

**STRATEGIC RESPONSES TO ENVIRONMENTAL
CHALLENGES FACING PIONEER HI-BRED KENYA
LIMITED**

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DECLARATION

This research project is my original work and has not been presented for a degree at any other university.

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DEDICATION

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ABBREVIATIONS AND ACRONYMS

FAO	-	Food and Agriculture Organization of the United Nations
FAW	-	Fall Army Worm
GoK	-	Government of Kenya
ISTA	-	International Seed Testing Association
KEPHIS	-	Kenya Plant Health Inspectorate Service
KSC	-	Kenya Seed Company
MLND	-	Maize Lethal Necrotic Disease
NIC	-	National Industrial Credit
OECD	-	Organisation for Economic Co-operation and Development
PESTEL	-	Political, Economic, Social, and Technological
R&D	-	Research and Development
RBV	-	Resource Based View
REMPAI	-	Resource Management & Policy Analysis Institute
RoK	-	Republic of Kenya
SME	-	Small Medium Enterprises
STAK	-	Seed Traders Association of Kenya
USA	-	United States of America
VAT	-	Value Added Tax

ABSTRACT

Organizations conduct their business in the environment. The environment provides organizations with inputs which are transformed to outputs through internal processes and these outputs are given back to the environment. To survive in the environment, organizations should adopt strategies that are compatible with their strategic goals and objectives to effectively accommodate changes in the external environment. The seed sector in Kenya has been confronted by many challenges in the recent past, forcing industry players to devise strategies for survival and continuity. The objective of the study was to determine the strategic responses to environmental challenges facing Pioneer Hi-Bred Kenya Limited, a Kenyan subsidiary of a multinational seed company. The research adopted a case study approach and interview guide was used for collection of data. Content analysis was used to analyze data which was qualitative in nature. The study established that the company faces numerous environmental challenges such as; effects of globalization and market liberalization, climate change, invasive pests and diseases, land fragmentation, regulatory and policies challenges, seed storage constraints and leadership challenges. Research findings were that the company had put in place strategic responses to counteract the challenges it was facing. The response strategies employed includes; Leveraging its global genetic pool to access novel germplasm for breeding competitive seed varieties; Using latest breeding technique to produce climatically adaptable and resilient maize varieties that can withstand pest and disease pressure. The company has a research and development centre that is fully funded by its parent company. It also acquired Pannar Seed Kenya Limited, a move aimed at expanding its genetic bank and expand its product range to grow market share. Further, the company was using industry trade associations and advocacy platforms to lobby government on critical policy and regulatory issue that negatively impacts its business. The study concludes that Pioneer Hi-Bred Kenya Limited has put in place appropriate strategic responses to environmental challenges it was currently facing. It recommends that Pioneer Hi-Bred Kenya Limited should diversify its product range and mix, introduce value added services to its customers, outsource non-core operations and aggressively scale up in country seed production to enjoy economies of scale. The limitations of the study are that, the scope is restricted to response strategies to environmental challenges facing Pioneer Hi-Bred Kenya Limited rather the entire seed sector in Kenya. In order to abide by the non-disclosure policies of the company, some respondents were giving general information to avoid exposing the company to competitors. The study concludes that more research is required to understand response strategies employed by all actors in the Kenyan seed industry to mitigate against environmental challenges they face. Further research on strategy implementation within the seed industry is required.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Organizations conduct their business in the environment. The environment provides organizations with inputs which are transformed to outputs through internal processes and these outputs are given back to the environment. In order to survive in the environment, organizations should adopt strategies that are compatible with their strategic goals and objectives to effectively accommodate changes in the external environment. Grant (2003) indicates that the environment consists of both internal and external environments. The external environment consists of factors that are beyond the control of the firm, but which affect its operations. They include: political, economic, socio-cultural, technological, ecological and legal variables. The internal environment on the other hand consists of factors that are within the control of the firm. These factors include: financial resources, technology and human resources among others (Collins, 2014).

This study was guided by the following theories namely institutional theory and resource dependency theory. The premise underlying this theory is that it helps in establishing associations between the environment and the firm whereby norms and values acts as sources of organisational pressures. This theory focuses on legitimacy rather than efficiency or effectiveness (Grant, 2000). Pfeffer and Salancik (2003) argue that the firm depends on the external environment for resources in order to survive and hence it must ventilate into exchange transactions and relationships with elements in the environment to ensure a steady flow of resources.

The seed sector in Kenya faces stiff competition that has forced firms to look for ways to survive in the environment. Currently, most seed companies like Pioneer Hi-Bred Kenya Limited are investing in research and development and engaging their customers to understand their needs in order to provide value adding products (Pioneer, 2014). Kimunguyi (2013) argued that a strategic response is one of the actions that an organization can take to respond to environment challenges. He further concluded that most agrochemical companies that adopted strategic responses recorded good results. It is therefore important for Pioneer Hi-Bred Kenya Limited to consider adopting strategic responses to meet its strategic goals and objectives.

1.1.1 Strategic Responses

According to Johnson and Scholes (2000) strategic responses are strategies that a firm adopts to cope with the environmental changes. Strategic responses are decisions and actions that enable an organization to achieve its set goals and objectives. Organizations should adopt a myriad of strategies to respond to challenges in the external environment depending on the nature of the challenge. For example, the organization can use compromise as a strategy if they are confronted with conflicting institutional demands or with inconsistencies between institutional expectation and internal organizational objectives related to efficiency or autonomy. In response to this organization can attempt a balancing tactic to achieve an outcome acceptable to all parties. The importance of strategic responses is that it enables an organization to counter challenges in the external environment and allow the top management to focus on strategic goals and objectives of the firm. This gives the organization an opportunity to re-define its strategies and maximize on its core competence to achieve superior performance and compete effectively with its competitors (Johnson et al., 2000).

Strategic responses maintain a proper balance between its activities and external changes. The top management integrates its strategies to fit the changing needs of its customers in order to realize value addition and efficiency. Thompson and Strickland (2002) argue that through strategic responses an organization is able to set a clear plan on how to achieve its goals through aligning its resources, facilities and people towards accomplishing tasks that are geared towards achieving the vision and the mission. According to Thompson and Strickland (2002) there are various strategic responses that an organization may adopt to respond to environmental challenges however, the kind of strategic response that an organization adopts highly depends on the strategic goals and the nature of environmental challenges that an organization is facing.

1.1.2 Environmental Challenges

Environment challenges are events or situations that affect the way in which a business operates either in a positive or a negative manner. Environmental challenges in this study will include factors that are beyond the control of the organization and difficult to predict. The environmental challenges that lead companies to look for strategic responses are regulatory requirements, customer needs, innovative technologies, political risk and globalization. Complying with regulatory requirements and standards has forced firms to rethink about their strategies to deal with environmental challenges. Industry regulations ensure that firms do not engage in unfair business practices to avoid unfair competition. This provides a level playing ground for the industry players while enforcing compliance with market benchmarks (Castrogiovanni, 2002). Coping up with evolving customer needs and requirement is a major environmental challenge that firms have to cope with to remain both relevant and competitive.

