. The study highlights other important relationships that require further research, this may be in the areas of relationships between business intelligence and firm's attaining competitive advantage for greater profitability.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter discusses the theoretical framework pertaining to strategic value of business intelligence systems. This chapter also defines Business Intelligence technologies and describes the process of unlocking the power of data to impact on building customer and business knowledge, identify new opportunities and manage and mitigate risks facing the organization to gain competitive advantage.

2.2 Theoretical Orientation

In this study, the theoretical orientation covered the theory of strategic balancing, theory of network organisation, Ansoff's growth matrix and Porter's generic strategy. These theories explain the orientation of a firm in the aspects that are strategically related to competitive intelligence practices adopted by organizations.

Strategic balancing is based on the principle that the strategy of a company is partly equivalent to the strategy of an individual. Indeed, the performance of companies is influenced by the actors' behaviour, including the system of leaders' values (Caloriet *al.*, 1989). Further to an empirical study on technological alliances, the principle of strategic balancing to which a technological alliance generates paradoxes and lives by its paradoxes.

The theory of the network organization, proposes the network organization as a flexible structure, unlike the traditional company which is complicated to build and maintain. In the network organization, internal cooperation and market-based competition; giving way to competition are simultaneously present (Wehrmann, 2005). The network organization theory not only emphasizes the human and relational dimension, but also operates according to a horizontal mode of organization aiming at integrating the data of its partners into its information systems. It enables this type of organization to better control the risks and to be more proactive than a traditional company.

The Ansoff (1957) Product-Market Growth Matrix is a marketing tool created by Igor Ansoff. The matrix allows managers to consider ways to grow the business via existing and/or new products, in existing and/or new markets – there are four possible product/market combinations. This matrix helps companies decide what course of action should be taken,

given current performance. The matrix illustrates, in particular, that the element of risk increases the further the strategy moves away from known quantities - the existing product and the existing market.

Thus, product development (requiring, in effect, a new product) and market extension (a new market) typically involve a greater risk than penetration (existing product and existing market) and diversification (new product and new market) generally carries the greatest risk, for this reason, amongst others, most marketing activity revolves around penetration. Grant (2000) argues that the Ansoff Matrix, despite its fame, is usually of limited value although it does always offer a useful reminder of the options which are open. Porter's, (1985) view that low cost and differentiation are discrete ends of a continuum that may never be associated with one another sparked much conceptual debate and empirical research. This debate may have been encouraged in part because of the absence of conceptual building blocks supporting his value system theory. Scholars have since developed a theory to counter Porter's view, suggesting that low cost and differentiation may actually be independent dimensions that should be vigorously pursued simultaneously (Hill, 1998).

Emerging information technology cannot deliver improved organizational effectiveness if it is not accepted and used by potential users. Technology Acceptance Model (TAM) is one of the most successful measurements for information systems usage among practitioners and academics. TAM is consistent with the theory on diffusion of innovation where technology adoption is a function of a variety of factors including relative advantage and ease of use. According to Kim et al (2009) TAM explores the level of motivation and user attitude that determines whether the user will actually use or reject the system.

TAM is widely used by researchers to provide explanations of usage behaviour in relation to adoption of information technology. TAM is implemented and tested in online banking, online shopping, e-government, immigration, e-commerce. In TAM, user's beliefs determine the attitudes toward using the system. Behavioural intention, in turn, is determined by these attitudes toward using the system. The concepts of perceived usefulness and perceived ease of use are individual subjective judgments about the usefulness and ease toward specific system. Perceived usefulness and perceived ease of use are distinct but related constructs. In TAM, perceived usefulness is a major belief factor, and perceived ease of use is a secondary belief factor in determining behavioural intentions toward using information technology.

TAM is determined by external variables which are effective technology and ease of use for daily work and daily life, attitude toward using includes human attitudes towards the use of either technology effectively in their daily lives and actual system use which is the perceived usefulness and usage intentions in terms of social influence and cognitive instrumental processes. In order to reduce cost benefit ratio, we must examine the gap between system design and system acceptance. So the model of the technology acceptance becomes very important and critical in relation to business intelligence system.

As Howard et al., (1999) believed, if Intelligence Systems design and strategy development are addressed simultaneously, Strategic competitive advantage can be gained (Howard et al., 1999). Porter's model identifies the forces that influence competitive advantage in the marketplace. Of greater interest to most managers is the development of a strategy aimed at establishing a profitable and sustainable position against these five forces (Turban et al., 2006). To establish such a position, a company needs to develop a strategy of performing activities differently from a competitor. Porter (1985) proposed cost leadership, differentiation, and niche strategies. Additional strategies have been proposed by other strategic-management authors (Frenzel, 1996).

A company has a competitive advantage whenever it has an edge over its rivals in securing customers and defending against competitive forces (Thompson and Strickland, 2002). Sustainable competitive advantage is born out of core competencies that yield the long term benefit to the company. (Prahal and Hamel, 1990) define a core competence as an area of specialized expertise that is the result of harmonizing complex streams of technology and work activity. They further explain that a core competence has three characteristics; one it provides access to a wide variety of markets, secondly it increases perceived customer benefits and lastly, it is hard for a competitor to imitate. Competitive advantage is also defined as the strategic advantage one business entity has over its rival entities within its competitive industry. Achieving competitive advantage strengthens and positions a business better within the business environment.

The sustainability of differentiation depends on its continued perceived value to buyers and the lack of imitation by competitors. To be sustainable, differentiation must be based on

sources where there are mobility barriers to competitors replicating them. Product differentiation strategies add value by enabling firms to charge prices for their products or services that are greater than their average total cost. The ability of a strategy to add value must be linked with rare and costly to imitate organizational strengths in order to generate a sustained competitive advantage (Barney and Hesterly, 2008).

A firm that can discover a better technology for performing an activity than its competitors gains competitive advantage. Technological change is one of the principal drivers of competition. It plays a major role in industry structural change as well as in creating new industries. It is also an equalizer, eroding the competitive advantage of even well entrenched firms and propelling others to the forefront. Technological change is important if it affects competitive advantage and industry structure (Porter, 1985). The basic tool for understanding the role of technology in competitive advantage is the value chain. This is where a firm concentrates on one part of the market or product line. It is implemented by: focusing on the product line, targeting a segment and geographical area.

Focusing on a product line can help develop the firm in a technical expertise and achieve superiority over its competitors. A focuser's basis for competitive advantage is either lower costs than competitors in the serving market niche or an ability to offer niche members something they perceive is better (Thompson and Strickland, 1998). Strategic alliances exist whenever two or more independent organizations cooperate in development, manufacture or sale of products or services (Barney and Hesterly, 2008). While a few companies can pursue their strategies alone, it is becoming increasingly common for companies to pursue their strategies in collaboration with suppliers,

According to Bharadwaj (1993), competitive advantage can be developed from particular resources and capabilities that the firm possesses that are not available to competitors. The transformation of available skills and resources into a strategic position can only take place under conditions that provide a customer benefit, and normally requires the transformation of multiple competitive methods. The ability to implant a cost leadership, differentiation, or focus strategy is dependent on a firm's ability to develop a specific set of competitive methods. This becomes the basis for the achievement of the firm to be able to perform above average industry performance.

2.3 Business Intelligence Process

Business Intelligence (BI) enables the business to make intelligent, fact-based decisions. The most cogent argument for establishing a new roadmap to business Intelligence (BI) excellence is to rid the organization of the technology scramble and cobbled together solutions that Information Technology (IT) has had to deal with as it struggled to meet business requirements. According to Ranjan (2009) a Business Intelligence (BI) organization fully exploits data at every phase of the Business Intelligence (BI) architecture as it progresses through various levels of informational metamorphosis. Data is first collected including metadata, such as the creator or creating system, the time of creation, the channel on which it was delivered, sentiment contained in plain text, and so on. According to Olszak and Ziemba (2006) metadata facilitate the process of extracting, transforming and loading data through presenting sources of data in the layout of data warehouses. Metadata are also used to automate summary data creation and queries management.

