EFFECT OF COMPETITIVE STRATEGIES ON PERFORMANCE OF GOVERNMENT OWNED KENYAN SUGAR PRODUCTION COMPANIES, ROLE OF GOVERNMENT INTERVENTIONS

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DEDICATION

I dedicate this thesis to my beloved parents Augustine Makina and Joyce Nabwire Makina for encouragement and prayers.

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ABSTRACT

Government owned sugar manufacturing firms play an important role to the economy by contributing to GDP, employment opportunities and raw materials to other industries. The performance has been on declining trend This research aimed to evaluate the influence of government initiatives and the impact of competitive tactics on the performance of government-owned sugar production companies in Kenya. The study aimed to ascertain the impact of various strategies, including innovation, operational, and technological capability, on the performance of government-owned sugar manufacturing companies in Kenya. Additionally, the study sought to determine the moderating effect of government interventions on the relationship between competitive strategies and the performance of these companies. Porter's competitive business typology served as the study's foundation. Other theories were; Resource based view, Dynamic capability and Configuration theories. The study was guided by a descriptive survey research design. The study used positivist paradigm. The target population comprised of 6 Kenyan sugar production companies. Respondents were 359. The sample size consisted of the six-government owned sugar manufacturing firms with 186 top managers and 636 middle level managers totalling to 822. A sample size of 269 was used. The sample size was calculated using Yamane 1980 formula. Questionnaires were used to collect data. Cronbach alpha was calculated using split-half method to test the reliability of the questionnaire. Questionnaires were retained after attaining threshold of 0.70. Validity was tested by expert judgment by providing questionnaires to faculty supervisors and experts who improved on them. Internal consistency was measured using Cronbach's Alpha computed using Kunder-Richardson formula. Both descriptive; mean, standard deviation, percentage and inferential statistics- pearson product moment correlation and regression analysis were used to present the findings. Pearson product moment of Correlation was used to test the strength of the relationship between the variables. Simple regression was used to test the direct relationship between the variables while multiple regression was used to test indirect relationship between variables. Data was presented using tables. It was revealed that competitive strategies; innovation, operational and technological capability strategies had a positive correlation with performance of government owned Kenyan sugar production companies. ANOVA revealed that, statistically, there is a significant positive relationship between competitive strategies; innovation, significant at (p = 0.000 <0.05) operational at (p = 0.000<0.05 and technological capability strategies at (p= 0.000<*0.05*) and performance of government owned sugar manufacturing firms. Further, the results of multiple linear regression analysis revealed that innovation strategy was the most effect followed by technological capability and operational strategy respectively significantly affect performance of government-owned Kenyan sugar production companies. The study recommended that; the firms should undertake appropriate and persuasive strategies in order to compete favourably. It was recommended that managers should identify appropriate competitive strategies at their core operations, and that significant funding through grants and loans schemes should be extended to these firms. Future studies should be done on other dimensions of competitive strategies and performance of an organization. Further study should be conducted in all Kenyan sugar production companies.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
COMESA	Common Market for East and South Africa
C**A**	Competitive Advantage
DC	Dynamic Capability
DS	Diversification Strategy
EAC	East Africa Community
FAO	Food and Agriculture Organization of the efficiency
GDP	Gross Domestic Product
HR	Human Resources
KSI	Kenya Sugar Industry
KSB	Kenya Sugar Board
MAFAP	Monitoring Africa Food and Agricultural Policies
TSE	Tehran security exchange
RBV	Resource Based View Theory
ROI	Return on Investment
SWOT	Strength, Weaknesses, Opportunities and Threats.
USD	United States of America Currency called Dollars

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Strategic management are the decisions and actions that are arrived at by the management in order to achieve certain objectives in an organization (Porter 1985). Some of the major contributors to strategic management are; Chandler, 1962, Ansoff, 1965 as cited by Atikiya (2015). Initially, strategic management was widely used in the military specifically during war time. It was later borrowed, and became useful in management of organizations. The major authors were; Sun Tzu who wrote in 400 BC and Clausewitz who wrote on strategic management in the last century. Strategic management borrows a lot from the military, because most strategies that are used in strategic management are from the military.

According to Porter (1985) and Mintzberg, Bruce and Lampel (1998) as cited by Mbithi, Muturi and Rambo (2015), organizations that use either of the three strategies; cost leadership strategy, product differentiation and focus strategy then fail to realize superior performance, are said to be stuck in the middle. Competitive strategy is one of the most instrumental strategies that an organization can utilize to realize superior performance. Many organizations go for the best strategy so that they can remain relevant in the business world. The business world is very unpredictable and is continuously changing every day. This means that firms that do not come up with new and unique strategies risk getting knocked out of business (Odollo 2019).

Strategic management are decisions and actions that are formulated and implemented by the organization with the aim of realizing intended objectives (Mbithi, *etal* 2015). This is one of the tools that are used to realize superior performance. Imbambi (201 7) observed that for any

organization to realize better performance and have sustainable superior performance, it all depends on the type of strategy it uses.

1.1.1 Competitive Strategies

According to Porter (1980) as cited by Atikiya (2015), Competitive strategy is an important pillar in strategic management and has tremendous contributions to the world of academia. Competitive strategies framework shows that, organizations strive to differentiate their products and work hard to become cost leaders, with the aim of increasing their performance in terms of increased sales, increased profits and good organizational image. The organization that becomes a cost leader and is able to make it hard for other organizations to copy its products, in the long run it realizes superior performance thus competitive advantage. Odollo (2019) opines that, an organization that uses operational strategy as one of the competitive strategies realizes better performance. He intones that innovation strategy reduces the cost of production, thus superior performance. This means that sugar manufacturing firms that use innovation strategy will reduce the cost of production, thus cost leadership strategy Atikiya (2015).

Similarly, an organization that strives to produce unique products that satisfy specific customers, will have a competitive advantage, that will enable it to realize superior performance and make it hard for competitors to join the industry or copy goods that are being produced. These competitive strategies can be achieved through; innovation, operation and use of modern technological strategies. These strategies are anchored in Michael Porter's strategies (1985). They aim at producing products at the lowest cost and satisfy customers' needs, in order to have a competitive advantage over other rivals in business. One of the aims of innovation strategy is to reduce the cost of production and at the same time, satisfy customers' needs, through new products in the market. An organization that utilizes innovation strategy tends to reduce the cost of production in terms of;

administrative cost, distribution costs and operational costs in the long run. Such an organization will realize competitive advantage that will lead to superior performance, as compared to firms in the same industry it belongs to (Kiptoo & Koech, 2019).

