EFFECT OF STRATEGIC FLEXIBILITY ON PERFORMANCE OF SUGAR COMPANIES IN WESTERN REGION, KENYA

BY

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

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DECLARATION

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

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ACKNOWLEDGMENT

I would like to express my gratitude to my supervisor Dr. Donald Gulali for his guidance and encouragement that enabled me to write this project successfully. I also acknowledge managements of public sugar companies in Western region for allowing me to collect data in their institutions.

DEDICATION

I dedicate this project to my father Vincent Tuwei and my loving mother Nally Tuwei; my husband, Franklin Sang; siblings: Nicholas, Cynthia, Caroline, Consolata and Larvan.

ABSTRACT

This study delves into how strategic flexibility influences the performance of state-owned sugar companies in Kenya's Western region. Strategic flexibility is crucial for organizations to navigate market uncertainties effectively, allowing them to adapt to changing consumer preferences and competitive landscapes. Despite extensive research on its benefits, its application within Kenya's state-owned sugar firms remains largely unexplored. These firms encounter challenges like political influence, high production costs, and inefficiencies, hindering their ability to meet consumer needs efficiently. The study aims to bridge this gap by examining how strategic flexibility can enhance the performance of these firms amidst their challenges. Employing a multi-faceted approach, the research focuses on production, marketing, and supply chain flexibility and their effects on performance. It encompasses several key state-owned sugar companies in the Western region over a four-month period. The findings aim to provide valuable insights for stakeholders, including policymakers and industry managers, to devise strategies for improving sector performance. The study contributes to the broader understanding of how internal strategic adjustments can mitigate external challenges, thus enhancing the efficiency and competitiveness of state-owned enterprises in the sugar industry. It also sets the stage for future academic inquiries into strategic flexibility's role in similar industrial contexts. The literature review, grounded in the Dynamic Capabilities Theory (DCT), explores how firms can adapt, innovate, and realign resources to secure competitive advantages in dynamic markets. While empirical studies highlight the positive effects of strategic flexibility across various sectors, its specific applications in the sugar industry remain underexplored. Using a descriptive correlational research design, the study examines the relationship between strategic flexibility and performance in state-owned sugar factories in Kenya. Data collected from 94 respondents reveal significant positive relationships between production, marketing, and supply chain flexibility and organizational performance. The regression analysis showed the relationship between performance and the production flexibility was significant, $F(1, 61) = 257.064$, $p = 0.000$. Also, both marketing flexibility ($B = 0.335$, $p = 0.14$) and supply chain flexibility ($B = 0.447$, $p = 0.000$) significantly influenced the performance of the organizations in the market. Recommendations include enhancing production capacity, adopting market-responsive strategies, and strengthening supply chain resilience. Limitations of the study include reliance on questionnaires and a focus solely on public companies. Future research avenues could explore qualitative aspects, compare public and private sector performance, and investigate the role of data-driven decision-making in strategic flexibility.

TABLE OF CONTENTS

DECLARATION....ii

ACKNOWLEDGMENT.... iii

DEDICATION iv

ABSTRACT....v

TABLE OF CONENTS ……..….vi

ABBREVIATIONS AND ACRONYMS....ix

DEFINITION OF TERMS x

LIST OF TABLES xi

LIST OF FIGURES xii

CHAPTER ONE: INTRODUCTION....1

1.1 Background to the Study....1

1.2 Statement of the Problem....7

1.3 Objectives of the Study....9

1.4 Research Hypothesis....9

1.5 Scope of the Study 10

1.6 Significance/ Justification of the Study 10

1.7 Conceptual Framework....10

CHAPTER TWO:LITERATURE REVIEW 12

2.1 Introduction....12

2.2 Theoretical Review 12

2.2.1 Dynamic Capabilities Theory 12

2.3 Empirical Review 13

2.3.1 Strategic Flexibility 13

2.3.2 Production flexibility and company performance 15

2.3.3 Marketing flexibility and company performance 18

2.3.4 Supply Chain flexibility and company performance 21

CHAPTER THREE:METHODOLOGY 25

3.1 Introduction 25

3.2 Research Design 25

3.3 Study Area 25

3.4 Target Population 26

3.5 Sampling size 26

3.6 Data Collection Methods 27

3.7 Pilot testing 27

3.8 Reliability test 28

3.9 Validity test 29

3.10 Data collection procedure 29

3.11 Data Analysis and presentation 29

3.12 Research Ethics 30

CHAPTER FOUR:RESULTS AND DISCUSSIONS 32

4.1.1 Response rate 32

4.1.2 Demographic Characteristics 33

4.2 Performance of state-owned sugar companies 35

4.3 Effect of production flexibility on performance of state owned sugar companies 37

4.4 Effect of marketing flexibility on performance of state-owned sugar companies 41

4.5 Effect of supply chain flexibility on performance of state owned sugar companies 44

4.6 Effect of strategic flexibility on performance of state owned sugar companies 48

CHAPTER FIVE:SUMMARY, CONCLUSIONS AND RECOMMENDATIONS 51

5.1 Introduction 51

5.2Summary of the Findings 51

5.3Conclusion of the study 52

5.4 Recommendations of the study 53

5.5 Limitations of the study 54

5.6 Suggestions for further research 54

REFERENCES 56

APPENDICES 62

ABBREVIATIONS AND ACRONYMS

COMESA	Common Market for Eastern and Southern Africa
DCT	Dynamic Capabilities Theory
GDP	Gross Domestic Product
IT	Information Technology
SF	Strategic Flexibility
US	United States
USD	United States Dollars

DEFINITION OF TERMS

Firm Performance: The application of flexible resources and ability to achieve an organization's strategic objectives and goals in the most efficient and effective manner and speed

Strategic Flexibility: The capacity of an organization to be aware of, and willing and able to act, respond, or initiate change, both internally and externally; via realigning the structure and repositioning flexible resources

Marketing flexibility: Capacity of an organization to re-strategize its marketing efforts including introduction of new products, new market entry, and product-line for rapid adaption to environmental changes

Production flexibility: capacity of a company to customize and redesign its goods or services to provide potential customers distinctive choices with notably higher value

Supply chain flexibility: The capacity to effortlessly modify production quantities, procure raw materials, and adjust transportation capabilities offers significant advantages over conventional supply chain management methods

Western Region: The western region of Kenya encompasses 11 counties found in the western parts of Kenya. These counties include Kisumu, Homabay, Migori, Kisii, Nyamira, Siaya, Vihiga, Busia, Kericho, Bomet and Kakamega

LIST OF TABLES

Table 1: Reliability analysis (Cronbach's alpha) 28

Table 2: Gender of participants 33

Table 3: Regression of the relationship between strategic performance and production flexibility of the companies in the sugar sector 38

Table 4: Regression of the relationship between strategic performance and marketing flexibility of the companies in the sugar sector 42

Table 5: Regression of the relationship between strategic performance and supply chain flexibility of the companies in the sugar sector 46

Table 6: Regression of the relationship between the performance of the organizations and the three elements of strategic flexibility 48

LIST OF FIGURES

Figure 1: Conceptual framework 11

Figure 2: Response rate 32

Figure 3: Level of education. 34

Figure 4: Years of working in the sugar sector. 35

Figure 5: Perception of the performance of the sugar companies. 36

Figure 6: Perception of production flexibility on performance. 38

Figure 7: Perception of marketing flexibility on performance. 42

Figure 8: Perception of Supply chain flexibility on perfomance. 45

CHAPTER ONE

INTRODUCTION

This section presents the introduction of the study comprising of the background of the research, problem statement, general and specific objectives, research hypothesis, scope of the study and significance of the study. All these will be in line with the effect of strategic flexibility on the performance of state-owned sugar companies in the Western region.

1.1 Background to the Study

Businesses are putting an ever-increasing emphasis on addressing the uncertainties, risks, and opportunities in the market, such as changes in consumer preferences and competitor moves (Miroshnychenko et al., 2021). These elements force businesses to constantly review their business priorities, revise their plans of action, and modify their methods in order to survive, maintain a competitive edge, and thrive in challenging circumstances (Chebo and Wubatie, 2021). Firms have to deal with an unpredictably changing environment that is marked by quickly developing technologies, significant swings in customer demand, and significant swings in the availability of raw materials in the face of volatile and turbulent dynamics (Yang and Li, 2011). Given the sudden and unpredictable changes in the competitive environment, managers are putting more and more emphasis on flexibility as a way to create fresh kinds of competitive advantage. In this situation, organizations frequently develop strategic flexibility to deal with the external pressures brought on by constant changes in customer expectations, shifting market trends, and competitive actions (Sen et al., 2023).

Strategic flexibility refers to the ability of a company to alter its course in order to stay competitive in the face of significant, unpredictably, and quickly changing environmental shifts that affect its performance (Xiu et al., 2017). Strategic flexibility enables an organization to

respond either proactively or reactively to external pressures. Due to the dynamic nature of the business landscape, the firm quickly retracts these actions and resource commitments after acknowledging changes in its surroundings (Yin et al., 2022). Arguably, strategic flexible businesses perform better than their counterparts. Meng et al. Taouab and Issor (2019) note that performance refers to a specific outcome achieved in management, economics, and marketing, stemming from elements related to competitiveness, efficiency, and the effectiveness of the organization, including its procedural and structural components. Competitiveness and performance are essentially equivalent (Xiu et al., 2017). Lebans and Euske (2006) offered several definitions to clarify the idea of organizational performance: Performance includes a group of financial and non-financial metrics that provide information on the extent of goal attainment and outcomes. Although research on strategic flexibility in various sectors exists, this study centers on evaluating the performance of government-owned sugar firms in Kenya (Taouab, Issor, 2019). Strategic flexibility is more than production. It also includes marketing and supply chain flexibility. In a separate investigation, Dewnap et al. (2020) demonstrated that marketing and sales flexibility represent another facet of strategic flexibility adopted by business entities striving for success in the marketplace. Unlike supply chain flexibility, which centers on addressing supply chain-related challenges, marketing flexibility concentrates on tailoring marketing and sales endeavors to engage customers and fulfill their needs or desires. Furthermore, a distinct study focusing on a specific aspect of strategic flexibility-namely, supply chain flexibility-was conducted by Manders et al. (2017). Their systematic review revealed that supply chain flexibility can be subdivided into various components.

Strategic flexibility plays a pivotal role in the prosperity of business enterprises as it enables them to adapt their operations and strategies to prevailing circumstances, thereby fostering success in the marketplace (Das, 1995). A business's strategy delineates the methods employed to attain its objectives and goals within the market landscape. Hence, strategic flexibility

manifests when an organization can realign its strategy in response to shifts in the market dynamics, whether originating internally or externally. Numerous research endeavors investigating strategic flexibility aim to elucidate its potential in enhancing organizational performance and efficiency in the marketplace (Chan et al., 2017).

Empirical data from the United States, China, and various European nations demonstrate the crucial role played by strategic flexibility in enhancing corporate performance (El-Khil & Darwish, 2019; Maggon, 2022; Delic & Eyers, 2020; Siagian, et al., 2021). To illustrate, in their examination of strategic flexibility within the American automotive industry, El-Khil & Darwish (2019) found that 70% of manufacturing enterprises employed various facets of strategic flexibility, including production flexibility and supply chain flexibility, resulting in improved performance. The success of sugar production hinges not only on environmental, social, and cultural factors but also on a company's internal initiatives and its ability to adapt to competitive pressures and challenges (Singh, Modgil, & Acharya, 2019). Additionally, firms, including those in the sugar sector in Kenya, exhibit the capacity to respond effectively to market conditions due to their agile supply chains. Furthermore, these firms can meet product demand and achieve shorter product cycle times.