For data to be used, it is important to ensure it is clean. Venter and Tustin (2009) depicts that the purpose of a data warehouse is to provide rich, timely, clean and well-structured information to Business Intelligence (BI) analysis tools. Once that is done, the organization can take advantage of the vast amounts of information; give it to users in a way they can understand. Deliver predictive scores to the customer service representatives, so they know which offers are most likely to result in a positive outcome. Provide sophisticated visualization tools to analysts who can see patterns in millions of data points. Deliver a dashboard to the Vice President (VP) of marketing with social media sentiment scores about that new product.

According to Olszak and Ziemba (2006) beneficiaries of Business Intelligence (BI) systems include a wide group of user such as insurance companies, oil and mining industry, security systems, banks and supermarkets. Banks are amongst the most common sectors that use Business Intelligence (BI) systems; Business Intelligence (BI) systems also assist in determining the profitability of individual customers who are current and long term. This provide the basis for high profit sales and relationship banking, thus maximizing sales to high value customers, reducing costs to low value customers. This provides a means to maximise profitability of new innovative products and services therefore promoting value creation in insurance sector.

2.4 Challenges of using Business Intelligence in organizations

According to (Chuah and Wong, 2013) Business Intelligence (BI) applications have appeared the top spending priority for many Chief Information Officers (CIO) and it remain the most important technologies to be purchased for past five years (Gartner Research 2007; 2008; 2009). Although there has been a growing interest in Business Intelligence (BI) area, success for implementing Business Intelligence (BI) is still questionable (Ang and Teo 2000; Lupu et.al., 1997; Computerworld, 2003). Lupuet.al., (1997) reported that about sixty percent of business intelligence applications fail due to the technology, organizational, cultural and infrastructure issues. Furthermore, EMC Corporation argued that many Business Intelligence (BI) initiatives have failed because tools were not accessible through to end users and the result of not meeting the end users' need effectively.

According to Chuah and Wong (2013) the first challenge facing Business Intelligence (BI) system is the cost of technology, upkeep and implementation. The second challenge is the number of users, the number of business users now tapping into Business Intelligence (BI) is increasing dramatically, especially as we begin to move into operational intelligence. The third challenge is in the area of operational Business Intelligence and the new sources of data available. We are seeing a tremendous increase in the volumes of data (big data) being analyzed and stored in data warehouses and experimental areas. This data is used for complex advanced, embedded and streaming analytics. There are now very interesting sets of data in Business Intelligence (BI), which is certainly different from the traditional, more strategic or tactical forms of Business Intelligence. These big challenges lead to the fourth, which is the performance and scalability of the environment. Obviously, if we are starting to bring in operational people, operational Business Intelligence(BI), streaming analytics, big data applications, etc., it means that the performance has to be a major focus of the Business Intelligence (BI) implementers – sub-second response time for many operational intelligence queries while simultaneously supporting the more strategic or long running queries as well. It's a mixed workload environment, and that can cause a performance issue as per Lupu et.al (1997).

Financial institutions are challenged by big data and require them to be proactive in managing and utilizing corporate it if they want to keep up with or stay ahead of the competition.

Business intelligence (BI) gives enterprises the capability to analyze the vast amounts of information they already have to make the best business decisions. Financial institutions are able to tap into their huge databases and deliver easy-to-comprehend insight to improve business performance and maintain regulatory compliance (Nemati, 2005). The applications of business intelligence in the financial sector are therefore far-reaching.

While the Business Intelligence (BI) solution typically contains the necessary data that are required for identifying opportunities for improvement, significant effort is often required to get to these insights. Often, the level of effort required to find valuable data points exceed the cost of finding it. Moldovan (2011) studied the 23 financial industries and found that mining financial data presents some challenges, difficulties and sources of confusion, especially when determining short term trends and validating them.

2.5 Business Intelligence Practices and Competitive Advantage

English (2005) ascertains that the essential element of Business Intelligence (BI) is the understanding of what is happening within an organization and its business environment, as well as appropriate action-taking for achieving organizational goals. From this, derives the importance of the human factor within Business Intelligence (BI). There is no such thing as business intelligence without the people to interpret the meaning and significance of information and to act on their knowledge gained (English, 2005). This is also consistent with the findings from Finnish research (Hannula and Pirttimäki, 2003) where around 75% of interviewees felt content and humane approaches are the key aspects in success application of Business Intelligence (BI). Business Intelligence (BI) provides employees with information to make better business decisions, and can be used in environments ranging from workgroups of 20 users to enterprise deployments exceeding 20,000 users.

In an extranet environment, Business Intelligence (BI) is deployed in applications that allow organizations to deliver new services and build stronger relationships with customers, partners, and suppliers via the internet. Hence, English (2005) defines Business Intelligence (BI) as “the ability of an enterprise to act effectively through the exploitation of its human and information resources.” Technology is the component that adds to quality information with which business users can analyze business operations: what has happened, what is happening, and what will happen in the future.

In enterprise performance management (EPM), organizations must understand and have constant visibility into their key performance indicators and metrics that span across their organizations. By doing this, organizations ensure their strategy is aligned from top to bottom and across the organization from marketing to sales to manufacturing to human resources. Providing this enterprise insight is a key strength of Business Intelligence (BI). With business intelligence, users are able to turn this information into knowledge, and knowledge into profit. Business Intelligence (BI) enables the organization to track, understand, and manage your business in order to maximize enterprise performance. With Business Intelligence (BI), organizations are able to improve operational efficiency, build profitable customer relationships, and develop differentiated product offerings as per (Hannula and Pirttimäki, 2003).

As Jaklič and Popovič (2009) state, various recent international studies show a high level of awareness by professionals about the potential benefits of business intelligence in their business operations. For the fourth consecutive year, business intelligence remains a top IT priority of major international companies, while improved efficiency and operational performance are a key business priority for the fifth year in a row (Jaklič and Popovič, 2009). Many companies have positioned business intelligence and business performance management ('BPM') as their top strategic priority for 2009 and 2010.

Strategic value can be measured by various aspects including increased turnover, an improvement of customer satisfaction as a consequence of the faster response times to their requests and expectations, a cost reduction due to time saving and reduced work tasks, an expansion of market share due to the possibility of the transparent monitoring of sales volumes, structures and trends, as well as the easier detection of areas with poor sales, deviations from past trends, an increase in profit due to better support for decision-making and due to time-saving, and faster decision-making which may be critical to the survival of the company in a strong competitive environment as per Nemati (2005).

Tvrđíková (2007) describes the basic characteristic of Business Intelligence (BI) tool as the ability to collect data from heterogeneous source, to possess advance analytical methods, and the ability to support multi users' demands. Zeng et.al, (2006) categorized Business

Intelligence (BI) technology based on the method of information delivery; reporting, statistical analysis, ad-hoc analysis and predicative analysis.

