STRATEGIC RESPONSES ADOPTED BY TELECOMMUNICATION CONTRACTORS TO CHANGES IN THE EXTERNAL ENVIRONMENT IN KENYA

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DECLARATION

I declare that this is my original work and has not been presented for a degree in any other University.

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SIGNED……DATE……

D61/72896/2009

The project has been submitted for examination with my approval as the university supervisor.

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DEDICATION

This project is dedicated to my dear wife and beloved children. Thank you for your moral support.

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It has been an exciting and instructive study period at the University of Nairobi and I feel privileged to have had the opportunity to carry out this study as a demonstration of knowledge gained during the period studying for my master's degree. With these acknowledgments, it would be impossible not to remember those who in one way or another, directly or indirectly, have played a role in the realization of this research project. Let me, therefore, thank them all equally. I am deeply obliged to my supervisor Dr. Zachary B. Awino for the exemplary guidance and support without whose help; this project would not have been a success. Finally, yet importantly, I take this opportunity to express my deep gratitude to my loving family, and friends who were a constant source of motivation and for their never ending support and encouragement.

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ABBREVIATIONS AND ACRONYMS

ANOVA: Analysis of Variance

ASP: Application Service Providers

CAK: Communications Authority of Kenya

CBD: Central Business District

CCK: Communication Commission of Kenya

CDMA: Code Division Multiple Access

CSP: Content Service Providers

EATC: East African Post and Telecommunication Company

ERB: Engineers Registration Board

IBM: International Business Machines

ICT: Information Communication Technology

KP&TC: Kenya Posts and Telecommunications Corporation

KRA: Kenya Revenue Authority

MIS: Management Information Systems

NFP: Network Facilities Providers

NSP: Network Service Provider

SPSS: Statistical Package for Social Sciences

RBV: Resource Based View

ULF: Unified License Framework

USA: United States of America

ABSTRACT

Strategic response is a set of decisions and actions that result into the formulation and implementation of plans designed to achieve the organization's objective (Ansoff and McDonnell, 1990). They are guided by the theories of strategy which have been developed over a period of time for use in management. There are four theories that guide strategy and strategic response. The study objectives included: To determine the level of turbulence in the external environment in Kenya in which telecommunications contractors operate and to determine the application of strategic concepts in guiding strategic responses by telecommunication contractors to changes in the external environment in Kenya. This study sought to understand the strategic responses that the telecommunication companies in Kenya adopted in response to the changes in their external business environment. The changes in the business environment were found to be mostly caused by the technological changes, the competition in the market and political legal factors. The changes in technology and competition in the market were found to be the most prevalent causes of the changes in the market. The methods used by the businesses to respond to the changes were also evaluated. Most of the responses centered on the efforts by the organizations to conform to the changes in a positive way. The organizations use training and education to deal with the changes brought in by the political legal factors. Early compliance has also been noted as one of the strategic methods used by the organizations to deal with the changes brought by the politico legal factors. The changes brought about by the technology are responded to using different methods. Some of the studied organizations outsource some of the services in order to avoid the capital costs that may come with the purchase of the new technology. Others use the existing technology to seamlessly play a role in the new technology. Mergers and acquisitions were also used by the organizations in order to deal with the changes in the market. This helps the organizations to synergistically deal with the changes in the market. The study also found out that most of the organizations were agile when it came to dealing with the changes in market. As well, they were able to respond to the changes with promptness when they occurred in the market. This indicates that the companies are prepared to deal with the market uncertainties. The strategic planning was also tested in this study. It was found out that most of the organizations only carried out strategic planning once in a year. Generally, it was found the telecommunications contractors in Kenya responded to changes in their external environment through capability transformations which was achieved by reconfiguring their internal capabilities and available external opportunities. This capability transformation enabled them to fit and compete in the new environment and confirmed the strategic theory of dynamic capabilities. The findings of this study will be beneficial to the policy makers and regulator of the industry, namely the Communications Authority of Kenya CAK, the Kenya Revenue Authority (KRA), and Engineers Registration Boards (ERB) among others. The findings are also beneficial to the theory if strategic management as it confirms that the theory is applicable in telecommunication industry. The findings of this study are also beneficial to the current entrepreneurs in telecommunication firms as it will guide them to develop right strategies and to adopt strategic responses that conform to the prevailing external environment.

CHAPTER ONE:INTRODUCTION

1.1 Background of the Study

Strategy, according to Scholes and Whittington (2005), is the direction and scope of an organization over the long term, which achieves advantage in its changing environment through configuration of its resources and competences with the aim of meeting shareholders expectations. Businesses do operate under the influence of legal, political, socio-economic, technological and environmental factors. They form the external business environment. The external business environment is dynamic and affects the outcome of business performance. As such, the key challenge for managers in the contemporary world is on how to ensure competitiveness and profitability of their companies in turbulent environment (Ansoff, 1998).

Strategic response is a set of decisions and actions that result into the formulation and implementation of plans designed to achieve the organization's objective (Ansoff and McDonnel, 1990). They are guided by the theories of strategy which have been developed over a period of time for use in management. There are four theories that guide strategy and strategic response. They are Open System Theory, the Game Theory, Resource Based View and the Dynamic Capabilities theory. These theories guide managers in adopting and implementing effective strategic responses to the changing business environment.

The rapid growth witnessed in the telecommunication industry in Kenya in the last decade (CCK Industry Report, 2012), resulted to increase in demand for infrastructure support services by the telecommunication firms. This rapid industry growth is thought to have increased the level of turbulence in the environment in which the telecommunication contractors operate in. It is essential to study whether the telecommunication contractors in Kenya understand the external business environment in Kenya, and whether they are applying strategic responses to changes in this external environment.

1.1.1 Concept of Strategic Response

Strategic response is a set of decisions and actions that result into formulation and implementation of plans designed to achieve an organizations objective (Ansoff and McDonnel, 1990). These sets of decisions are companywide in scope and involve deployment of company resources in their implementation. The responses are triggered by changes in the organizations operating environment. As such, strategic responses are reactions to the changes that are happening in the organization's environment. Strategic responses involve changes in the organizations strategic behavior (Ansoff and McDonnel, 1990). The change can be gradual, evolutionary or even more dramatic (Thompson, 1997).

Strategic responses are guided by the theories of strategy. Strategy, according to Scholes and Whittington (2005), is the direction and scope of an organization over the long term. It achieves an advantage in its changing environment through the configuration of its resources and competences with the aim of meeting share holders' expectations. Four

different theories that guide the view of strategy have been put forward. They include the open systems theory, the game theory, the dynamic capability theory and the resource based view of strategy.

The open systems theory views firms in a business environment as open systems that interact to achieve stability and that only the relevant subsystems are retained in the system. The game theory looks at strategy as a game in which businesses plan and execute maneuvers that are aimed at out doing their competitors and gaining competitiveness. The resource based view of strategy (RBV) views strategy as a dependant of the unique resources that are held by an organization. These resources make the business more competitive than other companies in the industry. In the dynamic capability theory, strategy is a derivative of an organization's capability to dynamically adjust its resources and configurations to match the changing environment and stay competitive. All the four paradigms are relevant in the concept of strategy but apply differently in different scenarios.

1.1.2 External Environment

The business's external environment comprise of all those external factors that affect or would affect the performance of a business. They include political, economic, social, technological and legal factors. The business normally has very limited or no control over such factors. The business environment is further subdivided into two layers namely the Macro environment and the micro environment. The environment immediately outside the business is referred to as the micro environment and describes the industry in which the business operates.

A business environment is described by its level of turbulence. Turbulence is a combined measure of changeability and predictability of firm's environment (Awino, 2011). Changeability measures the degree of complexity of change, whereas predictability indicates the rapidity and direction of the change. In turbulent environments, businesses face various factors such as increasing costs of doing business, labor shortages, rapidly changing technologies, rapid market growth, changing consumer needs and preferences and effects of globalization among others. These factors stifle the success of business. Firm managers need to find appropriate responses to these environmental challenges in order to maintain the competitiveness and profitability of their business into the future.

1.1.3 Strategic Response and Environment

As discussed earlier, the success of a business is dependent on the orientation of the business to its external environment. The key challenge for managers today is on how to assure competitiveness and profitability for their companies in turbulent environment (Ansoff, 1998). Managers need to find appropriate responses to these environmental challenges that will assure their competitiveness and profitability of their business into the future. The type of the response adopted by the manager depends on the environmental change, the way the manager understands his operating environment and his ability to select the appropriate response.

Strategic responses vary with environmental turbulence. According to Ansoff (1990) the business environment can be classified into five turbulence levels all which require unique strategic responses. Lowest at level one is the "Repetitive Environment" that hardly changes. The firms hardly change their strategies in response to this turbulence.

Level two describes an "Expanding Environment-slow incremental". This is characterized by increasing but homogeneous consumer demands. Firms respond reactively to this change. Level three describes a "Changing Environment" characterized by fast incremental changes. Firms respond by progressively improving their products, but guided by a fixed long term strategy. At level four is a "Discontinuous Environment" that is characterized by rapid but predictable changes: the effects of globalization, technological, political and socio-economic factors. Strategic responses include a mix of production efficiency, marketing effectiveness, and product responsiveness. At level five is the "Surpriseful Environment" that is very unpredictable. Product innovation becomes the success criteria.

1.1.4 Telecommunication Industry in Kenya

Telecommunication industry in Kenya has been in existence since the colonial era. The first establishment was the East African Post and Telecommunication Company (EATC). It offered telecommunications services in the form of fixed copper lines. Only basic voice and telegraph services were provided at this time. The industry grew over time with EATC changing its name to Kenya Posts and Telecommunications Corporation (KP and TC). This was a state owned company charged with responsibility of providing telephony and postal services, as well as regulating communication industry in the country.

In 1998, the government of Kenya liberalized the telecommunication industry. The industry was opened to private investors, a decision which caused major reorganizations in the structure of the industry. This era was marked by the emergence of cellular telephony operators. Safaricom was formed as joint venture between the Kenyan

Government and Vodafone, a UK Based telecommunications company. KP&TC changed its name to Telkom Kenya, after the postal service department was curved out of it to form the Kenya Postal service Corporation. A new private entrant, Kencell Communications, owned by Vivendi Group of France entered into the market in 2000.

According to the industry structure, Information and communication Technology industry (ICT) in Kenya is regulated by the Communication Commission of Kenya (CCK). CCK is a statutory body that was established under the Kenya Communications Act, (1998).This was until April 2014 when the same body changed its name to Communications Authority of Kenya (CAK). The main role of CAK was to issue operating licenses to telecommunications companies, control the allocation of radio frequency spectrum, and regulate pricing and competition in the industry. Within its role of licensing, CAK controls the entry into the industry by issuing licenses to interested investors through the Unified License Framework (ULF). Under this framework, players in the telecommunication industry in Kenya were classified into 4 classes; Network Service Provider (NSP), Application Service Providers (ASP), Content Service Providers (CSP) and Network Infrastructure and Support Service Providers; in which Telecommunication Contractors are classified

1.1.5 Telecommunication Contractors in Kenya

Telecommunication contractors exist to provide infrastructure support and services to the Network Operator and Equipment Vendors. Their services are needed both at network deployment and expansion phase, where they provide skills and expertise needed for installation of network infrastructure. They also play a role at the network operations

phase where they provided services for running and maintaining the network infrastructure such as the transmitter stations power, providing network quality optimization services and supply of consumables used in day-to-day running of telecommunication networks. This arrangement allows for both the network operators and equipment vendors to outsource the none core and low skilled functions to the telecommunication contractors and hence leaving the network operators and equipment vendors to focus on their core business of selling high end technology equipment or providing services to telephony users. Based on this industry structure, telecommunication contractors play an important role in running and sustaining the telecommunication industry in Kenya.

As at December 2012, the industry had 325 licensed telecommunications contractors (CCKUFL registers 2012). Similarly, there existed 163 registered telecommunication equipment vendors and four network operators, also referred to as Tier 1 Network Facilities Providers (NFP) in CCKUFL register. They were, namely Airtel Networks Kenya Limited, Safaricom Limited, Telkom Kenya Limited and Essar Telecom Kenya Limited. The four NFP's were the main providers of mobile telephony services to consumers. The 162, equipment vendors served to provide equipment and high end technical support through management contracts for the complex myriad of equipments used to in telecommunications network to deliver services to the end user of telephony services. The 325 telecommunication contractors offered support to both the four NFP's and the 162 equipment vendors.

The role of telecommunication contractors ranges from supplying skilled labor to install, replace or maintain equipment in cellular network to delivery of capital intensive turn key projects such as site construction. They also provide network operation services such as site fueling, cleaning, security, repairs, site surveys, radio coverage drive tests and optimization. As such their setup can be as small as single office comprising of three or more technicians who offer the services, or as large as international companies with operations in multiple countries; like GTL, Egypro, Linksoft, among others.

1.2 Research Problem

According to the Dynamic Capability theory of strategy, strategic responses to environmental changes require that managers go through the process of environment scanning and identification of changes and opportunities or threats presented by the changes. Once identified, the business responds by seizing the opportunity, pre-empting the threat or converting the threat into opportunity through transformation processes. Transformation involves rearranging the organizations internal capabilities. These capabilities may be in the form of fixed assets, human resources and other the processes. The reorganization helps create a restructured organization that can cope with the opportunities and threats. The outcome of this is the strategic response. It includes actions such as staff downsizing, business process re-engineering, mergers and acquisitions, integrations, price reduction and many more.

Telecommunication industry in Kenya has been characterized by major changes in the last decade. These changes have shaped the telecommunications contractors environment. The liberalization of the industry and the entrance of the cellular telephony companies in

the year 2000 triggered the demand for telecommunication contractor services. Since then, the industry has had increasing consumer demand as indicated by the very high subscriber growth of 234percent between 2007 and 2012 (CCK Industry Report, 2012).Technological changes such us the introduction of wireless mobile telephony through CDMA technology, rollouts of 3G telephony and fiber optic communication services by network operators between the years 2007 to date contributed to the increase of demand for their services. Competition among network operators also resulted into change in business operation models. As a result, more services have been outsourced to the telecommunication contractors. Due to the low entry barriers, many startup companies also joined the sector (CCK Industry Report, 2012).