According to Kenyan sugar industry reports from 2020, the dominant entities within the sugar value chain encompass sugar manufacturing firms, molasses processing companies, outgrowers' organizations, and artisanal jaggery producers with fixed crushers. The sugar sub-sector possesses significant untapped potential to influence Kenya's overall prosperity. It stands as one of the major contributors to the agricultural Gross Domestic Product (GDP), supporting at least a quarter of the Kenyan population while yielding over 520,000 metric tons of sugar for domestic consumption. This not only satisfies domestic demand but also conserves the economy by saving more than US$ 250 million or approximately Kshs 20 billion in foreign

exchange annually (Mati & Thomas, 2019). Within Kenya's economic structure, sugar firms play a significant role (Wekesa et al., 2015). Approximately 250,000 small-scale farmers, who provide more than 92% of the raw cane utilized by processing companies, have job opportunities in the sugar industry. Kenya now has a total capacity of 520,000 metric tonnes for sugar production (Mati & Thomas, 2019). The majority of the country's sugar production is produced by privately held sugar millers, led by West Kenya Sugar Company, which holds a market share of 30.1%. According to Oduor (2019), Sukari Factory is in second place with 21.4%, followed by Butali Sugar Mills (17.7%), Transmara Sugar (5.2%), Nzoia Sugar (5%), South Nyanza Sugar (4.4%), Muhoroni Sugar (3.7%), Mumias Sugar (1.9%), and Chemelil Sugar (1.1%). From 635,700 tonnes in 2015 to 491,100 tonnes in 2018, there has been a discernible decline in milled sugar production in recent years. In the meantime, imports of sugar have been steadily increasing (Mati and Thomas, 2019). The country depends on imports to supply its annual domestic sugar demand, which exceeds 900,000 tons. Numerous issues, including increased imports as a result of liberalization and the rise of private sugar companies, are to blame for Kenya's declining sugarcane production. According to Chisanga et al. (2014), poor seed quality, the prevalence of smut disease, high input costs, and sluggish payments to farmers are all contributing factors to the agricultural sector's meager sugar yield. Sudan grows early maturing cane varieties that mature in just 14 months, in contrast to western Kenya's sugarcane, which needs 18 to 24 months to mature in the field. The cost of producing sugar has also increased, going from about US$676 per ton in 2014 to US$1007 per ton in 2018. In stark contrast, production costs in Malawi and Zambia are USD 350 and USD 400 per ton, respectively (Thuo, Ombati, & Nkurumwa, 2022).

In the sugar factories, mismanagement of resources by employees has contributed to inefficiencies affecting overall profits (Kenya National Assembly, 2015). Such concerns coupled with high cost of production and corruption have resulted in the industry struggling.

For example, when a professional in the sugar company steals a considerable amount of money and covers it up, the business is likely to swell up its employee ranks so that the business can achieve that goal (Chevalier Roignant, et. al 2019). Furthermore, a majority of the government-owned sugar mills are currently not working effectively below their maximum limit, burdened by substantial debts, and grappling with ineffective and badly maintained machinery prone to many repairs (Mati & Thomas, 2019). The sugar industry is also challenged by issues related to institutional corruption and inadequate management (Oduor, 2019). These problems encompass a broad spectrum, including licensing, sugar importation, milling facilities, and trading activities. A lack of professionalism and responsibility within management boards as well as the illegal importation of sugar are the results of political influence in the nomination of managers for milling firms, which has disrupted commercial operations (Simiyu, 2021).

According to Oduor (2019), the decline in working conditions has prompted the liberalization of the sugar market, facilitating the influx of low-priced sugar into the Kenyan market. As a result of this liberalization, the government has ceased payments to farmers, and most state-owned sugar companies are slated for privatization. Despite government intervention, the sugar industry continues to operate below its capacity and is unable to meet the growing demand or compete effectively on the international stage. One of the factors negatively impacting the performance of government-owned sugar companies is property rights, which give private firms an advantage by incentivizing profit-seeking and enabling more efficient management oversight. The financially long-suffering state-owned sugar mills, labeled for potential privatization by the Privatization Commission in 2020, have stirred a debate about transferring ownership to private investors (Privatization Commission, 2020). Consequently, state-owned sugar firms have faced criticism for their performance, compelling the government to seek solutions to enhance their efficiency prior to the privatization initiative.

A wide range of problems affect the sugar factories in Kenya, thereby limiting their ability to meet the needs of the consumer market in terms of the quantity and quality of products, and this has been reported in many research studies. For example, the study by Wanyande (2001) noted that politics is one of the main and important factors affecting the sugar factories, especially because of poor management of the sector in terms of policies, corruption, and vested political interests that determine the sugar sector's performance depend on politics and government. The effects of politics are significant among state-owned sugar factories. A committed by the Departmental Committee on Agriculture, Livestock, and Co-operatives (2015) noted that sugar factors in Kenya are adversely affected by a wide range of factors such as poaching of sugarcane among millers, high costs of production, inefficiencies in fields and factories, corruption and impunity, and poor management and regulation of the sector by regulators. Many of these challenges occur from the external environment. Since the current sugar factories operating in Kenya are unable to meet the demand in the market and largely operating below the required level (Kombo & Ndiema, 2022), there is a need for more research to be conducted to understand the problems facing these factors and potential interventions or solutions that can be implemented to minimize the impacts of these problems and even solve the problems thus allowing the sector to meet the rising demand. Many of the issues affecting the sugar factories in Kenya and limiting their potential to meet the needs of consumers arise from the external environment. According to the National Sugar Task Force (2019), the main challenge of the sugar industry relates to how factors can strategically manage different components of the value chain in light of the issues in the external environment or market while still ensuring they remain efficient and competitive. External market-related factors are the main challenges facing sugar factories in Kenya, adversely affecting the performance and productivity of these firms, leading to lower production costs relative to the demand in the market (Mati & Thomas, 2019). Consequently, the Kenyan sugar industry will continue to face

challenges unless corruption and deficient management practices are addressed comprehensively. Additionally, the sugar business has to deal with trade restrictions, low-cost sugar produced in COMESA, competition from that product, as well as the effects of low worldwide market prices (Institute of Economic Affairs, 2005). Although the Kenyan sugar sector has generally been successful, little study has been done to determine how strategic flexibility affects the performance of government-owned sugar enterprises.

Based on a critical analysis of relevant literature for the topic, there were potential gaps in literature that could be filled by future research. For example, there is limited focus on state-owned sugar companies in the studies reviewed. While it is mentioned that the sugar sector in Kenya faces a myriad of challenges (Mati & Thomas, 2019), there is a lack of specific focus on state-owned sugar companies, and the challenges they face as compared to private companies. The majority of studies have focused on theoretical argument on the value of strategic flexibility in business performance highlighting the need for more empirical studies on the relationship between strategic flexibility and performance of business organizations especially in Kenya. The majority of the reviewed studies have been focused on external factors affecting firms in the sector. A gap exists in the specific internal factors within state owned companies including management practices, corruption and resource allocation among other factors. These gaps in literature provided a foundation for this study to be conducted.

1.2 Statement of the Problem

Political influence, high production costs, high-debt portfolio, low-value addition initiatives in the value chain, massive inefficiencies, poor policy and regulatory framework supporting factories, corruption and impunity, and mismanagement of state-owned mills are among the many issues in the external environment that directly compromise the ability of factories to meet the needs of consumers. Since many of the large sugar factories in the country are State-

owned, these effects can be massive. All these issues lead to a main challenge facing sugar companies in Kenya, which is the fact that these factories have failed to strategically manage different components of the value chain in light of the issues in the external environment or market while still ensuring they remain efficient and competitive. These problems continue to compromise the ability of major state-owned factories to perform at the required level and support the needs of the consumers. Therefore, identifying interventions to minimize the impact of these challenges on sugar factories and improve their performance and competitiveness in the market is in urgent need. The problem is that many state-owned sugar factories in Kenya are struggling with numerous business related challenges that hinder their performance and ability to meet consumer needs. These challenges include high production costs, low efficiency, political influence and poor regulations. Research is needed to understand how strategic flexibility can be used by these factories to address these issues and improve their performance.

Strategic flexibility has been reported in the literature to be an important component of business that allows organizations to respond to changes in the external market environment in a timely and appropriate manner, thus enhancing their ability to remain competitive and perform amidst the challenges faced. However, inadequate research has been done on the value of strategic flexibility in addressing challenges faced by sugar factories in Kenya and its ability to improve performance. This is the gap this research study aimed to fill. By examining the effect of strategic flexibility from different perspectives on the performance of state-owned sugar factories, this study will provide important information on how the issues facing sugar factories in Kenya may be addressed at the organizational level to improve performance. An important outcome that this study seeks to generate relates to whether strategic flexibility can offer the solution needed by state-owned sugar factors in Kenya to increase their competitiveness and overall performance in the market, thus meeting the needs of consumers. The present study

aims to bridge this research gap by examining how state-owned sugar companies in the Western Region of Kenya fare in terms of strategic flexibility.

1.3 Objectives of the Study

1.3.1 General Objectives

The research seeks to examine the effect of strategic flexibility on performance of state-owned sugar companies in Western Region, Kenya

1.3.2 Specific Objectives

i. To examine the effect of production flexibility on performance of state-owned sugar companies in Western Region, Kenya
ii. To explore the effect of marketing flexibility on performance of state-owned sugar companies in Western Region, Kenya
iii. To examine the effect of supply chain flexibility on performance of state-owned sugar companies in Western Region, Kenya

1.4 Research Hypothesis

H_{01}: Production flexibility has no significant effect on the performance of state-owned sugar companies in Western Kenya.

H_{02}: Marketing flexibility has no significant effect on the performance of state-owned sugar companies in Western Kenya.

H_{03}: Supply chain flexibility has no significant effect on the performance of state-owned sugar companies in Western Kenya.

1.5 Scope of the Study

The goal of the research is to evaluate how the performance of state-owned sugar firms in Kenya's Western region is affected by strategic flexibility. The research will pay particular attention to businesses situated in what were then the provinces of Nyanza and Western, including Mumias Sugar Company, Nzoia Sugar Factory, South Nyanza Sugar Company, Miwani Sugar Company, Muhoroni Sugar Company, and Chemelil Sugar Company. The research will take up a period of four months from July 2023 to October 2023.

1.6 Significance/ Justification of the Study

The insights from this research will be beneficial to sugar sector stakeholders especially in trying to enhance performance in a sector that has witnessed some firms being placed under receivership. Moreover, the firm owners or managers will be able to understand how state-owned sugar firms perform in terms of responding to changing market. It becomes very important to investigate how effects of strategic flexibility affects performance of these firms. In addition, policy makers will use the findings from this study to inform their decisions in formulating policies aimed at improving the sugar sector debate mainly the state-owned firms.

By using a new study approach or extending the time of analysis, the researchers will have an ideal knowledge background for future research. The results of this study will increase the amount of knowledge that is currently known about the subject being studied. As a result, it will be valuable to academics and researchers who wish to investigate and do more research.

1.7 Conceptual Framework

The conceptual framework serves the purpose of describing the dependent variable and independent variable offering a roadmap for the study. Figure 1 in the conceptual framework

illustrates the key variables of interest in the context of the effects of strategic flexibility on the performance of sugar companies in Western Kenya.

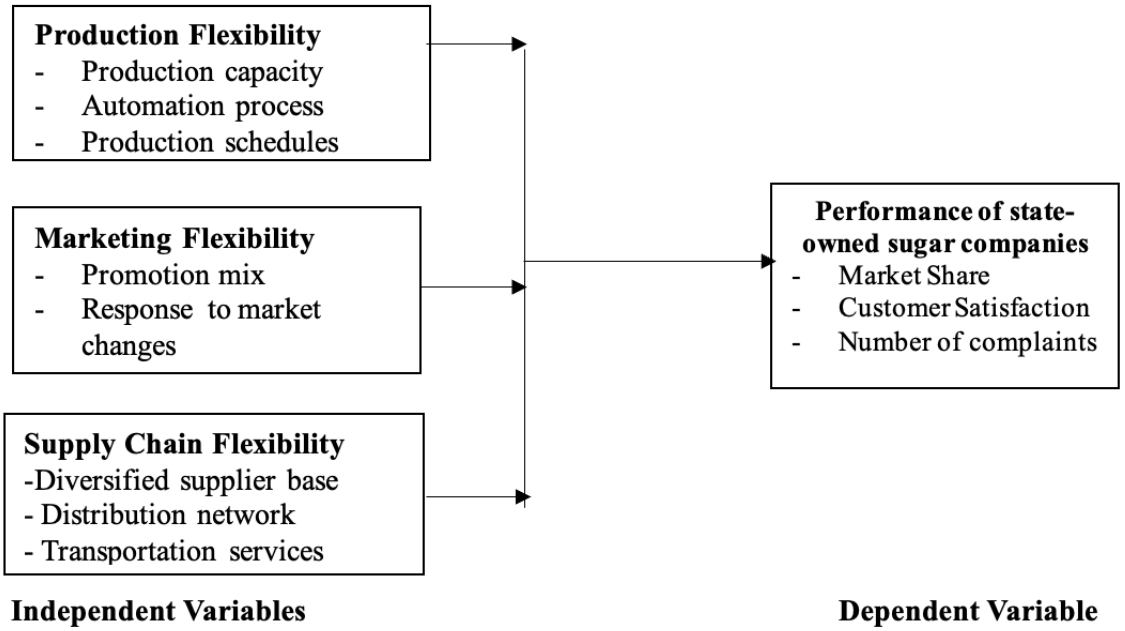

Figure 1: Conceptual framework

Source; self-conceptualization

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section examines studies that are useful to the effect of strategic flexibility on performance of sugar firms and other relates areas. The theoretical framework has been chosen on the basis of the importance of topic hence providing the basis for performing the research. The chapter highlights empirical data related to each objective of the study.