Customers have different tastes and preferences and therefore firms are segmenting their customers to widen the scope of their target market to meet their unique needs (Beckman, Haunschild & Phillips, 2004). Innovative technological changes have made firms to adopt coping strategies in a bid to remain relevant in the industry. Firms are using novel technologies in their operations to maximize on their core competencies and produce superior products and services at a most cost effective and efficient manner. Some of these innovative technologies are more adaptable to the climatic and the environmental changes.

Firms that have access to innovative and patented technologies have a competitive advantage over their rivals. This enables them to enjoy unmatched innovation engine that locks out competitors while guaranteeing them high profitability of their businesses (Castrogiovanni, 2002). Political risk is a fundamental hindrance to investment; it prevents investors from making a long-term financial commitment. Countries that are politically unstable are less attractive to both local and foreign direct investment that can spur industry growth thus; firms are compelled to adopt short-term investments rather than long-term investments to mitigate potential risks that might expose them to financial losses (Haunschild & Phillips, 2004).

1.1.3 Seed Sector in Kenya

The development of the seed sector in Kenya started in the early 20th century, when the Kenyan government realized the importance of high quality seed in agricultural production, supported by research on food, industrial and export crops, which supplied seeds and planting material for the farming community. This later resulted into the formation of Kenya Seed Company in 1956. The seed industry is comprised of the formal and informal seed sector which is governed by the Seeds and Plant Varieties Act (Cap 327) of 1972, which became operational in 1975 (RoK, 2013).

Regulations that guide the seed operations were created in 1977 and revised in 1991 to incorporate plant variety protection (plant breeder's rights) regulations. In the mid 1990's the seed industry gained entry of new seed players in the seed market which grew to 78 seed companies officially registered by mid-2010. The Act was reviewed to make seed trade business fully liberalized and to incorporate harmonized regional and seed certification standards. This was introduced through a seed bill which was approved by parliament. Inspections (both in the field and factory processing) are undertaken as per the standards, which are equivalent to the OECD standards, to which Kenya is a member. Laboratory seed tests and analysis are conducted as per the ISTA standards/ rules, to which Kenya is also, a member (REMPAI, 2014).

Kenya Seed Company dominates the seed production sector in Kenya, it is a government owned entity and commands a market share of 70-80 percent. Other major player include a blend of multinational corporations, emerging and midsized Kenyan companies such as East African Seed, Western seed, Olerai, Leldet, Freshco, and Drylands Seeds. The number of registered seed companies in Kenya are ninety-three (93), however most of these companies are either inactive, produce exporters, horticultural seed traders (selling imported seed), or of unknown classification. Kenya plant Health Inspectorate Service (KEPHIS) is a government entity responsible for regulating seed production and plant material in Kenya. KEPHIS is involved in regulating quality, and seed cannot be certified, and sold as such, if it does not pass the inspection standards (RoK, 2013).

1.1.4 Pioneer Hi-Bred Kenya Limited

Pioneer Hi-Bred Kenya Limited is fully owned Kenyan subsidiary of DuPont Pioneer, an international seed company that was founded in 1926, headquartered in Johnston Iowa, USA. Pioneer Hi-Bred Kenya Limited commercial business in Kenya started in

1998, with operations managed exclusively by a third party distributors. The distributors were locally owned seed companies named Freshco Seeds Limited and later Farmchem Africa Limited. During this period, Pioneer relied on sister companies in Zambia, Zimbabwe and South Africa to do maize breeding, research and production. The go-to-market strategy purely relied on exclusive distributors for demand creation and sales. Pioneer Hi-Bred Kenya Limited employed one country representative who was responsible for new product trials and registration in liaison with the government seed regulator called KEPHIS. The third-party distribution strategy lasted twelve years, between 2000 and 2012 (Pioneer, 2014).

In 2012, the company changed its strategy to sustain the long-term business growth and adapt to the fast changing business environment. This was achieved through incorporation of fully-fledged autonomous legal entity in Kenya with explicit mandate to run its own operations. This was a major paradigm shift from its initial business strategy. The newly incorporated company called Pioneer Hi-Bred Kenya Limited started its first commercial operation in January 2013 after recruited a country manager, a financial controller, a logistics officer and dedicated of sales agronomist. New distributors across the country were also recruited thereby terminating its exclusive distribution agreement with Farmchem (Rempai, 2014). The company has since evolved to become a major player in the maize seed sector as a priority focus. The company established its large customer base focusing largely on small and medium commercial segments of the market as it grows its product mix and portfolio. Pioneer Hi- Bred Kenya Limited like other companies domiciled in Kenya faces numerous external and internal environment challenges as its strives to achieve growth.

1.2 Research Problem

The dynamism and complex nature of the environment have necessitated the need for organizations to respond to various environment changes in order to survive and effectively compete in the market. Grant (2003) contends that most organizations utilize their core competencies to be able to provide value adding goods and services at a cheaper price than their competitors. Pioneer Hi-bred Kenya Limited is making efforts to invest in research and development and modern technologies to enhance efficiency, cut costs and provide competitive products and services. This is a response strategy that is intended to outdo its competitors. This coincides with Russo and Fouts (1997) who observe that strategic response is critical in assisting the firm to remain competitive in the market place.

The seed sector in Kenya face various environmental challenges that emanate from competition, technological innovations, regulations, policies, globalization and political risks among others. These environmental challenges have created the need for seed companies to devise strategies in order to survive in the environment and meet their corporate goals such as providing superior products and services that meet the dynamic and diverse needs of their clientele to remain competitive in the market (Castrogiovanni, 2002). This study was set out to investigate and identify the environmental challenges that face Pioneer Hi-bred Kenya in order to recommend appropriate response strategies to deal with these challenges in the Seed Sector in Kenya.

Studies have been done in relation to strategic responses globally and locally including Santhanam and Hartono (2003) who found that strategy did not necessarily enable firms to response to their customer needs. Scott (2009) investigated the environmental challenges that faced industrial companies in Europe the findings

revealed that technological changes and political factors were the major impediments. Vikhanskiy, Churkina and Zaverskiy (2012) examined the business response to environmental challenges of three cases of Russian industrial companies. The results found that government policies, technological changes were the main environmental challenges. Henderson (2013) studied strategic responses used by the seed industry in the US. The findings revealed that product innovation and product differentiation were the most popular strategic responses used by seed industry in the US.