In Kenya, the changing business environment has elicited multiple forms of strategic responses as has been observed in previous studies. Kamau (2007) conducted a case study on Strategic response of the Kenya-Re Insurance Company to changes in their external environment. He observed that the environmental changes that affected the Kenya-Re Insurance Company included liberalization of the market, competition, rapid technological changes, rating of companies, language barriers, risk profile and fluctuation of the currency. The company responded to these changes by strategies that touched on cost reduction measures, diversification, expansion strategies and focus strategies. In the study on strategic responses of large manufacturing firms within east Africa to opportunities and challenges of regional integration carried out by Kerubo (2007), it was found that majority of firms responded by increasing marketing aggression to take advantage of the expanded markets.

Another study in Kenya was conducted by Chelimo (2008) with an aim of finding out strategic responses by Energy Regulatory Commission to the legislative challenges of regulating the energy sector. He observed that some of the responses adopted by the commission included development of ICT and MIS and developing its organization capacity to cope with the challenges. Another study on Strategic Responses of Micro and Small Restaurants in Nairobi to competitive Environment (Kanana, 2010), it was observed that small and micro restaurants in Nairobi CBD experience various competitive forces to which their strategic responses include focus on reputation, improving product and service quality, using low cost materials, introducing customer retention programs.

Studies have also been carried out internationally on strategic responses to changes in environment. A case study on strategic responses by IBM to environment changes (Harreld, O'Reilly and Tushman, 2006) found that IBM was able to overcome the challenges of declining profits by transforming their dynamic capabilities in line with environment changes. A study on construction industries in Indonesia by Pamulu (2010), found that in the changing environment characterized by entry of competitors, more demanding customers and increasing construction costs, companies responded by leveraging on their intangible dynamic assets to improve their reputations, and quality, so as to remain competitive.

Whereas many studies have been carried out to determine the strategic responses adopted by firms to changes in the external environment, no study has been carried out to determine the strategic responses adopted by telecommunication contractors to changes in the external environment in Kenya. To this extent, this question remains unanswered:

"What are the strategic responses adopted by telecommunication contractors in Kenya to changes in the external environment in Kenya?"

1.3 Research Objectives

The objectives of this study were to:

I. Determine the level of turbulence in the external environment in which telecommunications contractors operate.

II. Determine the application of strategic concepts in guiding strategic responses by telecommunication contractors to changes in the external environment in Kenya.

1.4 Values of the Study

This study is expected to be beneficial to the current entrepreneurs in the telecommunication industry. The study is expected to provide more insight to their business environment and on their relationship with their environment. Based on this they are expected to be able to identify their points of strength or disconnect which they could correct in order to improve their business performance. The study is also expected to provide information to future investors interested in the sector, the nature of the business environment which will guide in developing their entry strategy.

Beside the investors and the current entrepreneur's in the industry, the study is also expected to be of use to the regulator; CAK. By getting deeper insight to the prevailing nature of business environment, the regulator is expected to gain more information on the dynamics of the business environment and the impact of policies they develop. With this they will be able to enact regulations that will improve the industry performance. The study is also expected to be useful to the government as a policy maker through the Ministry of Information and Communication, by providing information that can guide in development of policies that can grow the telecommunication contracting sector and create more jobs for the economy.

Finally, and to the academic fraternity, this study will add to the existing body of knowledge on theories of strategy. As a descriptive study, it is expected to provide empirical evidence on application of dynamic capability theory. This is expected to stimulate further research in the area or identify the need for improvement of the theory in order to meet current business environment setup.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter review previous works and publications done in developing the concept of strategy and strategic management. It starts by introducing the business environment and how strategy and strategic management has developed as a managerial tool for addressing the changes in environment. It then reviews previous studies done to evaluate the strategic responses that have been adopted by businesses in Kenya to environmental changes.

2.2 Theoretical Foundation

Strategy has been defined as the game plan management has for positioning the company in its chosen market arena, competing successfully, pleasing customers and achieving good business performance (Thompson and Strickland, 2000). It has also been defined as the commercial logic of a business that defines how a firm can have a competitive advantage (Koch, 2000). According to Johnson, Scholes and Whittington (2005), strategy is the direction and scope of an organization over the long term, which achieves advantage in its changing environment through its configuration of its resources and competences with the aim of meeting shareholder's expectations.

Various theories of strategy have been put forward and according to which strategy is viewed from different paradigm. The four paradigms that guide the view of strategy are discussed below and are intended to guide this study.

2.2.1 Open Systems Theory

This views organization as a subsystem that exists within a bigger system. According to the theory, organizations exist as subsystem in a bigger system in which they are supposed to play a unique role that adds value to the bigger system. Accordingly, all organizations are systems and that all systems are a part of a larger system. How a subsystem fits the needs of a larger system ultimately determines if the subsystem prospers or is left to wither (Teece, Pisano, and Shuen, 1997). This explains why some organizations fail where others prosper.

The open systems theory takes the outward-in view of an organization. According to the theory, strategy comes through successive analysis of the external environment and designing systems to fit into the external environment. This theory was been advanced through Michael Porter's (1995) Five Forces Framework which views strategy formulation as relating a business to its environment. Porter (1995) identified five forces within an industry that determine the industries attractiveness. They, include Entry barriers to the industry, threat of substitutes, bargaining power of buyers, bargaining power of suppliers, and rivalry among firms in the industry. Accordingly, a firm needs to evaluate the five forces that determine its competitiveness in the industry environment within which it operates, and then design systems that respond to the forces in a way that contributes to it achieving zero or sustainable negative entropy. This theory postulates that organizations can achieve competitive advantages by altering the firm's position in the industry relative to its customers, competitors and suppliers in a way that gives it some level of monopoly in the industry.

2.2.2 The Game Theory

The game theory views competitive outcome as a function of the effectiveness with which a firm keeps their rivals off balance through strategic investment, pricing strategies, signaling and control of information (Newman & Morgenstern, 1944). The game theory informs the strategic conflict paradigm in that strategic conflict paradigm utilizes the tools of game theory to analyze the nature of competitive interaction between rival firms (Shapiro, 1989).

The game theory and as well the strategic conflict paradigm show how firms can influence the behavior of rival firms and the market environment in a way that creates a competitive advantage for the firm. According to the theory, a firm can make a strategic move that is expected to elicit a certain response from their rival firms. The responses elicited are those that will put the firm in more competitive position relative to the rival. In many instances, the game theory formalizes long standing arguments about various types of business behaviors such as predatory pricing, patent racing among others (Teece et al., 1997). The game theory is built around equilibriums of strategic responses based on what one rival believes the other rival will do in a particular situation. This theory is relevant in situations where the competitors are closely matched and identity of their strategic moves can be readily ascertained.

Some of the strategic responses that are built around this theory include price wars in which a firm may lower prices of products in industry so as to wade of its rival's attacks by reducing the rival's expectation of future profits. This would work well in a situation of high price elasticity of demand.

Others include patent races where firms seek to tame the competitive activities of their rivals through patenting of competitive ideas and products. An example is in the technology and pharmaceutical industries where patenting a technology is a good revenue stream for a company through royalties programs.

Critics of this theory argue that the approach largely ignores the entrepreneurial side of strategy. It also does not explain how new unique sources of competitive advantage are generated (Teece et al., 1997).The theory however is relevant in situations where the competitors are closely matched and the identity of their competitive moves can be readily ascertained.

2.2.3 Resource Based View

This theory proposes that sustainable competitive advantage can be developed using valuable resources that are uniquely owned by a firm. Accordingly, a firm can attain superior performance relative to its rivals by implementing value creating strategies around the resources that the firm uniquely owns. These idiosyncratic resources must have the qualities of high value, rare, must be difficult to imitate by rivals and must not have readily available substitutes.

The theory proposes that firm specific capabilities, assets and existence of isolating mechanism are the fundamental determinants of firm's performance and ability to develop a competitive advantage (Penrose 1959; Rumelt 1984).

Therefore, firms with superior systems and structures are viewed as being profitable not because they engage in strategic investments that will increase profitability, but because they have significantly lower production costs or significantly higher product quality or performance. Therefore, a company's future success and development lies in its ability to find or create a competence that is fully distinctive (Teece et al., 1997).Critiques of this concept argue that it provides no theory or systematic framework for analyzing business strategies. The theory also assumes heterogeneous resources across all firms and that they are not easy to reproduce or replace.

2.2.4 Dynamic Capability Theory

According to this theory, the sustainability of competitive advantage for firms in turbulent environments often lies on the firm's ability to reconfigure its resource base in order to fit into the new environment. As such, the focal concern for a strategist is on how to develop dynamic capabilities within his organization that will enable it to adjust to environmental changes efficiently and effectively. According to Teece et al., (1997), dynamic capabilities of a firm refer to its ability to reconfigure external and internal competences so as to address the rapidly changing environment. This includes capacity within the organization that will enable it to purposefully create, extend or modify its resource base. He identified three unique dynamic capabilities that are necessary to enable an organization to meet new challenges. One is that the organization and employees need capabilities to learn quickly and to develop new strategic assets. Second is that the newly developed assets such as technology and customer feedback must be integrated into the company system. Thirdly, the existing strategic assets within the company must be transformed and reconfigured.

According to this theory, competitive advantage of a firm is seen to be residing on its distinctive processes, shaped by the firm's specific asset position and the evolutionary path the firm has adapted (Teece et al., 1997).Teece also proposes that wealth creation in regimes of rapid technological changes depends in large measure on horning internal technological, organizational and managerial processes inside the firm. As such, since the theory emphasizes the development on management capabilities and difficult-to-imitate combinations of organizational, functional and technological skills, it encourages the use of product and process development, technology transfer, manufacturing, human resource and organizational learning as areas around which successful companies strategies can be built.

2.3 Strategic Response and External Environment

According to Ansoff (1998), the key challenge for managers in the 90's has been how to assure competitiveness and profitability for their companies in turbulent environment. This remains as a challenge today and is expected to continue in to the future as the environment becomes more complex and as the turbulence increases. He points out the factors that limit a company's success in a turbulent environment as being the increasing costs of doing business, labor shortages, rapidly changing technologies, rapid market growth, changing consumer needs and preferences and effects of globalization. As such managers need to find appropriate responses to these environmental challenges that will assure their competitiveness and profitability of their business into the future.

Ansoff argues through his strategic success criteria that for optimum return on investment, both the aggressiveness of a firm's strategy and its capabilities must match the turbulence of their environment. Based on turbulence of the environments, a company manager has to identify the right strategy that will assure competitiveness and profitability of his company.

On a similar line of argument, Wheelan and Hunger (2012) says that in turbulent environments, firms are confronted by frequent shifts in strategic success factors caused by changes in their environment. The challenge for managers in such environments is to be on the lookout for such shifts and adapt to such shifts. In such environments, the output of strategic planning is direction rather than a roadmap as a roadmap with detailed instructions is of little use when topology is unknown and rapidly changing. A compass will point to the right direction and management and team; through ingenuity and teamwork can overcome unforeseen obstacles and unanticipated opportunities that open on their way to their destination. He underpinned the fact that the turbulence in today's environment is higher than it was before and is expected to increase in the future. As such strategies are needed to give direction for the business to achieve its objective, rather than detailed plan of how to achieve the objectives.

Of the many environmental factors that are affecting companies in present day business; globalization is one key factor whose impact has been felt greatly and is anticipated to increase.

The integrated internationalization of markets and corporations has changed the way modern corporations do business (Wheelan and Hunger, 2010).Jobs, knowledge and capital are now able to move across boarder with much greater speed and less friction than was possible a few years ago. This has been greatly facilitated by more advanced communication technologies such as inter-continental optic fiber which allow for high-speed exchange of data and information at affordable rates. Coupled with high speed and cost effective transport system, technology has transformed the world markets and economies into a global village. This has further contributed to the increasing turbulence in today's business environment by increasing its level of complexity. For instance, the interconnected nature of the global financial community meant that the mortgage lending problem of the U.S banks led to a global financial crisis of 2008 (Wheelan and Hunger, 2010). Owing to these, company managers today have to devise strategies of coping with the impact of globalizations and technology.

According to Wheelan and Hunger (2010), the increasing risk of errors, costly mistakes and economic ruins are causing today's professional managers to take strategic management very seriously. As managers attempt to better deal with the changing world, firms have evolved from basic financial planning through forecast based planning and external oriented planning into strategic management. Furthermore, for a company to be successful, it is necessary that the aggressiveness of a firm's strategy and internal capabilities match their environment turbulence (Ansoff, 1998). Business strategies should focus on improving the competitive position of a company within the specific industry or market segment that it serves (Porter, 1985).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methods and procedures that were used to carry out the research. The chapter gives details of research design, the population of the study and sample selection. Details are also given regarding data collection methods and research procedures that were used.

3.2 Research Design

The study was conducted through a survey because surveys were thought to be able to yield data that could be used to establish relationship between priorities and predisposition. In this case, survey was expected to establish relationship between strategic management theories, and the practices in the telecommunications contractors sector in Kenya. This study adopted a descriptive research design. According to Cooper and Schindler (2006), descriptive studies are concerned with descriptions of phenomena or characteristics associated with a subject population. These studies are also concerned with discovery of associations among different variables. This method is more suitable for this research since it allows collection of data from a large number of potential respondents at relatively low costs (Saunders, Lewis and Thornhil, 2003)

This research utilized the cross sectional survey and analysis since sample elements were measured at a single point in time. Both mailed and self-administered questionnaires were used in collecting data.

This approach enabled the researcher to gain better clarity on the subject, through self-administered questionnaires, and as well was able to collect data from the sample within the constraints of time.

3.3 Population of the Study

A population is the total collection of elements about which we wish to make some inferences (Cooper and Schindler, 2006).The population of interest for this study consisted of registered telecommunication contractors as per CCK's UFL report of 2012. According to CCK database, a total of 323 contractors had been registered in the telecommunication contractor category. Though scope of involvement on telecommunication contracting was thought to vary among the contractors, the entire population was considered in the sample selection. The sample size of the study was of 32 respondents which was used out of the entire population of 323 respondents.