2.2 Theoretical Review

2.2.1 Dynamic Capabilities Theory

Dynamic capabilities are the cornerstone on which a company can build a competitive edge, according to a 1997 theory introduced by Teece, Gary Pisano, and Amy Shuen. Dynamic Capabilities Theory (DCT) focuses on the ways in which businesses can adapt and innovate regarding to business environmental changes. Additionally, it highlights an organization's capability to combine, implement, and redesign both its inner and outer proficiencies to successfully address quickly evolving markets and technologies.

Strategic management has benefited greatly from the DCT, which has become a cornerstone in understanding how businesses can maintain a competitive advantage in challenging situations. Organizations' dynamic capabilities take on many different forms; Companies with dynamic capabilities must possess the ability to both skillfully utilize their existing resources and acquire fresh external resources. As a result, academics now see coordination flexibility as a subset of strategic flexibility that reflects dynamic skills and gives enterprises a competitive advantage (Yuan et al., 2010). Additionally, according to some academics, a company's continual

processes of learning and improvement may be used as a gauge of its flexibility. Technological learning in businesses is described by Bierly and Chakrabarti (1996) as dynamic capacities, and they classify new product creation as a subtype of strategic flexibility. Additionally, organizational learning is acknowledged to support the use of differentiation and cost leadership strategies by using a firm's strategic flexibility (Santos-Vijande et al., 2012).

DCT centers on a company's capacity to adjust, align, and realign its resources and skills in response to shifting environments and competitive challenges. In the context of strategic flexibility and firm performance, this theory is pertinent because strategic flexibility empowers companies to modify their strategies in reaction to external shifts, such as changes in customer preferences or market dynamics. Firms that exhibit strategic flexibility can effectively discern and react to opportunities and threats, thus elevating their overall performance. Strategic flexibility equips firms to assimilate novel technologies, processes, and expertise into their operations, culminating in enhanced performance and a competitive edge. Moreover, strategic flexibility empowers firms to reposition themselves in the market and redistribute resources for improved performance outcomes. This theory provides a foundation for examining the effect of strategic flexibility on the performance of state-owned sugar companies in Western Kenya.

2.3 Empirical Review

This section reviews literature that has been done on the effect of strategic flexibility on performance of companies.

2.3.1 Strategic Flexibility

Business organizations are expected to develop and implement strategies that will ensure these organizations become successful in the market. Strategic flexibility refers to the ability of a business organization to adjust its business strategies, activities, goals, and objectives in

response to changes occurring in the market environment (El-Khil & Darwish, 2019). Strategic flexibility, therefore, is crucial to the success of business organizations because it allows these organizations to adjust their operations and activities accordingly, thus becoming successful in the market (Das, 1995). A business strategy outlines the approaches used by the organization to achieve its goals and objectives in the market. Therefore, strategic flexibility will occur when an organization can adjust its strategy accordingly based on changes occurring in the market environment. These factors can be either internal or external. Many research studies conducted on strategic flexibility tend to examine how the concept can be used to improve the performance and productivity of the organization in the market (Chan et al., 2017). The authors further defined major elements of strategic flexibility, such as supply chain flexibility and manufacturing or production flexibility. Each of these components of flexibility has been linked to improvements in organizational performance. An organization's supply chain is significantly affected by external factors in the market, such as political, economic, and regulation factors, among others. Therefore, the presence of supply chain flexibility allows an organization to overcome such challenges (Awais Ahmad Tipu & Fantazy, 2014).

While strategic flexibility can be used to improve organizational performance, the manner in which it is implemented will determine success. For example, Yousuf et al. (2022) argued that in all cases of strategic flexibility, the concept should be implemented in conjunction with other managerial techniques or approaches. Furthermore, Chanphati & Thosuwanchot (2023) noted that strategic flexibility strategies should be implemented alongside the broader corporate strategy implemented by the organization. The study by Yousuf et al. (2022) was done in the food sector, meaning there is no certainty that the study's findings can be generalized to other sectors. Therefore, an existing gap that can be explored further is industry-specific factors that determine the success of strategic flexibility in improving organizational performance. In another study, Dewnap et al. (2020) showed that marketing and sales flexibility is the other

dimension of strategic flexibility that is implemented in business organizations seeking to become successful in the market environment. Unlike supply chain flexibility, which is focused on a firm's responses to issues in its supply chain, marketing flexibility is focused on marketing or sales activities designed to reach out to customers and ensure their needs or expectations are met. In another study that is focused on one component of strategic flexibility, which is supply chain flexibility, a systematic review by Manders et al. (2017) showed that supply chain flexibility can be further divided into many sub-sections. However, these sub-sections are poorly defined and understood in the literature. Therefore, there is a need for future research to go in-depth and examine some of these issues and their effects on the business organization.

2.3.2 Production flexibility and company performance

Numerous studies have researched into modeling decisions related to adopting production flexibility and production postponement. Early research in this area focused on modeling the choice to invest in flexibility when confronted with uncertainties in product demand (Goyal, Netessine & Randall, 2012). More recent empirical inquiries have aimed to comprehend the factors influencing manufacturing flexibility, particularly within the field of the automotive sector (Chevalier-Roignant et al., 2019). The application of real options analysis enables the quantification of a firm's capacity to adapt to external market shifts and provides an estimate of the value of production flexibility amid uncertainty (Chen et al., 2017). This is facilitated by drawing parallels between financial and real options. In contrast to efficient capital markets where strategic interactions hold less significance, the business arena abounds with strategic real options shared with industry peers.

Moreno and Terwiesch (2015) conducted an investigation into the realm of pricing and production flexibility within the U.S. automotive sector. Their research was based on a dataset spanning from 2002 to 2009 and employed a diverse array of econometric techniques. The

results revealed that the ability to adjust production mixes was linked to reductions in manufacturer discounts, driven by an improved capacity to meet supply with demand. In the prevailing market environment, this blend flexibility led to significant cost savings, reducing price discounts by approximately 10% of the industry's average discount rate. The study's conclusion stressed the importance of considering associated expenses when assessing the implementation of flexibility. These costs are closely tied to a company's existing plant and product portfolio. In the case of newly constructed facilities, the costs of a flexible plant closely resemble those of a rigid one. However, the capital investment required for a new facility is substantial, leading many companies to choose upgrades and retrofits for their existing facilities instead.

The aim of Haraisa (2018) was to examine the effects of strategic flexibility (market flexibility, production flexibility, and competitive flexibility) on organizational efficiency in Jordanian hotels (five stars). The study used a questionnaire and discovered a beneficial relationship between the strategic flexibility and efficacy of Jordan's five-star hotels. In order to increase their efficacy, businesses should take into account the strategic flexibility characteristics, such as market flexibility, production flexibility, and competitive flexibility. Although the study was restricted to the hotel business, it made the case for more research on organizational performance and strategic flexibility in other industries, such as manufacturing.

Organizations can improve their flexibility by optimizing the efficiency of their manufacturing systems. Some industries might have the opportunity to make use of advanced manufacturing technologies (AMTs) that enable them to adjust various aspects of production and product design to meet market demands. In a research study that investigated how flexibility evolved in the body framing process of two American automobile assembly plants, which had transitioned from manual equipment to flexible automation, El-Khalil and Darwish (2019)

introduced a qualitative scale for assessing component (changeover) flexibility and modification flexibility. The study involved distributing surveys to a sample of 420 facility managers within the U.S. domestic automotive industry. The results revealed that a significant 70% of these managers had implemented all 15 flexibility dimensions, including production flexibility. The study's conclusion emphasized that implementing specific dimensions of flexibility can lead to notable improvements in specific operational performance measures. To summarize, it was noted that future research efforts should focus on investigating how dimensions within flexible manufacturing systems affect other industries to validate and confirm the categorization of these dimensions.

In a separate study, Cao and Wang (2021) looked into the influence of debt financing on the capacity decisions related to product flexibility among competitive manufacturers in China. Their investigation revealed that in a competitive environment, leveraged firms tend to opt for less flexible capacity compared to their unleveraged counterparts, thereby elevating the risk associated with total capacity investments. The findings showed that, in the area of debt financing, product flexibility declines in connection to capacity investment and debt levels, which differs from the behavior of a single business. This demonstrates how the rivalry between two businesses affects how debt finance and product flexibility interact.

Simchi-Levi, Wang, and Wei (2018) examine ways to improve supply chain resilience through process flexibility and inventory using a robust optimization model. The study demonstrated that businesses should use several inventory techniques with various degrees of process flexibility. It was determined that businesses may considerably enhance their risk mitigation approach by employing the model to optimize inventory selections according to their unique supply chain network topology. The study made the recommendation that more research be

done in order to evaluate and improve the model, maybe employing a broad sample of manufacturing facilities in various sectors.

From the study empirical literature, Moreno and Terwiesh (2015) investigated production flexibility in the US automotive sector and use data adopted from econometric methods. Haraisa (2018) examined how production flexibility enhances organizational effectiveness. Furthermore, El-Khali and Darwish (2019) analyzed data from 420 factory managers on company's adoption of flexibility dimensions including production flexibility, Cao and Wang (2021) found that debt financing has a critical role in the production flexibility and they identify the improvement of three major cross-functional elements, including quality, time, and cost, as a main target of the flexible production paradigm, emphasizing the need of implementing overall quality management. The reviewed literature has shown that there limited research on production flexibility in the sugar industry. Additionally, many of the existing studies have been done on different sectors such as hotel and automotive sectors. The lack of application in the context of the sugar sector is a potential gap in research. Also, many studies have been focused on how production flexibility affects efficiency and cost saving of organizations while this study seeks to establish effect of production flexibility on performance of public sugar companies.

2.3.3 Marketing flexibility and company performance

Marketing is inherently interconnected with the market, which is characterized by the exchange of values between buyers and sellers in transactions (Shalender & Singh, 2015). Through their value propositions, sellers meet the demands of their customers and as a result, acquire value in the form of profits and market share. This emphasizes the significance of thorough planning and an all-encompassing strategy, similar to a system of systems, as being essential for firms to survive in today's dynamic environment (Shalender and Singh, 2011). According to the

literature, marketing flexibility has to do with a company's capacity to enter and leave markets as well as how it positions itself in both current and potential new markets (Yadav & Sagar, 2021). By quickly changing and repositioning themselves in the intensely competitive global marketplaces, businesses with marketing flexibility may gain a competitive advantage.

The frequency of operand and operant resources in the value-added chain has a significant effect on the level of marketing flexibility in the value co-creation process. In India's industrial and service industries, Gopakumar and Suresh (2020) investigated the use of marketing flexibility. Their research showed that competitive advantages are often enjoyed by countries with stable labor markets, particularly in sectors subject to considerable shocks and swings. In conclusion, flexibility not only maintains a company's competitive edge under normal conditions but also offers stability during challenging times. The study emphasizes the need for more organized research in the area of marketing flexibility by arguing that firms should use marketing flexibility to achieve both long-term sustainability and short-term profitability.