Locally, Kawira (2014) found that Old Mutual Holdings adopted strategic responses to cope with environmental challenges such as competition, regulations and technological innovations. Kimunguyi (2013) found that the most popular response strategies adopted by agrochemical companies were as follows: differentiation and go to market strategy. Kilonzi (2012) found that differentiation and diversification were the main strategic responses used by NIC bank. Murule (2011) found that the main challenges that faced pharmaceutical manufacturing firms were technological challenges, competition and regulations. Little focus has been given in relation to strategic responses to environmental challenges facing seed companies in Kenya and in particular Pioneer Hi-Bred Kenya Limited. This study therefore sought to find an answer to the research question: What are the strategic responses to environmental challenges facing Pioneer Hi-Bred Kenya Limited?

1.3 Research Objective

The objective of this study was to determine the strategic responses to environmental challenges facing Pioneer Hi-Bred Kenya Limited

1.4 Value of the Study

Policy formulation benefits; KEPHIS is a key government arm responsible for seed sector policy setting and regulation. The findings obtained in this study will be used by government in policy formulation to ensure that companies follow the set guidelines when implementing their strategic responses to environmental challenges. The empirical results of this study might be useful in setting uniform policies that ensure conducive environment for conducting business fairly. In addition, they will learn the challenges facing the seed sector in order to devise ways of implementing regulations to minimize unfair competition and encourage innovation.

Industry benefits; In a very competitive seed industry in Kenya, the findings of this study will be a very valuable to strategy formulators and implementers of seed companies on how to intelligently choose strategic response that are aligned to the policy while responding to environmental challenges in order meeting their customers' needs more effectively and efficiently. Pioneer Hi-Bred Kenya Limited will also benefit from the findings of this study since they will learn more about the response strategies that they may use to counter challenges in the environment. Other market players will learn about the challenges facing the Pioneer Hi-Bred Kenya Limited in strategy implementation and how they deal with these challenges.

Researchers and academicians will learn about the theories that support strategic responses adopted by firms to respond to environmental challenges. They will also understand the significance of strategic responses in enabling the firm to overcome various environmental challenges that might curtail its realization of corporate goals and objectives. The findings obtained in this study might be used as a basis for further research by researchers who are interested in this field of study and other related topics.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a comprehensive coverage of the literature review. It covers the theoretical foundation and strategic responses adopted by firms and a summary of the literature review.

2.2 Theoretical Foundation

This section provides a discussion of the theories that guide this study. The two applicable theoretical framework that underpins this research and discussed in relation to the strategic responses adopted by organizations to counter environmental challenges are namely; institutional theory and resource dependency theory.

2.2.1 Institutional Theory

This theory holds that institutionalized symbols define a cultural validation; they include values, meanings and rules among others (DiMaggio & Powell, 1983). Cognitive firms derive their authority from a shared conception of social reality for fear of sanctions. Scott (1995) posits that normative roles are rules of facts about a society, assumptions and natural ways of doing business or activities. Goodstein (1994) maintains that institutional development is envisaged when rules and beliefs are accepted but remain unseen to the actors and firms which they influence.

Meyer and Scott (2011) emphasize that firms must comply with pressures from the environment to survive. Pressures in this case involve the environmental challenges that inhibit the survival of firms. In line with this study, it is appropriate for firms to response to environmental challenges to gain a competitive advantage against competitors and prosper. Scott (1995) insists that when the organization has not

otherwise other than to conform to institutional pressures, it is forced to adopt and implement institutional norms and values when carrying out business (DiMaggio & Powell, 1983). This legitimizes the actions of the firm and integrates these practices into the firm's strategic goals and objectives.

The arguments are consistent to Goodstein (1995) who insists on the importance of the firm to abide with the societal norms and beliefs that are incorporated into the firm's strategic goals. This makes it easier for the firm to execute its business in accordance with the set rules and regulations and thus save a lot of costs associated with violating institutional norms. Through adopting strategic responses firms can save costs through improved efficiency, effectiveness, superior products and services that seek to meet customer needs.

2.2.2 Resource Dependency Theory

Resource Dependence Theory (RDT) is concerned with how organizational behaviour is affected by external resources the organization utilizes such as information communication technology. The theory is importance because the firm's ability to gather, alter and exploit resources faster than its competitors. RDT is premised on the idea that resources are critical in achieving organizational success and that access and control over resources is basis of power (Lamb & Boyden, 2011). The basic argument of resource dependence theory states that firms depend on resources; these resources originate from the environment which consists of other organizations. The resources that a firm requires are often in the hand of other firms. Resources are a basis of power and legally independent firms can therefore depend on each other. The environment is perceived as the source of scarce resources that are essential for the survival of the firm. Lack of control of these critical resources is the major cause of environmental uncertainty.

Environment that comprises of a high level of resources are perceived to be less hostile to the stability of the firm while those with low level of resources act to enhance intensity of competition among firms. Resource dependence theorists maintain that in order to minimize the impact of environmental uncertainty it is worthwhile for the firms to develop and sustain effective relationships with the external environment (Pfeffer & Salancik, 2003). Thus, customer is the ultimate resource on which companies depend. Although this seems obvious in terms of revenue, it is actually organizational incentives that make management see customers as a resource. Presently, resource dependency theory has been scrutinized in several review and meta-analytic studies.

Drees & Heugens (2013); Sharif & Yeoh (2014) who supported the importance of the firm taking actions such as forming strategic alliances, strategic mergers and acquisitions to counter dependencies and improve organisational autonomy and legitimacy.

2.3 Strategic Responses to Environmental Challenges

There are various strategic responses adopted by firms to counter environmental challenges however, this study discusses the following, go-to-market strategy, product differentiation, product innovation, motivation and reward and mergers and acquisitions. Go-to-market strategy is a plan by the firm to utilize their inside and outside resources for example sales force and distributors to deliver their distinct value and position themselves to customers to gain a competitive edge. Under this strategy, the firm segments the market by dividing its prospective customers into various groups that possess similar needs. This approach enables the firm to provide customers full value proposition of their products or services, it is intended to improve

the overall customer experience while taking into consideration several aspects of the value proposition like quality of the products and pricing (Pearce & Robinson, 2005).

Companies need a new approach to going to the market- one that we can call channel stewardship. This refers to the ability of a participant in a distribution channel - a steward - to craft a go - to - market strategy that simultaneously addresses customer's best interest and drives profits for all channel partners. A steward can be any participant in the value chain to the customer. When a channel has an effective steward, all participants understand the levers that motivate their partners, as a result all players are better primed for a give and take required to create a value proposition that is as attractive as possible to customers and to the various channel participants (Rangan, 2006).

Choosing the correct distribution and marketing channels and promotions are fundamental steps in a go-to-market strategy (Porter, 2008). The firm chooses its distribution model, the kind of support and services that are needed and address the likelihood of achieving a competitive advantage. Afterwards the firm resolves how it will market its products or services and the kind of marketing strategies to adopt. When designing a go-to-strategy, the firm should consider three important factors namely, customers, company and competition.