Competitive advantage can be attained when an organization charges relatively low prices than its competitors in the market. This attracts more customers and in the long run the number of units sold increases. An organization can charge low prices, thus end up enjoying the economies of scale as a result of the growth of the organization, this enables it to reduce cost of production. An organization can achieve its objective of becoming a cost leader when it uses modern technology in its operations and reduced administrative costs. Administrative costs can be minimised by reducing the number of managers and avoiding unnecessary expenditures. In the long run, the cost of production will be reduced (Makina & Oundo, 2020). Innovation strategy emphasizes on efficiency of the organization. Innovation strategy enables an organization to operate efficiently, which leads to increased production, increased sales volume and increased customer loyalty. In the long run, the organization's performance will increase as a result of competitive strategies. There is no consensus that has been arrived at concerning the role of government interventions in relation to competitive strategies and performance of the organization. This is based on the previous studies that have been conducted. Some studies agree with Porter's argument; for instance, (Kalliappen & Hilman, 2013; Birjandi *etal* 2014 and Fabrienti & Dora 2013).

Akungu (2016), Kaya (2014), and Navulur and Kofand (2015) argued that organizations can implement all the three generic strategies and realize better performance. Odollo (2019) argued that, despite existence of advantages of generic strategies that sugar manufacturing firms use, their performance is still low. There are many other competitive strategies that can be used by sugar manufacturing firms to realize superior performance. The author highlights that the majority of

sugar production companies in Kenya compete using Porter's generic tactics, which include product distinctiveness, cost leadership, and the strategy of focus. This study sought to bridge the gap by looking at other competitive strategies, apart from Porter's generic strategies. They include; innovation strategy, operational strategy and technological capability strategy. Additionally, the relationship between these competitive strategies will be moderated by government interventions and the performance of Kenyan sugar production companies. Government interventions as an intervening variable is important because it shows the strength of the dependent variable and the independent variable. It also shows the direction of variables. The relationship of variables is more complex and this complexity depends on the effect of one variable which in turn affects the other variable. The moderator effect can be reducing, enhancing or changing the influence of dependent variable (Wandera 2018).

Innovation strategy are ways in which organizations come up with new ideas of producing and marketing its products with the aim of realizing superior performance (Miniussi *etal* 2015). This superior performance can be realized in terms of increased sales, increased customers' needs satisfaction, increased customer loyalty and increased net profit. They argue that production process, technical investment and innovation marketing methods are very critical in realizing competitive advantage adopted by manufacturing firms. A business becomes more competitive when it uses strategies that add value. Innovation process strategy in any business significantly affects the behaviour of market segment positively. This allows a manufacturing firm to realize competitive advantage through reduced cost of production. Innovation is seen as the engine of growth, and provides growth of an organization irrespective of the size of that organization. Innovation is also perceived as a total process that consists of inter-related sub-processes. It is not only one function of a new idea or invention but an integration of these actions (Wajiabudula, 2016).

Innovation is one of the fundamental organizational activities in any given market. Innovation is the new idea, the process, or the method of introduction of new product in the market. The Organization that introduces a new product in the market can use it to realize superior performance. Organizational innovation is perceived in terms of developing new products and processes that can be used as a source of sustainable competitive advantage, in manufacturing firms like the sugar sector. Lombardi, Maffia and Triacase (2019) argued that Sugar manufacturing firms that embrace innovation strategy are likely to realize competitive advantage thus superior performance. Sugar manufacturing firms that invest heavily in innovation in terms of production and plant development realizes superior performance. Innovation has unique components of corporate activities, which enable an organization to apply new productive manufacturing processes, respond to the customer's needs, through product differentiation and get a good reputation from the customer's perspective.

According to Wajiabudula (2016), when customers are satisfied with the new product from manufacturing firms the organization will realize superior performance. These new products are usually as a result of innovation strategy. He argues that customers are very important in any organization because they determine the sales volume. Superior performance will be realized after the increased sales thus increased profits. Organization's innovations that are aligned to the organizational capabilities and business dynamic environment act as a source of competitive advantage (Makina & Oundo, 2020).

Operation strategy is a set of plans and decisions put together that involve positioning, developing and alignments of managerial policies and required resources. Operation strategies are specific decisions and actions that are made by an organization with the aim of achieving the objectives of the organization (Ketema 2015). Sugar manufacturing firms need to come up with appropriate competitive strategies and make viable operational decisions and choices in order to survive in the

competitive business world (Odollo 2019). When viable operational decisions are made, the organization will realize competitive advantage in terms of reduced cost of production. Operational strategy for instance, enables sugar manufacturing firms to have superior performance because these organizations will be able to get raw materials at relatively low costs than its key rivals in the industry thus competitive advantage (Obura, *etal*, 2017).

Operation strategies avails manufacturing firms with an alternative and a well-structured way of coming up with decision making, which in turn facilitates increased production and competitive advantage. Sugar manufacturing firms operate in a dynamic business environment. This dynamic business environment includes; political factors, economic factors, technological changes and internal business operations factors. Government owned Sugar manufacturing firms can improve their performance by adopting operational strategies through identification of what customers need in the market. This allows these firms to address specific needs of the customers.

Odollo (2019) argues that operational strategies such as competitive strategies are a functional level plan that serves as a connection between company strategy as well as manufacturing operations, serving as a competitive priority and strategic decision-making tool.

Operational strategy is the functional approach that is used to keep and reach a firm that focuses on daily operations which are in tandem with the overall business strategy (Mwithiga *etal* 2017). Organizations with clear business strategies outplay those ones that do not have vibrant strategies. Operations strategy is the integrated pattern of decision making (Kaviani & Abassi 2014). These strategies shape an organization in terms of capabilities and aligning of the organization's strategies to market demand. Operations strategies meet the demands determined by the business strategy. Operation strategies are also measured in terms of Quality, Just in Time, ISO Certification,

outsourcing and Total Quality Management. The goal of each of these tactics is to lower the manufacturing cost (cost leadership strategy) and customer satisfaction.

Singh *et. al.* (2019) argued that innovation is a way of coming up with new products and embracing technology with the aim of satisfying customer needs. Innovation as part of product differentiation impacts the performance of an organization positively.