Prior to conducting this report, the researcher, having worked in telecommunication industry in Kenya, had observed that there were a number of companies that were involved in telecommunication contracting but did not appear in the CCK's registry. To avoid ambiguity and bias in sample selection, this group of companies was not considered in sample selection. Selection was restricted to only the registered contractor.

3.4 Sample Design

The sampling frame for this study was obtained from CCKUFL report of 2012, out of which 10percent of the population was sampled. Accordingly, a sample size of 39 elements was used out of the entire population of 323 elements with extra 7 elements to cater for failed response.

Judgmental or purposive sampling was applied owing to the varying degree of involvement in telecommunication contracting by the different elements in the population. This was guided by information from sector members and the actively involved contractors in the sector. Also to optimize on time required to collect data, the samples were selected from companies whose head offices were situated within Nairobi. This was not expected to result into a sample bias or sample error because, all companies in the sector operated in the entire country and hence they experienced a countrywide environmental factors.

3.5 Data Collection

Primary data was used in this research and was collected from respondents through questionnaires. The research adopted a cross-section survey of the selected sample. Of the three possible methods of data collection through questionnaires: mail questionnaires, personal interviews and telephone interviews, a mix of both mail and self-administered questionnaires were applied owing to the relatively small sample size and need to obtain accurate data. Choice of whether to mail questionnaire or to conduct a personal interview was based on the availability of the CEO or Managing Director of sampled companies, their availability and preferences.

The questionnaire was structured into three sections. The first section (Section A) contained close ended questions intended for profiling the company and assessing the suitability of is response in describing the telecommunication industry, based on their level of involvement. Second section (Section B) contained four questions intended to describe the business environment as perceived by the respondent. Both Close and open

ended questions were used. The open ended questions were intended to get a clear description of the type of changes in the environment without limiting the respondents to specific changes. In view of the small sample size, the responses were coded during data analysis. Also tabulated questions were used to collect more information from respondents without eliciting a weak "satisfying response". The last section (Section C) contained five questions that are a mix of both open and close ended questions. These questions were intended to collect information that aided in describing the strategic responses as adapted by the respondents' to environmental changes they described in section B. Mixes of open and close ended questions were used to get a description of the strategic responses, without constraining the respondents by using hard to understand terminologies used in strategic management.

3.6 Data Analysis

Both qualitative and quantitative methods of data analysis were applied on the data collected. To start with, the open ended questions were coded into specific groups of data, as used in strategic management. Once coded, the collected data was loaded onto the Statistical Package for Social Sciences (SPSS) application for analysis. The resultant data was expressed as percentages, graphs and pie charts so as to generate meaningful information used to describe the findings.

Statistical measures of central tendencies; mean, mode, median and standard deviations were used to determine the dominant views and description of the environment and strategic responses adopted in response to the environmental changes.

CHAPTER FOUR: DATA ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presents the analysis of data findings on strategic responses adopted by telecommunication contractors to changes in the external environment in Kenya. It covers data analysis, findings and discussions of the research. It also shows the general information on the respondent firms, business environment and strategic responses.

4.2 Response Rate

Research data was collected from the telecommunication contractors in Nairobi. Out the 39 targeted subjects of study, 32 duly filled and returned their questionnaires. This represented a response rate of 82.1 percent. The response rate has been illustrated in

Table 4.1: Response Rate

Response	**Frequency**	**Percentage**
Responded	32	82
Didn't Respond	7	18
Total	**39**	**100.0**

Source: Primary Data, (2014)

4.3General Information

This section discusses the response given by the survey respondents in section A of the questionnaire. It profiles the respondents in terms of size of the company, years of operation, revenue contribution of telecommunication contracting works and whether they are actively involved in telecommunication contracting in Kenya. With this, the suitability of the selected respondents to investigating the research objectives is assessed.

4.3.1 The Number of Employees in the Organizations

The study sought to establish the number of full time employees that the telecommunication company employed in its business as represented in Table 4.2.

Table 4.2: Number of Employees in the Organizations

Employees	Frequency	Percent
1-199 Employees	11	34%
200-499 Employees	17	53%
500- 799 Employees	4	13%
Total	**32**	**100%**

Source: Primary Data, (2014)

From Table 4.2, it is clear that, 34 percent of the companies had employed between 1-199 employees, 53 percent had 200-499 employees, 13 percent had 500-799 employees while none had employed over 800 employees. This indicates that most of the companies have an employee population of about 200 to 499 people. Table 4.2 summarizes the data on the number of employees in the SMEs studied.

4.3.2 Service Type

In the study, the questionnaire sought to understand whether the respondents who were registered were actually practicing in Kenya. The respondents were asked to state whether they offered services to the telecommunication operators and or equipment vendors in Kenya. From the responses, it was established that 84 percent of the companies offered services to the telecommunication operators and equipment vendors inKenya.16 percent did not offer the services to telecommunication operators and or equipment vendors in Kenya. Figure 4.1 shows the responses received from the respondents.

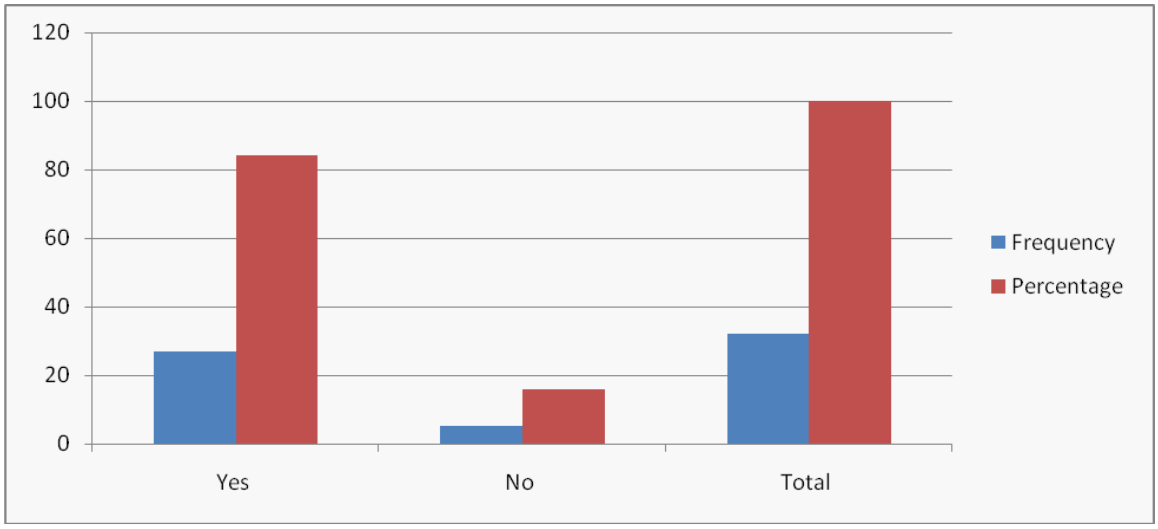

Figure 4.1: Service Provision in Kenya by the Respondents

Source: Primary Data, (2014)

4.3.3 Years of Operation

During the study, the respondents were asked to indicate the number of years that their companies had been operating. The questionnaire tested the years of operation in four categories. They included less than 3 years, 3-6 years, 6-9 years and 9-12 years. In the response, it was found that 12.5 percent of the respondents had been in operation for less than 3 years, 25 percent had been operating between 3-6 years, 50percent had been operating between 6-9 years and 12.5 percent had been operating 9-12 years. Figure 4.2 gives a summary of the findings about the years of operation of the sampled companies.

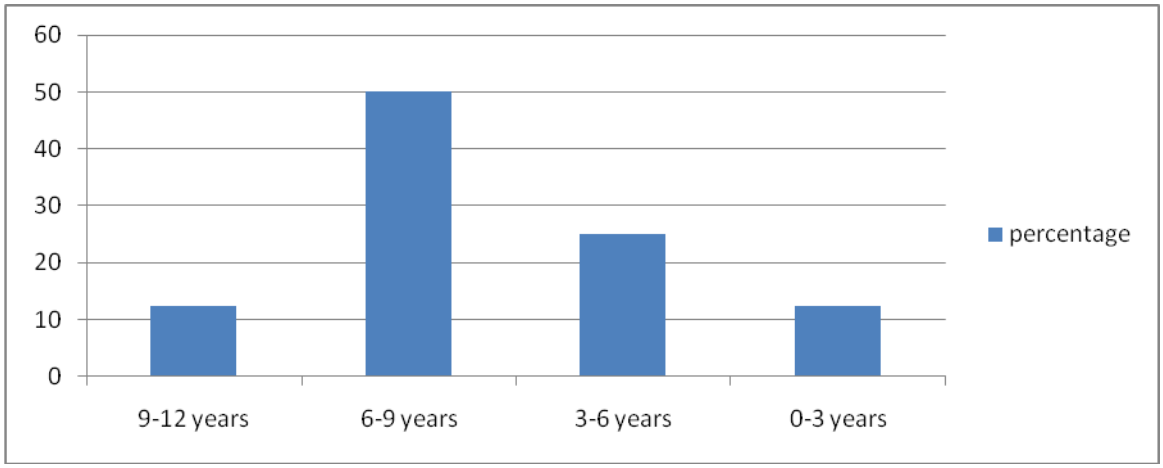

Figure 4.2: Number of Years in Business

Source: Primary Data, (2014)

4.3.4 Percentage Contribution of Telecommunication Contracting Services to Gross Revenue

In the questionnaires, this study sort to know the extent to which telecommunication contracting services contributed to the revenues of the telecommunication contractors. The study subjects were requested to indicate the proportion their company's revenue that was contributed by the contracting services. Four categories were tested in this question. They were requested to select from 0-25 percent, 25-50 percent, 50- 75 percent and 75-100 percent. From the answers, it was ascertained that telecommunication contracting services contributed between 0- 25 percent of companies' gross revenue, for 4 percent of the respondents. 42 percent of the companies stated that telecommunication contracting services contributed to between 25 – 50 percent of their gross revenue. 38 percent indicated that telecommunicating contracting services contributed to between 50 and 75 percent of their gross revenue.

16 percent of the respondents indicated that contracting services contributed to between 75 percent and 100 percent of their gross revenue. Figure 4.3 shows the distribution of the responses from the study subjects.

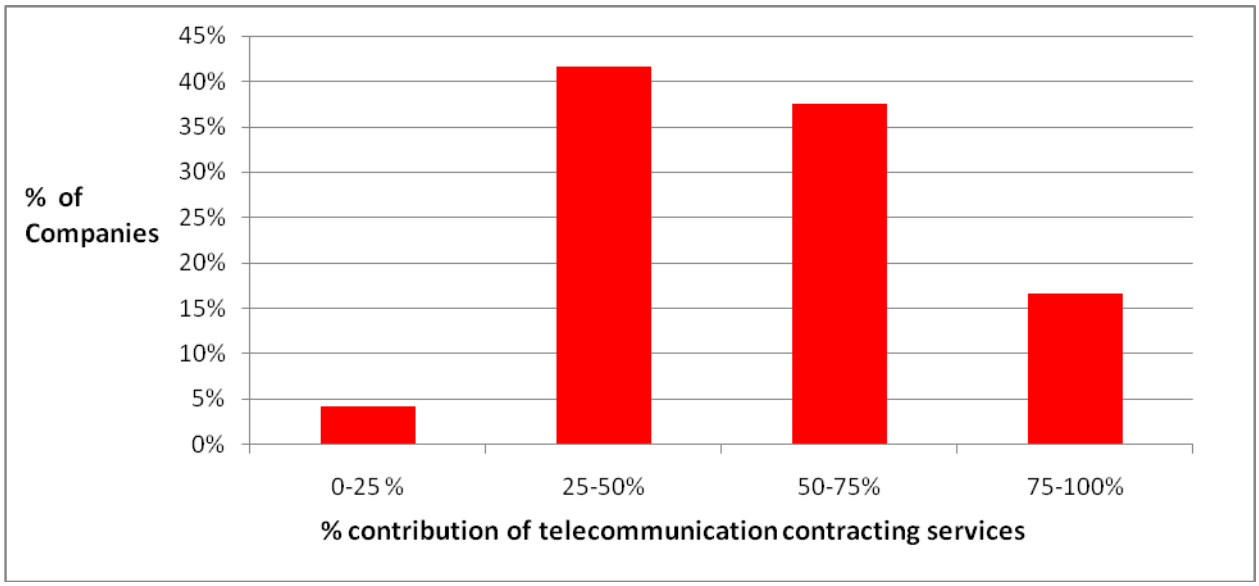

Figure 4.3: Percentage Contribution of Contracting Services to Revenues

Source: Primary Data, (2014)

4.4 Analysis of the Business Environment

This section discusses the business environment as perceived by the respondents. It describes the prevailing type of environment with reference to the changes happening, the rate at which the changes are happening and factors that are driving the changes, as perceived by telecommunication contractors in Kenya.

4.4.1 Investigation of the Volatility of the Business Environment

The study intended to investigate the volatility of the business environment as perceived by the telecommunication contractors. In the study, the respondents were requested to describe the external business environment in Kenya. Five options describing rates of change and its predictability in the business environment were given. The respondents

were allowed to select only one of them. The options included Repetitive Environment, Expanding Environment, Changing Environment, Discontinuous Environment and Surpriseful Environment. The responses were analyzed using percentages and presented. 22percent of the respondents stated that their environment was repetitive. This means that it was easy to predict the future because of the repeat pattern of the variables that define the market. 12 percent were of the opinion that the business operated in an expanding environment. In this response, the respondents were of the view that the business experienced slow incremental changes. 34 percent answered that the business operated in a changing environment. According to these respondents, the business experienced fast incremental changes. 20 percent stated that the business experienced a discontinuous environment. 12 percent of the respondents were of the opinion that the business was experiencing a surprise environment. Table 4.3 and Figure 4.4 show representation of the responses received from the study subjects.