To retain its customers, this strategy is aimed at delivering unique customer experiences that leads to loyalty which contributes to improved purchase of products. The firm must align its employees and activities in line with its mission and vision. An understanding the competition is critical in deciding the products or services to offer (Geroski, 2008). Gathering information about how the competitors are performing helps a firm to identify their areas of weaknesses in order to find

appropriate solutions. This enables the firm to offer products that address specific needs of the customers. The go-to-market strategy is underpinned on two strategic execution models namely; sales effectiveness which ensures demand fulfilment and agronomy excellence which is the demand generation engine of the business (Pearce & Robinson, 2005).

Porter (2008) contends that product differentiation is another strategy that is adopted by organisations to respond to environmental challenges. Firms design their product or service in a unique way to make it more attractive to a certain target market; this involves distinguishing it from rivals' products as well as the firm's own products. The advantage of differentiation is that the producers can segment the market to target specialized segments. This enables the firm to achieve a higher price than the average. The costs incurred in differentiation are recovered from revenue generated from sales.

Thompson (2008) explains that differentiation can easily be copied by competitors and thus the firm should invest in research and development to continuously improve on their products and services offerings. Some firms target smaller market segments for specialized customer needs, this may involve identification of a need and development of products that can fit customer needs. Firms adopt differentiation as a strategy to enter the market or an industry to produce similar but unique products and services.

Product innovation is the process of bringing to market products or services that are new or significantly improved for intended uses. The goal of product innovation is improving the quality and value of products or services for target markets. It usually involves significant investment in research and development activities. Product innovation strategy is achieved by investing in modern technologies and utilization of

such technological resources in the production processes and procedures. It also entails a competent team of talented employees with specialized skills and experiences to make valuable contributions in the organisational processes and procedures. The advantage of using product innovation is because it is difficult to imitate by the competitors (Scott, 2010).

Smaller firms wishing to innovate products or services might face several challenges such as lack of adequate funds to invest in modern technology and inability to attract competent and experienced employees (Sobanke, Ilori & Adegbite, 2012). This might make it difficult for the firm to innovate superior products or services. Lamb and Boyden (2011) note that through product innovations managers can adopt and deploy internal and external resources such as organisational skills, competencies and resources by aligning them towards corporate goals and targets. Hence, the firm is able to offer more distinctive products or services at competitive prices than their rivals (Strickland, Gamble & Jain, 2008).

Salim and Sulaiman (2011) argue that firms might respond to environmental challenges by adopting an innovation that is difficult to duplicate by competitors this gives the firm a competitive edge over its rivals since it can offer distinctive products and services at a cheaper cost than its competitors. Similarly, when competitors duplicate innovation, this is risky to the company that came up with the original idea. This leads to loss of competitive edge due competition from the other market players. Organizations might seek legal protection through a patent, but the reality is that most products and services are difficult to protect. Initial investments are higher similar to risks and innovating organizations find themselves competing with competitors riding on the same idea (Sanchez, Lago, Ferras & Ribera, 2011).

The firm should establish an effective reward system to retain top performers in the organisation. To effectively motivate employees in the work place, the firm should formulate policies and procedures for example reward systems to boost employee's satisfaction and motivation. An effective reward and recognition system acts as a great motivator on employee's performance however; an inappropriate reward and recognition program demotivates employees. The level of employee's commitment is based on the rewards and recognition. The firm's survival and its prosperity can be defined by how well the organisation treats its employees and the manner in which it implements its reward and recognition programmes and whether their rewarding its strategies are effectively communicated to the employees (Sanchez et al., 2011).

Pruis (2011) notes that motivated employees are an asset to the organisation; managers need to reward the employees in order to motivate them and to exploit maximum potential from them through various contributions towards realizing set goals and objectives. The main role of a manager is to motivate and inspire employees by setting good examples that can be emulated. Firms can motivate its workforce by introducing reward and recognition programs and bonuses among others. Excelling employees are also promoted in their job grades annually after their performance appraisal. Exemplary performers are put in a Global Talent Management (GTM) Program to prepare them for their next roles through a succession planning process (Mihelic & Plankar, 2010).

Thompson (2008) posits that mergers and acquisition is a form of strategic responses that is adopted by firms. Combining operations through merger and acquisition is essential in achieving economies of scale, increasing organisational competencies, synergy and competitiveness; this creates a platform for new markets. Firms practice mergers and acquisition to achieve reduced operational costs, growth and expansion

of geographical coverage of the firm's business and products portfolio to gain access to modern technology and innovation for increased competitiveness. Other benefits that are got from mergers and acquisition include increase in capital levels, a wide distribution network and adoption of global practices. The major challenge of this strategic response is cultural diversity especially in cases of cross-border acquisitions (Houston, James & Ryngaert, 2010).

2.4 Empirical Literature and Knowledge Gaps

Denton and Vloeberghs (2010) did an investigation on the strategic responses implemented by firms to deal with environment changes in South Africa. It was revealed that differentiation, product innovation and formation of alliances were the main strategies employed by firms. This study was conducted in a country whose regulatory framework and culture is different from Kenya. Levy and Kolk (2002) did a research on strategic responses to global climate change by multinationals in the oil industry. The research relied on inductive reasoning as a methodology as opposed to a theoretical framework or hypothesis to guide the study from the beginning.

Greenberg (2011) explored the strategies that were implemented by Slovenian SMEs to deal with environmental challenges. A cross-section design was employed in a sample of 100 SMEs and the results concluded that product differentiation and information communication technology were the main approaches. This study was conducted in Eastern Europe whose context was different for since it focused on SMEs in different sectors other than seed. Murule (2011) studied the strategic responses used by pharmaceutical manufacturing firms in Kenya. The study used a cross-sectional design where data was collected using questionnaires. Primary data was collected using semi-structured questionnaires. The results found that pricing, marketing and strategic alliances were the most commonly used strategies in

pharmaceutical firms to maintain competitive advantage. The study limited itself to the pharmaceutical industry which had no similarities with the seed industry.

Camison, Boronat and Villar, (2007) did an examination on the impact of strategic responses on performance considering technology as a moderating variable. An exploratory research design was implemented in a sample of 100 Spanish firms. It was discovered that product differentiation, mergers and product innovation were the key strategic responses adopted by Spanish firms to maintain competitiveness. A positive relation was found to exist between strategic responses and performance. Technology adoption was found to impact strategic responses and performance. The context of the study was different from the seed industry.

Scholars' demonstrate that strategic responses are essential practices employed by firms in different sectors to counter challenges that emanate from environmental changes. Although scholars have explored strategic responses and their contribution in enabling a firm to maintain its competitive abilities locally and internationally a limited concentration has been to the seed sector in emerging economies particularly in Kenya.