Shalender, Singh, and Sushil (2017) scrutinized a measurement scale for marketing flexibility in the field of automobile companies. They distributed 456 questionnaires using the non-probability sampling technique, with respondents completing them in a self-administered manner. The study discerned that the measurement scale for marketing flexibility in automobile companies underscored the significance of pricing, with a mean score of 4.26, making it one of the most crucial factors in the autoflex scale. Additionally, customer orientation emerged as the second most vital factor in autoflex, with an average score of 4.06. The study recommended that future research consider incorporating customer perspectives by including them as part of the sample to gather their views.

Gurau (2009) studied how flexibility functions in relation to the new marketing paradigms. Through involvement, interaction, and execution, the flexibility of marketing systems may

substantially improve the value co-creation process in order to create intricate value-constellation systems that can optimize the advantages and pleasure of all parties involved. The study found that the service-dominant logic marketing paradigm is founded on a genuine alteration of the market's competitive landscape. The new model stressed the transition from market transactions to customer relationships, the relevance of operant resources, and the dominance of value-in-use rather than exchange value. The research advocated for the implementation of a composite model of adaptable marketing systems that include the active involvement of diverse stakeholders in product creation.

Additional research has studied the concept of marketing flexibility, with a particular focus on the agricultural sector. In a study conducted by Shaban and Salih (2020), they explored the influence of various dimensions of logistics service quality on marketing flexibility within dairy factories situated in the Duhok governorate, Kurdistan Region of Iraq. Through the administration of a questionnaire to a sample of 34 respondents, their research showed a significant correlation and effects of logistics service quality in both its functional and operational aspects on marketing flexibility. The study offered a recommendation emphasizing the importance for organizations to prioritize and pay close attention to all facets of logistics service quality within the examined factories, with special emphasis on the substantial contribution of the functional dimension in achieving marketing flexibility.

In a more recent investigation, Maggon (2022) conducted a bibliometric analysis of marketing flexibility, a critical practice adopted by firms to gain a competitive edge, particularly during the COVID era. The analysis encompassed data spanning the years 2002 to 2019 and drew upon framework constructs derived from a comprehensive pool of studies centered on marketing flexibility and its effect on customer-centric outcomes within the service sector. The research, which did not limit its findings to a particular industry, found that marketing

flexibility plays a crucial role in improving organizational performance by using VOS viewer software to examine data obtained from Scopus. Using five dimensions; marketing alliance enhancement, collaborative new product creation, marketing knowledge integration, customer information sharing, and stakeholder learning competency; the researcher proposed a conceptual model of marketing flexibility orientation. This model was based on theories of dynamic capacity and contingency.

From the above empirical literature, Gopakumar and Suresh (2020) demonstrates that operand and operant resources influences marketing flexibility. The study introduced the concept of competitive edge which is relevant to the study which seeks to establish the advantage of state-owned companies can explore to remain relevant in the turbulent business environment. Shalender, Singh and Sushil (2017) found that price is an important component of marketing flexibility which affects sales performance; however, the study did not take the views of customers about marketing flexibility. This study seeks to incorporate customer perspective in managerial decision-making process. Moreover, Shaba and Salih (2020) investigated effects of marketing flexibility in the agricultural sector. Many of the existing research has been done with a focus on internal factors such as pricing strategy and customer orientation. The gap relates to understanding and capturing different customer viewpoints in understanding marketing flexibility and its effects on organizations. Also, similar studies have been conducted in diverse sectors such as automatic and dairy sectors. Therefore, research is needed in the sugar sector.

2.3.4 Supply Chain flexibility and company performance

This study defines supply chain flexibility as all flexibility that directly affects a company's customers and that is jointly managed by two or more supply chain functions, whether those functions are internal to the company (like marketing and manufacturing) or external (like

suppliers and channel members). Numerous types of flexibility that are pertinent to a supply chain that is focused on meeting customer demands are described in the literature on operations in many different ways. Product modification, also known as flexibility, is one of them. According to Wang and Webster (2022), a strategically important form of flexibility is the capacity to rapidly offer a wide range of new goods and product variations. This kind of flexibility necessitates the seamless integration of many value-adding activities across the supply chain. This flexibility encapsulates a business' skill at bringing the product "close to the customer." The tight coordination of downstream supply chain activities, whether carried out internally or externally to the firm (Tilstra, et. al. 2015), makes access flexibility possible.

In a sample of automotive suppliers, Sanchez and Perez (2005) looked at the connection between the supply chain flexibility parameters and business success. Despite the fact that not all aspects of flexibility are equally crucial for business success, they discovered a significant link between greater performance in flexibility abilities and firm performance using a sample of 126 Spanish automotive suppliers. Additionally, demonstrate how businesses place a higher priority on improving their core workplace flexibility than their entire customer-supplier flexibility. The supply strategy, for example, can be used to determine whether components are provided to a manufacturing plant by a nearby or distant source, as well as through single, double, or multiple sourcing. This has an effect on the logistical effectiveness of a supply chain.

Delic and Eyers examined how the adoption of additive manufacturing will affect the supply chain's effectiveness and flexibility in 2020. The study's conclusions were reached through the use of a quantitative methodology that included a questionnaire survey of 124 medium- and large-sized European Union auto manufacturing businesses. The paper claims that the usage of additive manufacturing has a favorable effect on supply chain flexibility, which enhances the

effectiveness of the supply chain. According to the study's conclusions, businesses should prioritize flexibility in order to boost supply chain effectiveness.

Siagian, Tarigan, and Jie (2021) looked into how Indonesian manufacturing companies' performance was affected by supply chain integration. The partial least squares method was used to collect data from 470 respondents through questionnaires. According to their research, supply chain integration influenced innovation, supply chain flexibility, and resilience in a positive way. This was primarily attributed to its ability to exchange comprehensive product information and production planning specifics. In addition, supply chain flexibility and innovation systems improved supply chain resilience by successfully addressing changes in customer demand and production issues. The study came to the conclusion that supply chain integration was crucial for enhancing business performance, particularly in light of the COVID-19 pandemic's challenges.

To find uncertainties in the supply chain of a soap manufacturing company, Singh, Modgil, and Acharya (2019) conducted a thorough literature review with expert discussions. Particularly in highly competitive industries like personal care, they noted a dearth of specialized studies on flexibility. A novel system dynamics model, validated in the field of Indian soap manufacturing, was used in the study to evaluate supply chain flexibility. The research highlighted variations in demand by season for both packaged and unpackaged soaps. Notably, demand for one category fell when demand for the other category rose. The study, in its conclusion, emphasized the importance of flexibility dimensions in determining an organization's overall supply chain performance.

In 2018, Mhelembe conducted a study in South Africa to investigate the correlation between supply chain hazards, flexibility, and effectiveness in the public sector. The researcher formulated a theoretical framework that takes into consideration six supply chain risk elements:

data security, operational efficiency, workforce availability, supplier performance evaluation, and government regulations. These variables affect the flexibility of the supply chain, which subsequently affects its performance. A survey comprising 306 conveniently selected professionals working in supply chain roles was administered as part of the research's cross-sectional survey approach. The results indicated that supply chain hazards remained significant within the South African public sector, while supply chain performance and flexibility fell short of the desired levels. The research also identified a noteworthy and positive association between supply chain performance and flexibility. To sum up, enhancing the performance of the public supply chain in South Africa is attainable by proficiently managing the six risks scrutinized in this study and recognizing their influence on supply chain flexibility.

In conclusion, these investigations have contributed to the discourse concerning the consequences of supply chain flexibility for the organization. Sanchez and Perez (2005) explore the relationship between supply chain flexibility and company performance, whereas Delic and Eyers (2020) investigate the repercussions of supply chain flexibility and ascertain that companies with a versatile supply chain are more likely to thrive and expand their market share. Although Siagian, Tarigan, and Jie (2021) found a significant effect of supply chain flexibility on performance, it is clear from the literature that the application of supply chain management strategies results in an improvement in supply chain performance, which in turn affects organizational performance. However, insignificant effects were documented by Signh, Modgil, and Acharya (2019). There have been mixed findings on supply chain flexibility and its effect on corporate performance. While some studies report positive results, others have reported negative results. Therefore, there is a need for research to examine how different contextual factors affect the relationship between strategic flexibility with regards to supply chain flexibility and performance.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The study's research approach is covered in this chapter. The chapter introduction comes first, followed by the research design, study area, target population, sampling strategy, data collecting techniques, data collection process, and the validity and reliability of the instruments. The chapter also covers data analysis and the study's ethical issues.

3.2 Research Design

The study employed a descriptive research design to capture the research objectives of interest in this research. The descriptive correlational design is suited for describing variables of interest in the research and also examines the relationships existing between variables under study (Driessnack et al., 2007). The design was selected because it allowed relationships between variables in the study to be examined which allowed the objectives of the study to be achieved as was suggested by Leedy and Ormrod (2015). This research strategy aimed to examine the degree of the relationship between strategic flexibility and the performance of the sugar factories, which explains why the research design selected was appropriate for this research study. In addition to examining these relationships, the study described the existence of strategic flexibility and associated performance in the state owned sugar factories.

3.3 Study Area

The study targeted state-owned sugar companies; Miwani, Mumias, Nzoia, Sony Sugar, Muhoroni and Chemelil Sugar Companies located in former Nyanza and Western provinces. These organizations are state-owned which makes them ideal for this study especially because

of the scope and objectives of the study. The study focused on state-owned companies because many of these companies have been recording poor performance. Therefore, it was necessary to examine how strategic flexibility concept can be used to address performance of these organizations.

3.4 Target Population

A full group of people, cases, or items that have some visible traits and are different from other populations are referred to as the target population. A population, as described by Mugenda and Mugenda (1999), is a collection of individuals, services, components, events, groups of objects, or homes that are the subject of an investigation.

The target population for this study was the 6 state-owned sugar companies located in Western Kenya with respondents being 3 supervisors from each 6 departments. The supervisors were picked since they are the one at the frontline of implementation of these strategies. The 6 state owned companies have 3 supervisors who are running the sub sections of the departments and these 3 reports to the head of the respective departments, unit of study for this research was the 3 supervisors from 6 departments of administration, procurement, sales and marketing, agriculture, production and strategy and planning resulting in a total of 108 respondents (6*3*6=108).

3.5 Sampling size

The study used purposive sampling methods. Purposive sampling allowed the investigator to collect data from the supervisors in different departments in the six sugar factories. Purposive sampling was used because the supervisors were targeted directly and contacted. A limitation of this study is that is limits generalizability. However, since the study was focused on many companies, these findings reflected issues in these organizations. A sample size of 108

individuals who are the supervisors of 6 departments of the 6 state owned companies was used in the study. The use of a large sample size was crucial to increasing the quality of the research because the findings can easily be generalized to the broader population in these organizations.

3.6 Data Collection Methods

The research gathered primary data through structured questionnaires. This choice aligned with Mathers, Fox, and Hunn (2007), who highlighted the cost-effectiveness and lack of bias associated with questionnaire administration. As noted by Mugenda and Mugenda (2003), the questionnaire method proves convenient as each item is specifically designed to address a particular research objective. To enhance response rates and data quality, a 5-point Likert-type scale was used, with particular emphasis on avoiding participant frustration. Existing knowledge proposes a 5-point scale is easily understandable to participants and facilitates more effective expression of their viewpoints (Alexandrov, 2010). Pinsonnault and Kraemer (1997) observed that conducting research via survey questionnaires is particularly suitable when the research is quantitatively oriented, the data collection instruments need to be pre-defined, and when the research entails analyzing findings from a sample to represent a larger population.

3.7 Pilot testing

A pilot test, according to Blumberg, Cooper, and Schindler (2011), aims to demonstrate the time needed to complete the questionnaire, validate its clarity and logical flow, verify that the questions are brief and understandable, and assess the trustworthiness of the questionnaire. The researcher administered questionnaires to 10% of the respondents that was 10 respondents which allowed the researcher to enhance feasibility of the study. The pilot study was conducted in Miwani and Mumias sugar and the selected pilot locations were pre-visited to acquire a feel for it and obtain permission to conduct research. The results were not used in the final analysis.