The concept of Business Intelligence (BI) was brought up by Gartner Group since 1996. It is defined as the application of a set of methodologies and technologies, such as J2EE, DOTNET, Web Services, XML, data warehouse, OLAP, Data Mining, representation technologies, to improve enterprise operation effectiveness, support management/decision to achieve competitive advantages. Business Intelligence by today is never a new technology instead of an integrated solution for companies, within which the business requirement is definitely the key factor that drives technology innovation. How to identify and creatively address key business issues is therefore always the major challenge of a Business Intelligence (BI) application to achieve real business impact. (Golfarelliet. al., 2004) defined Business Intelligence (BI) that includes effective data warehouse and also a reactive component capable of monitoring the time-critical operational processes to allow tactical and operational decision-makers to tune their actions according to the company strategy. Gangadharan and Swamy (2004) widen the definition of Business Intelligence (BI) as technically much broader tools that include potentially encompassing knowledge management, enterprise resource planning, decision support systems and data mining. Business Intelligence (BI) includes several software for Extraction, Transformation and Loading (ETL), data warehousing, database query and reporting, (Berson et.al., 2002; Curt Hall, 1999) multidimensional/on-line analytical processing (OLAP) data analysis, data mining and visualization.

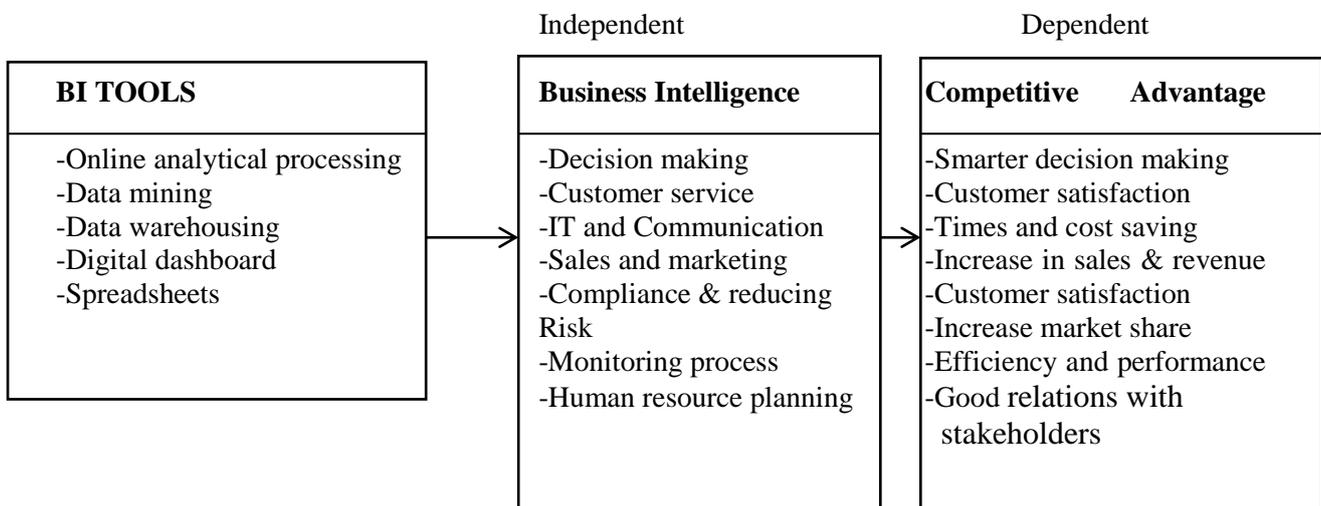
The benefits of business intelligence, along with information systems, in general, can be divided into various categories (Carver and Ritacco, 2006). Measurable or quantifiable benefits are those that can be clearly measured, for example, reducing the time needed to carry out certain tasks, savings achieved by purchasing one software solution instead of another, an increase in revenue and profit. Indirectly quantifiable benefits are usually related to customer satisfaction. Introducing new technology can improve customer service, which has a positive impact on their satisfaction, resulting in larger sales volumes, the increased loyalty of customers returning to purchase again, the winning of new customers. According to (Olszak and Ziemba, 2006) Business Intelligence (BI) systems enable both descriptive and predictive segmentation of customer based on grouping customers in homogenous segments. Insurance companies are therefore able to assess the needs of each profile easily. Customer satisfaction is typically assessed by surveys, by monitoring the volume of business, the re-

order ratio as well as other, less formal ways for example by visits and dialogue with customers.

2.6 Summary

The empirical review above indicates that strategic value of business intelligence determine the performance of financial institutions both in in improving their competitiveness and handling customer’s issues and innovation. Both Dijicks (2012) and (Ponomarjovs, 2013) indicated that it’s challenging for banks to manage the data. This data according to (Moldovan, 2011) may cause confusion and difficulties. However (Olszak and Ziemba, 2006) Business Intelligence (BI) enables organizations to analyze and get insights from this data. Most studies on this subject were done in different regions, on different Business intelligence systems with scanty studies done in developing countries and particularly in Kenya. Business Intelligence (BI) helps in anticipating future behaviour and predicting most business indicators (Ubiparipović and Đurković, 2011). There is therefore a gap in literature in regard to strategic value of Business Intelligence in insurance sector in Kenya. The current study sought to bridge this gap by focusing on insurance firms in Kenya.

2.7 Conceptual Framework



Source: Author (2015)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The research adopted is the survey design to assist us to get the objective of the study. This is considered the most suitable method since it involves getting views on the strategies employed by insurance industry in Kenya to build competitive advantage. Therefore, the use of survey procedures helped to identify interrelationships among variables being studied. This is specifically the relationship between strategies employed by the insurance industry and building competitive advantage. Furthermore, this has been necessitated by the fact that surveys research is used to obtain a considerable amount of information, which can be generalized, to an entire population.

3.2 Research Design

This research employed descriptive survey design. This design is preferred because the study was concerned with answering questions such as who, how, what, which, when and how much (Cooper and Schindler, 2003). Therefore, the use of survey procedures will help to identify interrelationships among variables being studied. Furthermore, this has been necessitated by the fact that surveys research is used to obtain a considerable amount of information, which can be generalized, to an entire population.

3.3 Target Population

The population of the study consisted of all insurance companies licensed to transact insurance business in Kenya by the government regulator; IRA (See Appendix II). All 45 Insurance companies will be approached. There are (43) forty-three companies listed. All the insurance firms will be included in the study.

3.4 Data Collection

Primary data was collected using questionnaires. The researcher collected primary data using a questionnaire. The questions were both open ended and closed ended to give respondents enough space to express their views on Business Intelligence use. The questionnaire had five Sections A, B, C, D and E where Section A concerned demography of the respondent, Section B; concerned the use of business intelligence tools, Section C concerned the challenges of business intelligence, Section D concerned business intelligence application, Section E concerned to what extent has the use of business intelligence contributed to

competitive advantage. The researcher dropped and picked later the questionnaires with a personalized message. The respondents were Information Technology (IT) managers, Marketing Managers, Customer Service, Finance Managers and Sales and Marketing in the insurance firms.

3.5 Data Analysis

Descriptive statistics was used to analyse the data because this study is modelled on a descriptive framework. Data collected in respect of demography of the questionnaire was analysed using frequency distributions and percentages to determine the profile of respondents. Data collected on the extent of use of Business Intelligence was analysed using mean scores and standard deviations to determine strategies employed by the firms. Data collected on the challenges of Business Intelligence was analyzed by comparing means and standard deviations of the firms. Mean scores of the like scale was used to determine impact of competitive strategies employed by firms. Data collected on the Relationship of Business Intelligence and Competitive Advantage used regression analysis; to get the relationship between dependent and independent variables between Business intelligence (BI) and Competitive Advantage (CA).

$$Y = a_0 + b_1X_1 + b_2X_2 + e$$

Where:-

Y = competitive Advantage

X₁ = Business Intelligence Practises

X₂ = firm characteristics

E = error term

b₀, b₁, b₂ = regression coefficient or parameters to be estimated

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter provides the data analysis, presentation and interpretation of the results of the study as set out in the research methodology. The purpose of the study was to establish the relationship between business intelligence and competitive advantage in insurance firms in Kenya. The data was gathered from the questionnaire as the research instrument. The questionnaire was designed in line with the objectives of the study. To enhance quality of data obtained, structured and unstructured types of questions were included.