Table 2.1: Empirical Literature and Knowledge Gaps

Author(s)	Research Topic	Major Findings	Research gaps
Denton and (Vloeberghs, 2010)	Strategic responses implemented by firms to deal with environment changes in South Africa.	Differentiation, product innovation and formation of alliances were popular strategies adopted by South-African firms.	This study was conducted in a developed country whose regulatory framework and culture is different from the local setting.
Levy, D., & Kolk, A. (2002)	Strategic Responses to Global Climate Change: Conflicting Pressures on Oil Multinationals	Strategic responses were driven by the institutionalized memory of losses associated with prior investments, rather than technological competencies.	The study methodology was based on inductive reasoning, meaning no theories or hypothesis was applied at the beginning of the study but rather towards the end.
(Greenberg, 2011)	Strategies employed by SMEs to counter environmental challenges in Slovenia	It was discovered that product differentiation and use of ICT were the main strategies.	The study was conducted in a global set-up that is different from the local setting.
(Murule, 2011)	Strategic responses by manufacturing pharmaceutical firms to changes in the pharmaceutical industry in Kenya	The results found that pricing, marketing and strategic alliances were the most commonly applied strategies in pharmaceutical firms.	The study limited itself to pharmaceutical firms while the current study is focusing on the seed sector.
(Camison, Boronat and Villar, 2007)	Impact of strategic responses on performance considering technology as a moderating variable	A positive relation was found to exist between strategic responses and performance.	The study was conducted in a developed country, which was contextually different from seed sector.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the methodology that would be applied to achieve the goal of this study. It covered the research design, data collection tools, procedures and data analysis.

3.2 Research Design

The research design adopted in this study was a case study. The choice of this form of research design was to allow an in-depth investigation of the object under study. This was supported by Yin (2009) who asserted that a case study focuses more on a single organization or entity. The choice of research design allows for more data to be collected on real issues under investigation.

Case studies provide detailed information using considerable approaches such as interviews, visual observation, audio and video recordings. This helps to authenticate the research and to provide additional validation to the assumptions and assertions made by the interviewees or the researcher. Case studies provide an opportunity for unique first-hand information to be obtained and challenges theoretical assumptions about a study.

3.3 Data Collection

An interview guide was used to collect data. The decision to use an interview was informed by the small number of respondents to be interviewed. Interviews allowed the respondents to give first-hand information that was reliable, relevant and accurate. Raw data was obtained by interviewing six members of the top leadership team who worked for Pioneer Hi-Bred Kenya Limited. They included: The Managing Director;

Commercial leader, Marketing Leader; Senior Research Scientist; Agronomy-technology Leader and Production and supply Leader. The choice of this category of interviewees was informed by their involvement in strategy formulation and was deemed to have a better understanding of response strategies and environment challenges facing Pioneer Hi-Bred Kenya Limited.

The respondents were briefed on why the study was being conducted to enable to them understand the importance of the study. Then in durations of thirty to ninety (30-90) minutes the interview was conducted by asking questions. For each question, the interviewees were given 5-10 minutes to give their views before moving to the next question. The face to face interview was conducted with all the six company leaders.

Prior communication and arrangements with the interviewees was made to allow for time scheduling of the actual interview and for interviewees to prepare adequately to responds to all questions asked by the interviewer. Published sources of data were also utilized for reference purposes. This information was derived from internal company publications such as annual reports, quarterly bulletin and research publications from the company repository. The interview was guided by the broad objective of the study which was: To determine the strategic responses to environmental challenges facing Pioneer Hi-Bred Kenya Limited.

3.4 Data Analysis

Content analysis frame work informed the data analysis process because the nature of this research was qualitative. Content analysis is defined as a systematic description of the composition of objects or materials under the study. Willig (2008) defines content analysis as a method that summarizes any form of content by counting several aspects of the content. Through content analysis, the study was able to utilize textual data that

was presented by the interviewees in form of an essay. A blend of responses from raw data and published sources was discussed in line with the research objective. Thus, an objective assessment was achieved as compared to mere content from the impressions of a listener.

This content analysis enabled the researcher to obtain detailed information about the organization especially on the study variables. Analysis of content gave a close association of socio-and psycholinguistics in enabling the researcher to develop artificial intelligence. This approach of analysis was important in establishing the intentions, the area of focus or communication patterns and behaviours of people, groups or institutions. In this study, content analysis technique was of help in replicating and validating inferences by interpreting textual materials. It helped to systematically evaluate texts such as documents, verbal communication and graphics hence it could convert qualitative data into quantitative form.

CHAPTER FOUR

DATA ANALYSIS / RESULTS AND DISCUSSIONS

4.1 Introduction

The purpose of this chapter is to present the analysis of the data obtained and the findings of the study. Data analysis is the process of reducing bulky data to information that address the preliminary intention of the study (Cooper & Schindler, 2003). The data analysis has been done in line with the objectives of the study, which was to determine the strategic responses to environmental challenges facing Pioneer Hi-Bred Kenya Limited. This study targeted six members of the top leadership team working for Pioneer Hi-Bred Kenya Limited. These leaders included: The Managing Director; Commercial leader, Marketing Leader; Senior Research Scientist; Agronomy-technology Leader and Production and supply Leader.

4.2 Analysis of Responses

To achieve the objectives of the study, the study targeted six members of the top leadership team working for Pioneer Hi-Bred Kenya Limited. The study established that four of the leadership team were male and two were female. The respondents indicated the positions they held in the organization. The study found out that each of the respondents had worked for the company for more than more than seven years in different roles and function. This indicated low turnover and meant that they understood the environmental challenges facing the industry. The study established that each interview had held their current position leadership role for duration of four year. This meant they had the experience and knowledgeable on the research subject matter and would help in the realization of the research objective.

4.3 Environmental Challenges faced by Pioneer Hi-Bred Kenya Ltd

Environmental challenges are the external and unmanageable factors that influence the productivity and the profitability of the Pioneer Hi-Bred Kenya Limited. They also influence the decision making, and the firm's strategies. The study revealed that the environmental challenges facing the company includes; globalization and market liberalization, land subdivision, sourcing of raw materials, storage constraints, unpredictable weather, pests and diseases, seed production technology constraints and leadership challenges.

4.3.1 Globalization and Market Liberalization

The respondents indicated that the wave of globalization and market liberalization had posed a challenge to Pioneer Hi-Bred Kenya Limited. Globalization, contributed to accessibility of cheaper finances that the company used to invest in seed production and construction of a processing factory. However, globalization and market liberalization affected market share growth, productivity and profitability of the company. This was because, lessening of government regulations, and restrictions in the Kenyan seed industry fostered unhealthy competition by regional and multinational firms in the market. These firms engaged in price wars, offered unsustainable subsidies that eroded market value within the seed industry, hence negated the positive gains of market liberalization. Some competitors abused their huge resource capacities by under-pricing their products to keep competitors at bay. The respondents alluded that government owned seed companies protected their market by subsidizing the cost of seed.