Technology is the ability needed to acquire, change, adapt, assimilate, use or create technology with the aim of producing new products in the market. This is done because of the need to align their strategies with the dynamic changes in the business world. These dynamic changes are influenced by political factors, economic factors, technological factors and social-economic factors (Singh *et. al.* 2019). Use of modern technology in production reduces cost of production. Sugar manufacturing firms that use technological capability realize superior performance and act as a source of competitive advantage. Income of farmers in Sugar sector can be improved when sugar manufacturing firms use cost-effective technologies.

A Sugar manufacturing firm that is able to apply high technology in production in the long run determines its strategic position. An organization that uses advanced technology realizes superior performance than their competitors. High technology enables an organization to produce more at a relatively low cost that enables it to realize higher profits. Organizations that embrace high technology realize increased productivity (Imbambi, 2017).

The ability of an organization to control technological capability in the market gives it a competitive advantage. This may be through product differentiation or cost leadership, which in the long run reduces the overall cost of production (Atikiya, 2015). Many studies have been conducted on technological strategy and performance of manufacturing firms. For instance, Filho and Moon

(2018), Kihara, *etal* (2016), Asikhia *etal* (2019), and Mwithiga *etal* (2017), found out that technological strategy has a positive impact on the performance of an organization. The cost of production can be minimised through innovations. Innovation strategy reduces the cost of production through production of more units in a short period of time. In addition, it enables production of high -quality product and an increased market base. Organizations that invest heavily on technological capability and innovation will have a competitive advantage in the market.

Technological strategy aims at dealing with product line and has a positive effect on performance of an organization (Xuenan *etal* 2015). Performance of an organization can be improved by identifying geographical market, serving a specified market and market group. An organization can utilize opportunities in the environment where it belongs to better its performance. Asiedu (2015) argued that technological strategy and positioning of an organization leads to better performance of a manufacturing firm. An organization that invests heavily in new technology can realise superior performance thus a source of competitive advantage. Performance of an organization is influenced by the environment, which can be both internal and external.

1.1.2 Sugar Industry

The countries in the world with the lowest cost producing are: Brazil, Australia, Thailand, China and Guatemala. These countries perform relatively better, because they use competitive strategy; innovation strategy, operational strategy, use of Technological Capability Strategy, irrigation, high -capacity utilization and efficient utilization of bi-products. All these strategies are aimed at realizing competitive advantage as compared to their business rivals (Kegode, 2015). These strategies: cost leadership strategy, innovation strategy, operational strategy and technological capability strategy, enable Brazil to remain the largest producer of sugar in the world. Brazil invests heavily on cost reduction strategies.

In Pakistan, production of sugar has improved because the government of Pakistan, protects sugar manufacturing firms at 40 % import tariffs which aim at boosting domestic sugar prices and protecting domestic sugar producing firms. The government of Pakistan supports sugar manufacturing firms by investing heavily in research, training of farmers, investment in technological development and transferring new technologies to growers with the aim of improving cane yields and sugar recovery rates. Government intervention is critical in relation to the performance of sugar producing firms, the government of China intervenes by supporting sugar manufacturing firms by paying farmers promptly as this acts as a motivator. The government of China protects government owned sugar manufacturing firms by imposing tariffs on the imported sugar from Brazil, Thailand and Cuba (USDA GAIN Report 2020).

Chisanga (2014) ascertains that, ten lowest cost sugar producing countries are; Brazil, Malawi, Tanzania, Zimbabwe, Australia, United Kingdom, Zambia, Thailand, South Africa and Swaziland.

Kegode (2015) argues that in Africa, countries that perform relatively better in sugar production include: Malawi, Tanzania, South Africa and Zambia. The cost of producing sugar in these countries is relatively low in Malawi is at USD 350 per ton, USD 400 in Zambia, Swaziland and Egypt while in Sudan is at USD 450 (Kenya National Assembly 2015). The reasons that contribute to better performance of these countries in sugar production include; use of competitive strategies specifically; - innovation strategy, operation strategy and technological strategy. These strategies help in reducing cost of production. This enables sugar manufacturing firms to have sustainable competitive advantage. They also pay farmers on time, which acts as an incentive that encourages farmers to continue practicing cane farming. USDA GAIN (2020) shows that the government of Egypt intervenes operation of government owned sugar manufacturing firms through procurement prices to $ 3510 per metric ton in all eight -government owned sugar manufacturing firms. The

government of Egypt intervenes by provision of incentives in terms of allocating $ 5.6 billion to the sugar sub-sector.

The governments of these respective countries intervene when sugar manufacturing firms are faced with financial crisis. This intervention implies that they have good will for sugar sub sector. Some studies that were conducted in Africa in relation to the performance of sugar production show that problems that face sugar cane firms are almost similar problems facing government owned Kenyan sugar production companies. The government of Kenya intervenes by writing off debts, improving infrastructures, pushing for the extension of COMESA deadline and bailing out government owned sugar manufacturing firms (Kenya Sugar Board 2018). Countries governments intervene by extending financial assistance and creating conducive business environment with competitive strategies leads to superior performance thus competitive advantage. Government intervenes through extension of loans to farmers, tax subsidies to farmers and improvement of infrastructure. This is done with the aim of encouraging farmers (Mbithi, *etal* 2015).

For a long time, Uganda has been the major supplier of sugar in East Africa. This has majorly been because of the good management, good government will and payment of farmers on time. According to Owiye *etal* (2016), commercial sugar was introduced by the Asians in East Africa. It was first introduced in Uganda at Kakira and Lugazi in Jinja. Uganda became the major exporter of sugar to all East African countries. It was until recently that Tanzania became the major exporter of sugar in East Africa. Some of the reasons as to why Uganda declined in production of sugar were: delayed payment of sugar cane farmers, mismanagement of sugar firms and political interference by the government. The highest sugar producing country in East Africa is Tanzania. The Sugar industry in Tanzania, is the largest agro -processing industry in the nation. It has five sugar processing companies which enable it to produce a lot of sugar.

Tanzania has been producing sugar on positive a trend which has resulted in the exportation of sugar and molasses (Lutengano & Mlay, 2015). Some of the reasons for good performance of sugar industry in Tanzania are: firms use competitive strategies specifically; innovation strategy, cost leadership strategy, operational strategy and farmers are paid on time. This encourages them to continue practicing cane farming. The government of Tanzania intervenes through provision of incentives such as providing market in and outside the country. This makes Tanzanian sugar manufacturing firms to have a competitive advantage in East Africa as compared to other sugar manufacturing firms in the region.