This chapter presents the research findings and the subsequent discussions which take cognition of the pre-stated objectives of the study which were: to determine the extent to which business intelligence has been used for competitive advantage by the insurance firms in Kenya; to establish the challenges encountered by insurance firms in Kenya while using Business Intelligence for Competitive advantage; and to establish the relationship between business intelligence application and competitive advantage in insurance firms in Kenya. The data obtained was fed into SPSS version 21.0 and used to compute the ratios used as proxies to measure the relationship between business intelligence and competitive advantage in insurance firms in Kenya.

4.2 Questionnaire Return Rate

Questionnaire return rate involves the computation of the response rate from the questionnaire returned from the field. It is the extent to which the final data set includes all sample members and is calculated from the number of people with whom interviews were completed divided by total number of people in the entire sample. This includes those who declined to participate and the unavailable. The study targeted the business unit heads designated as Information Technology (IT) managers, Marketing Managers, Customer Service, Finance Managers and Sales and Marketing in the insurance firms since they are more conversant with the relationship between business intelligence and competitive advantage in insurance firms in Kenya. As such the study involved 129 respondents from the target population in collecting data with regard to the relationship between business intelligence and competitive advantage in insurance firms in Kenya. The questionnaire return rate results are shown in Table 4.2.

Table 4.2: Response Rate

Response	Frequency	Percentage
Responded	96	74.4
Not responded	33	25.6
Total	129	100.0

Source: Author (2015)

From the study, 96 out of the 129 sampled respondents filled in and returned the questionnaire contributing to 74.4%. This commendable response rate was made a reality after several personal calls were made and visits to remind the respondent to fill-in and return the questionnaires as well as explaining the importance of their participation in this study hence, kept reminding the respondents to fill in the questionnaires through frequent phone calls and picked the questionnaires once fully filled. This response rate was good and representative and conforms to Mugenda and Mugenda (2003) stipulation that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. The questionnaires that were not returned were due to reasons like, the respondents were not available to fill them in at that time and with persistence follow-ups there were no positive responses from them. The response rate demonstrates a willingness of the respondents to participate in the study.

4.3 Background Information

This section concerns itself with outlining and presentation of the findings obtained from the questionnaires distributed to the respondents. For clarity of the information, it was necessary for a review of the responses to ascertain that the information from the respondents was adequate and complete for purposes of the research. In order to get the background information on the challenges of internationalization of business operations by medium size manufacturing enterprises in Nairobi County, the demographic data of the respondents was investigated in the first section of the questionnaire. They are presented in this section under gender, age bracket, highest level of education, job title in the organization (designation), working experience in years, length of operations of the firms, asset base of the firms, number of employees, and number of customers and ownership status of the firms.

4.3.1 Gender of the Respondents

In this study the respondents sampled were expected to comprise both male and female staffs. As such, the study required the respondents to indicate their gender by ticking on the spaces provided in the questionnaire. Table 4.3.1 shows the distribution of the respondents by gender.

Table 4.3.1: Gender of the Respondents

Gender	Frequency	Percent
Male	60	62.6
Female	36	37.4
Total	96	100

Source: Author (2015)

Accordingly, 62.6% of the respondents were male staffs while 37.4% of them were female staffs. The findings show that the insurance companies studied has both male and female staffs; however the majority of them are males. The findings imply that the views expressed in these findings are gender sensitive and can be taken as representative of the opinions of both genders as regards to the relationship between business intelligence and competitive advantage in insurance firms in Kenya.

4.3.2 Age of the Respondents

This study sought to investigate the composition of the respondents in terms of age brackets. Table 4.3.2 and Figure 4.3.2 show the results of the findings on the age brackets of the respondents.

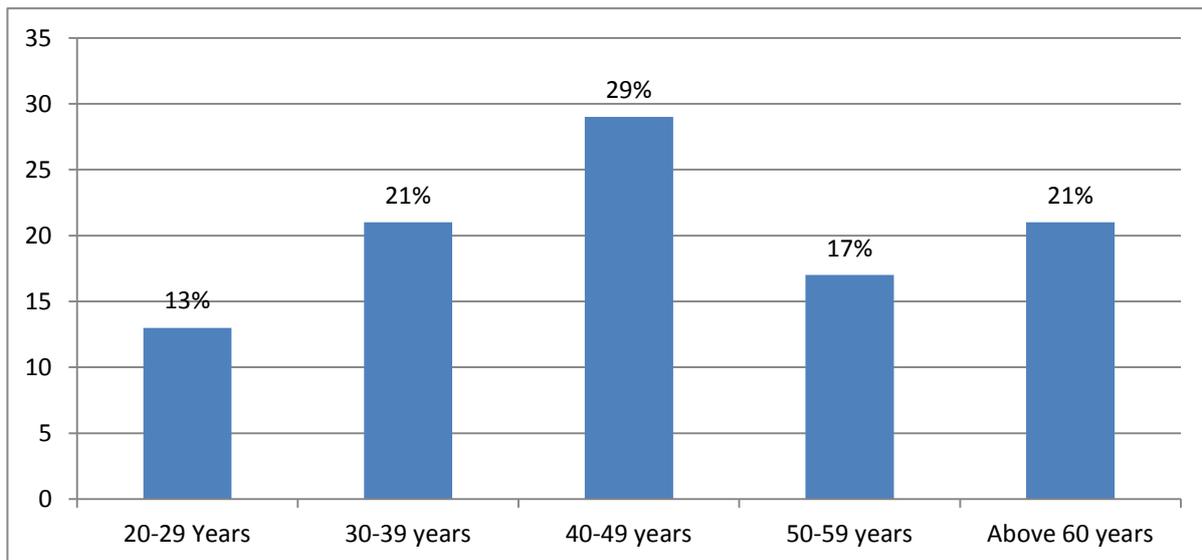
Table 4.3.2: Age Brackets of the Respondents

Age Bracket	Frequency	Percentage
31-35	12	13
36-40	20	21
41-45	28	29
46-50	16	17
Above 50	20	21
Total	96	100

Source: Author (2015)

Table 4.3.2 shows that majority (29.0%) of the respondents showed that their ages fell between 41 and 45 years, 21 % of them indicated that they were aged between 36 and 40 years, another 21% of the respondents were aged above 50 years, 17.0% of them were aged 46 and 50 years, while 13.0% of the respondents were between 31 to 35 years of age. From these results, the respondents were well distributed in terms of age and that they are active in technological advancements and productivity and hence can contribute constructively in this study on the relationship between business intelligence and competitive advantage in insurance firms in Kenya.

Figure 4.3.2: Age Brackets of the Respondents



Source: Author (2015)

4.3.3 Level of Education

The respondents were asked to indicate their level of education. The target population comprised of people in different responsibilities and qualification requirements hence different academic qualifications. This difference might contribute to differences in the responses given by the respondents. The study therefore sought to investigate the education level achieved by the respondents.

Table 4.3.3: Level of Education

Level of Education	Frequency	Percentage
Tertiary	78	80.9
Other (Masters, PhD)	18	19.1
Total	96	100

Source: Author (2015)

From the study all the respondents (100%) unanimously reiterated that they had attained at least a tertiary level of education. This constituted 80.9% of those who indicated that they had attained tertiary level of education and 19.1% of those who had attained other levels of education like masters and PhD levels. These outcomes imply that majority of the respondents had at least a tertiary level of education and hence understood the information sought by this study.