Table 4.3: The Nature of the Business Environment

Nature of Business Environment	**Percent**
Repetitive Environment (Hardly Changes)	22
Expanding Environment (slow incremental changes happening)	12
Changing Environment (fast incremental changes happening)	34
Discontinuous Environment (rapid but predictable changes happening)	20
Surpriseful Environment (unpredictable changes happening fast)	12

Source: Primary Data, 2014

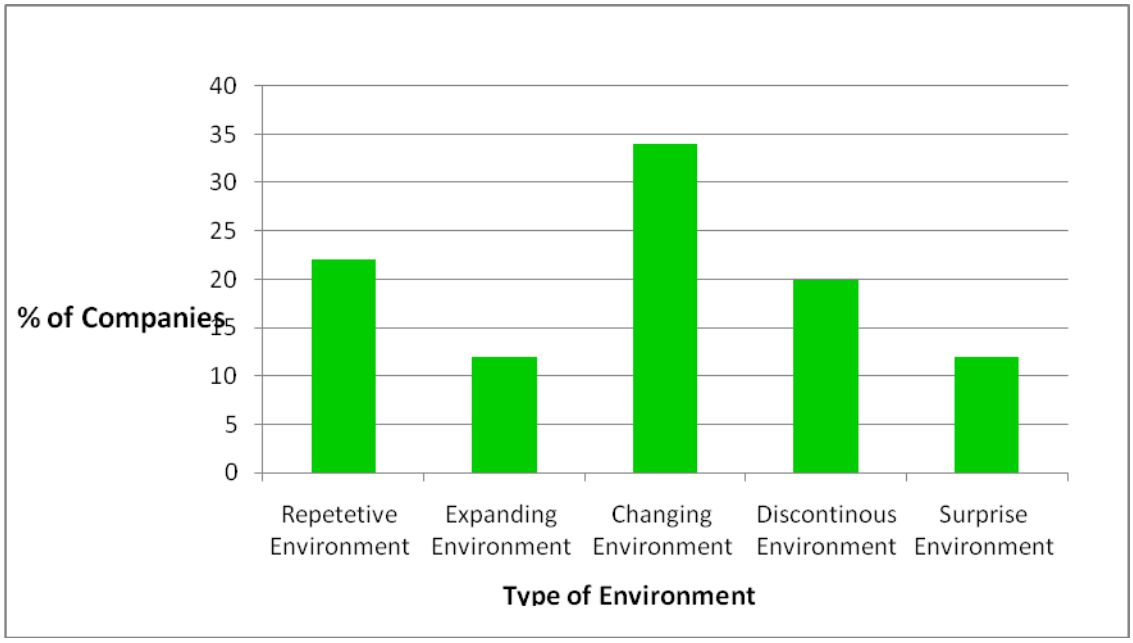

Figure 4.4: The Nature of the Business Environment

Source: Primary Data, (2014)

From Figure 4.4, it can be deduced that most of the contractors were experiencing a business's environment in which the changes were incremental, fast and that could be predicted. A small number of the companies experienced an expanding and a Surpriseful environment.

4.4.2 Factors Contributing to the Changes in Environment

The study sought to investigate the external environment factors that contributed to the changes experienced in the business environment of the telecommunication contractors. They were given a scale of 1 to 5 where, 1 meant that the factor was less contributing while 5 meant the factor was the most contributing. Five factors were investigated. They included Political-Legal Factors, Technological Factors, Socio-Cultural Factors, Competition in Industry and Physical Environment factors. The responses were coded. A score of 5 was allocated 100 percent, 4 was allocated 80 percent, 3 was allocated 60

percent, 2 was awarded 40 percent and 1 was given 20 percent. The responses from all the companies were added and an average computed. The political-Legal factors contributed to 22 percent of the changes experienced in the business. Technological factors contributed to 28 percent of the changes that were experienced by the contractors in the telecommunication sector. 7 percent of the changes were caused by the socio-cultural factors. The competition in the industry caused 34percent of the changes while 9 percent were caused by the physical environment factors. From these results, it is clear that technology and competition cause most of the changes that the businesses experience in the industry. Any response to the changes would thus closely examine the technological factors and the competition within the industry. Table 4.4 shows the computed averages for the responses that were collected from the respondents.

Table 4.4: The Factors that Contribute to Changes in the Industry

Factors	**Percent Contribution to Changes**
Political-Legal Factors	22
Technological Factors	28
Socio-Cultural Factors	7
Competition in Industry	34
Physical Environment factors	9

Source: Primary Data, (2014)

The data collected was further presented in a graphical format in figure 4.5 to demonstrate the distribution of views in describing the business environment.

4.4.3 Examples of the key Factors that contributed to the Changes in Environment

The respondents were requested to give examples of the factors that affected their companies in the previous three years. In the responses, most of the factors touched on the technological, competition and political-legal angles. Rapid changes in the technology were cited as some of the issues that affected the performance of the companies. Some companies quoted the introduction of the fiber optic and the 4G technologies as some of the issues that affected their performances. Other companies cited the government decisions on levies and other regulations as some of the issues that affected their organizations. The issue of competition was also mentioned in the answers. Some respondents stated that the decisions made by their competition caused changes in the business environment. Table 4.5 gives some of the responses that were recorded in the questionnaire.

Table 4.5: Examples of Changes introduced by the Factors

Technological Factors	**Competition**
Introduction of the 4 G technology	Changes in pricing models of competitors
Introduction of the Fiber Optical Network	Introduction of new products in the market
Introduction of 3G technology	Mergers and acquisitions

Source: Primary Data, 2014

The predictability of the changes induced by the factors was also tested. The respondents were asked to state whether the changes were predictable or not. They were asked to state yes or no. According to the data collected, 53 percent of the respondents agreed that the predictability of the changes induced by the factors were high. 47 percent observed that it was not possible to predict the changes that were introduced by the factors. This indicates

that there is still some probability that changes cannot be predicted easily. Figure 4.5 gives an overview of the response that was received from the subjects of the study.

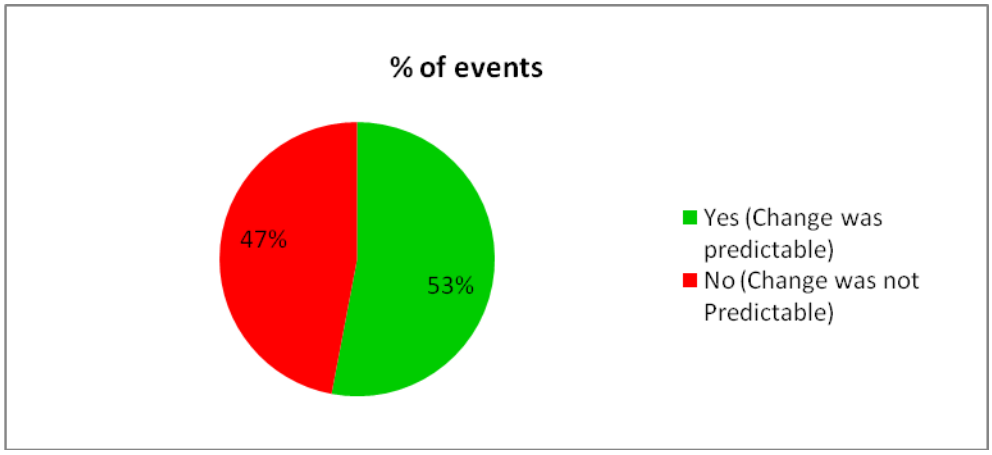

Figure 4.5: The Predictability of the Changes caused by the different factors
Source: Primary Data, 2014

For the same examples of environmental changes cited by each respondent, they were asked to describe the rates at which the changes happened. The rate of change was described as either high or low. From the studies, 45 percent of the respondents stated

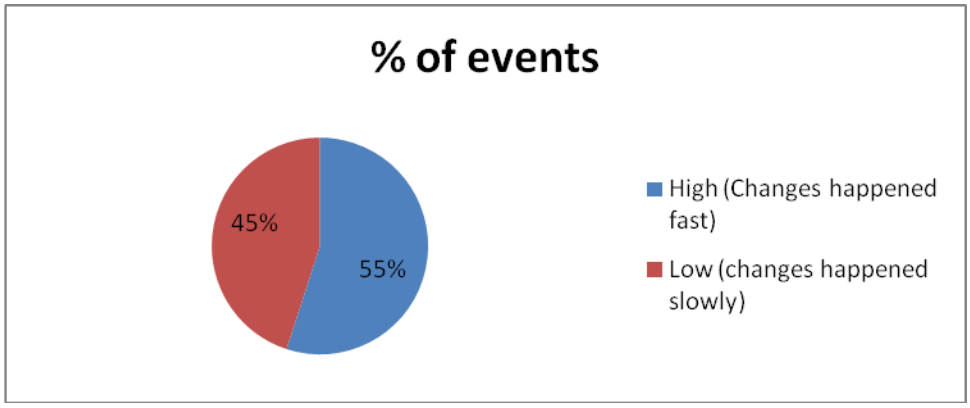

Figure 4.6: The Rate of Changes caused by the different factors
Source: Primary Data, (2014)

4.5 Strategic Responses

This section discusses the strategic responses adopted by the telecommunications contractors to the environmental changes discussed in the previous section. It also discusses the respondents' preparedness and agility to respond to the changes, as well as their strategic planning practices.

4.5.1 Organization's Response to Changes

In the study, the study subjects were asked to discuss some of the responses that their organizations adopted in order to deal with the changes in the environment. Different respondents gave different answers. The researcher noted some of the salient responses and reported them in a prose form as results. These responses were adopted according to the nature of the changes that were experienced by the organizations. In the analysis, most of the respondents were quite clear on the strategic responses taken to deal with the changes brought about by the technological and the political factors.

Some of the respondents stated that their organizations have strong research teams whose work is to analyze the technological trend and then come up with solutions. For instance, with the introduction of new technology, most respondents said that their organizations have funds meant for researching into the new changes introduced in the market. They also train the staff to deal with the new changes brought into the telecommunication contracting sector. This response conforms to the dynamic capability concept in which quick organizational learning and development of key strategic assets is advised as one on the dynamic capabilities to be developed by an organization in order to meet new challenges.

In some of the responses, it was ascertained that the organizations leverage on their existing technologies to exploit the changes introduced by new technologies. Training of staff was cited as one of the responses that the companies adopt. Once the staff has been trained, it helps with offering support services to the new technologies introduced in the market. It was also ascertained that some organizations enter into partnerships with other companies in order to deal with the changes introduced by new technologies. In some instances, the new technologies could be expensive to adopt. As a result, the organizations form partnerships with companies that can afford the technologies. The contracting companies can benefit from the infrastructure of the new technology while the partnering company can benefit from the already established market. Here, they survive by leveraging on the synergies between the two companies. Most of the respondents cited this as one of the strategy that they adopt.

Outsourcing was also mentioned as one of the methods used by the organizations to come up with strategic responses to the changes experienced during technological shifts in the market. Some of the companies stated that they outsource some of their services from other players whenever new technologies are introduced into the market. They outsource to companies that have adopted the new technology to offer them the services. This strategy may work well because it saves the companies the capital costs. These actions by the organization are also seen as part of the reconfiguration of internal and external assets to enable the organizations to cope with the change in external environment.

As well, the respondents were asked to state examples of how they responded to the changes brought about by the politico legal factors. Different respondents gave different responses to the question. Some of the respondents stated that they always consider the various impacts that government legislations may have on their businesses. For instance, the licensing regulations by the Communication Authority of Kenya were cited. Companies engage their legal experts to advise them about the importance of certain provisions of the regulatory bodies. Some companies stated that they always comply with the laws whenever new legislations come into effect.

Most of the companies studied stated that they have compliance strategies that they use to deal with the changes introduced due to the politico legal factors. One such strategy mentioned by one respondent was the use negotiation with the government whenever the legislations have been put into place. Some of the organizations rely on education and training in order to deal with the changes in introduced due to the political legal changes. Some stated that they use educational programs and materials to their employees. It is important that employees know about their rights and responsibilities and how to exercise them.

Other organizations stated that they adopt self-regulation to ensure that they respond properly to changes introduced due to politico legal changes in the telecommunication industry. Some said they have a commitment to work cooperatively with other industry players to ensure that they have regulations that help them comply easily whenever the government comes up with new rules and procedures. Some of the organizations stated that they attend compliance programs in order to ensure that they are in tandem with the

changes that are introduced by the politico legal factors. If businesses contravene some of the changes provided for in the legislations, they may face civil actions. This may ruin their businesses. Competition by other organizations also causes change in to the telecommunication contractors' environment. In the study, the researcher sought to understand the response strategies to some of the changes that are experienced due to the changes caused by the competition of fellow players in the industry.

Demand projections are some of the strategies used by the companies. In some of the responses, some of the studied subjects stated that they come up with projections on sales and make proper arrangements in order to deal with issues of price competition from the other players in the field. The formation of mergers and acquisitions are other strategies that some companies use in order to deal with the changes brought about by the competitors in the market. In the study, some of the companies stated they always enter into mergers and acquisitions in order to improve their competitive powers in the market. Here, the organizations use their numbers in order to improve their performance in the market. Some of the respondents did cite formation of strategic alliances with some of the leading manufactures to provide services to the end customer. Through these alliances, they are able to offer better product support to the customers hence making them the preferred supplier in the industry.

Customer focus was another strategic response cited by some of the respondents as a way to respond to competition in the industry. These particular respondents said that they constantly engaged their customers in order to understand their specific needs and address them.

This is encouraged in a changing environment as it facilitates collection of feedback that can be integrated into the company's systems and used to develop competitive edge. Other strategic responses to market competition as per the feedback from some respondents included prices reduction in order to be a preferred contractor. Outsourcing of non-core functions was reported by some respondents. This was done to reduce production cost and selling price. Some respondents adopted diversification strategies, by introducing new services response to diminishing returns due to competition in the industry.