Cost of producing sugar in Kenya is the highest in East Africa and among COMESA member countries. High cost of producing sugar in Kenya is attributed to poor infrastructure, poor corporate governance, underutilization of capacity and delayed payment to farmers (Kenya Sugar Board, 2014). Ketema (2015) opined that most of the sugar manufacturing firms face very stiff competition from well- established sugar producing firms in the world. The competition is not majorly attributed to prices charged but the quantity of sugar produced. The researcher argues that this competition from low-cost sugar producing firms is attributed to competitive strategies; advanced use of technology, increased outsourcing, constant innovations and high level of development. He intones that high cost of production of sugar that is being experienced in most of the countries in the world has led to closure of some sugar manufacturing firms and others being put under receivership. The best example is Mumias Sugar Company. This is because they cannot compete favourably with others that have competitive advantage. The researcher argues that manufacturing firms that put more emphasis on the internal operations capabilities perform relatively better than their key competitors in the industry. This enables them to realize superior performance thus competitive advantage.

Sugar production was introduced in Kenya long time ago. Owiye, *etal* (2016) stated that sugar production was introduced in Kenya in early 1922. The first sugar company that was established in Kenya was Miwani in Kisumu County in 1922. It was followed by Ramisi Sugar Company in the coastal region. The government of Kenya, having developed a lot of interest in sugar sub-sector, established more sugar producing firms that included, Muhoroni that was established in 1966, followed by Chemilil in 1968. Other companies that were set up were; Mumias in 1973, Nzoia Sugar Company in 1978 and SONY sugar company in 1979. These sugar companies were set up with the aim of creating employment opportunities, improvement of infrastructure, reduction of rural urban migration and a source of revenue to the government.

Sugar is one of the top commercial products that earns government of Kenya revenue. They opined that in the mid 1970's Kenya was one of the major exporters of sugar in East Africa. Performance of sugar production started declining in 1980's that, made Kenya become a major importer of sugar (Mati and Thomas 2019) This low production of sugar was attributed to poor management, government interventions through appointments in government owned sugar manufacturing firms, use of outdated technologies, inadequate innovation strategies, poor operational strategies and stiff competition from low-cost producing countries especially COMESA member countries (Imbambi 2017). Kenya imports sugar in bulk from COMESA countries. According to USDA GAIN Reports (2020) Tariffs are usually assessed from the EAC and for non-COMESA countries are usually charged at 100% advalorent tax. Kenya imports safeguards grant by COMESA was renewed in 2018 and it elapsed in Feb 2021 and it is supposed to be renewed under the article 61 of the COMESA treaty. The safeguard has been in existence since 2003 and allows import duty free products up to 350,000 MT annually as the country strives to improve its infant industry. The extension was predicted on the following conditions; privatization of government owned sugar

manufacturing firms, introduction of sucrose content -based cane payment to the farmers and provision and maintenance of transport infrastructures in the sugar growing regions. However, Kenya is yet to fulfil most of the conditions. The mills run on obsolete technology and have accumulated huge debts to farmers.

Government owned sugar producing firms in Kenya are dying slowly; unless strategic intervention is taken it will be an issue of the past. Production of sugar in Kenya has reduced from 580 metric tonnes to 520 metric tonnes in 2016/2017 (Global Agricultural Information Network, 2017). Most of these organizations are struggling to survive because they have huge debts; their production is low to the extent that they cannot meet the market demands both locally and internationally. They take long time to pay farmers which discourages farmers from investing in cane farming Wandera (2018) Government owned companies includes; Mumias sugar company, Nzoia Sugar Company, SONNY Sugar Company, Muhoroni Sugar Company, Chemilil Sugar Company and Miwani Sugar Company. Private owned sugar companies in Kenya include: Butali, SOIN, West Kenya, Kibos & Allied Sugar Company. Organizations that were once booming for instance, Mumias Sugar Company are on their knees. This low performance majorly is attributed to; corruption, mismanagement, lack of accountability and constant wars with the neighbouring companies because of cane poaching. Other causes include a lot of pressure from COMESA countries on liberalization of the market, political interference and accumulated unpaid debts. 85% of canes are grown by the out growers and remaining 15% is supplied by the respective sugar producing organizations through nuclear (Kenya Sugar Industry 2015). This means that most of the organizations depend on the out growers, unlike other countries that produce sugar in the world like Brazil, China and South Africa which has invested a lot in nuclear and do a lot of irrigations. They

also use competitive strategies for instance innovation strategy and use of modern technology so as to cut down costs of production.

1.1.3 Government Interventions in Sugar Industry in Kenya

Owiye *etal* (2016) argued that Government interventions through liberalization and privatization affect performance of Kenyan sugar production companies. Government interventions affect sugar manufacturing firms through taxation, subsidization and fixing of prices by government. They argued that some of the imported sugar is not subjected to tax as it is required in Kenya; this makes imported sugar more attractive to customers at the expense of locally produced sugar because of low prices charged on them. Contrary local sugar manufacturing firms are exposed to harsh tax regime in Kenya with the aim of earning government revenue. Tax imposed on sugar manufacturing firms in terms of high corporate tax and excise duty leads to high cost of production this intern forces sugar manufacturing firms to charge high prices as compared to imported sugar. Additionally they argued that local sugar manufacturing firms are not in position to compete effectively in the Kenyan market because some sugar is imported from highly subsidized economies in the world for instance Brazil and COMESA member Countries. The price of sugar from these countries are relatively low than Kenyan sugar. They further argued that unless the government of Kenya protects its sugar manufacturing firms by imposing stiff tariff measures, for example taxing highly sugar being imported into the country and Government owned sugar manufacturing firms adjusting to the economic changes in the business world, these firms will continue experiencing stiff competition that may lead to low profit margins, losses and total closure of these firms. Competition cannot be avoided in the business world and it is healthy because of globalization. The government of Kenya can intervene by making sure there are no loopholes along its borders that could contribute to

importation of low priced sugar. Customs departments can change dues on imported goods in order to reduce illegal importation of sugar into the country.