As a result, Pioneer Hi-Bred Kenya Limited was experiencing unfair competition. The respondents indicated that one firm leveraged unique proprietary germplasm which kept them ahead of competition through innovative products that locked Pioneer Hi-

Bred Kenya Limited out of a key market segment. According to the respondents, the merger and acquisition of some regional and multinational companies posed a challenge to the company, since the huge financial base enables to invest significantly in newer breeding and production technologies while expand their foot print to grow and gain market share.

4.3.2 Land Subdivision

The respondents indicated that land subdivision is a hindrance to large scale seed production. The culture of land ownership leads to land subdivision into small plots that cannot be productively used for economic seed production. This denies seed producing companies like Pioneer Hi-Bred Kenya Limited the opportunity to enjoy the economies of scale. The respondents intimated that and productive arable land that would have been useful for the company's seed production investment was being subdivided and converted into real estate property. This has led to the prices of leasing or buying land for seed production prohibitive.

The respondents also noted that the absence of a clear policy on agricultural land consolidation is posing a major challenge to the company's initiative to scale up local seed production in key production pockets across the country. The respondents indicated that the culture of land inheritance has propagated the land subdivision culture since it led to land being subdivided into small plots that obscure significant production. Respondents claimed that land subdivision has resulted to people hoarding land for speculative purposes rather than being used for seed production hence denying the company an opportunity to optimize its usage.

4.3.3 Sourcing of Raw Certified Seeds and Storage Constraints

According to the respondents, when seed production is down, the inventories are low resulting to certain seed varieties being unavailable. Sourcing seeds from other countries is inhibited by restrictive regulatory requirements and logistics constraints making it expensive. The respondents indicated that storage was an environmental challenge since produced seeds are initially stored by farmers on the farm, before transportation to the seed processing plant. Storage space facilities required at the farm are significantly huge and expensive to construct.

Consequently, there is a lot of wastage resulting from poor post-harvest handling and shortage of seeds at the farm hence impacting projected supply of raw seed for processing and sale into the market. The production manager stated that, the high cost of compensation for seed growers directly results into increased costs of goods, making the company products to be premium priced. Further, poor road infrastructure made it expensive to transport raw certified seed from the growers to the processing factory. In addition, farmers opt to sell raw seeds as grain, in cases where there is delay in transportation of seeds. Storage of raw seeds in temporary yards contributed to moisture issues, pest and diseases hence reducing the quality standards of raw seed.

4.3.4 Unpredictable Weather Patterns

Climate change and unpredictable weather pattern affects crops at different growth stages. The respondents indicated that this reduces purchasing power of the farmers due to losses incurred in the farms. This translates to low yields output and at times total crop failure. Crop failures affect the company's supply and demand planning of raw seed production due to the loss of critical seed like the basic and parent seeds. This means the company incurs additional costs to import parent seeds for raw seed production from source centres which is quite expensive.

Seed growers' compensation and insurance premiums on seed production is significant and erodes profit margins. The respondents explain that the initial investment into private weather monitoring instrument is not only costly but a full-time responsibility which the company has little influence over. Respondents state that, seeds are produced in uncontrolled environment subject to many biotic factors, therefore making it a very risky venture for most seed grower.

4.3.5 Pests and Diseases

The respondents indicated that emergence of invasive insect pest like Fall Arm Worm (FAW) and ravaging diseases like Maize Lethal Necrosis Disease (MLND) posed a major challenge to the company and the maize seed industry in Kenya. The respondents added that outbreaks of disease MLND resulted into total losses of maize grown by farmers resulting to shift into other crops non-susceptible crops like horticulture and cereals. The disease was also difficult to control by chemical spraying since it was viral in nature. New invasive pest like FAW had developed resistance to available pesticides due to overuse and limited alternative molecules to alternate. This has led to high costs of controlling pest and diseases by farmers.

4.3.6 Seed Production Technologies

The senior research scientist explains that the company has access to world class proprietary seed breeding technologies that had the capability to bring to market new products in record time while at the same time manage the pest and disease challenges. New seed breeding technologies like gene editing and genetic modification of germplasm through biotechnology techniques and application were facing major regulatory barriers to commercialize by various government ministries and anti-biotechnology lobbyist and activists.

In addition, the production manager indicated that despite the company willingness to invest in the latest seed processing and condition plan, the government has given no incentive to private sector to make full use of such technology. Seed drying equipment which helps to reduce moisture contents of raw seed before conditioning at the farm attracts significant import duty tax. According to the respondents, the other challenge was the lack of investment in irrigation technologies by seed producers; the investment although costly had the capability of reducing dependency on rain fed production which is very risky. However, technology adoption in the production of seeds is not fully utilized by the company due to reliance on cheap imports from its production hubs in Zambia and South Africa.

4.3.7 Leadership Challenges

The respondents explained that the recent merger of the company at a global level presents a corporate leadership challenge. Some senior line management leaders elected to retire early while others joined competition due to personal seasons. Competitors also took advantage of the changes in the business environment to entice talented employees to join them. Respondents indicated that the ambiguity that comes with the merger presents a leadership problem especially on role clarity, new culture, values and corporate identity of the company and its workforce. The impact has extended to customers who want more information about the future of the company.

4.3.8 Challenges by Seed Regulatory Bodies and Government Policies

The respondents indicate that seed production industry involves a multiplicity of stakeholders with the seed regulatory bodies and the government policies affecting the company. The bureaucracy in the government bodies whose mandate is to regulate seed crop inspections, processing and sampling is resulting in delayed supplies to customers. Reliance on old policies by the seed regulator and red tape in formulating

newer policies that addresses present day challenges on new product registrations is hampering the launch of novel products into the market by the company. Government has introduced Value Added Tax (VAT) on imported and locally produced seed maize impacting the company strategic growth plan negatively and slowed down the industry growth. The respondents stated that lack of harmonized regional trade policies on seed movement across borders and random caveats on export of seeds affects the company's ability to meet its regional market demand. The company is forced to adhere to policies that are unfavourable to comply with the set regulations on seed trade. The respondents further indicated that the government erratic order of seeds for relief supplies is distorting its production planning process.

4.4 Strategic Responses to the Environmental Challenges

The interviewees indicated that the company has adopted strategic measures to respond to the various environmental challenges that it faced. The formulation of strategic responses to the prevailing environmental challenges facing Pioneer Hi-Bred Kenya Limited was driven by both the top management team led by the managing director with support from various heads of department. It was then cascaded within the organization for implementation. The study findings indicate that the company has developed strategic responses for the environmental challenges it faces.

To address the challenge of globalization and market liberation, Pioneer Hi-Bred Kenya Limited leverages the financial strength of its parent company in the United States of America to access intercompany financing to fund its strategic initiatives. The company taps into its global genetic reserve that enables it to breed innovative and differentiated products hence gaining a winning advantage against its competitors. The company reinvests profits from its regional operations to finance its research and development programs. The company acquired Pannar Seed Kenya

Limited, in a strategic move that allows it to derive synergistic advantage in its now expanded seed genetic library, breeding programs and biotechnology capabilities.