4.3.4 Job Title in the Organizations

The study targeted to collect data from the staffs comprising of Information Technology (IT) managers, Marketing Managers, Customer Service, Finance Managers and Sales and Marketing in the insurance firms. As such the study included heads of managers and their assistants as well as other staffs who could be acting on behalf of the management staffs. This was relevant to assess the distribution of the respondents across the management levels. Majority of the respondents comprised of assistant managers and managers working in the insurance firms in Kenya. These findings show that the respondents that participated in the study were mainly those involved in the formulation and implementation of the decisions concerned with business intelligence and competitive advantage in insurance firms.

4.3.5 Working Experience in the Insurance Firms

The length of service/working in an organization determines the extent to which one is aware of the issues sought by the study. In the wake of technological advancements and globalization, there are likely to be many changes in institutional and operating environments that the respondents should know when responding to the issues sought by the study. The study therefore sought to establish the length of time that the respondents had been working in the insurance firms in Kenya. The results are presented in Table 4.3.5.

Table 4.3.5: Duration Worked in the Insurance Firms in Kenya

Length of Service	Frequency	Percentage
Less than one year	14	15.0
1- 5 years	33	34.0
5-10 years	36	38.0
11 to 15 years	12	13.0
Total	96	100.0

Source: Author (2015)

From the study, 38% of the respondents unanimously indicated that they had worked with the insurance firms for a period of 5 - 10 years, 34% of them had been working in the insurance firms for 1-2 years, 15% of them had been working in the insurance firms for less than one year whereas 13% of them had worked in the insurance firms for a period of 11 to 15 years. This implies that most of the staffs participating in this study had been operating for an ample time thus they were conversant of the information that the study sought pertaining to the relationship between business intelligence and competitive advantage in insurance firms in Kenya.

4.3.6 Firms' Length of Operations

The study further sought to ascertain the length of time that the insurance firms have been in operation in Kenya. Accordingly, 100% of the respondents unanimously reiterated that their companies have been in operation in the Kenyan insurance industry for a period 10 years and over. This is an indication that the firms sampled had been operating in the industry for a long time hence are better placed to respond to the issues sought by this study concerning the relationship between business intelligence and competitive advantage in insurance firms in Kenya.

4.3.7 Asset Base of the Firm

The firms in the Kenyan insurance industry are believed to contribute significantly to the country's GDP through their operations. As such the study sought to ascertain the amount of asset base of the insurance firms operating in Kenya. According to the study, majority of the respondents indicated that their companies have an asset base of more than 50B KES, while others had an asset base of between 15B KES to 50B KES. In addition a few of the respondents indicated that their companies had asset base of below 10B KES.

4.3.8 Number of Staffs Employed in the Insurance Firms

The study also sought to establish the number of staffs employed in the insurance firms in Kenya. Majority of the respondents recapped that their firms employed between 50 to 150 staffs, others indicated between 150 to 200 staffs, while a few of them indicated that their firms employed less than 50 staffs. These findings show that the firms are well staffed to cope with the increasing demand for insurance services.

4.3.9 Ownership Structure of the Firms

The study further sought to establish the ownership statuses of the insurance firms operating in Kenya. The results are as depicted in Table 4.3.9.

Table 4.3.9: Ownership Status of the Firms

Ownership	Frequency	Percent
Locally owned	22	81.5
Foreign	2	7.4
Other (mixture of local and foreign ownership)	3	11.1
Total	27	100.0

Source: Author (2015)

According to the results, an overwhelming majority of the respondents (81.5%) indicated that their insurance firms are locally owned, 11.1% of them indicated that their firms are a mixture of both local and foreign ownership, while only 7.4% of the firms were purely foreign by ownership. This is a clear indication that majority of the insurance firms operating in Nairobi are locally owned with only a few of them comprising of foreign ownership.

4.4 Business Intelligence

The study was inquisitive of how business intelligence is funded in the insurance companies in Kenya. The results are as shown in Table 4.4.1.

Table 4.4.1: Funding of Business Intelligence

Source of Funding	Frequency	Percent
Department	91	94.8
External Sources	13	13.5
Grant awarding agencies	4	4.2

Source: Author (2015)

According to the results depicted in Table 4.4.1, 94.8% of the respondents unanimously reiterated that business intelligence is funded in their companies is funded by the departments/company resources, 13.5% of them indicated that business intelligence is funded by external sources while 4.2% indicated that business intelligence is funded from other sources which include insurance companies' budget.

The study further sought to establish who are undertaking business intelligence in the organizations. Table 4.4.2 shows the results.

Table 4.4.2: People Responsible for Undertaking Business Intelligence

Persons	Frequency	Percent
IT department staff	67	69.8
Vendor / Consultant	29	30.2
Total	96	100

Source: Author (2015)

From the study, 69.8% of the respondents reported that the IT department staffs were responsible for undertaking intelligence in the organizations, while 30.2% of them indicated that the vendor/consultants were undertaking intelligence in the organizations. On the Business Intelligence tools used in the organizations, majority of the respondents recalled that they were using OLP – online analytical process, Data warehousing, Digital Dashboards, Local information systems, Spread sheets, Solarwinds, Siebel/Avaya system, OBIEE and Thomson Reuter/Bloomberg and Finnone systems. Venter & Tustin (2009) depicts that the purpose of a data warehouse is to provide rich, timely, clean and well-structured information to BI analysis tools.

4.5 Use of Business Intelligence Tools

The study sought to determine the extent to which business intelligence has been used for competitive advantage by the insurance firms in Kenya. In this regard the respondents were required to indicate the extent to which each of the various business intelligence tools are used in the firms.

Table 4.5: Extent to which Business Intelligence Tools are used in Insurance Firms

BI Tools	No Extent	Little Extent	Moderate Extent	Great Extent	Very Great	Mean	Std. Dev
Data mining	0	0	2.9	85.7	11.4	4.0857	.37078
OLP – online analytical process	0	27.1	6.8	41.4	22.6	3.5423	1.1772
Data warehousing	27.1	37.5	6.3	14.6	14.6	3.2083	1.184
Spread sheets	2.1	16.7	10.4	60.4	8.3	3.6250	1.002
Digital Dashboards	18.8	10.4	35.4	35.4	0	3.2972	1.6102
Local information systems	16.9	12.9	33.8	15.7	20.7	3.1422	3.7743
Reporting and Querying software	0	12.5	14.6	25	29.2	3.3322	1.4923

Source: Author (2015)

According to the results shown in Table 4.5, majority of the respondents indicated that the firms use data mining to a great extent as shown by a mean score of 4.0857, followed by spread sheets to a great extent as shown by a mean score of 3.6250 and OLP – online analytical process to a great extent as shown by a mean score of 3.5423. In addition, the recapped that the insurance firms use reporting and querying software’s to a moderate extent as shown by a mean score of 3.3322, digital dashboards to a moderate extent as shown by a mean score of 3.2972, data warehousing to a moderate extent as shown by a mean score of 3.2083 and local information systems to a moderate extent as shown by a mean score of 3.1422. Organizations need reliable information systems that enable analysts and managers access to the information required for quality and effective decision-making (Puklavec, 2001). These BI tools are seen as technology that enables the efficiency of business operation by providing an increased value to the enterprise information and hence the way this information is utilized.

4.6 Challenges Involved In Business Intelligence Process

In order to establish the challenges encountered by insurance firms in Kenya while using business intelligence for competitive advantage, the study requested the respondents to indicate the extent to which various challenges are faced by the firms in implementing business intelligence.