According to Ogolla (2010) as cited by Imbambi (2017) argued that small scale farmers are usually affected negatively by the withdrawal of government support through subsidies and tariffs. Most of the farmers depend on the government interventions such as subsidies improvement in infrastructure and tax holidays. Government policies such as, Privatization and liberalization affects sugar cane farmers because they are exposed to stiff competition from the other sugar manufacturing firms in the region and internationally. They are usually affected because these firms operate under different economic environments

According to Ellis and Singh (2010) as cited by Imbambi (2017) argued that government intervenes heavily in sugar manufacturing industry in three countries; Vietnam, Kenya and Bangladesh. It was argued that government intervenes through taxation, subsidies, privatization and trade liberalization. He argued that government owned sugar manufacturing firms perform relatively lower as compared to private owned sugar manufacturing firms in the three countries. Low performance of government owned sugar manufacturing firms is attributed partly because of high manufacturing costs and fierce rivalry from sugar producing countries, government appointments in the government owned sugar manufacturing firms and political interference. The researcher argued that in Zambia private owned sugar manufacturing firms perform relatively better than the government owned sugar manufacturing firms because of good management expertise and private sector incentives that are availed by management. Such incentives act as a motivator to both farmers and employees in private owned sugar manufacturing firms. In the long run it makes private owned sugar manufacturing firms become more competitive internationally in the sugar sector. Sugar sector is very competitive both nationally and internationally. This competition is highly attributed

to government interventions in terms of its policies especially; taxes imposed on sugar manufacturing firms.

Organizations that implement strategies that are aligned to economic conditions and government policies perform relatively better than those that don't. Government intervention influences performance of an organization through taxation, economic integration and government subsidies (Kenya Sugar Board, 2014). Government intervention impacts performance of an organization. This impacts performance in terms of reduction in cost of production. Chateny (2013) argued that the government of Brazil uses competitive strategies to better performance of sugar industry in Brazil. The researcher argues that Brazilian government comes up with strategies that are aligned to sugar manufacturing firms with the aim of improving performance in sugar sector. Brazilian government extends soft loans to the farmers that acts as an incentive to farmers in order to encourage farmers to continue investing in sugar sub-sector. Cost reduction affects positively on the performance of an organization and acts as a source of competitive advantage (Fomassa & Cincera, 2015). Extension of loans to manufacturing firms by government acts as an incentive to superior performance (Alhanity *et al* 2016). Similar studies were conducted in Kenya.

Government intervenes through government subsidies, improvement of infrastructure, marketing farmer's products; loans have a positive effect on organization performance of Kenyan sugar production companies. The spirit of government interventions is to make sure that sugar manufacturing firms remains competitive in the market. Government of Kenya intervenes by bailing out state owned sugar manufacturing firms (KSB, 2013). According to KSB (2014) Government owned sugar manufacturing firms are performing poorly because of several reasons that includes the following; political interference, poor management, rivalry among firms, cane poaching, poor infrastructure and stiff competition from COMESA Countries. This makes sugar

manufacturing sector in Kenya be very competitive. Owiye *et al* (2016) states that private owned sugar manufacturing firms perform relatively better than government owned sugar manufacturing firms. Some of the reasons why private owned sugar manufacturing firms perform better are: good governance, payment of farmers on time, very little government interference in terms of appointments in management and very competitive strategies taken by private owned sugar manufacturing firms.

Imbambi (2017) opined that Government owned sugar manufacturing firms enjoy privileges from the government of Kenya. These privileges includes; provision of loans to government owned sugar manufacturing firms, bailing them when they in financial crisis, writing off debts and enjoyment of government protection from COMESA Countries. He asserts that government of Kenya give loans to farmers, provision of fertilizer at subsidized prices to farmers as a motivation, bail out government owned sugar manufacturing firms and look for market for their products. All these interventions are aimed at improving productivity of these government owned Kenyan sugar production companies. He argues that despite the privileges that government owned sugar manufacturing firms enjoys they still have challenges in performance. Mbithi *et al* (2015) argued that government of Kenya invests a lot on government owned Kenyan sugar production companies with the aim of making them to compete favourably with COMESA member countries. Owiye *et al* (2016) asserted that government of Kenya came up with different strategies which included; request for the extension of COMESA requirements, bailing out government owned sugar manufacturing firms and improvement of infrastructures. This was aimed at reviving sugar sector.

According to KSB (2014), Government of Kenya intervenes in performance of government owned sugar manufacturing firms because of the following reasons; Sugar manufacturing firms' plays an important role in the provision of employment opportunities, is a source of government reverence.

It asserts that government owned Kenyan sugar production companies perform poorly in the region as compared to countries in East and Central Africa. Mbithi *et al* (2015) stated that government of Kenya intervened to protect government owned sugar manufacturing firms from stiff competition from COMESA Countries. One of the interventions is the extension of period given to Kenya before sugar is allowed in from other member countries. They assert that government of Kenya intervenes by setting market price for sugar products. These prices that are set by government are meant to cater for all the cost of production and realize some profits. Prices set are relatively higher than COMESA member countries. This is because the cost of production of sugar is higher in Kenya especially in government owned sugar manufacturing firms than private owned and other countries in the region. This makes government owned sugar manufacturing firms not to compete favourably in the region.

On the Contrary, private owned sugar manufacturing firms perform relatively better than government owned Kenyan sugar production companies. They pay farmers on time; they buy canes at relatively higher prices than government owned Kenyan sugar production companies and pay their employees on time. This makes them to win trust from the farmers. Government of Kenya intervenes by setting prices for the sugar that is produces in Kenya that is produces either by private or government owned Kenyan sugar production companies, still the performance of private owned Kenyan sugar production companies is still higher than that of government owned sugar manufacturing firms (KSB, 2018).

Imbambi (2017) asserts that government interventions affect performance of Kenyan sugar production companies. He argues that economic policies that are taken by government determine performance of Kenyan sugar production companies. These policies includes; tax rebates, tax holidays on sugar manufacturing firms, price setting, provision of loans to farmers and formation

of economic blocks. All these strategies are aimed at improving performance of sugar manufacturing firms in terms of increased profits, positive change of corporate image, realization of enough sugar for consumption and export that would lead to realization of increased government revenues and creation of employment opportunities. With all these strategies, Kenyan government is yet to realize self-sufficiency in terms of sugar production. Cost of producing sugar in Kenya is very high in the region as compared to other countries. This makes them hard to compete favourably with other sugar producing firms in the region.

1.2 Statement of the Problem

Different organizations use competitive strategies: innovation, technological capability and operation strategies to realize competitive advantage thus superior performance. Competitive strategies are used for minimising cost of production and source of increased market shares, thus superior performance. Top management of different organizations should come up swiftly with policies and strategies that affect them both internally and externally in order to avoid declining performance thus substantive recovery. Organization that records loss of its resources which compromise its viability is treated as a declining organization. Government owned Kenyan sugar production companies were formed with aim of improving livelihood of Kenyan citizens through employment opportunities, reduced balance of payment through increased export of sugar products, improve production efficiency, and stimulate economic recovery and profit maximization. This aimed at imparting positively on economic growth and development through Gross Domestic Product (Otiki 2018). Government owned Kenyan sugar production companies have operated to the shareholders expectations. Some of the organizations that have pursued competitive strategies have realized superior performance.