3.8 Reliability test

As per Fendler (2016), reliability refers to the ability of the research tool to consistently measure the desired attributes over time. It characterizes the extent to which an instrument consistently generates data or results when employed repeatedly. In this study, Cronbach's Alpha was utilized to assess reliability. Cronbach's Alpha, a metric for internal consistency, measures the degree of similarity among groups of items when considered as a whole. Cronbach's Alpha, introduced by Lee Cronbach in 1951, is represented as a numerical value ranging from 0 to 1 (Eisinga, Grotenhuis, and Pelzer, 2013).

In the table below, each of the three scales showed an excellent reliability as shown by the high level of Cronbach's alpha. For production flexibility, the Cronbach's alpha = 0.920 while that of marketing flexibility was 0.919. The Cronbach's alpha for marketing flexibility was 0.919. The high level of internal consistency in these scales means that several items included in these scales measure the same constructs while providing similar scores. Therefore data was deemed reliable given the Cronbach's Alpha of coefficient value is at least 0.7 as recommended by Cronbach (1967). The data was therefore suitable for further analysis.

Table 1: Reliability analysis (Cronbach's alpha)

Scale	**Cronbach's alpha**
Production flexibility	0.92
Marketing flexibility	0.91
Supply chain flexibility	0.98
Overall	**0.93**

3.9 Validity test

Fendler (2016) describes validity as the degree to which both theory and evidence support the interpretation of test results obtained through the use of tests. How well a tool measures the desired characteristics determines how valid it is. It includes the precision and significance of conclusions made as a result of the research, indicating how well the variables under study are accurately represented by the data analysis findings. The validity of the research instrument was evaluated based on its face and content validity. In order to accomplish this, the researcher consulted with experts and reviewed pertinent literature in order to make the necessary adjustments. The questionnaire items' ability to accurately capture the targeted areas of interest is evaluated using the content-related technique.

3.10 Data collection procedure

The researcher submitted the whole application for approval to the university after receiving a letter from Maseno University presenting the researcher to the respondents. While collecting the data, the researcher physically delivered the questionnaires. This made the data collecting procedure more responsive.

3.11 Data Analysis and presentation

In accordance with the research objectives and the design selected in this study, it was clear that quantitative data was generated through the descriptive study. The numeric data coming from the questionnaires were structured and presented using one or more descriptive methods. The quantitative information acquired from the questionnaires was coded and evaluated using the STATA statistical software. As noted by Mehmetoglu (2018), this software tool offers automated reporting; a comprehensive set of statistical functionalities, and enables the researcher to represent data in the form of frequencies and percentages. In addition to the

percentages and frequencies used for reporting the descriptive statistics, further inferential statistics especially regression analysis was used to identify and test the existence of relationships between variables studied. In fact, the use of regression analysis helped examine the relationships between elements of strategic flexibility and the performance of organizations in the sugar sector. Therefore, the study used a regression model, as shown below, to determine how much the independent factors affect the dependent variable:

$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + \varepsilon$

Where:

Y = dependent variable y (Performance)

B_0 =y-intercept (the value of Y when all the other parameters are set at 0)

B_1, B_2, B_3= regression coefficients (change in the dependent variable as a result of a change in the independent variable)

X_1 = Production flexibility

X_2 = Marketing flexibility

X_3= Supply chain flexibility

ε = error term to the regression

Source: Adopted from Bevans (2020)

3.12 Research Ethics

To build trust and win the participants' support, many ethical factors were taken into account. First and foremost, participant responses were treated confidentially and kept from disclosure

to any third parties. Additionally, the research objectives were the sole focus of the research purposes, and no other objectives will be served. The researcher also talked about ethical expectations, which have grown and intensified while responding to society's call for increased responsibility. Zegwaard, Campbell, and Pretti (2017) stated that many educational institutions require ethical permission before allowing researchers to gather data from human participants in their studies. The ethical approval for this study was granted before it kicked off.

Measures were implemented to guarantee the anonymity and privacy of the participants. These measures extended beyond the protection of their identities and encompass preventing them from sharing any details that might potentially reveal their identities. To safeguard participants from potential harm, maintaining anonymity and getting their permission were essential. Additionally, the researcher limited who has access to private participant data, making sure that only authorized individuals—such as the researcher—have access to the stored information. All data storage equipment were handled and stored with care. Additionally, for their comfort, participants were made aware of data protection measures.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4. 1 Introduction

This section outlines the finding and analysis with respect to the study objectives. The first section discusses the findings of the demographic characteristics of the respondents. For the other sections, both descriptive statistics and regression analysis have been used to help answer the research questions of the study.

4.1.1 Response rate

The study aimed to administer 108 questionnaires. Out of these participants, 10 respondents were used for the pilot study. Out of the remaining 98, 94 were distributed and successfully filled and returned generating a response rate of 87.04% (Table 1). 4 respondents were not able to respond for reservations known to them. Studies, Kothari (2004) have shown that a response rate of 50% or higher should be considered excellent and as such the data that was collected and analyzed and presented in the subsequent sections of this chapter.

	Frequency	**Percent**
Response	94	87.04
Pilot study	10	9.26
Non-responses	4	3.70
Total	108	100

Table 1: Response rate.

4.1.2 Demographic Characteristics

Demographic variables were examined in the survey, including gender, level of education and the number of years working in the sugar sector. The gender profile of the participants is summarized in Table 2 below. It is evident from the figure that 69.1% of the participants were male, while the remaining 30.9% of the participants were female. This implies that most of the lower level managers in the public sugar companies are male employees.

Table 2: Gender of participants

	Frequency	Percent
Male	65	69.1
Female	29	30.9
Total	94	100

The level of education for the participants was also recorded in the study, as summarized in Figure 3. It is evident from the figure that 36.5% of the participants have achieved a certificate level of education, while another 28.6% have achieved a diploma level of education. The results also showed that 15.9% of the participants had achieved a high school level of education, while another 15.9% of the participants had achieved a degree level of education.

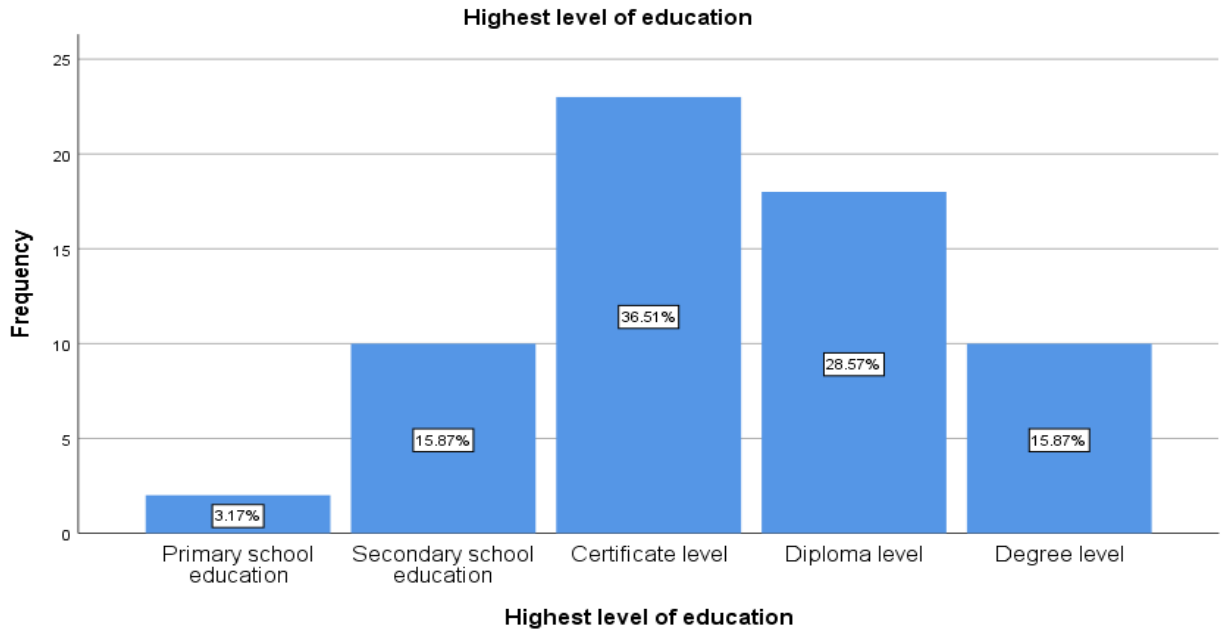

Figure 2: Level of education.

The level of education of the respondents implies that they are knowledgeable and are able to understand the questionnaires as they possess information on strategies implemented by the firms in the market.

The number of years' individuals worked in the sugar factor or the sector was also captured in the study, as summarized in Figure 4. The findings showed that the majority of the participants, 34.9%, had worked in the sector for 6 – 10 years, while 30.2% of the participants reported having worked in the sugar sector for 11 – 15 years. The study also showed that 14.3% of the participants had worked in the sector for less than five years, while another 14.3% had worked in the sector for 16 – 20 years. Only 6.3% of the individuals included in the study had worked in the sector for over 20 years.

Figure 3: Years of working in the sugar sector.

4.2 Performance of state-owned sugar companies

An important construct measured in the survey was the performance of the organization, which was captured from the perspective of the participants, as summarized in Figure 5. It is clear from the study that 26.6% of the participants strongly agreed that there was a significant increase in the products/service quality by using operational strategies, 26.6% strongly agreed that there was excellent customer satisfaction, and 25.5% agreed that there was a reduction in the number of complaints. The participants strongly agreed that the strategic performance of the organization was strongest in these functional areas.

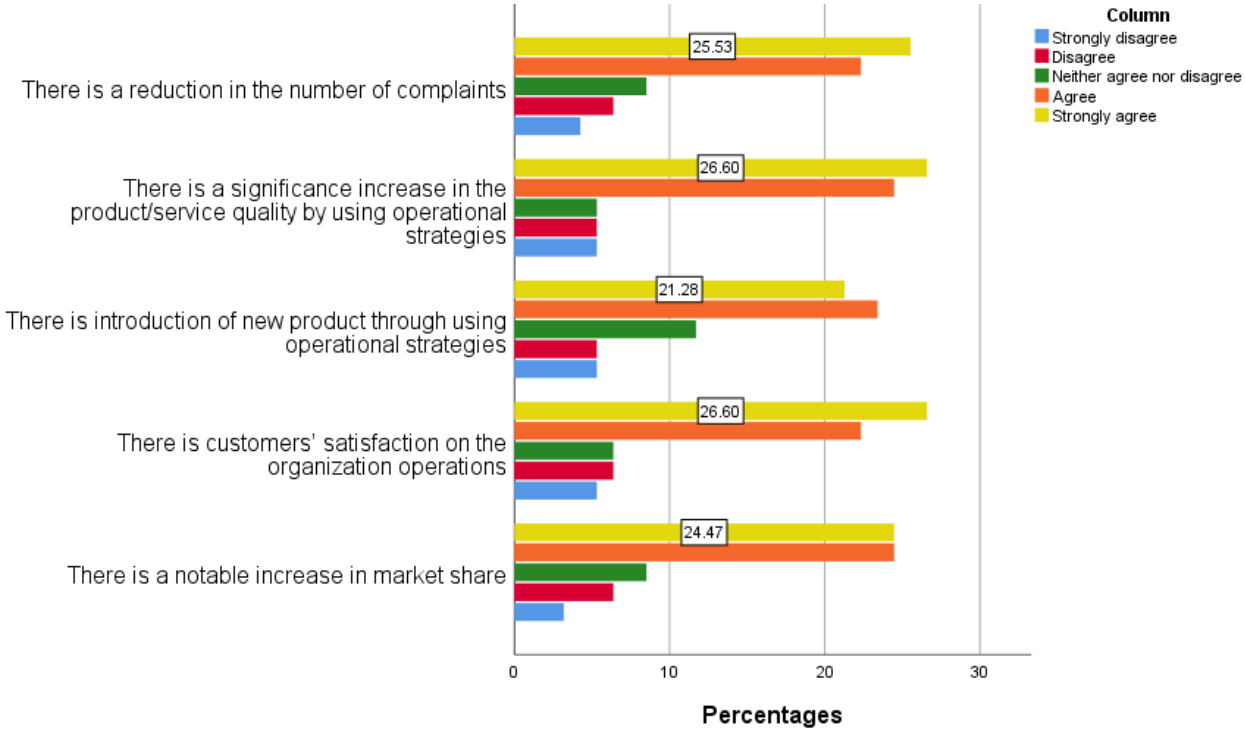

Figure 4: Perception of the performance of the sugar companies.