To guarantee sufficiency of land for seed production, the company contracts selected large farms with expertise in seed production and enter into seed production contractual agreements of between five to ten years. The company also identifies medium seed producers and enters into annual seed production lease agreements to spread its production risk for short term seed production. In addition, the company has land for its seed research and development activities.

The company has acquired warehouses to manage storage challenges of raw seeds. Furthermore, it has taken an incremental approach to ensure equilibrium in inventory and order turnaround time. Contracted transporters are hired to transport seed from the farms to the factory for cleaning and processing. The company provides farmers with drying canvas and fumigants to ensure best quality of seed is received from its seed growers. It also trains farmers on harvesting, ethics, storage and seed handling.

On the responses over the effects of climate change and unpredictable weather patterns, the findings are that the company responds by growing seeds under irrigation to avoid reliance on rain fed production. Unpredictable weather, offers the opportunity for the company to undertaken research in seeds that can withstand changes in weather patterns. The company has product ranges that are adaptable to different climatic conditions and agro-ecologies. The company also invests in training farmers on modern farming systems such as minimum tillage.

To address the challenges of pests and diseases in seed production, the interviewees stated that the company has a research breeding program for common and prevalent diseases such as maize lethal necrotic disease. Research trials enable the company to

introduce disease tolerant seed varieties. To address the pests challenge such as fall army worm, the company uses its crop protection subsidiary company to sell pesticides that control major pests. The company implements the use of dressing processed raw seeds before planting to protect the emerging seed from pest damage and soil borne disease during early stages of growth.

According to the interviewees, the company has responded to the challenge of seed production technology by investing in modern automated seed processing factory. The efficiency of automation enables the company to deliver quality products timely into the market ahead of competition. The company further invests in double haploid seed breeding technology which shortened the breeding cycle from seven years to two years. This allows the company to launch new product every two years, thus staying ahead of competition.

The study establishes that Pioneer Hi-Bred Kenya Limited navigates the leadership challenges through a change management and leadership program in collaboration with a consulting company called McKinsey. The consultants train and coach its leaders who in turn train all employees on handling and managing transitions. New avenues of communication and information dissemination from the top to the bottom of the organization are therefore created. Continuous feedback loops and updates on changes in the organization structure and reporting lines are under implementation and are closely monitored. The company allowed employees to be elected as change champions. Critical changes in the company are communicated to customers and stakeholders on a regular basis through external affairs department.

The company addresses the challenges in seed regulation and policies by government through an industry lobbying approach. Seed Traders Association of Kenya (STAK) is used to lobby the seed regulator on critical seed laws policies. This has given room for the company to self-regulate on areas like field seed inspection, seed sampling and seed germination testing. STAK also engages the government on matters relating to taxation of seeds, harmonization of cross border seed trade and licencing the use of biotechnology traits in breeding techniques.

4.5 Discussion of Findings

The results obtained from the research study do agree with empirical knowledge. The business environment that the company operations are influenced by market forces which are beyond the control of the company. However, some of the influences contribute to opportunities while others are a threat to the company's performance. For the company to thrive against all the odd, offered by the competitive environment, the company had adopted strategic responses to counter the environment challenges. The company has strategically responded to the environment in the areas of: marketing, technology, leadership and organization culture, and employee involvement. The company takes proactive approach through environment scanning. However, on the extreme cases the companies adopt reactive approach depending on the stimuli from the environment.

The purpose of the study was to establish the strategic responses environmental challenges facing Pioneer Hi-Bred Kenya Limited. The study established that the company has many environment challenges which impacted its business operations and thus had to come up with strategies to counteract the challenges exists in its environment. The outcome of this study presents findings that are not only similar but consistent with studies undertaken by other researchers.

The research findings are in conformity with M. Matabishi (2015), who notes that to respond to the changes in the environment, International Award Foundation adopted response strategies that includes; information technology, organizational restructuring, differentiation strategy, strategic partnership, innovation strategy, organizational structure, resource mobilization, leadership and culture, and change management. He further notes that International Award Foundation should continuously monitor its environment and swiftly modify its strategy in response to changes in the external environment.

The study findings concur with Tushman and Anderson (2010) that for established firms to be sustainable, they must respond to any form of change in their environmental. This informs the choices of strategic responses in the firms undertakes. Some of the environmental changes include shifts in technology, market dynamics, regulatory changes and innovation. He stated that firms miss what is happening in the environment by using mechanisms that are inadequate or maladaptive.

The findings agree with Pearce and Robinson (1988), whose observations indicated for a firms to achieve its objectives, its set of plans and actions must have a strategic fit to the complexities and dynamism of the environment around it. Firms can achieve their objectives by responding to the changes in the external environment through new products and service, entering new market, new technology, leadership and culture change. They further noted that alignment of strategies of organizations with the requirements of their environment outperform organizations that fail to achieve such an alignment.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings regarding the objective of the research. It covers the conclusion and recommendations of the study.

5.2 Summary of the Findings

The results from the study indicated that Pioneer Hi-Bred Kenya Limited has faced many environmental challenges. The challenges revolved around globalization and market liberalization, subdivision of land, lack of storage facilities for seeds, unpredictable weather and climate change, pests and diseases, leadership changes and adoption of appropriate dynamically changing technology. However, the company has implemented strategic responses to counter the environmental challenges. This was achieved through leveraging its multinational status that enabled it to tap into its global genetic reservoir to source novel germplasm to breed superior hybrids.

The company financed its research and development operation capabilities by leveraging intercompany financing from its parent company in the United States of America. The company had also acquired Pannar Seeds Kenya which enable it to consolidate its genetics library, breeding technologies, expand its product portfolio and market share. To guarantee sufficiency of land for seed production and mitigate on weather related challenges, the company contracted large scale farmers with irrigation capabilities to guaranteed year-round seed production.

The company had leased out warehouses to address storage challenges of raw seeds and processed seeds. To concentrate on its core tasks, the company has contracted

transporters who manage logistics of seed movement from the farms to the factory for processing. The company diversifies its product ranges that are adoptable to climatic changes through modern maize breeding techniques. The company also counteracts challenges of diseases and pests through a combination of breeding techniques and use of crop protection products. The company also adopted a new leadership culture of collaboration and partnership to resolve its internal issues. Lastly, the company used industry association to lobby government and regulatory authorities on critical policies matters that affected the company.