Some organizations do not have what to show after they have utilized competitive strategies because they were stuck or fell in the middle. Government owned Kenyan sugar production companies are the best example that need to be bailed out in different occasions, carry out different changes in terms of policies and strategies in order to compete favourably in the business world. Mumias Sugar Company is the best example that has continuously recorded decimal performance, it has posted a loss of 6 billion in 2016 by recording loss per share of 3.11. In the consecutive year of 2017 the company posted a loss of 9 billion by registering a loss per share of 4.43 (Mumias Annual report 2017). Poor performance of government owned Kenyan sugar production companies is partly associated with these firms competing amongst themselves on Michael Porter's strategies, political interferences, poor resource management, lack of efficiency and effectiveness in management.

This study was driven by the fact that government owned sugar manufacturing firms have been revolving around strategic formulation and implementation in order to compete with other countries favourably. It has also been revolving around inefficiency in competing with the imported sugar from other countries and constant losses experienced annually. It is however not clear that other studies that were conducted focused on the effect of competitive strategies on performance of government owned Kenyan sugar production companies; the role of government interventions.

1.3 Objectives of the Study

The study was guided by the following objectives;

1.3.1 General Objective

The general objective of the study was to determine the effect of competitive strategies on performance of government owned Kenyan sugar production companies; the role of government interventions.

1.3.2 Specific Objectives

The study was guided by the following specific objectives:

i. To determine the effect of Innovation Strategy on performance of government owned Kenyan sugar production companies.
ii. To determine the effect of Operational Strategy on performance of government owned Kenyan sugar production companies.
iii. To determine the effect of Technological Strategy on performance of government owned Kenyan sugar production companies.
iv. To determine the effect of government interventions on the relationship between competitive strategies and performance of government owned Kenyan sugar production companies.

a) To determine the moderating effect of government interventions in the relationship between innovation strategy and performance of Government owned Kenyan sugar production companies.
b) To determine the moderating effect of Government interventions on the relationship between operational strategy and performance of Government owned Kenyan sugar production companies.

a) To determine the moderating effect of Government interventions in the relationship between Technological strategy and performance of Government owned Kenyan sugar production companies.

1.4 Research Hypotheses

The following hypotheses guided the study.

Ho_1: Innovation strategy does not statistically significantly affect performance of government owned Kenyan sugar production companies.

Ho_2: Operational strategy does not statistically significantly affect performance government owned Kenyan sugar production companies.

Ho_3: Technological Strategy does not statistically significantly affect performance of Government owned Kenyan sugar production companies.

Ho_4 (a): Government interventions do not statistically significantly moderate the relationship between Innovation strategy and performance of government owned Kenyan sugar production companies.

Ho_4 (b) Government interventions do not statistically significantly moderate the relationship between Operational strategy and performance of government owned Kenyan sugar production companies.

Ho_4 (c) Government interventions do not statistically significantly moderate the relationship between Technological strategy and performance of government owned Kenyan sugar production companies.

1.5 Significance of the Study

Sugar industry is seen as a very vibrant and an essential element in the Kenyan economy. The fact that other industries depend on sugar as raw material for their production, for example, the pharmaceutical industry, soft drinks industry, etc. Sugar is seen as an essential element in the economy. It provides information to the policy makers that can be used as inputs for policy development that are focused on sugar industry development. It is also important because it contributes to national income and creation of employment opportunities.

Managers of sugar producing organizations are sensitized on competitive strategies and be given a chance to choose among the three or combine all of them. That is, innovation strategy, Operational strategy and Technological Capability Strategy. Findings of this research are helpful to the academicians and researchers who would like to carry out similar research in different sectors of the economy. They will form basis for further research.

1.6 Scope and Justification of the Study

The study focused on six government owned Kenyan sugar production companies. Sugar manufacturing is a sub-sector of the Agricultural sector in Kenya. The study singled out senior managers and managers who are strategy formulators and implementers. Most of the government owned sugar manufacturing firms are found in the western part of Kenya.

This provided convenience in gathering of data thus posing ideal context of the study. The study covered innovation strategy, operational strategy and technological capability strategies (independent variables), organization performance (dependent variable) and government interventions as moderating variable. Government owned sugar manufacturing firms were chosen because they had been performing relatively poorly as compared to private owned sugar manufacturing firms (Kenya Sugar Industry, 2014). They were chosen because government has on

several occasions intervened to salvage the sector but still performance is dismal. This provided enough ground for study to be conducted.

1.7 Limitations of the Study

One of the limitations to this study was non-response from some of the respondents who might have feared victimization. The researcher opted for non-disclosure identity in order to avoid victimization of respondents. Another limitation was non- availability of respondents. The researcher booked appointment before visiting the organizations. The study targeted government owned Kenyan sugar production companies which were majorly found in the western part of Kenya. In terms of the findings' generalizability, this could be restrictive in relation to performance of manufacturing firms. It is important for further research to be conducted in the entire sugar sector including private owned sugar manufacturing companies. Respondents feared to disclose some information especially on sales and profits; this was because of the fear that the disclosed information may be shared with the competitors in the same industry. To mitigate this, the researcher gave the option of the respondents not disclosing their identity so that information could not be traced back to the respondents.

1.8 Assumptions of the Study

It was assumed that all respondents responded to the questions and all the questionnaires would be returned this is because respondents were given enough time to fill questionnaires and the research assistants followed them up. It was assumed that innovation strategy, operational strategy, and technological capability strategy had a significant effect on performance of government owned Kenyan sugar production companies because the aim of these strategies is to improve performance of an organization. It was assumed that government interventions has an effect on performance of

Government owned Kenyan sugar production companies. This is because policies it takes affects performance of organizations in its country.

1.9 Operational Definition of Key Terms

Competitive Strategy: is the ability of an organization to utilize its key competitiveness where it belongs so as to attain superior performance.

Cost leadership Strategy: this is the strategy where organization cuts down cost of production, administrative costs, distribution costs and operation costs in order to gain competitive advantage.

Differentiation Strategy: is competitive strategy where the firm produces a unique product that is different from its competitors and hard to imitate that can act as a source of charging prime price.

Dynamic capability Theory: it is the ability of the firm to adjust to changes in the business world.

Focus Strategy: this is where a firm serves a narrow market segment. This market can either be geographical, customer group or product line.