4.5.2 The Rate of Response to Changes

The study sought to further understand the timelines with which the subjects implemented their strategic responses to the changes experienced in the market. The respondents were given a scale of 1 to 5 to rate the extent to which their companies implemented their responses in time. Scale 5 meant that the company implemented the response in time while scale 1 meant the response was very late. The scales were rated for the purposes of analysis. Scale 5 was given 100 percent, scale 4 was given 80 percent, scale 3 was awarded 60 percent, and scale 2 was given 40 percent while scale 1 was given 20 percent. The results of the answers were analyzed and recorded. Table 4.6 and Figure 4.8 illustrate the results that were obtained from the study. 40 percent of the respondents reported that their companies had 100 percent response rate. 30 percent of the subjects studied indicated that they had a response rate of 80 percent. 5 percent indicated that their companies only had a response rate of 60 percent. 10 percent reported a response rate of 40 percent while15 percent reported a response of 20 percent.

Table 4.6: Rate of Response to changes

percent Of companies	Rate of response
40	100
30	80
5	60
10	40
15	20

Source: Primary Data, (2014)

The data was presented in a histogram where the different levels of response speed and corresponding percentage of companies in that scale were plotted side by side on the x-axis, whereas the weighted value of the response speed and percentage of companies' values were represented on the y-axis.

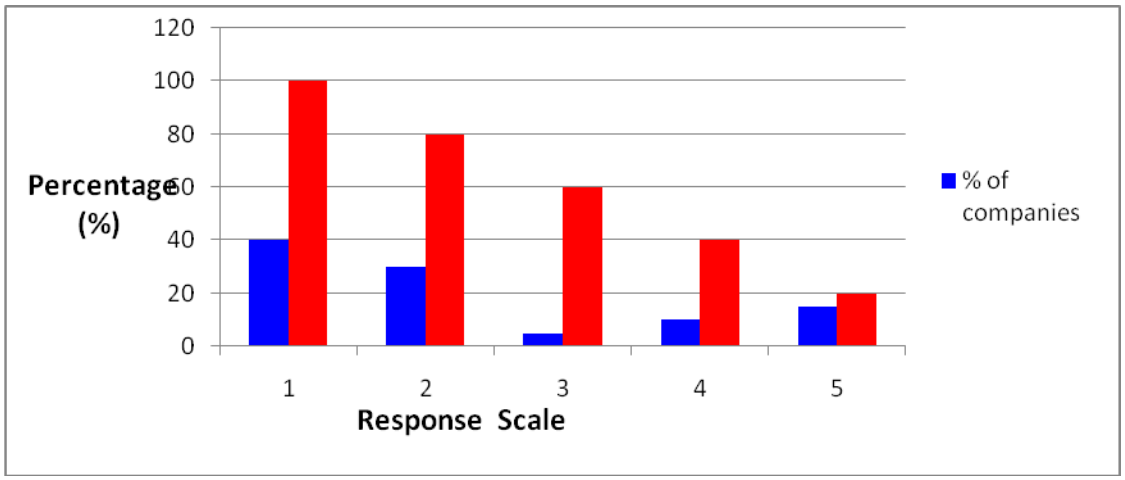

Figure 4.7: Timeliness to implement Strategic Response to changes

Source: Primary Data, (2014)

From Figure 4.8, it is understood that most of the telecommunication contractors responded promptly to the changes in the environment. This is essential for the survival of the businesses. This indicates that the telecommunication market is very sensitive to changes in the market and the players always have to be alert to avoid having problems

with the change in the business environment. Companies that respond slowly to the changes in the market may have problems with coping. This may result in the closing of the shop. Businesses may also be indicated for not conforming to the changes brought about by the politico legal factors.

4.5.3 Agility to Respond to Changes

The study intended to understand the flexibility of the companies when it comes to responding to the changes in the business environment. They were given a scale of 1 to 5 to rate the extent to which their companies had been flexible in dealing with the changes. Scale 5 meant that the company had a very agile response system while scale 1 meant the response system was not very agile. These scales were rated in percentage terms. Scale 5 was given 100 percent, scale 4 was given 80 percent, scale 3 was awarded 60 percent, and scale 2 was given 40 percent while scale 1 was given 20 percent.

The results of the answers were analyzed and recorded. The data was presented in a histogram where the different levels of agility and corresponding percentage of companies in that scale were plotted side by side on the x-axis, whereas the weighted value of the agility levels and percentage of companies' values was represented on the y-axis. Table 4.7 and Figure 4.9 illustrate the results that were obtained from the study. 39 percent of the respondents reported that their companies had 100 percent agility. 31 percent of the subjects that responded indicated that they had a response agility level of 80 percent. 5 percent indicated that their companies only had an agility response rate of 60 percent. 15 percent reported an agile response rate of 40 percent while 10percent reported a response of 20 percent.

Table 4.7: Agility of the Response to changes

Percent Response from companies	Agility (percent)
39	100
31	80
5	60
15	40
10	20

Source: Primary Data, (2014)

From the Figure 4.9 below, it is clear that most of the respondents stated that they had very agile systems that responded well to the changes in the environment. This indicates that most of the telecommunication contractors have flexible internal capabilities that can be quickly reconfigured in order to respond to environmental changes.

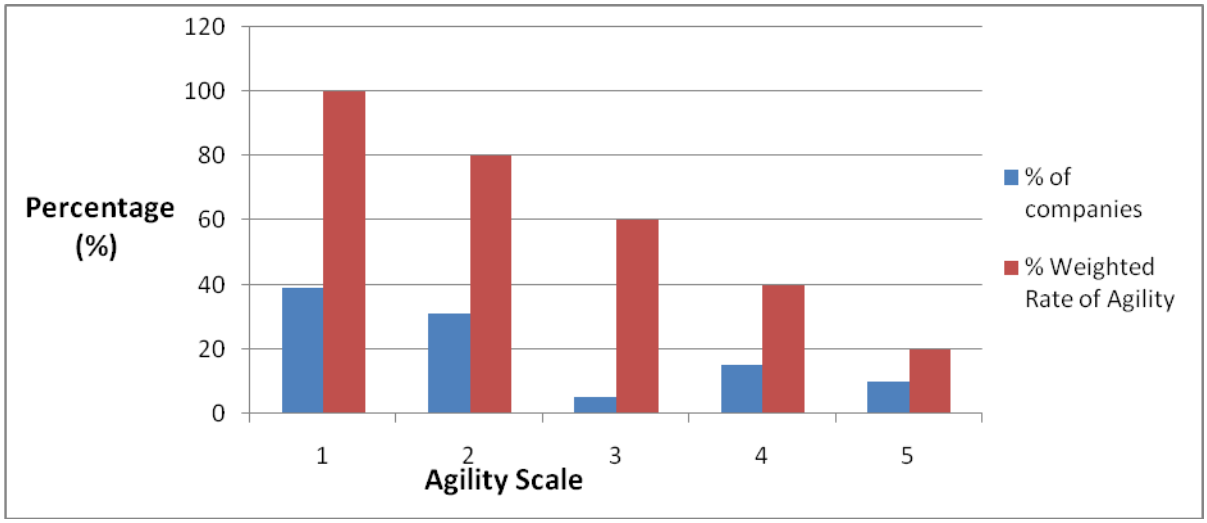

Figure 4.8: Response Agility

Source: Primary Data, (2014)

4.5.4The Frequency of Conducting Strategic Planning Activities

The studies intended to understand the frequent of conducting the strategic planning activities. The respondents were asked to respond to a table that had three variables. The variables of environmental sensing, opportunity seizing and capability transformation were tested against frequencies. The frequency was rated in terms of monthly, quarterly,

annually and hardly done options. The results of the responses were computed and presented for analysis. In the environmental sensing variable, 8 percent of the respondents agreed that their companies carried out planning monthly. 32 percent indicated that their organizations carried out the sensing in a quarterly session. 43 percent reported that their organization carried out the sensing once in a year. 17 percent averred that the sensing is hardly done. Table 4.8 shows the response from the respondents.

Table 4.8: The Frequency of Conducting Environmental Sensing Strategic Activities

Frequency	percent
Monthly	8
Quarterly	32
Annually	43
Hardly Done	17

Source: Primary Data, (2014)

In the opportunity seizing test, 11 percent of the respondents stated that their companies carried out opportunity seizing strategic planning monthly. 23 percent indicated that their organizations carried out the opportunity seizing strategic planning in a quarterly session. 51 percent reported that their organization carried out the planning once in a year. Table 4.9 presents the response from the respondents.

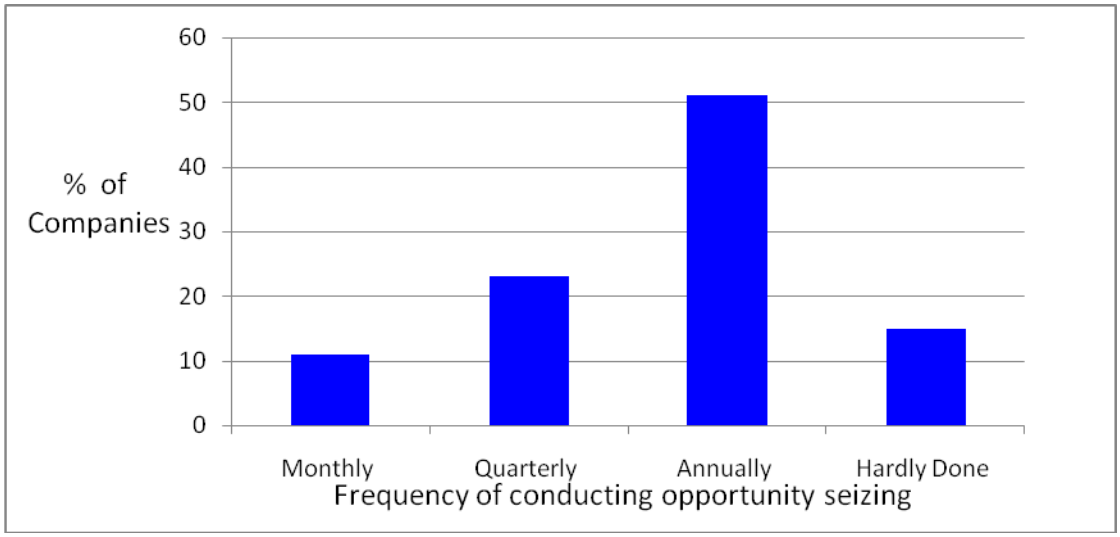

Figure 4.9: The Frequency of Opportunity Seizing Strategic Planning

Source: Primary Data, (2014)

The study also tested the frequency of capability transformation carried out by the telecommunication contractors. In the analysis, 17 percent of the respondents stated that their companies carried out strategic planning monthly in order to come up with capability transformation. 15 percent indicated that their organizations carried out the strategic planning activities regarding capability transformation in a quarterly session. From the responses, it was reported that 47 percent of the organizations held the planning once in a year. 21 percent confided that the planning is hardly done. Table 4.9 presents the response from the respondents.

Table 4.9: The Frequency of Capability Transformation Strategic Planning

Frequency	percent
Monthly	17
Quarterly	15
Annually	47
Hardly Done	21

Source: Primary Data, (2014)

4.6 Data Analysis

The data collected was also analyzed on SPSS application in order to establish the relationships between the different variables in the study. The analysis sort to determine the correlation between the external environment turbulence, factors driving change in environment and the strategic responses adopted by the contractors. Findings were as discussed below.

4.6.1 Correlation Analysis

The study sought to establish the relationship between the external environmental turbulence and strategic response with regard to environment sensing, opportunity seizing and capability transformation. Pearson Correlation analysis was used to achieve this end at 95 percent confidence level ($\alpha = 0.05$).

Table 4.10 below shows that significant correlation coefficients were established between external environmental turbulence and: environment sensing ($R = .531$, $p = .008$), opportunity seizing ($R = .701$, $p < .001$) and capability transformation ($R = .793$, $p < .001$).

Table 4.10: Correlation Matrix

		Environment Turbulence	**Environment Sensing**	**Opportunity Seizing**	**Capability Transformation**
External Business Environment Turbulence	Pearson Correlation	1			
	Sig. (2-tailed)				
Environment Sensing	Pearson Correlation	.531**	1		
	Sig. (2-tailed)	.008			
Opportunity Seizing	Pearson Correlation	.701**	-.280	1	
	Sig. (2-tailed)	.000	.196		
Capability Transformation	Pearson Correlation	.793**	-.297	-.330	1
	Sig. (2-tailed)	.000	.168	.124	

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Primary Data, (2014)

4.6.2 Regression Analysis

Multiple regression analysis was used to measure factors contributing to external environmental turbulence. The regression model's goodness of fit was determined using overall correlation and the coefficient of determination between the independent variables; that is, the strength of the relationship.

The Table 4.10 above presents a correlation coefficient of 0.947 and determination coefficients of 0.896. This depicts a strong relationship between external environmental turbulence, and physical environment, competition in industry, socio-cultural factors, technological factors and political-legal factors.

Table 4.11: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.947[a]	.120	-.138	1.15790

a. Predictors: (Constant), Physical Environment factors, Competition in Industry, Socio-Cultural Factors, Technological Factors, Political-Legal Factors
b. Dependent Variable: External Environment Turbulence

Source: Primary Data, (2014)

Table 4.12 shows that the regression coefficients of independent variables. The following regression model was established:

Environmental Turbulence = 2.50- 0.249*Political-Legal Factors+ 0.594*Technological Factors + 0.075*Socio-Cultural Factors + 0.502*Competition in Industry+ 0.291*Physical Environment Factors

From the equation, the study found that holding physical environment factors, competition in industry, socio-cultural factors, technological factors, political-legal factors at zero environmental turbulence becomes 2.50. Additionally, physical environment factors, competition in industry, socio-cultural factors, and technological factors contributes positively to environmental turbulence while political-legal factors have a negative joint effect.

Table 4.12: Regression Coefficient

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.500	1.972		1.307	.209
Political-Legal Factors	-.249	.363	-.256	3.687	.012
Technological Factors	.594	.709	.601	3.273	.017
Socio-Cultural Factors	.075	.297	.081	3.252	.018
Competition in Industry	.502	.575	.207	3.872	.007
Physical Environment Factors	.291	.924	.150	3.315	.015

a. Dependent Variable: External Environment Turbulence
Source: Primary Data, (2014)

Good linear and positive linear relationship was established between various components of external environment turbulence and strategic responses as indicated by timeliness, flexibility, environment sensing, opportunity seizing and capability transformation. However, political-legal environment did not have much turbulence and therefore was not significantly correlated with flexibility and timeliness of strategic response.