The results tend to show that from the individuals surveyed, the performance of the state-owned firms was above average for these firms. However, there is evidence from secondary sources including news houses and other scholarly research studies that show that many state-owned firms have not been performing well in the market. This is mainly the case for state-owned firms. In fact, many sugar farmers have called for the boards of many state-owned firms to be reviewed and rechecked to ensure these firms improve performance (Raballa, 2023). The author further noted that poor management was the main reason why many of the state-owned firms were performing below the expected levels. With good management, it is expected that sugar firms may improve their performance in the market as expected. In fact, it has been shown that the implementation of different turnaround strategies may be crucial to improving the performance of these organizations in the Kenyan market (Wandera, 2019). It is on the background of such poor performance that studies such as this one have been conducted to try and find out whether the implementation of strategic flexibility approaches or interventions can be used to improve or boost the performance of these sugar companies. Many research studies

have been done to try and find out why statements sugar firms in Kenya were registering lower performance levels (Owiye et al., 2016). The study by Owiye et al. (2016) further noted that the poor performance of state-owned firms was linked to poor management, inferior production facilities and competition from exported sugar. Examining these factors from a management perspective will illuminate more on the role of strategic management and flexibility in supporting the performance of the organization.

4.3 Effect of production flexibility on performance of state owned sugar companies

Production flexibility of the public sugar companies was captured in the survey, as summarized in Figure 6 below. The majority of the participants, 26.6%, strongly agreed that the production flexibility of the factories was achieved through the development of appropriate approaches to adjust the production capacity of the factories depending on the changes in the market demand. Another 25.5% of the participants strongly agreed that the companies achieved production flexibility by adopting automation based on technologies that enhance production flexibility. At the same time, 24.5% of the participants strongly agreed that the factors have adopted the technological evolution of its power plants in attempts to ensure they register shorter lead times when required. These measures have been vital to enhancing the production flexibility of the factors as appropriate. However, whether these approaches directly lead to improved strategic performance of the organizations is crucial and an important area of interest for this research study.

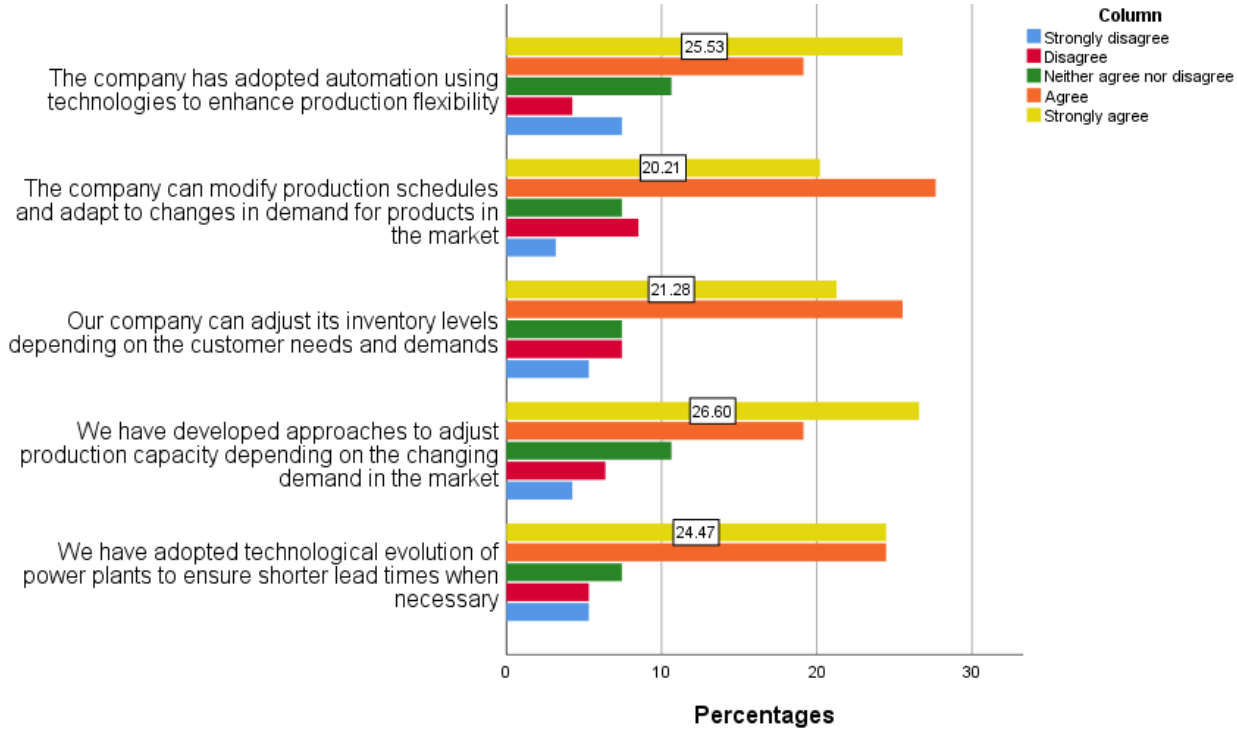

Figure 5: Perception of production flexibility on performance.

Based on the first objective, it was hypothesized that performance of the organization is strongly dependent on the production flexibility approaches put in place by the organization. To test this objective, a regression model was developed to examine whether a relationship existed between these two variables, as summarized in Table 3.

Table 3: Regression of the relationship between performance and production flexibility of the companies in the sugar sector

	B	Std Error	Beta	t	Sig
(Constant)	.465	.220		2.111	.039
Production flexibility overall	.894	.056	.899	16.033	.000**

a. Dependent Variable: Performance overall

b. R2 = 0.808; *p-value significant at 0.05; **p-value significant at 0.01

$F(1, 61) = 257.064$, $p = 0.000$**

The regression analysis depicting the relationship between the performance of these organizations and the production flexibility approaches put in place shows that the relationship was significant, $F(1, 61) = 257.064$, $p = 0.000$. In this relationship, there was a strong positive relationship between production flexibility and the strategic performance of the organizations in the market. Therefore, the relationship implied that the amount of responsiveness to potential changes in the market through product design changes and the development of new products and new services were pivotal for the strategic performance and productivity of the factories.

The findings from this research study showed that production flexibility is an important element of the organization that ensures overall success. In most cases, production flexibility approaches that were implemented in the factories were designed to enhance production lead times in response to market needs and changes in market performance. Therefore, the factories often adjust their production capacities, product design and quality to ensure they capture the needs of the consumers in the market environment.

The use of strategic management approaches by companies is crucial to allowing the companies to achieve their business goals and objectives. As has been shown in this study, strategic flexibility and associated approaches are conducted by the companies in response to changes occurring in the business environment. For the firms to achieve their strategic objectives and targets, it is important to ensure that all the business goals are achieved as appropriate. Similar use of strategic management approaches to achieve organizational success and performance has been reported by other scholars as well. For example, Wander et al. (2014) showed that to respond to changes in the market environment, the management at Kwale International Sugar Company has to implement a turn-around strategy that involved restricting the company, re-organization, strategic repositioning and modernization of the company's infrastructure. These measures can be grouped as strategic flexibility because they represent the company's efforts

to respond to changes occurring in the market environment; both production and supply chain flexibility can be seen in the approaches implemented by the company. These efforts should be aligned with the business strategy of the organization.

In the manufacturing sector, the efficiency of production and operational processes is vital to overall business success. In the sugar manufacturing sector, production flexibility becomes relevant, especially when companies face different types of challenges in the market environment. As has been shown in this paper, production flexibility allows organizations to implement production activities or interventions based on the demand and other characteristic features of the consumers. In relation to strategic flexibility, other scholars such as Fiberesima & Abdul Rani (2013) noted that strategic development is essential to effective business success and operations in the sugar sector, whereby companies engage in approaches to develop new products or improve existing products. The authors noted that strategic flexibility and product development occur in response to market needs and may include making changes to the product packaging and branding as appropriate. Part of strategic product development also includes the extensive use of technological changes to ensure high, diverse and cheaper production. Maintaining lower production costs is an important element of business because it allows the firms to increase their chances of generating greater returns in terms of profits. In terms of product development, it is important for managers to ensure production flexibility objectives align with the goals of the organization and the subsequent issues that may arise from the market environment. There is evidence from the Kenyan sugar sector that the production costs of sugar have remained significantly high, therefore placing many organizations at greater risk of making losses (Mati & Thomas, 2019). Therefore, the business environment in the sugar sector in Kenya places greater risk on the firms, which justifies the need for strategic flexibility to be implemented by organizations in the sector so that the effects of the market environment on the organizations can be reduced.

While the findings from this study showed that production flexibility exists in the sugar sector in western Kenya, other studies, such as Mbithi et al. (2015), concluded that in the Kenyan sugar sector, the introduction of new products different from sugar has been minimal, with most of the improvements focusing on changing product packaging and branding. However, the authors did not specify whether the introduction of new products was in response to strategic moves made by the organization to improve market position or performance, as would be expected in production flexibility. This may explain the differences in the report as compared to this study.

4.4 Effect of marketing flexibility on performance of state-owned sugar companies

The second objective of this research study was to examine the effect of marketing flexibility on the performance of state-owned sugar companies, whereby the indicators for marketing performance included the promotional or marketing tactics changes that were implemented in response to the market shifts. Different elements of marketing flexibility of the organizations were reported by the participants (Figure 7). The majority of the participants, 24.5%, strongly agreed that the company where they worked implemented and adjusted marketing ideas and efforts in response to changes in consumer needs, expectations and trends. Also, 24.5% of the participants strongly agreed that their companies have always changed marketing content in response to changes in the market in terms of trends and customer needs. Another 24.5% of the participants strongly agreed that their organizations adjusted marketing efforts and platforms accordingly for purposes of widening the market reach and market share for the companies in the market.

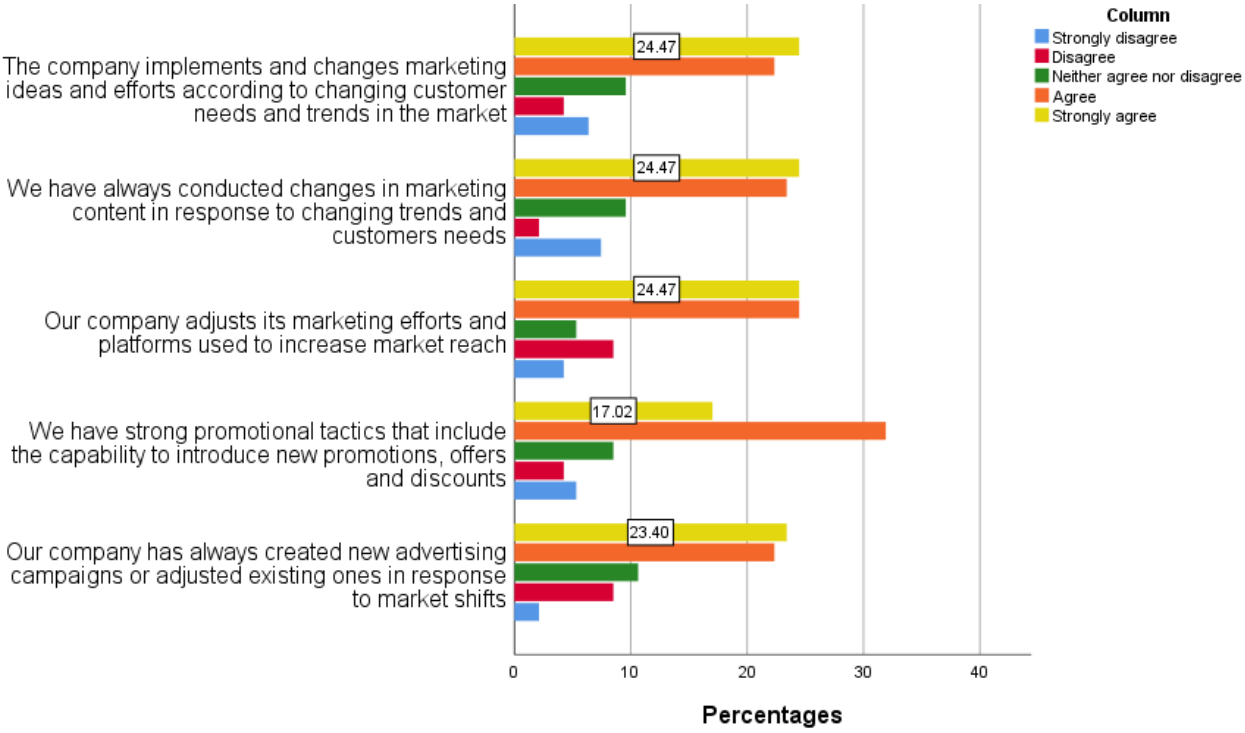

Figure 6: Perception of marketing flexibility on performance.