Table 4.6: Challenges Faced by Insurance Firms in Implementing Business Intelligence

Challenges	No Extent	Little Extent	Moderate Extent	Great Extent	Very Great	Mean	Std. Dev
Poor planning for the business intelligence process	0.0	0.0	29.2	62.5	8.3	3.7917	.58823
Lack of business intelligence standards	0.0	12.5	50	33.3	4.2	3.2917	.75060
Poor technical expertise	2.3	27.1	6.7	41.3	22.6	3.5489	1.1772
Inadequate business intelligence facilities or infrastructure	8.3	8.3	25	54.2	4.2	3.3750	1.0135
Inadequate staff in the project	0.0	12.5	50	29.2	8.3	3.3333	.81650
Lack of high level management support	0.0	4.2	45.8	37.5	12.5	3.5833	.77553
Lack of understanding of the importance of business intelligence	0.0	0.0	37.5	41.7	20.8	3.8333	.76139
Long procurement procedure for project resources	6.3	18.8	25	43.8	6.3	2.7500	1.1254
Inadequate funding	18.8	18.8	18.8	18.8	25	3.6875	1.3524
Poor sensitization of employees and users	27.1	37.5	6.3	14.6	14.6	3.2083	1.1840
Fast changing technology prompting data migration again	2.1	16.7	10.4	60.4	8.3	3.6250	1.0020
Lack of psychological preparation of the employees	18.8	10.4	35.4	35.4	0	3.2972	1.6102
Poor user interface	0	27.1	6.8	41.4	22.6	3.5423	1.1772
Poor quality of the business intelligence processes.	0	7.7	7.7	53.8	23.1	3.3077	.63043
Lack of technical knowhow on project staff	0	0	69.2	30.8	0	3.3077	0.4803

Source: Author (2015)

Majority of the respondents reiterated that the firms experience the challenges of lack of understanding of the importance of business intelligence to a great extent as shown by a mean score of 3.8333, poor planning for the business intelligence process to a great extent as shown by a mean score of 3.7917, inadequate funding to a great extent as shown by a mean score of 3.6875, fast changing technology prompting data migration again to a great extent as shown by a mean score of 3.6250, lack of high level management support to a great extent as shown by a mean score of 3.5833, poor technical expertise to a great extent as shown by a mean score of 3.5489 and poor user interface to a great extent as shown by a mean score of 3.5423.

In addition, inadequate business intelligence facilities or infrastructure, inadequate staff in the project, poor quality of the business intelligence processes, lack of technical knowhow on project staff, lack of psychological preparation of the employees, lack of business intelligence standards, poor sensitization of employees and users and long procurement procedure for project resources to moderate extents as shown by mean scores of 3.3750, 3.3333, 3.3077, 3.3077, 3.2972, 3.2917, 3.2083 and 2.7500 respectively. Computerworld (2003) reported that about 60% - 70% of business intelligence applications fail due to the technology, organizational, cultural and infrastructure issues. Computerworld (2003) stated that BI projects collapse because of failure to recognize BI projects as cross organizational business initiatives, unengaged business sponsors, unavailable or unwilling business representatives, lack of skilled and available staff, no business analysis activities, no appreciation of the impact of dirty data on business profitability and no understanding of the necessity for and the use of meta-data.

4.7 Business Intelligence Application

With regard to the application of business intelligence in the insurance companies in Kenya, the study sought to establish extent to which the use of business intelligence in various applications in the organization contributed to competitive advantage for the organizations. The results are as depicted in Table 4.7.

Table 4.7: Extent to which BI Applications Contribute to Competitive Advantage

BI Application	No extent	Little extent	Moderate extent	Large extent	Very large extent	Mean	Std. dev
Decision making	1.9	19.2	17.3	36.5	25	3.6346	1.1207
Customer service	7.7	7.7	30.8	23.1	30.8	3.6154	1.2232
Business planning	0	11.5	17.3	38.5	32.7	3.9231	0.9871
IT and Communication	3.8	5.3	27.8	18	45.1	3.9549	1.13394
Sales and Marketing	12.5	12.5	18.8	18.8	37.5	3.3750	1.20416
Human resource management	6.3	18.8	25	43.8	6.3	2.7500	1.12546
Enterprise resource planning	18.8	18.8	18.8	18.8	25	3.6875	1.35247
Knowledge management	0	23.1	32.7	25	19.2	3.4038	1.05272
Compliance & reducing risk	0	11.5	32.7	36.5	19.2	3.6346	0.92945
Monitoring process performance	9.6	7.7	15.4	26.9	32.7	3.7083	1.32019
Collaboration platform	29.2	43.8	8.3	8.3	10.4	3.5428	1.5152

Source: Author (2015)

Accordingly, majority if the respondents recapped that business intelligence in various applications in the organization contribute to IT and Communication to a great extent as shown by a mean score of 3.9549 as well as business planning shown by a mean score of 3.9231, monitoring process performance shown by a mean score of 3.7083, enterprise resource planning shown by a mean score of 3.6875, decision making shown by a mean score of 3.6346, compliance & reducing risk shown by a mean score of 3.6346, customer service shown by a mean score of 3.6154 and collaboration platform shown by a mean score of 3.5428. On the other hand, the BI applications result to knowledge management to a moderate extent as shown by a mean score of 3.4038, sales and marketing to a moderate extent as shown by a mean score of 3.3750 and human resource management to a moderate extent as shown by a mean score of 2.7500.

4.7.2 Influence on Competitive Advantage

The final objective of the study was to investigate the relationship between business intelligence application and competitive advantage in insurance firms in Kenya. As such the respondents were required to indicate the extent to which competitive advantage for the organizations has been affected by the use of business intelligence in the organizations.

Table 4.7.2: Effects of Business Intelligence Applications on Competitive Advantage

CA Influences	No extent	Little extent	Moderate extent	Large extent	Very large extent	Mean	Std. dev
Smarter decision making	0	11.5	17.3	38.5	32.7	3.9231	0.9871
Innovation of new products	0	11.5	32.7	36.5	19.2	3.6346	0.9294
Time and cost saving	9.6	7.7	15.4	26.9	32.7	3.7083	1.3201
Customer satisfaction	29.2	43.8	8.3	8.3	10.4	3.5428	1.5152
Winning market share	2.1	27.1	16.7	10.4	43.8	3.6667	0.3421
Increase in sales and revenue	0	21.2	21.2	34.6	23.1	3.5962	1.0711
Good relations with stakeholders e.g. suppliers, customers	3.8	7.7	25	59.6	3.8	3.5192	0.8515
Efficiency and performance	0	4.2	45.8	37.5	12.5	3.5845	0.7725
Motivation in the organization	0	11.4	51.4	25.7	11.4	3.3714	0.8370
Business transparency	11	0	19	20	50	3.9745	1.3183

Source: Author (2015)

From the study, majority of the respondents opined that use of business intelligence in various applications in the organization contributed to business transparency to a great extent

as shown by a mean score of 3.9745, smarter decision making to a great extent as shown by a mean score of 3.9231, time and cost saving to a great extent as shown by a mean score of 3.7083, winning market share to a great extent as shown by a mean score of 3.6667, innovation of new products to a great extent as shown by a mean score of 3.6346, increase in sales and revenue to a great extent as shown by a mean score of 3.5962, efficiency and performance to a great extent as shown by a mean score of 3.5845, customer satisfaction to a great extent as shown by a mean score of 3.5428 and good relations with stakeholders e.g. suppliers, customers to a great extent as shown by a mean score of 3.5192 while it leads to motivation in the organization to a moderate extent as shown by a mean score of 3.3714.

4.7.3 Regression Analysis

The researcher conducted inferential analysis so as to establish the relationship between business intelligence and competitive advantage. Multiple regression is a statistical technique which allows one to predict a score of one variable on basis of their scores on several other variable. A multivariate regression model was applied to determine the relative importance of each of the two variables with respect to the business intelligent and their effect on the competitive advantage of insurance firms in Kenya. The researcher applied the statistical package for social sciences (SPSS) to code, enter and compute the measurements of the multiple regressions for the study. The model summary for the regression is shown in table 4.7.3.1 below.