Table 4.13: Correlation between Environmental Factors and Strategic Response

Environmental Factors	Test	Timeliness	Flexibility	Environment Sensing	Opportunity Seizing	Capability Transformation
Political-Legal Factors	Pearson Correlation	.187	-.164	.701**	.550**	.501*
	Sig. (2-tailed)	.093	.466	.000	.005	.013
Technological Factors	Pearson Correlation	.531**	.639**	.558	-.339	-.162
	Sig. (2-tailed)	.008	.001	.047	.075	.045
Socio-Cultural Factors	Pearson Correlation	.093	.566**	.309	.464*	.315
	Sig. (2-tailed)	.665	.004	.042	.022	.013
Competition in Industry	Pearson Correlation	.550**	.566**	.846	.738	.276
	Sig. (2-tailed)	.005	.004	.014	.042	.099
Physical Environment Factors	Pearson Correlation	.464*	.175	.360	.305	.239
	Sig. (2-tailed)	.022	.435	.019	.015	.026

**. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed).

Source: Primary Data, (2014)

4.7 Discussion

The study sought to investigate the turbulence in the business environment as perceived by the telecommunication contractors. Turbulence is a combined measure of changeability and predictability of firm's environment (Awino, 2011). 22 percent of the respondents stated that their environment was repetitive. This means that it was easy to predict the future because of the repeat pattern of the variables that define the market. 12

percent were of the opinion that the business operated in an expanding environment. In this response, the respondents were of the view that the business experienced slow incremental changes. 34 percent answered that the business operated in a changing environment. 20 percent stated that the business experienced a discontinuous environment.

The study deduced that most of the contractors were experiencing a business's environment in which the changes were incremental, fast and that could be predicted. This is in tandem with Ansoff's argument that the key challenge for managers in the 90's has been how to assure competitiveness and profitability for their companies in turbulent environment, (Ansoff, 1998). Also Wheelan and Hunger (2012) says that in turbulent environments, firms are confronted by frequent shifts in strategic success factors caused by changes in their environment. The challenge for managers in such environments is to be on the lookout for such shifts and adapt to such shifts. In such environments, the output of strategic planning is direction rather than a roadmap as a roadmap with detailed instructions is of little use when topology is unknown and rapidly changing.

The study also sought to investigate the external environment factors that contributed to the changes experienced in the business environment of the telecommunication contractors. Five factors were investigated which included Political-Legal Factors, Technological Factors, Socio-Cultural Factors, Competition in Industry and Physical Environment factors. From the findings, the study deduced that competition in the industry was the main factor contributing to changes followed by technological changes. This finding conforms to Porter (1995) five forces model in which competition in the

industry is described as one of the key external environment factors that determine the business performance in the industry. Notably, most of the respondents alluded to stiff completion reducing the attractiveness of the industry. Some were prompted to diversify to other industries.

Beside the above, the study also sought to establish strategic responses adopted by the telecommunications contractors to the environmental changes. It also interrogated the respondents' preparedness and agility to respond to the changes, as well as their strategic planning practices. In the study, the study subjects described the responses that their organizations adopted in order to deal with the changes in the environment. Some of the respondents stated that their organizations have strong research teams whose work is to analyze the technological trend and then come up with solutions. For instance, with the introduction of new technology, most respondents said that their organizations have funds meant for researching into the new changes introduced in the market. They also trained the staff to deal with the new changes brought into the telecommunication contracting sector.

According to Teece et al., (1997), dynamic capabilities of a firm refer to its ability to reconfigure external and internal competences so as to address the rapidly changing environment. This includes capacity within the organization that will enable it to purposefully create, extend or modify its resource base. Training, research and development are some of the internal reconfigurable capabilities of an organization. These responses by the contractors therefore do conform to the theory of dynamic capabilities.

Most of the companies studied stated that they have compliance strategies that they use to deal with the changes introduced due to the politico legal factors. One such strategy mentioned by one respondent was the use negotiation with the government whenever the legislations have been put into place. Customer focus was another strategic response cited by some of the respondents as a way to respond to competition in the industry. This is encouraged in a changing environment as it facilitates collection of feedback that can be integrated into the company's systems and used to develop competitive edge. Other strategic responses to market competition as per the feedback from some respondents included prices reduction in order to be a preferred contractor.

Above findings conform to the study by Kerubo (2007), on strategic responses of large manufacturing firms within east Africa to opportunities and challenges of regional integration, in which it was found that majority of firms responded by increasing marketing aggression to take advantage of the expanded markets. Her findings were similar to the findings of this study, and thus it was deduced that the theories of strategy apply in all organizations irrespective of the industry. As such, strategic responses can be guided by these theories.

The study sought to further understand the timelines with which the subjects implemented their strategic responses to the changes experienced in the market. From the findings, most of the telecommunication contractors responded promptly to the changes in the environment. This is essential for the survival of the businesses. This indicates that the telecommunication market is very sensitive to changes in the market and the players always have to be alert to avoid having problems with the change in the business

environment. These findings conform to the definition of strategy: the commercial logic of a business that defines how a firm can have a competitive advantage (Koch, 2000). This requires that the company's commercial logic aligns to their environment. Companies that respond slowly to the changes in the market may have problems with coping. This may result in the closing of the shop. Businesses may also be indicated for not conforming to the changes brought about by the politico legal factors. Findings of this study did conform to this definition.

The study also intended to understand the flexibility of the companies when it comes to responding to the changes in the business environment. The strategic success criteria (Ansoff, 1998), requires that for optimum return on investment, both the aggressiveness of a firm's strategy and its capabilities must match the turbulence of their environment. In the study, it was found that most of the respondents were agile and responded in time to the changes in the environment. This was expected of them as predicted in the strategic success criteria in a fast changing environment. The agility of an organization is very essential. It enhances the ability of an organization to respond to complex and unpredictable business changes. Business success depends on the agile development and the ability of the business to be future oriented, seize external opportunities and bounce back from unforeseen changes. This is particularly with market uncertainty that may come at record-breaking levels. Organizations should be able to have strategic plans to capitalize on the changing trends in the market.

Lastly, the study intended to understand the frequency of conducting the strategic planning activities. The variables of environmental sensing, opportunity seizing and

capability transformation were tested against frequencies from which it was established that most organizations only conducted strategic planning activities only once in a year. This means that the organizations only come up with the planning activities during their planning for the fiscal year meetings. This approach is not advisable in the prevailing environments characterized by continuous change. The contractors risk losing out on opportunities due to the low frequency of strategic planning. As well they may loose on timely response to threats. This also deviated from the predictions of the concepts of strategy. As such, there is need to educate the contractors the importance of increasing the frequency of their strategic planning activities in fast changing environment.

The study also sought to establish the relationship between the external environmental turbulence and strategic response with regard to environment sensing, opportunity seizing and capability transformation. The analysis noted that a significant correlation coefficients were established between external environmental turbulence and: environment sensing ($R = .531$, $p = .008$), opportunity seizing ($R = .701$, $p < .001$) and capability transformation ($R = .793$, $p < .001$).

Multiple regression analysis was used to measure factors contributing to external environmental turbulence. The study noted a correlation coefficient of 0.947 and determination coefficients of 0.896. This depicts a strong relationship between external environmental turbulence, and physical environment, competition in industry, socio-cultural factors, technological factors and political-legal factors. Thus, these factors account for 89.6 percent of the variations in external environmental turbulence. The study found that holding physical environment factors, competition in industry, socio-cultural

factors, technological factors, political-legal factors at zero environmental turbulence becomes 2.50. Additionally, physical environment factors, competition in industry, socio-cultural factors, and technological factors contributes positively to environmental turbulence while political-legal factors have a negative joint effect.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, the conclusion and the recommendations for further studies. The summary gives an overview of the entire work. It summarizes the results and the inferences. The conclusion section attempts to answer the question that prompted the study. The recommendation points out some of the weak points that might have been in the study and suggests areas that should be considered for further studies.

5.2 Summary

The study found out that the company did not respond to all the changes in the environmental conditions but to those changes which were deemed to impact on the firms' activities to a large extent. The study identified the following factors to have elicited responses from the companies. Political-legal environment did not cause so much turbulence owing to relative stability, though changes in regulation were found to have elicited significant responses. In the technological environment the rates of obsolescence and new technological developments had played a major role in changing the external environment of telecommunication contractors in Kenya and elicited strategic responses.

The socio-cultural factors were one of the lowest contributors to environmental changes and strategic responses. In particular, influx of foreigners from Asia into the sector was cited as a major factor. The physical environment did not contribute much to the environmental changes.

5.3 Conclusion

This study sought to understand the strategic responses that the telecommunication contractors companies in Kenya adopted in response to the changes in the business environment. The dominant view of the respondents was that the environment was changing rapidly though the changes were predictable. The changes in the business environment were found to be mostly driven by political-legal factors, technological changes and the competition in the market. The changes in technology and competition in the industry were found to be the most dominant. These findings suggested that the sector's environment had high level of turbulence.

The methods used by the businesses to respond to the changes were also evaluated. Most of the responses centered on the efforts by the organizations to conform to the changes in a positive way. The organizations use training and education to deal with the changes brought in by the political legal factors. Early compliance has also been noted as one of the strategic methods used by the organizations to deal with the changes brought by the politico legal factors. The changes brought about by the technology are responded to using different methods. Some of the studied organizations outsource some of the services in order to avoid the capital costs that may come with the purchase of the new technology. Others use the existing technology to seamlessly play a role in the new technology. Mergers and acquisitions are also used by the organizations in order to deal with competition in the market. This helps the organizations to synergistically deal with the changes in the market.

The study found out that most of the organizations were agile when it came to dealing with the changes in market. As well, they were able to respond to the changes with promptness when they occurred in the market. This indicates that the companies are prepared to deal with the market uncertainties. The strategic planning was also tested in this study. It was found out that most of the organizations only carried out strategic planning once in a year.

5.4 Recommendations

The study recommends that in as much as the contractors engage in strategic responses, they should also engage in strategic planning activities, more often than they currently do. Respondents indicated that they mostly conduct strategic management activities annually whereas they were operating in an environment of high turbulence. This was found to be in conflict with the concept of Dynamic Capabilities, and as such there is need for the contractors to change their ways of working.

Therefore, the study recommends that strategic planning activities of environment sensing, opportunity seizing and capability transformation among telecommunication contractors in Kenya be conducted in monthly and quarterly cycles at most. This is only to be changed when the level of turbulence reduces.

5.4.1 Implication of the study on policy making

From the study, the environment in which telecommunications contractors in Kenya operate in was determined to be a changing environment characterized by fast and predictable changes. The strategic responses and practices adopted by the contractors were also determined.

Subsequently, the findings of this study will be beneficial to the policy makers and regulator of the industry, namely the CAK, the Kenya Revenue Authority (KRA), and Engineers Registration Boards (ERB) among others. As per the study, taxation was found to be one factor that could be stifling the growth of the subsector. This information can guide KRA in developing taxation policies that can promote the growth of the sub sector. As well tax clinics and tax education campaigns can be arranged to help them adopt efficient taxation measures. Findings on training requirements whenever new technologies are introduced in the industry can also guide the ERB to develop programs that would promote in country skill developments for new technologies, before they reach the country. This may include educative forums and seminars.

5.4.2 Implication of the study on theories of strategy

The findings of this study are also beneficial to the theory of strategic management. This study tested the application of theory of strategy in the context of dynamic capabilities. As predicted by the theory, organizations best strategic approach to changing environment would be to leverage on its internal capabilities and reconfigure both internal and external assets to match and fit positively into the change.

This was observed among the respondents. Notably, most of the respondents trained their resources to bridge resource gaps. As a result, this study contributes to the existing body of knowledge by confirming that indeed the dynamic capability theory of strategy applies to telecommunication contracting sub sector in Kenya.

5.4.3 Implication of the study on practices in telecommunication industry

The findings of this study are also beneficial to the current entrepreneurs in the telecommunication industry. The study has provided insight to the prevailing business environment in which they operate. The study has also shown that there is a gap between the strategic planning activities of the contractors in the industry relative to the prevailing business environment. In this regard, the frequency of strategic planning activities as practiced by the contractors is low compared to the fast changing environment described by the contractors. As such, this study will guide the practitioners in implementing strategic planning practices that will match the pace of environment changes. The study has also recommended some effective strategies which will benefit the people practicing in the sub sector.

5.5 Limitations of the Study

The study was only conducted on telecommunication contractors and since different companies have different characteristics, strategic responses to external environment turbulence by firms in other sectors may differ hence this study may not present exhaustively the strategic responses to such turbulences.

Being that some information was proprietary and confidential the respondents took discretion in disclosing some internal factors on strategic responses despite being assured of proprietary measures that the information was to be accorded. Due to this, the information provided by respondents may not an accurate representation of their practices.

The study further faced time and financial constraint owing to the limited time and budgetary outlay that the research was accorded. The study however conducted research on a limited number of respondents per firm and few contractors so as to mitigate against monetary and time constraints.

5.6 Suggestions for Further Studies

This study has been successful in bringing out the changes and the responses found in the telecommunication sector. The studied variables can be used to understand the way with which the businesses can be improved. However, further studies need to be carried out. In order to come up with successful studies, more tools should be used. Researchers should use financial analysis of the companies to understand how successful they have been in dealing with the changes in the environment and to correlate strategic choices and their corresponding effectiveness to dealing with certain types of environment.

Studies should also be conducted to understand the relationship between the size of the firms and their responses to changes in the market. Considering the proposition of dynamic capabilities theory, the agility of companies in response to changes are expected to vary across organizations of different sizes. Such a study would be useful in identifying the optimal way of improving response agility.

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APPENDICES

Appendix I: Introduction Letter

The Respondent

Nairobi

Ref: Survey on Strategic Responses by Telecommunication Contractors

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My name is Zedekiah Otieno, currently undertaking a post graduate course in Master of Business Administration (MBA), specializing in Strategic Management, at the University of Nairobi. The course requires me to undertake a research project on relevant topic to my specialization.