Innovation Strategy: is a strategy where organization comes up with new products by embracing technology with the aim of satisfying customer's needs

Technological Capability Strategy: is a strategy where organization is able to perform any relevant technical function or volume of activities by producing new products and operating facility effectively

Operational Strategy: is the functional approach that is used to keep and reach an organization focused on day to day needs while aligning to the overall business strategy.

Organization Performance: it is the ability of the organization to achieve its objectives after it has efficiently utilized the resources it has.

Strategy: is a plan of different actions or designed policies that aim at achieving a given objective

CHAPTER TWO
LITERATURE REVIEW

2.1 Theoretical Literature Review

The main theory that guided this study was Michael Porter Competitive Typology Theory supported by Configuration, Resource Based View and Dynamic Capability Theories discussed in the following section.

2.1.1 Michael Porters Competitive Business Strategy Typology

This typology founded by Porter (1980, 1985) argues that, any strategy taken by the business should either be cost leader, differentiation or focus. Organizations should implement any of the three competitive strategies in order to realize superior performance in relation to competitors. Atikiya (2015) asserts that Competitive strategies are sources of superior performance to any organization. Cost leadership strategy occurs when an organization strives to be a lower cost producer in the industry. The theory assumes that the organization that is able to acquire resources at a relatively low cost than the competing firms will have a competitive advantage. The theory assumes that, sources of cost advantage can be realized through; economies of scale, innovation strategy, technology being used and accessible to affordable raw materials. Makina and Oundo (2020) observe that, any organization that is able to access and sustain low cost of production will realize superior performance. Once an organization is able to minimise its cost of production it will sell its products at a relatively low prices, thus commanding the market.

Focus strategy is a strategy that organizations narrow to specific customers in the market. Akungu and Muturi (2016) intones that an organization can penetrate in the market by producing specific

products that targets a certain geographical market. The theory further assumes that an organization can penetrate into the market by targeting specific customers that are meant to consume a certain product (Brakaj 2015). This makes an organization to realize superior performance as compared to different organizations they operate with. Better performance can be realized through: sales increase, reduced customer complaints, improved organization's profits and increased customer loyalty.

Differentiation strategy is where organizations seek to be unique in the industry by producing unique products that satisfy customer's needs. Shawifu (2013) intones than an organization that differentiates its products in terms of uniqueness will realize superior performance because it will attract more customers. The researcher argues that the uniqueness of the products, acts as a source of superior performance in the market. A firm can use; innovation, technological capability and operational strategies to produce unique products. Such strategies allow organizations to realize superior performance in the market that it operates. The theory assumes that firms that do not implement any of the three strategies risk being knocked out of business or risk losing their precious resources (Atikiya 2015). The researcher goes ahead and argues that firms that do not use any of the three strategies, or use them but do not realize the competitive advantage, are said to be stuck in the middle. This is in agreement with Porter's typology.

Akungu and Muturi (2016) argue that the position of the organization within the industry where it belongs determines its performance. The position of an organization can be used by the firm as a source of competitive advantage in terms of being a monopoly in the market. The theory assumes that it can be used to block new entrants into the market. Position of the firm can be used as a source

of competitive advantage by producing unique products in the market this will make it command the market. This is in agreement with porter's Typology. The organization can realize improved performance in terms of profits depending on the position it holds in the industry. A firm that is able to sustain its competitive advantage will continuously experience better performance as compared to its rivals in the same industry. When these two sources are combined with the scope it leads to competitive advantage. Competitive strategies can act as an impetus for good performance of an organization (Makina & Oundo, 2020)

Atikiya (2015) argues that an organization can use focus strategy to realize the desired performance. Focus strategy is where an organization narrows down to specific market segments: the organization uses the resources it has to exploit the available market segment in the industry. There are two major variants in the focus strategy; cost focus and product differentiation focus. Under the cost focus strategy, the organization identifies market segment and uses the cost leadership strategy within that market segment. An organization will command small market segment by being a cost leader in the industry. Differentiation focus strategy occurs where the organization differentiates its products in terms of colour, size, and texture in the narrow market that is being dealt with. These strategies; cost focus and product differentiation focus enable the organization to penetrate into the new market. In the long run it will lead to increased performance in terms of increased sales, increased profits and increased market share. Competitive strategies have been widely accepted by the researchers. Studies have shown that when competitive strategies are used exclusively by the organizations, leads to higher performance in terms of increased sales, increased profits and increased market share. Amali (2015) and Stanislaw *etal* (2013) are some of the studies that agree with Porters typology.

However, Porter's Typology has several critics on the assumption that these competitive strategies; cost leadership, product differentiation and focus strategies when used together lead to better performance than when they are used exclusively (Navulur & Kofand; 2015, Wekesa; 2014 and Atikiya; 2015). Companies like MCDonalds, Southwest Airlines, Walmart, Toyota, IBM and Caterpillar are some of the organizations that have successfully used competitive strategies inclusively and they have increased their performance in terms of increased profits, increased sales, increased customer loyalty and increased market share, infact these companies enjoy dual competitive advantage. In relation to this study which looks at the relationship between competitive strategies and performance of government owned Kenyan sugar production companies, an examination of the role of government interventions. This theory is criticized on the grounds that there are some organizations that implement all the three competitive strategies but fail to realize superior performance (Atikiya 2015). The theory was relevant to the study as the study was anchored on the competitive strategies.

2.1.2 Configuration Theory

Proponents of this theory were; Chandler (1962), Mintzberg and Miller (1970). The major assumption of this theory is that, an organization that aligns to the environment performs better than those that do not (Atikiya 2015). It further assumes that any organization that aligns its strategies to the business environment will realize superior performance as compared to its competitors. It also assumes that, that organization may have very good strategies but if they are not in tandem with the business environment they become useless. Organizations with unique strategies realizes superior performance. Business environment includes; political factors, economical factors, socio-economic factors and technological factors. Mintzberg *etal* (1998) argue that transformational processes may sometimes order themselves over a certain period of time. This means that there is

need to have stability and adaptive strategic changes without disrupting organizational operations. The theory postulates that all the strategies formulated should respond to the business environment in order to realize superior performance. The demands of the environment are very crucial on performance of an organization because they determine performance level in terms of sale, profits, customer satisfaction and customer loyalty. Different business strategies respond to different business environments. Organizations that use modern technology and innovation strategy are likely to realize superior performance (Imbambi 2017). Makina and Oundo (2020) argue that organizations may be knocked out of business through destructive innovations, if they don't align their strategies with changes in the business world.