Table 4.7.3.1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.981(a)	0.863	0.691	0.752

a. Predictors: (Constant), business intelligence practises and firm characteristics

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (competitive advantage of insurance firms in Kenya) that is explained by the two independent variables (business intelligence practises and firm characteristics). The two independent variables that were studied, explain 86.3% of the competitive advantage of insurance firms in Kenya as represented by the R^2 , while other factors not studied in this research contributes 13.7% of the competitive advantage of insurance firms in Kenya.

Table 4.7.3.2: Multiple Regression Analysis

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.466	.515		0.917	0.000
Business intelligence practises	0.553	.146	0.330	2.276	0.024
Firm characteristics	0.420	.120	.224	1.922	0.028

Source: Author (2015)

The researcher conducted a multiple regression analysis so as to determine the relationship between the performance and the two variables. The regression equation ($Y = \beta_0 + \beta_1X_1 + \beta_2X_2+e$) will be:

$$Y = 2.466+ 0.553X_1 + 0.420X_2$$

According to the regression equation established, taking all factors (business intelligence practises and firm characteristics) constant at zero, the competitive advantage of the insurance companies will be 2.466. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in business intelligence practises will lead to a 0.553 increase in competitive advantage of insurance firms in Kenya. In addition, a unit increase in firm characteristics will lead to a 0.420 increase in competitive advantage of insurance firms in Kenya.

These results infer that business intelligence practises contributes more to competitive advantage of insurance firms in Kenya, while firm characteristics contributes the least to competitive advantage of insurance firms in Kenya. At 5% level of significance and 95% level of confidence, firm characteristics had a 0.028 level of significance, while business intelligence practises had a 0.024 level of significance hence the most significant aspect for competitive advantage of insurance firms in Kenya.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This is the final chapter in this study which gives the summary of the findings, the conclusions and recommendations of the study based on the objective of the study. The chapter finally presents the suggestions for further studies. It comes after identifying the background, problem at hand and the objectives in chapter one, literature review was done in chapter two, chapter three set out the methodology that the study used to collect data and chapter four analyzed the data obtained from the study.

5.2 Summary

The study found that business intelligence is funded by the departments/company resources, as well as external sources and other sources like insurance companies budget. The study further found that the IT department staffs were mainly the ones responsible for undertaking intelligence in the organizations, while vendor/consultants were also involved in undertaking intelligence in the insurance firms. From the results, the business intelligence tools used in the organizations include OLP – online analytical process, Data warehousing, Digital Dashboards, Local information systems, Spread sheets, Solarwinds, Siebel/Avaya system, OBIEE and Thomson Reuter/Bloomberg and Finnone systems.

The study also found that the various business intelligences have been used for competitive advantage by the insurance firms in Kenya. They include data mining, spread sheets and OLP – online analytical process to great extents. In addition, the insurance firms use reporting and querying softwares, digital dashboards, data warehousing and local information systems. These BI tools enable the efficiency of business operation by providing an increased value to the enterprise information and hence the way this information is utilized.

The study further established that there are various challenges encountered by insurance firms in Kenya while using business intelligence for competitive advantage. From the study, the insurance firms experience the challenges of lack of understanding of the importance of business intelligence, poor planning for the business intelligence process, inadequate funding, and fast changing technology prompting data migration again, lack of high level management support, poor technical expertise and poor user interface to great extents. Further, inadequate business intelligence facilities or infrastructure, inadequate staff in the project, poor quality of

the business intelligence processes, lack of technical knowhow on project staff, lack of psychological preparation of the employees, lack of business intelligence standards, poor sensitization of employees and users and long procurement procedure for project resources to moderate extents. This is in accordance with the previous studies (Computerworld, 2003) which found that BI projects collapse because of failure to recognize BI projects as cross organizational business initiatives, unengaged business sponsors, unavailable or unwilling business representatives, lack of skilled and available staff, no business analysis activities, no appreciation of the impact of dirty data on business profitability and no understanding of the necessity for and the use of meta-data.

The study also found that the use of business intelligence in various applications in the organization contributed to competitive advantage for the organizations. According to the foregoing results, business intelligence in various applications in the organization contribute to IT and Communication, business planning, monitoring process performance, enterprise resource planning, decision making, compliance & reducing risk, customer service and collaboration platform to great extents while they affect knowledge management, sales and marketing and human resource management to moderate extents.

The study further ascertained that competitive advantage for the organizations has been affected by the use of business intelligence in the organizations. These effects include business transparency, smarter decision making, time and cost saving, winning market share, innovation of new products, increase in sales and revenue, efficiency and performance, customer satisfaction and good relations with stakeholders e.g. suppliers, customers to great extents while business intelligences leads to motivation in the organization to a moderate extent. From the inferential analysis the two independent variables that were studied, explain 86.3% of the competitive advantage of insurance firms in Kenya. The regression analysis showed that taking the two factors (business intelligence practises and firm characteristics) constant at zero, the competitive advantage of the insurance companies will be 2.466. A unit increase in business intelligence practises will lead to a 0.553 increase in competitive advantage of insurance firms in Kenya, while a unit increase in firm characteristics will lead to a 0.420 increase in competitive advantage of insurance firms in Kenya.

5.3 Conclusions

The study concludes that the various business intelligence tools have been used for competitive advantage by the insurance firms in Kenya which include OLP – online analytical process, Data warehousing, Digital Dashboards, Local information systems, Spread sheets, Solarwinds, Siebel/Avaya system, OBIEE and Thomson Reuter/Bloomberg and Finnone systems. The insurance firms use reporting and querying softwares, digital dashboards, data warehousing and local information systems. These BI tools enable the efficiency of business operation by providing an increased value to the enterprise information and hence the way this information is utilized.

The study concludes that Business Intelligence (BI) systems made contribution to value networks and not merely financial benefits, but also knowledge, among other benefits. The study confirmed that BI systems are important investment that institutions need to consider to remain competitive. The study further concludes that BI systems have had a major impact in the companies and continue to influence the business processes in insurance firms in Kenya in a positive way, although there are few serious challenges that need to be addressed.

The insurance firms experience the challenges of lack of understanding of the importance of business intelligence, poor planning for the business intelligence process, inadequate funding, and fast changing technology prompting data migration again, lack of high level management support, poor technical expertise and poor user interface. Other challenges include inadequate business intelligence facilities or infrastructure, inadequate staff in the project, poor quality of the business intelligence processes, lack of technical knowhow on project staff, lack of psychological preparation of the employees, lack of business intelligence standards, poor sensitization of employees and users and long procurement procedure for project resources.

5.4 Recommendations for Policy and Practice

From the findings and conclusions, a successful BI initiative is measured by how well it achieves objectives set by firms. In this regard the study recommends that it is critical for insurance firms to set clear BI objectives which must be aligned to firms' objectives. The objectives and the mission of the BI together with the alignment to business objectives should form the BI strategy. People roles should then be established at the very onset of the project. This will include IT team, BI users and analysts together with management support. The process of acquiring and building the BI tool/ asset should be led by an all-inclusive

executive steering committee but driven by a project team. Consultants also play a major role during the build stage.

The study recommends that there should be more awareness on the use and Business Intelligence (BI) systems in the insurance firms in Kenya. There is need for the insurance firms in Kenya to explore what other ways they can leverage more on these systems. There is also need for the organization to train its staff in the best use of business intelligence systems in order to ensure that there is proper use for maximum benefit of the concept and to gain competitive advantage more on the value that the organization may get from business intelligence.