I am currently undertaking the above titled research among Telecommunication Contractors in Kenya. The information you provide will be treated in confidence and is purely for academic purposes. A copy of the final paper will be submitted to your company for acknowledgement and future reference.

Thank you in advance for the cooperation.

Sincerely,

Zedekiah Otieno

Researcher

Cc: Dr. Zack B. Awino

Supervisor

Appendix II: Questionnaire

To be completed a by Managing Director or Chief Executive Officer

Please answer all questions in sections A, B and C.

Name of the Company……...

SECTION A: General Information

1. How Many Employees do you have in your company?

1-199	[ ]	200-499	[ ]
500- 799	[ ]	800 and above	[ ]

2. As a registered Telecommunication contractor (CAK 2012 registry), does your company offer services to Telecommunication Operators and /or Equipment Vendors in Kenya?

Yes	[ ]	No	[ ]

3. For how long has your company been involved in offering services to telecommunication operators and /or equipment vendors in Kenya?

9-12 years	[ ]	6-9 years	[ ]
3-6 years	[ ]	0-3 years	[ ]

4. What proportion of your company's gross revenue do telecommunication contracting services contribute?

0-25percent	[ ]	25percent-50percent	[ ]
50percent-75percent	[ ]	75percent-100percent	[ ]

SECTION B: Business Environment

5. As a telecommunication contractor, how would you describe the external business environment in Kenya? (select one only)

    a. Repetitive Environment (hardly changes) [ ]

    b. Expanding Environment (slow incremental changes happening) [ ]

    c. Changing Environment (Fast incremental changes happening) [ ]

    d. Discontinuous Environment (rapid but predictable changes happening)[ ]

    e. Surpriseful Environment (unpredictable changes happening fast) [ ]

6. On a scale of 1 to 5, where 1 is "least contributing" and 5 is "the most contributing" rate the extent to which the following factors contribute to change in telecommunication contractors environment in Kenya

	5	4	3	2	1
f. Political-Legal Factors	[ ]	[ ]	[ ]	[ ]	[ ]
g. Technological Factors	[ ]	[ ]	[ ]	[ ]	[ ]
h. Socio-Cultural Factors	[ ]	[ ]	[ ]	[ ]	[ ]
i. Competition in Industry	[ ]	[ ]	[ ]	[ ]	[ ]
j. Physical Environment factors	[ ]	[ ]	[ ]	[ ]	[ ]

7. From Question 6 above, select the two leading factors that have the most contributions to changes in business environment and give two examples of environment changes that your company has experienced within last 3 years

Environmental Factor	**Example 1 of change**	**Example 2 of change**
	Example A1:	Example A2:

	Example B1:	Example B2:

8. Were the four environmental changes above predictable (yes/no)? What was the rate of change (High/low)? *(tick appropriate box in table below)*

Change Element	**Was it predictable?**		**What was the Rate of change?**	
	"Yes"	*"No"*	*"High"*	*"Low"*
Example A1:				
Example A2:				
Example B1:				
Example B2:				

SECTION C: Strategic Responses`

9. Briefly describe how your company responded to the four changes described above?

Change Element	**Strategic Response of the Company**
Example A1:	
Example A2:	
Example B1:	
Example B2:	

10. On scale of 1 to 5, rate the extent to which your company implemented these strategic responses in time?

Timely response to change 5____4_____3____2____1_____ *late response to change*

11. On scale of 1 to 5, rate the extent to which your organization's processes and systems were flexible to adjust to the new changes?

*Very Flexible 5*____4_____3____2____1_____ *Least flexible*

12. How often does your organization conduct the following strategic planning activities?

	Monthly	Quarterly	Annually	Hardly Done
Environment Sensing: to identify or predict changes				
Opportunity Seizing: defining business models to profit from opportunities and minimize impact of environment threats				
Capability Transformation: Re-organizing resources and processes to optimize on delivery of business model				

Thank you for your Time and response

Appendix III: List ofRegistered Telecommunication Contractors in Kenya

Communications Commission of Kenya | **TELECOMMUNICATIONS CONTRACTORS** | Section 83 KICA Cap 411A

	COMPANY NAME	BOX NO	TOWN	CODE	Tel No	Fax No
1	Abracha Quick Telephone Services	52	Nairobi	00515		
2	ACP Telecom Limited	43719	Nairobi	00100		
3	Adnet Communications Limited	7666	Nairobi	00300	020-3874417	020-3871405
4	Adrian Company Limited	9808	Nairobi	00100		
5	Adwest Communications Limited	47419	Nairobi	00100		
6	Africom And Data Solution	13453	Nairobi	00100		
7	Agano Consulting Limited	62423	Nairobi	00200	0722898071	020250435
8	AHUMINDUTRI Contractor	8409	Nairobi	00300		
9	Alcatel-Lucent East Africa Limited	46601	Nairobi	00100	0771902401	
10	Alfa Solutions Limited	412	Mombasa	80100		
11	Alfatech Contractors Limited	45027	Nairobi	00100		
12	Alliance West Technology Limited	7463	Nairobi	00200	0722 207935	
13	Al-Mansoor Video Services Limited	6374	Nairobi	00300		
14	Alternative Communications Limited	3679	Nairobi	00506		
15	Antco Automation & Telecommunications Limited	14748	Nairobi	00800		
16	Apex Projects Limited	10782	Nairobi	00300	0722411826	0203865048
17	Aqua-Terra Engineers Limited	43139	Nairobi	00100		
18	Ascom Networks Limited	22220	Nairobi	00100		
19	Audio Visual Control Systems Limited	10524	Nairobi	00400		
20	Azicon Kenya Limited	75740	Nairobi	00200		
21	Beamspot Communications	69342	Nairobi	00400		
22	Bell Electricals	2743	Kisumu	40100		
23	Bell-Atlantic Communications Limited	10785	Nairobi	00400		
24	Benjess Engineering Systems Limited	72577	Nairobi	00200	020-2311428	
25	Benly (K) Limited	38725	Nairobi	00600	0722525134	
26	Beracha Technologies Limited	71963	Nairobi	00622		
27	Birus Communications Services	35515	Nairobi	00200		
28	Bitek Coment	57296	Nairobi	00200		
29	Bitmaps Limited	429	Nairobi	00100		
30	Bluecell Engineering Limited	22747	Nairobi	00100	721687390/721408	020-3862481
31	Bongo Telecommunications Limited	42035	Nairobi	00100		
32	Botmey Trading Company Limited	2476	Nairobi	00200		
33	Broadband Communications Network Limited	10840	Nairobi	00400		

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34	Broadband Engineering and Communication Limited	732	Nairobi	00200		
35	Broadcast Solutions International Limited	5637	Nairobi	00100	0729806881	020-2051626
36	Brulto Trading Co. Limited	59701	Nairobi	00100		
37	Bushnet Kenya Limited	66747	Nairobi	00800		
38	Bytech Engineering Limited	43779	Nairobi	00100		
39	Bytewise LIMITED	63416	Nairobi	00619		
40	Bytronics Computer Limited	60434	Nairobi	00200		
41	Bzed Limited	1122	Nairobi	00618		
42	Cable Free Solutions Limited	12661	Nairobi	00100		
43	Cables & Accessories Limited	40307	Nairobi	00100		
44	Calfield (EA) Services Limited	50032	Nairobi	00200	0723149243	
45	Ceda Limited	8163	Nairobi	00200	0204441900	020-4441300
46	Cellcare Electronics Limited	75528	Nairobi	00200	0720700055	020-315800
47	Cellink Limited	6834	Nairobi	00100		
48	Centrurion Cable Network Limited	22482	Nairobi	00100	0203566988/0712365247	
49	Chafra Communication Services	34568	Nairobi	00100		
50	Chardar Electronic Services	48524	Nairobi	00200		
51	Chaticom Limited	20129	Nairobi	00100	0721792688	
52	Chatimo Investments Limited	1650	Nairobi	00200		
53	Claus Investments Limited	8940	Nairobi	00100	0722540736	
54	Com 21 Limited	15818	Nairobi	00100		
55	Commcarrier Satellite Services	41093	Nairobi	00100	312712	311615
56	Communicatins Avenue Limited	43339	Nairobi		020 220199/ 0722 703939	
57	Communications Avenue	3221	Nairobi	00100		
58	Communications Technologies (Services) Limited	653	Nairobi	00621		
59	Compliance Technologies Limited	3760	Nairobi	00506		
60	Comprinet Systems Technology Limited	38756	Nairobi	00600		
61	Conquest Engineering Works Limited	51364	Nairobi	00200		
62	Conrenova Limited	58993	Nairobi	00200		
63	Contell Africa Limited	3318	Nairobi	00200	2489898/72249228	343354
64	Contemporary Electricals Enterprises	8446	Nairobi	00300		
65	Corrington Communication Limited	50451	Nairobi	00200		
66	Dace Solutions Limited	8823	Nairobi	00200	0721826673	
67	Danmot Company Limited	74	Kiriaini	10204		

68	Databit Limited	51826	Nairobi	00200		
69	Datapath Systems Limited	6085	Nairobi	00100	0722459299	202211345
70	Decibel Communications Limited	38703	Nairobi	00600		
71	Deltacom (Kenya)	45042	Nairobi	00100		
72	Digitel Communications Systems Limited	56366	Nairobi	00200		
73	Digitel Tracking Services	56366	Nairobi	00200		
74	DIMENSION DATA SOLUTIONS Limited	30293	NAIROBI	00200	824381-4	824386
75	East Fibre Networks Limited	817	Nairobi	00515	0722638756	020-652468
76	Echonove Electronic Services	67888	Nairobi	00200		
77	Elex Engineering Services Limited	67361	Nairobi	00200		
78	Elris Communications Limited	4107	Nairobi	00200		
79	Encapsulated Communications Africa Limited	51775	Nairobi	00200		
80	Encapsulated East Africa Limited	8213	Nairobi	00300	0722308312	020-8058495
81	Enterprise Generale Malta Forrest	1322	Nairobi	00217	020-3547741	020-3547741
82	Eon Business Systems Limited	17787	Nairobi	00100		
83	Eranet Limited	8399	Nairobi	00100		
84	Evatech Communications	16427	Nairobi	00100		
85	Experch Engineering Systems Limited	55983	Nairobi	00200	020-240010	020-312366
86	Express Automation	22709	Nairobi	00400		
87	Fabec Investments Limited	45200	Nairobi	00100		
88	Fastlane Networks Solutions Limited	6730	Nairobi	00300	0722964664	0203233500
89	Fastpoint Communications	50703	Nairobi	00200		
90	Fibertel Ventures Limited	4146	Nairobi	00200	0722723215	
91	Fibrenet Limited	104663	Nairobi	00101	0722644277	020-2210218
92	Fibretronics Telecommunications Networks Limited	24905	Nairobi	00502	722475868/650690	020-650689
93	Fireside Communications Limited	1296	Nairobi	00606	0720318925	
94	Flywheel Telecomms Limited	66998	Nairobi	00200	020-2248343	2248346
95	Forecast Electronic Solutions Limited	49928	Nairobi	00100		
96	Frank Desouza and Company Limited	47647	Nairobi	00100		
97	Galbannum Networks Limited	20516	Nairobi	00200		
98	Gawani Enterprises	547	Nairobi	00618	0721796962	
99	Gear Controls & Equipmemt	55119	Nairobi	00200		
100	Geda Limited	8163	Nairobi	00200		
101	Geolea Enterprises	9481	Nairobi	00300		

102	Geonet Technology Limited	8030	Nairobi	00200	2679821/7218498	020-2079821
103	Gladmart Company Limited	5848	Nairobi	00200	0726515992	020-2028720
104	Glare Technology and Electrical Systems Limited	51886	Nairobi	00200		
105	Global Access Networks Limited	70029	Nairobi	00100		
106	Global Optical Kenya Limited	7430	Nairobi	00300	0705143163	
107	Globalsurf Communications Limited	17826	Nairobi	00100	0722689622	
108	Goldrock International Enterprises Comp.(K)Limited	39256	Nairobi	00623		
109	Grand Centre Limited	20667	Nairobi	00100		
110	Green Future Limited	27688	Nairobi	00506		
111	Greenline Technology Limited	61895	Nairobi	00200		
112	Harris Communications International Kenya Limited.	2426	Nairobi	00100		
113	HCK Logistics & Services Limited	73860	Nairobi	00100	0722297013	
114	Hebron Systems Analysis	30696	Nairobi	00100		
115	Hedan Venture Limited	62130	Nairobi	00200	725 493909	
116	Hilltop Communications And Engineering Limited	6178	Nairobi	00200		
117	Holmes Systems And Services Limited	26648	Nairobi	00504		
118	Huawei Technologies (K) Limited	66430	Nairobi	00800		
119	Ibrahim Donald Consultants Limited	2140	Nairobi	00200		
120	Icon Telesec Services Limited	5004	Nairobi	00506		
121	Iconet Solutions	13653	Nairobi	00800		
122	Integrated Supplies & Consultancy Limited	7500	Nairobi	00100	0202215858/7205	020-2227970
123	Intercell Networks	7452	Nairobi	00300		
124	Interdata Limited	16093	Nairobi	00300		
125	Interfuture Technologies	16170	Nairobi	00100		
126	Intracom Limited	10844	Nairobi	00200	0722823355	
127	Izmir Enterprises Limited	45970	Nairobi	00100		
128	Jacknet Communications Limited	59375	Nairobi	00200	0722307782	
129	Jaquar Communications	21998	Nairobi	00100		
130	Jaws communications	66653	Nairobi	00800	020315273	020-315296
131	Jaxoo.Com (K) Limited	64551	Nairobi	00620	0722792028	
132	Jigsys Technologies Limited	2151	Nairobi	00202		
133	Jogian Interlink Limited	3289	Nairobi	00100	020-2227928	020-2212557
134	Jomumu Building and General Contractors Limited	45600	Nairobi	00100	020-310234	
135	Karundu Electrics	8865	Nairobi	00100		