Based on the second, it was hypothesized that the performance of the organization was strongly related to the marketing flexibility interventions adopted by the organizations. Similar to the first objective, a regression model was generated to test the objective and answer the research questions as appropriate. The results of the regression model are summarized in Table 4.

Table 4: Regression of the relationship between performance and marketing flexibility of the companies in the sugar sector

	B	Std Error	Beta	t	Sig
(Constant)	.329	.210		1.567	.122
Marketing flexibility overall	.926	.053	.913	17.472	.000**

a. Dependent Variable: Performance overall
b. R2 = 0.833; *p-value significant at 0.05; **p-value significant at 0.01
c. F(1, 61) = 3.5.267, p = 0.000**

The regression analysis represented in Table 4 showed that the relationship between the performance of these organizations and marketing flexibility practices adopted in the organization was significant, $F(1, 61) = 305.267$, $p = 0.000$. In this relationship, there was a strong positive correlation between marketing flexibility and performance of the organizations in the sugar sector. Therefore, the performance of business organizations in the sector is strongly dependent on the marketing efforts or practices implemented by the business organizations, especially in response to the changes or needs of the market environment.

The role of marketing in supporting organizational objectives has been well supported in the literature. It is clear from this study that through marketing flexibility, it has been possible for the factories in the sector to adjust their business operations and activities accordingly in response to new opportunities in the market and the need to satisfy emerging customer needs. Marketing flexibility exhibited in the factories in the sugar sector in Kenya has been focused on promotions and marketing tactics that have been adjusted by the factories with market shifts. In order to reach out to potential customer segments in the market, business organizations often implement effective marketing approaches, each designed to achieve a particular outcome. However, marketing flexibility often occurs when these marketing efforts are adjusted accordingly in response to specific needs in the market. Marketing flexibility affects the performance of organizations in the sugar sector by allowing the firms to effectively target particular customers. Mbithi et al. (2015) showed that marketing flexibility in the Kenyan sugar sector mainly occurs through the development of new product packaging and branding interventions. These interventions are used by the companies to effectively address changes in consumer demographics and market factors. However, whether these changes affected the performance of the firms in the sugar sector was not captured by Mbithi et al. (2015).

The firms in the Sugar sector should consider alternative marketing approaches that can be used to reach out to a wider market. Widening the marketing approaches of the organization is crucial to allowing these companies to reach out to customers. One of the potential areas that can be explored by organizations in the sugar sector is to consider the extensive use of social media marketing approaches to reach out to a large customer audience. According to Mbithi et al. (2015), digital media technologies are crucial marketing tools that can be used to reach out to a large number of people, especially in the online business environment. In most cases, these digital media technologies allow business organizations such as sugar factories to interact with their customers on a higher level. In such contexts, the sugar companies will be able to market their products more efficiently using digital media technologies. In today's modern or digital world, embracing digital technologies plays a huge role in supporting the marketing goals and objectives of the firms.

4.5 Effect of supply chain flexibility on performance of state owned sugar companies

The third objective of the research study was to examine the relationship between supply chain flexibility and performance of state-owned sugar companies. In this context, a regression model was also conducted to help answer the research objective, where the intention was to examine the relationship between supply chain flexibility and the performance of these organizations in the market.

The supply chain flexibility of the organization was also captured in the research study by examining how the companies in the sugar sector adjust their supply chains appropriately in response to changes in the market environment. In most of the cases, the supply chain flexibility practices are designed to prevent adverse effects of external forces on the supply chain. The supply chain flexibility of the organizations was captured in the survey, as summarized in Figure 8 below. The majority of the participants, 29.8%, strongly agreed that the organizations

actively implemented flexible production scheduling and were able to adjust their production accordingly to meet the demand in the market. At the same time, another 29.8% of the participants strongly agreed that the company had the ability to adjust products to meet the changes in demand in the market, thus ensuring that the needs and expectations of the consumers in the market were met. 24.5% of the participants also strongly agreed that their organizations diversified supplier-based so that there were many sourcing options for raw materials needed for sugar production. These findings justify a strong agreement among the participants that the factors implemented supply chain flexibility approaches. Therefore, it was pivotal for the effects of supply chain flexibility approaches on the performance of the organization to be examined in depth.

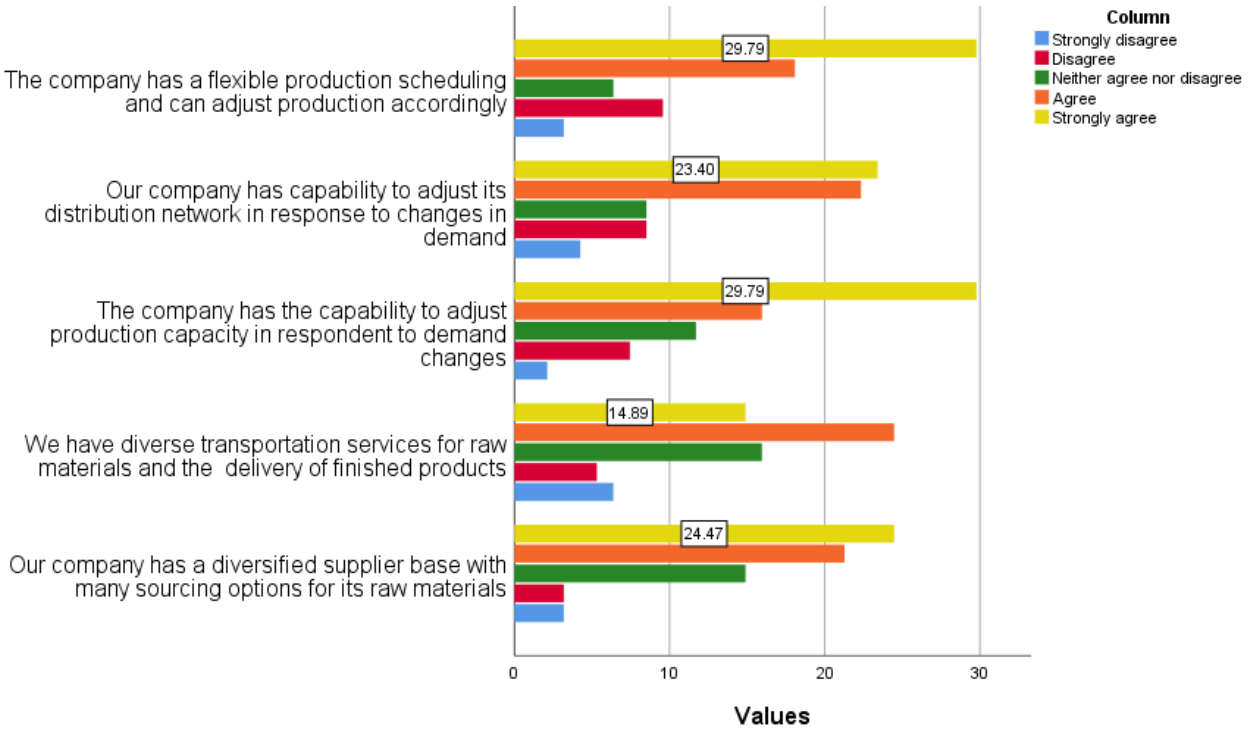

Figure 7: Perception on Supply chain flexibility on performance

Based on the third objective, it was hypothesized that the performance of the organization was strongly dependent on the supply chain flexibility approaches implemented by the

organization. To test this hypothesis, a regression model was developed to examine whether a relationship existed between these two variables, as summarized in Table 5.

Table 5: Regression of the relationship between performance and supply chain flexibility of the companies in the sugar sector

	B	Std Error	Beta	t	Sig
(Constant)	.141	.224		.630	.531
Supply chain flexibility overall	.975	.057	.910	17.132	.000**

a. Dependent Variable: Performance overall
b. R2 = 0.828; *p-value significant at 0.05; **p-value significant at 0.01
c. F(1, 61) = 293.495, p = 0.000**

The regression analysis depicting the relationship between performance of these organizations and the supply chain flexibility approaches put in place shows that the relationship was significant, F (1, 61) = 293.495, p = 0.000. In this relationship, there was a strong positive relationship between supply chain flexibility and the performance of the organizations in the market. Therefore, the relationship implied that the ability of the organization to effectively manage its supply chains strongly determined its overall performance in the market.

The supply chain in the sugar sector strongly depends on external factors in the market, such as customer demand, shifts in the market environment and emerging trends in the market. In response to these changes, the organizations in the sector have always ensured greater transparency and efficiency in their supply chains to ensure that customer needs are met as appropriate. The effectiveness of the supply chain is important to the success of business organizations in the sugar sector. Therefore, in the presence of changes in the market, it is important for these organizations to adjust their operations appropriately so that the goals and objectives of the companies in the market can be met appropriately.

Supply chains of organizations are one of the business areas highly prone to different types of risks that may adversely affect the operations of the business organization. In the presence of supply chain risks, it is important for business organizations to prepare for these uncertainties and be ready for any adverse outcomes that may be associated with the uncertain events that affect the supply chains. According to Sreedevi & Saranga (2017), supply chain risks may be mitigated by developing strong supply chain flexibility and resilience that will support any adverse effects that may occur during normal operating durations. The market environment where sugar factories in Kenya operate is highly volatile, with the sector being at high risk of exposure to adverse outcomes. In this context, the ability of the organization to adjust its supply chain operations accordingly can make a huge difference in terms of supporting the firms during tough times. In today's modern business environment, digital technologies have been recommended and preferred for developing supply chain flexibility. In most cases, these technologies provide additional transparency, flexibility and resilience in the supply chains (Han et al., 2017). Business managers and leaders at Kenyan sugar factories need to examine ways through which they can incorporate modern technologies in their supply chains to enhance flexibility levels. In fact, ensuring flexibility in the supply chains supports supply chain management practices and ensures increased performance not only for the supply chains but also for the firms implementing these practices (Tsai & Lasminar, 2021). The authors further noted that proactive and reactive supply chain flexibility allows business organizations to integrate important market information into strategic decision-making, further improving business performance.

While the supply chain flexibility may help improve the performance of the supply chain in the sugar sector, other factors must also be considered for firms in the sugar sector to effectively support their business goals and objectives. A research study by Amukanga (2018) showed that supply chain management performance in the sugar sector in Kakamega County, Kenya, was

strongly dependent on the type of leadership and management approach in the sector. The same factors can also help ensure supply chain flexibility is ensured in the sugar sector. With appropriate leadership and management support, efforts to ensure supply chain flexibility will be implemented effectively in the firms.

4.6 Effect of strategic flexibility on performance of state owned sugar companies

When the performance of the organization was determined based on the three elements of strategic flexibility, it was found that not all the three components strategically influenced the performance of the organization.