5.5 Limitations of the Study

The researcher was likely to encounter various limitations that might have hindered access to information sought by the study. The main limitation of study was its inability to include more organizations in the country. This was a study focusing on insurance firms in Kenya. The study could have covered more organization across country so as to provide a more broad based analysis. The study countered this problem by carrying out the study across the various departments in the insurance firms which reflect the relationship between business intelligence and competitive advantage hence serve as a representative.

The respondents approached were likely to be reluctant in giving information fearing that the information sought would be used to intimidate them or print a negative image about them or their firms. The researcher handled the problem by carrying an introduction letter from the University and assured them that the information they give would be treated confidentially and it would be used purely for academic purposes.

There were likely to be cases of acquiescence bias, where some staff would answer questions with an incline that does not represent the absolute truth. The answers could therefore be misinterpreted or falsified. The data collected was therefore likely to be inaccurate. The researcher therefore found it necessary to insist to the respondents to only give the real scenario in the organization. The researcher overcame this problem by urging the respondents to be truthful by writing the right information.

5.6 Suggestions for Further Study

The study has investigated the relationship between business intelligence and competitive advantage in insurance firms in Kenya. The researcher suggests that issues for further study on the relationship between business intelligence and competitive advantage in insurance firms in Kenya need to be investigated. As such, a study on the effects of each of the business intelligence within and outside the finance sector should be conducted in the local setting as a way of gathering generalizable findings that could act as guidelines for policy recommendations in relationship between business intelligence and competitive advantage in firms in Kenya in this era of technological advancements.

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Appendix I: Questionnaire to business Intelligence process in the insurance industry

This questionnaire is aimed at collecting data regarding practices, challenges and contribution to business intelligence in the insurance industry. Your organization has been selected to participate in this survey.

Please give response to all the questions by filling or ticking in the appropriate spaces in the questionnaire.

SECTION A: GENERAL INFORMATION

1. What is your gender?

Male..... []

Female []

2. What is your age bracket in years

18-25..... []

26-30..... []

31-35..... []

36-40..... []

41-45..... []

46-50..... []

Above 50..... []

3. Level of education

Primary []

Secondary..... []

Tertiary level.... []

Other.....

4. What is your job title in the organization? _____

5. How many years have you worked in this organization? _____ years.

6. How long has the firm been in operations _____

7. What is the Asset base of the firm _____

8. Number of employees _____

9. Number _____ of customers _____

10. Ownership Local []

Foreign..... []

Others..... []

11. How is business intelligence being funded?

Department []

External Sources..... []

Grant awarding agencies..... []

Other specify _____

12. Who is undertaking business intelligence in your organization?

IT department staff []

Vendor / Consultant []

Other specify _____

13. What is the Business Intelligence tools used in your organization?

SECTION B: USE OF BUSINESS INTELLIGENCE TOOLS

Indicate the extent to which each of the following Business Intelligence tools are used in the firm. Use the following rating: Tick appropriately.

1-No extent

2-Small Extent

3- Moderate extent

4-Great Extent

5-Very great extent

	BI TOOLS	1	2	3	4	5
1.	Data mining					
3.	OLP – online analytical process					
4.	Data warehousing					

5.	Spread sheets					
6.	Digital Dashboards					
7.	Local information systems					
8.	Reporting and Querying software					
9.	Others (specify & rate accordingly)					
10.						

SECTION C: CHALLENGES INVOLVED IN BUSINESS INTELLIGENCE PROCESS

Indicate the extent to which each of the following challenges is faced by the firm in implementing business intelligence. Use the following rating: Tick appropriately.

- 1-No extent 2-Small Extent 3- Moderate extent
4-Great Extent 5-Very great extent

	Challenges	1	2	3	4	5
1.	Poor planning for the business intelligence process					
2.	Lack of business intelligence standards					
3.	Poor technical expertise					
4.	Inadequate business intelligence facilities or infrastructure					
5.	Inadequate staff in the project					
6.	Lack of high level management support					
7.	Lack of understanding of the importance of business intelligence					
8.	Long procurement procedure for project resources					
9.	Inadequate funding					
10.	Poor sensitization of employees and users					
11.	Fast changing technology prompting data migration again					
12.	Lack of psychological preparation of the employees					
13.	Poor user interface					

14.	Poor quality of the business intelligence processes.					
15.	Lack of technical knowhow on project staff					
16.	Other (specify and rate accordingly)					

SECTION D: BUSINESS INTELLIGENCE APPLICATION

To what extent has the use of business intelligence in each of the applications in the organization contributed to competitive advantage for the organization? Indicate using the following rating: Tick appropriately.

- 1-No extent 2-Small Extent 3- Moderate extent
- 4-Great Extent 5-Very great extent

	BI Application	1	2	3	4	5
1.	Decision making					
3.	Customer service					
4.	Business planning					
5.	IT and Communication					
6.	Sales and Marketing					
7.	Human resource management					
7.	Enterprise resource planning					
8.	Knowledge management					
9.	Compliance & reducing risk					
10.	Monitoring process performance					
11.	Collaboration platform					
12.	Others (specify & rate accordingly)					
13.						

SECTION E: INFLUENCE ON COMPETITIVE ADVANTAGE

To what extent has Competitive Advantage for the organization been affected by the use of Business Intelligence in the organization. Indicate using the scale:

- 1-No extent 2-Small Extent 3- Moderate extent
- 4-Great Extent 5-Very great extent

	CA Influences	1	2	3	4	5
1.	Smarter decision making					
3.	Innovation of new products					
4.	Time and cost saving					
5.	Customer satisfaction					
6.	Winning market share					
7.	Increase in sales and revenue					
7.	Good relations with stakeholders e.g. suppliers, customers					
8.	Efficiency and performance					
9.	Motivation in the organization					
10.	Business transparency					
11.	Others (specify & rate accordingly)					
12.						

Appendix II: List of Licensed Insurance Companies

	Name
1.	APA Insurance Limited
2.	Africa Merchant Assurance Company Limited
3.	Apollo Life Assurance Limited
4.	British-American Insurance Company (K) Limited,
5.	Cannon Assurance Limited
6.	CFC Life Assurance Limited
7.	Chartis Kenya Insurance Company Limited
8.	CIC General Insurance Limited
9.	CIC Life Assurance Limited
10.	Concord Insurance Company Limited
11.	Corporate Insurance Company Limited
12.	Directline Assurance Company Limited
13.	Fidelity Shield Insurance Company Limited
14.	First Assurance Company Limited

15.	GA Insurance Limited
16.	Gateway Insurance Company Limited
17.	Geminia Insurance Company Limited
18.	Heritage Insurance Company Limited
19.	ICEA LION General Insurance Company Limited
20.	ICEA Life Assurance Company Limited
21.	Intra Africa Assurance Company Limited
22.	Invesco Assurance Company Limited
23.	Jubilee Insurance Company Limited
24.	Kenindia Assurance Company Limited
25.	Kenya Orient Insurance Limited
26.	Kenyan Alliance Insurance Company Limited
27.	Madison Insurance Company Kenya Limited
28.	Mayfair Insurance Company Limited
29.	Mercantile Insurance Company Limited

30.	Metropolitan Life Kenya Limited
31.	Occidental Insurance Company Limited
32.	Old Mutual Life Assurance Company Limited
33.	Pacis Insurance Company Limited
34.	Pan Africa Life Assurance Limited
35.	Phoenix of East Africa Assurance Company Limited
36.	Pioneer Assurance Company Limited
37.	Pioneer Assurance Company Limited
38.	REAL Insurance Company Limited
39.	Shield Assurance Company Limited
40.	Takaful Insurance of Africa
41.	Tausi Assurance Company Limited
42.	Trident Insurance Company Limited
43.	UAP General Insurance Company Limited
44.	UAP Life Assurance Company Limited
45.	Xplico Insurance Company Limited