5.3 Conclusion

Environmental challenges that affected Pioneer Hi-Bred Kenya Limited due to globalization and market liberalization were a threat to the company's productivity and profitability. The Company would need to be perfectly imitable. This would give the company a competitive advantage. This could be achieved by the business diversification, depth and mix of products and services. Diversification leads to cost efficiency as economies of scale is achieved enhancing product performance in the marketing resulting to savings in terms of customer transactions. This ensures that the business maintains a competitive edge. This is achieved through economic efficiency and economies of scale. Economic efficiency comprises of technical and allocative efficiencies. The acquisition of Pannar seed Company has given the company a winning advantage through size, innovation and closing out new entrants who could increase competition. The company's framework to assess and interpret environmental feedback would ensure customer focus, moral principles, and creative dynamics.

The environmental challenges had brought the need by the company to react appropriately to the threats posed by globalization, subdivision of land, lack of sufficient storage facilities in the farms, climate change and unpredictable weather, pests and diseases. An effective monitoring and evaluation system, efficient corporate communication channels, would promote continuous response by the company to the changing environment. The response strategies of the firm play an important strategic role of creating value and improve business performance. The management of the company would enable the organization to grow and develop the appropriate response strategies.

5.4 Recommendations

The summary of findings and conclusions in this chapter, it is evident that Pioneer Hi-Bred Kenya Limited has formulated strategic responses to mitigate against the environmental challenges it faces for it to a successful operation. Further to those strategies the companies should diversify its product portfolio beyond maize for grain and venture into silage seed business, which focuses on maize seed for animal forage and fodder. The forage segment is a niche market that is highly profitable and has less competition. This will enable the company to spread its risks is spread and at the same time penetrate a new market segment. The company will need to invest its extra income on developing the seed for forage segment by training existing employees and hire more skilled people in forage production to supports its growth plans.

The study recommends that the company should aggressively engage in mass media marketing campaigns and product demonstration with farmers to create awareness of its differentiated products offering and special attributes such as pest and disease resistance, adaptable maize hybrids that can withstand adverse climatic conditions. This strategy will bring out the value of the products being offered by Pioneer Hi-

Bred Kenya Limited and increase its sales. The marketing campaigns will also ensure that the company out wits competitors who rely on price undercutting to grow their market. The company should not respond to competitor's price wars by reducing its prices, since this will erode the value of its differentiated product resulting into loss of competitive advantage.

The study findings recommend that to address the land subdivision challenge, which was a major constrains to it seed production, the company should explore outsourcing its production to large scale farmers with technical expertise under a long-term producer agreement. The company should consider co- investing in irrigation infrastructure with the growers to eliminate the risks attributed with rain fed production. This will ensure the company has sufficient raw material for seed processing across the year. The company should outsource its storage needs to professional logistics company to minimize on wastage within the supply chain.

The study identified that policy and regulatory barriers by government were barriers access to deployment of modern seed production technologies such as biotechnology solutions. Further government policy to tax modern seed drying equipment was contributing to post harvest losses of seeds. The study recommends that the government through the National Biosafety Authority of Kenya and the Ministry of Agriculture should licence the use of biotechnology in plant breeding under set regulatory guidelines. This will allow companies with access to biotech traits to commercialise them and help solve many challenges related to seed production. The ministry of finance should zero rate all taxes levied on importation or manufacture of seed drying machinery to encourage all seed players to buy and use them.

5.5 Implications for Policy and Practice

The study established that the company's organizational structure was able to respond to pressure from the environment and it recommends that the company should continue being innovative to incrementally adapt to the complex and ever dynamic business environment.

The study found out that the company invests more in capacity building of the farmers through training and availing to them modern technology equipment. The finding of the study was that the company did not have sufficient seed storage facilities for raw seeds and finished products. It is recommended that the company should own its own storage facilities. Ideally this should be at the proximity of the company farms and their partners in different geographical regions to ensure that the distributors have sufficient constant supply of the seeds.

5.6 Limitations of the Study

The study limitations were that the research was based on a case study of Pioneer Hi-Bred Kenya Limited. Some of the respondents were hesitant, to ensure the disclosure is not detrimental to the company. Mainly, the respondents gave general information to avoid exposing the company to competitors.

5.7 Suggestions for Further Research

The study confined itself to strategic responses of Pioneer Hi-Bred Kenya Limited to environmental challenges. More studies need to be done on the strategic responses to environmental challenges facing the entire seed industry in Kenya. Further research is needed on strategy implementation by seed companies operating in Kenya. This would build a strategic synergy in the body of knowledge. Further, Pioneer Hi-Bred Kenya Limited being a private company, needs to study and interrogate why public seed companies enjoy the monopoly and government subsidies in the seed production and distribution services, this would help in comparison of the findings.

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APPENDICES

Appendix I: Letter of Introduction



UNIVERSITY OF NAIROBI
SCHOOL OF BUSINESS

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P.O. Box 30197
Nairobi, Kenya

DATE... 10/10/2017

TO WHOM IT MAY CONCERN

The bearer of this letter... KIRUATE HUMPHREY IGADWA
Registration No... DE164941/2013

is a bona fide continuing student in the Master of Business Administration (MBA) degree program in this University.

He/she is required to submit as part of his/her coursework assessment a research project report on a management problem. We would like the students to do their projects on real problems affecting firms in Kenya. We would, therefore, appreciate your assistance to enable him/her collect data in your organization.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organizations on request.

Thank you.




PATRICK NYABUTO
SENIOR ADMINISTRATIVE ASSISTANT
SCHOOL OF BUSINESS

Appendix II: Interview Guide

Demographic Information about Interviewees

- i. For how long have you worked in this organization?
- ii. What current position do you hold in the organization?
- iii. For how long have you been holding the current position?

Environmental Challenges

1. In what means is the wave of globalization and market liberalization a threat to the company?
2. Discuss the effects of challenges caused by subdivision of productive land by farmers impact the production of certified hybrid seeds by the company?
3. Explain challenges faced by your company in sourcing for raw certified seeds for processing and whether you have constraints in storage of finished products?
4. Describe how the effects of unpredictable weather patterns have impacted the company operations?
5. How do pests and diseases pose a challenge to the company's seed production system?
6. What are some of the seed production technologies adopted by the company in the recent past and presently?
7. Explain any challenges posed by leadership, ineffective coordination, ineffective communication channels and poor sharing of responsibilities?
8. How do changes by seed regulatory bodies and government policies affect the company seed business?

Strategic Responses

1. Describe how the company has responded to the wave of globalization and market liberation?
2. Discuss how your company has responded to the challenge of land subdivision in the production of certified hybrid seeds?
3. Explain the how the company has responded to challenges of sourcing and processing of raw certified seeds and storage of finished products?
4. Discuss how the company responded to climate change and the unpredictable weather pattern'?
5. What are the approaches that your company has utilized to respond to challenges posed by pests and diseases?
6. In what ways is your company responding to challenges of mergers and acquisition within the seed sector in Kenya?
7. Explain how your company has responded to technology in seed production?
8. Describe ways in which your company has responded to changes in government policies and seed regulatory bodies requirements?