136	Kasendo Telematics Limited	53335	Nairobi	00200	020310724/020600	254-20310724
137	Kenwide Merchants (K) Limited	52522	Nairobi	00200	0722377973	
138	Kenya School of Technology Studies Limited	3064	Nairobi	00100		
139	Kimunje Enterprises	2041	Mombasa	80100		
140	Kinde Engineering Works Limited	6911	Nairobi	00300		
141	Klight Technologies	1518	Nairobi	00100		
142	Komsol Limited	1905	Nairobi	00502		
143	Kontel Limited	26164	Nairobi	00504	0721235284	
144	Kylink Communications Kenya	1901	Gilgil	20116		
145	Lantech Limited	6484	Nairobi	00200		
146	Lekha Trading Company	7373	Nairobi	00300		
147	Lexcom Engineering Limited	18773	Nairobi	00500		
148	Liflo Electronics	11480	Nairobi	00400	0722555964	020-342459
149	Lifting Equipment Company	86873	Nairobi	80100		
150	Limelight Creations Limited	4963	Nairobi	00506		
151	Linksoft Communications Systems Limited	67136	Nairobi	00200		
152	Linksoft Telecom Networks Limited	67136	Nairobi	00200		
153	Logitech Ventures Limited	60064	Nairobi	00200		
154	Lucent Intergrated Systems Liimted	55685	Nairobi	00200		
155	Magnum Limited	66040	Nairobi	00800	0722707071	020-2712119
156	Manyota Limited	20685	Nairobi	00100		
157	Mashudu Supplies Limited	17881	Nairobi	00500		
158	Master Power Systems Limited	976	Nairobi	00606	0705976976	0203756280
159	Master Technologies Limited	41159	Nairobi	00100		
160	Mayfox Digital Media (MDM) Limited	18310	Nairobi	00500	020-554876	020-553089
161	Mbagu Enterprises	8123	Nairobi	00300		
162	Mediant International Limited	3885	Nairobi	00200		
163	Mehta Electricals Limited	39977	Nairobi	00623		
164	Mercury Agencies (k) Limited	46279	Nairobi	00100		
165	Mercury Ventures Limited	56673	Nairobi	00200	0722170175	020-3590755
166	Metro Fibre Network Limited	4385	Nairobi	00100	0722915643	
167	MFI Office Solutions Limited	49160	Nairobi	00100		
168	Micronet Power Systems	3083	Nairobi	00200		
169	Mifereji Holdings Limited	26766	Nairobi	00504	0726 585609	

170	Mile Stone Communication Solutions	52580	Nairobi	00100	0722989090	
171	Mobilecom Solutions Limited	8	Ongata Rongai	0511		
172	Modern Information And Communications Tech	28594	Nairobi	00200		
173	Multisystems Business Communications	4041	Nairobi	00100		
174	Nairobi Tide Kenya Limited	10510	Nairobi	00200		
175	Nanchang Foreign Engineering Company (K) Limited	801	Nairobi	00521	0711358864	
176	Navcom Limited	30782	Nairobi	00100		
177	Necta Technical Services	40887	Nairobi	00100		
178	Netcentric Innovations Limited	40297	Nairobi	00100		
179	Netplus Communications Limited	52729	Nairobi	00200		
180	Netsol Kenya Limited	1174	Nairobi	00606		
181	Netvalley Technologies Limited	79622	Nairobi	00200		
182	Network Source Limited	48998	Nairobi	00100		
183	New Age Telecommunications Limited	24331	Nairobi	00100		
184	New Edge Communications Limited	42902	Nairobi	00100		
185	New Edge Solutions Limited	42902	Nairobi	00100		
186	New Media Limited	3002	Nairobi	00506		
187	Newport International Limited	27526	Nairobi	00506		
188	Next Decade Communications Systems	12542	Nairobi	00400	0722517833	020-3599083
189	Next Technologies Limited	10579	Nairobi	00100		
190	Nokia Siemens Tietoliikenne oy	1467	Nairobi	00502	020-20275800	0202733123
191	North Eastern Media and Telecommunication Limited	68351	Nairobi	00622		
192	Odd - Mac Electricals Limited	35515	Nairobi	00200		
193	Omni Ventures Limited	2977	Nairobi	00200		
194	Ontech Communications (K) Limited	20388	Nairobi	00200		
195	Opta Technologies Limited	599	Nairobi	50100	0728600539	
196	Optiware Communications Limited	64306	Nairobi	00620		
197	Orison Tech Limited	33356	Nairobi	00600	0726745840	
198	Outsource Technique Limited	12702	Nairobi	00100		
199	Paltech Communications Limited	431	Nairobi	00600		
200	Pan African Wireless	19899	Nairobi	00100	020-2330094	
201	Panacom Communications Limited	47967	Nairobi	00100		
202	Parley Agencies Limited	57112	Nairobi	00200		
203	Pegrume Limited	41093	Nairobi	00200		

204	Pensoft Systems Limited	5078	Nairobi	00506	0722216275	020-3860511
205	Philafe Engineering Limited	61152	Nairobi	00200		
206	Phonetech Technologies Limited	51928	Nairobi	00200		
207	Physcom Electronic Services		Nairobi	00100		
208	Pinkertons Kenya Limited	56130	Nairobi	00200		
209	Pisu And Company Limited	18219	Nairobi	00500		
210	Plans Online (K) Limited	2713	Meru	60200		
211	Pluton ICT Limited	67969	Nairobi	00200		
212	Pong Agencies Limited	60087	Nairobi	00200		
213	Powergen Technologies Limited	13232	Nairobi	00100		
214	Precise Engineering	43545	Mombasa	80100	733684032	
215	Professional Digital Systems Limited	53952	Nairobi	00506		
216	Puri Agencies Limited	36435	Nairobi	00200	0722860833	
217	Pwani Communications	88258	Mombasa	80100		
218	Quaitem Technologies	6763	Nairobi	00300		
219	Radio Frequency Systems (EA) Limited	149	Nairobi	00502		
220	Rapid Communications Limited	594	Nairobi	00606		
221	Reco Technologies (K) Limited	71056	Nairobi	00622		
222	Rehebeam Agencies	215	Nairobi	00200		
223	Relcon Power Systems Limited	99205	Nairobi	80107		
224	Reman Networks Services Limited	41519	Nairobi	00100		
225	Riingtone Systems Limited	7401	Nairobi	00200		
226	Rimco Communications Limited	25044	Nairobi	00506	0724 262644	
227	Rockers Limited	11353	Nairobi	00400		
228	S C Technologies Limited	29891	Nairobi	00202		
229	Sammnet Technologies Limited	1522	Nairobi	00606	722-818078	
230	Sanaic Building And Civil Engineering Limited	2543	Nairobi	00202		
231	Sasy Enterprises	28746	Nairobi	00200		
232	Sat Africa	5563	Nairobi	00200		
233	Saurus Networks Limited	23536	Nairobi	00100	0739267281	
234	Security Group Kenya Limited	18670	Nairobi	00500		
235	Sera Limited	211	Nairobi	00502		
236	Servtel Communications Limited	80085	Mombasa	80100		
237	Sess Solutions Limited	1604	Nairobi	00606	020-3594661	

238	Seven Seas Technology Limited	14462	Nairobi	00800		
239	Sharp Alarms Limited	5096	Nairobi	00506		
240	Shimalia Construction Limited	7094	Nairobi	00200		
241	Shonitel Limited	63599	Nairobi	00619	723904462	
242	Sian King Enterprises Limited	35159	Nairobi	00100	07724555580	
243	Siedel Technologies	15930	Nairobi	00100		
244	Silanga General Contractors Limited	15118	Nairobi	00100	0725440344	020-2218537
245	SITA	47339	Nairobi	00100	020-2711172	020-2715971
246	Skytech Communications Resources Limited	10088	Nairobi	00100		
247	Smoothtel And Data Solutions	13789	Nairobi	00100		
248	Soliton Telmec	15193	Nairobi	00100		
249	Solutions General	4766	Nairobi	00506		
250	Soulco Kenya Limited	26632	Nairobi	00100		
251	Space Engineeriing Limited	14983	Nairobi	00800	0733179999	
252	Spar Systems Limited	59177	Nairobi	00100		
253	Specialised Technologies Limited	4039	Nairobi	00506		
254	Spectrum Engineering Limited	47189	Nairobi	00100	0733609191	020-2730774
255	Spectrum Wireless Communications	21493	Nairobi	00100		
256	Spescom Datafusion Kenya Limited	27360	Nairobi	00100		
257	Sprint Systems Limited	1179	Nairobi	00606		
258	Square Electrical & Hardware	69449	Nairobi	00400		
259	Star Electronics Limited	362	Nairobi	00606		
260	Star World Limited	17536	Nairobi	00100		
261	Steskom Technologies Limited	72548	Nairobi	00100		
262	Streamlan Africa Limited	452	Nairobi	00100	0722857741	
263	Subscriber Radiocommunication KenyaServices Limited	653	Nairobi	00621		
264	Swift Global (k) Limited	42164	Nairobi	00100		
265	Talek And Light Company Limited	8491	Nairobi	00300	0771789499	
266	Talinda East Africa Limited	5989	Nairobi	00200	0734531794	
267	Technnical Engineering Services	45375	Nairobi	00100		
268	Technology Dimension	26158	Nairobi	00100		
269	Technovy Systems Limited	43210	Nairobi	00100	723751710	020-240597
270	Tekplus Services	4040	Nairobi	00100		
271	Telco Limited	49371	Nairobi	00100		

272	Telecommunications Today	22104	Nairobi	00400		
273	Telecoms Infrastracture Limited	27699	Nairobi	00100		
274	Teledata Technologies	43934	Nairobi	00100		
275	Telemedia Kenya Limited	1063	Nairobi	1063		
276	Telewise Services Limited	54220	Nairobi	00200		
277	Teleworks Limited	2028	Bungoma	50200	0724653678	
278	Telsols Communications Systems	9764	Nairobi	00200	0721480268	
279	Teltar Communications Systems	6456	Nairobi	00100		
280	Tesla Services Limited	22220	Nairobi	00100		
281	The copy cat Limited	49872	Nairobi	00100		
282	Thrust Bore Technics	2450	Nairobi	00200		
283	Tiny Systems Limited	39913	Nairobi	00623		
284	TKM Maestro Limited	9697	Nairobi	00100		
285	Trenchless Technologies Kenya Limited	10510	Nairobi	00400	0722248882	020-317273
286	Tridanel Enterprise	15736	Nairobi	00100	0722732048	
287	Tripple Business Systems (K) Limited	50374	Nairobi	00200	2712224/5	
288	Tuddah Communications Limited	46211	Nairobi	00100	020-2216688	020-216688
289	Tulsi Construction Limited	47430	Nairobi	00100		
290	Tunaweza Enterprises	17053	Nairobi	00100	0733784365	890715
291	Twinspot Services Limited	10671	Nairobi	00100		
292	Two Communications Limited	126	Nairobi	00618		
293	Ukerewe Enterprises	6758	Nairobi	00200		
294	Ultimate Engineeriing Limited	76408	Nairobi	00508		
295	Uni Supplies & Marketing (k) Limited	12790	Nairobi	00400		
296	Unicom Limited	17740	Nairobi	00500	0723874669	555395
297	Unidata Systems Limited	53130	Nairobi	00200		
298	Unique Suppliers Limited	73470	Nairobi	00200		
299	Universal Technologies Limited	9373	Nairobi	00200		
300	Valuline Services Limited	4985	Nairobi	00100		
301	Veri Sales & Services	3288	Nairobi	00506		
302	Vianet Global Limited	34194	Mombasa	80118		
303	Vishtech Limited	116	Nairobi	00621		
304	Vision Riggers	2500	Nairobi	00200		
305	Vivano Communications Limited	299	Nairobi	00606	020-2336232/3	020-3561446

306	Voacom Networks Limited		Nairobi	00200		
307	Votex Limited	12265	Nairobi	12265		
308	Wavecom Investment Limited	27614	Nairobi	00100	0721790007	
309	Waveguide Communications Services	306	Nairobi	00600		
310	Webcast Communicatons Solutions Limited	72741	Nairobi	00200		
311	Webmill Engineering And Construction Limited	10266	Nairobi	00400		
312	Whab Communiations Services	13245	Nairobi	00100		
313	Wideband Communications Services	4393	Nairobi	00200		
314	Wilken Telecommunications (K) Limited	49428	Nairobi	00100		
315	Wilking Enterprises Limited	88316	Mombasa	80100		
316	Winafrique Technologies Limited	73193	Nairobi	00200		
317	Wincomp Services Limited	8783	Nairobi	00100		
318	Wireless Innovations Nairobi Limited	111411	Nairobi	00100		
319	Worksys Limited	190	Nairobi	00623	0717263188	
320	World Electronics Company Limited		Nairobi	00618		
321	Xpedite Solutions Limited	95826	Nairobi	80106		
322	Zakhur Enterprises Company Limited	71634	Nairobi	00622	0712662000	828265
323	Zams Communication	86925	Mombasa	80100		
324	Zedicom Limited	245	Nairobi	00200		
325	Zonta Technologies Limited	101650	Nairobi	00100	0728600539	0202715429

Appendix IV: Analysis of Variance (ANOVA)

Causes of External Environment Turbulence

	Sum of Squares	df	Mean Square	F	Sig.
Regression	30.121	5	6.024	4.493	.017b
Residual	22.792	17	1.341		
Total	52.913	22			

a. Dependent Variable: External Environment Turbulence
b. Predictors: (Constant), Physical Environment Factors, Competition in Industry, Socio-Cultural Factors, Technological Factors, Political-Legal Factors

Environmental Turbulence Vs Timely and Flexibility of Response

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.038	1	19.038	13.546	.001b
	Residual	30.920	22	1.405		
	Total	49.958	23			
2	Regression	20.177	1	20.177	10.310	.003b
	Residual	39.141	20	1.957		
	Total	59.318	21			

Appendix V: Environmental Turbulence Vs Timely and Flexibility of Strategic Response

Table 4.14: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.627a	.393	.347	1.55095
2	.767a	.588	.453	1.39895

Table 4.15: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.305	3.214		1.028	.315
	Environment Turbulence	.184	1.457	.627	7.926	.001
2	(Constant)	2.716	2.925		.928	.364
	Environment Turbulence	.398	1.323	.767	7.301	.003