Table 6: Regression of the relationship between the performance of the organizations and the three elements of strategic flexibility

	B	Std Error	Beta	t	Sig
(Constant)	.014	.187		.073	.942
Production flexibility overall	.228	.122	.229	1.866	.067
Marketing flexibility overall	.335	.133	.330	2.525	.014*
Supply chain flexibility overall	.447	.106	.418	4.205	.000**

a. Dependent Variable: Performance overall

*p-value significant at 0.05, **p-value significant at 0.01

The regression analysis showed the relationship between performance and the production flexibility was significant, $F(1, 61) = 257.064$, $p = 0.000$. Also both marketing flexibility ($B = 0.335$, $p = 0.14$) and supply chain flexibility ($B = 0.447$, $p = 0.000$) significantly influenced the performance of the organizations in the market. (Table 6). The findings can also be presented using the format below:

$Y = .014 + .228_{\text{Production Flexibility}} + .335_{\text{Market Flexibility}} + .447_{\text{Supply Chain Flexibility}}$

The regression analysis showed that marketing flexibility (B = 0.335, p = 0.14) and supply chain flexibility (B = 0.447, p = 0.000) significantly influenced the performance of the organizations in the market. Therefore, the extent to which these organizations understood the changes in the market and the supply chain changes strongly determined the extent to which the organizations achieved improved performance in the market.

Diagnostic Tests for Regression Assumptions using Multicollinearity Tests; Tolerance and Variance Inflation Factor (VIF)

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Production flexibility overall	.128	7.835
	Marketing flexibility overall	.113	8.881
	Supply chain flexibility overall	.195	5.131

a. Dependent Variable: Performance overall.

Tolerance: Tolerance is the reciprocal of VIF (1/VIF). It ranges from 0 to 1, where a value close to 0 indicates high multicollinearity.

Generally, a Tolerance value less than 0.1 indicate a potential multicollinearity problem.

VIF (Variance Inflation Factor): VIF indicates how much the variance of a regression coefficient is inflated due to multicollinearity.

A VIF value greater than 10 is often taken as an indication that multicollinearity may be unduly influencing the regression results. From the analysis, the collinearity statistics showed by the

VIF values indicated that they are minimal multi-collinearity because none of the VIF values were greater than 10.0. This means that the independent variables (production flexibility, marketing flexibility and supply chain flexibility) and performance are highly correlated.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section documents a summary of the findings that were generated from the research study in relation to the research questions and objectives of interest. The chapter also generates the conclusions emerging from the study in relation to the research objectives. Recommendations for practice and further research have also been reported in this chapter.

5.2 Summary of the Findings

The study sought to examine the effect of strategic flexibility on performance of state-owned sugar companies in Western region. The findings were discussed based on the objectives.

The first objective was to determine the effect of production flexibility on the performance of state-owned sugar companies in Western Region in Kenya. The regression results showed that there was strong positive relationship between production flexibility and the performance of the public sugar companies. This implied that a unit change in production flexibility caused a change in performance of public sugar companies therefore; the research accepted the null hypothesis.

The second objective was to determine the effect of marketing flexibility on performance of state-owned sugar companies in Western Region in Kenya**.** The regression results showed a strong positive correlation between marketing flexibility and performance of the organizations in the sugar sector. Therefore, the performance of business organizations in the sector is strongly dependent on the marketing efforts or practices implemented by the business organizations, especially in response to the changes or needs of the market environment. This resulted in the rejection of the null hypothesis.

To determine the effect of supply chain flexibility on performance of state-owned sugar companies in Western Region in Kenya was the third objective. H03: Supply chain flexibility has no significant effect on performance of state owned sugar companies was the corresponding hypothesis. The study found a strong positive relationship between supply chain flexibility and the strategic performance of the organizations in the market implying that a unit change in overall supply chain flexibility causes a unit increase in performance of public sugar companies. Therefore, the null hypothesis H03 was rejected.

5.3 Conclusion of the study

Based on results from the first objective, production flexibility has affected the performance of public sugar companies. This can be concluded that most public sugar companies need to adjust production capacity, adopt automation, and evolving technologies as it will increase productivity and performance.

Results from the second objective concluded that marketing flexibility plays a vital role in organizational performance. It is important to adjust marketing strategies in response to changing consumer needs and market trends to enhance market reach, customer satisfaction, and overall performance.

The final objective was to determine the effect of supply chain flexibility on performance of state owned sugar companies. It is important for business organizations to prepare for uncertainties in its supply chains and be ready for any adverse outcomes that may be associated with the uncertain events. The presence of massive forces in the market that control operations in the business sector means that companies operating in the sector must be well prepared to operate under any conditions.

The research study has shown that the ability of these organizations to exercise and implement flexibility in their business operations and strategies can be valuable to future success. Implementation of strategic flexibility interventions can help firms in the sugar sector in western Kenya address the challenges faced in the market and increase their chances of achieving business success. These companies require the ability to adapt swiftly to dynamic market conditions, technological advancements, and environmental shifts due to climate change. Through strategic flexibility, these companies can implement adaptive measures like diversification of crops, investment in climate-resilient infrastructure, and adoption of sustainable farming practices to ensure continuity in operations and maintain competitiveness in the face of climate-induced challenges. Thus, the relationship between strategic flexibility and the performance of sugar companies in the Western region of Kenya is instrumental in fostering long-term sustainability amidst challenges from internal and external environments.

5.4 Recommendations of the study

From the first conclusion, it is recommended that there is need for public sugar companies to adjust production capacity, adopt automation and evolving technologies so as to improve on their performance and be able to remain competitive in the market. Managements of the sugar companies need understand internal forces shaping their activities and operations as these factors will be needed when engaging in strategic flexibility and achieving increased performance in the sector.

Secondly, sugar companies in Kenya need to implement recommendations from market research and assessments that have identified consumer needs, changes in consumer-related factors and the core issues driving business activity in the sector. The market landscape is continually evolving, with shifting consumer preferences and behaviors driven by factors such as health consciousness, dietary trends, and environmental concerns. Overall, strategic

flexibility can be applied as a competitive priority for the firms in the sector seeking to remain competitive and maintain performance because it will ensure appropriate business strategies are implemented by the firms.

Finally, in the Kenyan sugar manufacturing sector, firms need to identify ways of ensuring supply chain flexibility as it is linked to the resilience of the supply chain. This will allow firms to adjust business operations and activities accordingly and manage supply chains in ways that will reduce the effects of any adverse event.

5.5 Limitations of the study

A limitation of this research study is that the adoption of the questionnaires limited the extent to which in-depth information and understanding of the factors that affect the strategic flexibility of the organization could be reduced significantly. This may have allowed biasness in responses. However, the study was conducted purely for academic purposes and to avoid legal implications from defamations or bad publicity of the targeted sugar companies.

There were concerns raised whether focusing on solely on public sugar companies in Western region was enough to draw conclusions given that challenges in the sector affected both public and private sugar companies in the country. The study focused on the mentioned sugar companies because of their perennial poor performance and concerted effort by the government to revive the public sugar companies.

5.6 Suggestions for further research

While the research study achieved the objectives set by the investigator, there are potential gaps left in the study that may benefit from further research.

Firstly, the use of quantitative research methodologies identified relationships between variables examined but did not get in-depth to understand why these relationships existed, especially from the perspective of farmers and corporate managers in the sector. Therefore, further research can be conducted in the form of a qualitative follow-up study where participants would be interviewed for a deeper understanding of the phenomenon being examined.

This study was limited to public sugar companies in Western region and therefore further studies could be done to compare performance with private sugar companies in regards strategic flexibility. Perhaps the findings could validate the findings of this dissertation through comparative study of the phenomenon.

For firms in the Kenyan sugar sector to effectively engage in strategic flexibility and associated decision-making, the use of computer-supported data-driven decision making can be of great value. This is a potential area for further research to determine the value of strategic flexibility in the performance of firms in the Kenyan sugar sector.

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APPENDICES

APPENDIX I: LETTER OF TRANSMITTAL

Dear Respondents,

REF: REQUEST TO TAKE PART IN DATA COLLECTION

I am a student at Maseno University currently undertaking an academic research study titled: **EFFECT OF STRATEGIC FLEXIBILITY ON PERFORMANCE OF STATE-OWNED SUGAR COMPANIES IN WESTERN KENYA**. I am pleased to inform you that you are going to be one of the respondents in this study. Kindly note that any information you will give will only be used for academic purpose. Thank you.

Yours Sincerely,

Carren Jepkorir

APPENDIX II: RESEARCH QUESTIONNAIRE

This questionnaire[1] is supposed[1] to collect data regarding the[1] "**EFFECT OF STRATEGIC FLEXIBILITY ON PERFORMANCE OF STATE-OWNED SUGAR COMPANIES IN WESTERN KENYA**." Data collected[1] will be[1] treated[1] with utmost confidentiality and[1] will hence[1] be[1] used[1] for academic purposes only. Kindly answer each item as honestly and[1] accurately as you can.

SECTION A: GENERAL INFORMATION

1. Kindly indicate your gender

   Male ( ) Female ( )

2. Kindly indicate your highest level of education

   Primary education ( ) Secondary education ( ) Certificate ( ) Diploma ( )

   Degree ( ) Masters ( ) PhD ( ) Other ( )

3. Kindly indicate the number of years you have worked with this sugar company

   Less than 5 years ( ) 6-10 years ( ) 11-15 years ( )

   16-20 years ( ) Over 20 years ( )

SECTION B: PERFORMANCE OF STATE-OWNED SUGAR COMPANIES IN WESTERN KENYA

4. Given below are statements on performance of sugar companies in Western Kenya. Kindly indicate the extent to which you agree with these statements. Use the scale of 1-5, where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree

Statements on performance of state-owned sugar companies	1	2	3	4	5	
i. There is a notable increase in market share						
ii. There is customers' satisfaction on the organization operations						
iii. There is introduction of new product through using operational strategies						
iv. There is a significance increase in the product/service quality by using operational strategies.						
v. There is a reduction in the number of complaints						

SECTION C: EFFECT OF STRATEGIC FLEXIBILITY ON PERFORMANCE OF STATE-OWNED SUGAR COMPANIES IN WESTERN KENYA

5. Given below are statements on the effect of strategic action flexibility on performance of sugar companies in Western Kenya. Kindly indicate the extent to which you agree with these statements. Use the scale of 1-5, where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree
6.

Production flexibility

		1	2	3	4	5
i.	We have adopted technological evolution of power plants to ensure shorter lead times when necessary					
ii.	We have developed approaches to adjust production capacity depending on the changing demand in the market					
iii.	Our company can adjust its inventory levels depending on the customer needs and demands					
iv.	The company can modify production schedules and adapt to changes in demand for products in the market					
v.	The company has adopted automation using technologies to enhance production flexibility					

Marketing flexibility

		1	2	3	4	5
i.	Our company has always created new advertising campaigns or adjusted existing ones in response to market shifts					
ii.	We have strong promotional tactics that include the capability to introduce new promotions, offers and discounts					
iii.	Our company adjusts its marketing efforts and platforms used to increase market reach					
iv.	We have always conducted changes in marketing content in response to changing trends and customers' needs					
v.	The company implements and changes marketing ideas and efforts according to changing customer needs and trends in the market					

Supply chain flexibility

	1	2	3	4	5
1. Our company has a diversified supplier base with many sourcing options for its raw materials					
2. We have diverse transportation services for raw materials and the delivery of finished products					
3. The company has the capability to adjust production capacity in respondent to demand changes					
4. Our company has capability to adjust its distribution network in response to changes in demand					
5. The company has a flexible production scheduling and can adjust production accordingly.					

THANK YOU

APPENDIX III: BUDGET

ITEM	**QUANTITY**	**TOTAL (Ksh)**
Stationery (assorted)		14,000.00
Transport	10	60,000.00
Training /lunch	11	22,000.00
Pretest questionnaire		14,000.00
Typing, printing, and binding		10,000.00
Research assistants	9	50,000.00
Data cleaning and entry	4	12,000.00
Proof reading / editing	2	6,000.00
Contingencies		62,000.00
Total amount		250,000.00

APPENDIX IV: WORKPLAN

	July 2023	Aug 2023	Sept 2023	Oct 2023
Concept development and preparation				
Literature review				
Proposal development - draft				
Proposal development - final draft				
Proposal development – approval				
Data collection				
Data processing				
Report writing				
Report submission				

APPENDIX IV: MAP OF THE STUDY AREA