This theory is criticized on the basis of resources that an organization has. Atikiya (2015) the theory ignored the impact of the resources that an organization has. Resources that organization has, affects positively on its performance. In relation to this study, strategies that are formulated by government owned sugar manufacturing firms should align to the demands of business environment. This environment include, but not limited to the following; COMESA requirements, government regulations like tax and changes in the global market, economic factors, social-economic factors and political factors. This is the reason as to why this theory underpins this study. This theory underpins the third objective that is; the role of technological capability strategy on the performance of government owned Kenyan sugar production companies. It also underpins because an organization can adjust its strategies to suit the changing environment by identifying new market and adjusting to the new trends in the business world. Government policies are one of the external factors affecting business. Government intervenes through government pushing for postponement of COMESA protection on government owned Kenyan sugar production companies. Government

intervenes through government bailing out government owned Kenyan sugar production companies and appointing the management of these government owned sugar manufacturing firms (Makina & Kengara, 2018).

2.1.3 Resource Based View Theory

Barney (1991) was the proponent of Resource Based Theory. Resources are seen as the pillar of any firm. The theory argues that, Resources of any organization are used to realize superior performance. It argues that an organization has different resources that can be used as a source of competitive advantage. Mbithi (2016) argues that resources are the assets, information, organization capabilities, knowledge, and organizational processes that an organization has. The theory assumes that resources of an organization are the major source of superior performance (Olsen & Safda 2014). The theory also assumes that when those resources are utilized efficiently and effectively a firm will realize better performance (Makina and Oundo 2020).

The theory assumes that an organization that has unique resources, will realize superior performance as compared to its rivals in the industry. This is in agreement with Porter (1980) as cited by Mbithi (2016) who argues that the uniqueness of the resources of an organization act as a source of superior performance in the industry it operates in. This means that in order for a firm to realize better performance, it has to have resources that are very unique, rare among the competitors and hard to be copied by the competitors in the industry. The theory also assumes that resources that the organization has should be highly valuable, cannot be imitated and cannot be substituted by the competitors for it to realize superior performance. It further assumes that an organization that has information about its own internal weaknesses and internal strengths can use such information to come up with strategic business decisions that will improve performance (Makina & Oundo, 2020).

The theory argues that an organization that has competitive advantage will automatically have its performance improved, there are many sources of superior performance (competitive advantage) that an organization can achieve, it depends on the brand name of the product, type of technology that is being used by an organization in production and type of employees that the organization has (skilled). This competitive advantage enables organizations to realize its desired performance in terms of, increased profits and increased market share (Bohenkamp, 2013).

Some studies have shown that Resource Based View Theory has a positive correlation on performance of an organization. They argue that resources that an organization has, whether tangible or intangible, has an impact on the performance of the organization. Bohenkamp (2013) asserted that Resource Based View Theory impacts the decisions that an organization takes which intern affects performance of an organization in terms of profitability. When an organization uses its resources efficiently and effectively its performance will increase and this can act as a source of competitive advantage in the industry that it belongs. Olsen and Safda (2014) argued that there is positive correlation between the resources that an organization has and its performance. The researcher argued that resources of the organization impact its performance positively. When resources that are owned by the organization are unique, usually predicts its performance. Predicted performance is usually high because an organization will use the uniqueness of its resources as a competitive advantage in the industry. Consequently, its performance will increase in terms of units sold.

Feddy *etal* (2014) asserts that, the resource that an organization has is very important in determining performance of an organization. An organization that embraces technology will have better performance than its key competitors in the industry. It also acts as a source of competitive advantage that will make it hard for other firms to join the industry. Innovation in technology can

make human resources to become hard to be substituted because an organization will have unique employees, who are able to produce more units at a less period of time.

However, this theory has several criticisms based on the dynamics and management. According to Hedman and kalling (2003) as cited by Makina and Oundo (2020) asserts that, the theory does not put into consideration changes that take place in the organization. It ignores other factors remain constant in the industry. They argue that an organization may have all the resources that it requires in the production of goods and services but if it does not adjust to changes in the business world, such resources will not act as a source of competitive advantage. They further argued that for an organization to realize competitive advantage it must utilize its resources efficiently and effectively and aligning its strategies with changes in the business world. In the long run it will act as a source of competitive advantage.

Chan *et al* (2014) criticizes the theory on the basis of organizational environment. They argue that an organization may have all the resources that it needs, but if it does not align those resources to the environment it will not have competitive advantage thus low performance. This means that the organization should align its resources to the requirements of the environment. The researchers went ahead and looked at this environment in terms of the role of Government interventions and political factors. Makina and Oundo (2020) criticized resource -based view theory as it ignored the impact of destructive innovation which affects performance of most of the organizations. Researchers went ahead to criticize the theory on the basis of ignoring the impact of other external forces that affects performance of an organization performance for instance government intervention, social economical factor and technology apart from the resources the organization has.

An organization may have all the resources that it requires but fail to adjust to the environmental factors (government interventions). It is on this basis this research is to be conducted. This will lead to better performance. This theory is relevant to the study because all firms that manufacture sugar have the relevant resources ranging from, human resources, capital resources and financial resources. These resources are expected to act as a source of competitive advantage in relation to, the key competitors in the industry. This theory underpinned the first objective of the study because every organization has resources that range from human resources, financial resources, technological resources and financial resources. Innovation strategy aims at reducing cost of production in any organization. The organization that strives to reduce cost of production in terms of reduced cost of resources will have, a competitive advantage as compared to other organizations in the same industry.

2.1.4 Dynamic Capability Theory

The proponents of this theory were; Teece and Pisano as a result of the weaknesses and criticisms of the Resource Based View Theory. Resource Based View Theory ignored the impact of changes in the business world. Wandera (2019) argues that the origin of this theory was as a result of innovation. Teece and Pisano (1994) as cited by Atikia (2015) intones that dynamic capability theory is the ability of the firm to adjust to changes in the business world. The theory assumes that the firm may adjust to changes in terms of modification of its strategies, these strategies are modified in order to align to its internal and external key competencies and to the rapid changing business world.

This theory assumes that organizations should align their strategies with the changes in the business world in order to realize competitive advantage. This is the reason why many organizations come up with new strategies like innovation, technological capability and operational strategies. The

theory further assumes that an organization will not compete favourably in the market when they continue using outdated strategies. Pisano and Shuen (1997) business world is changing at a high rate; any organization that does not adjust to the changes may be knocked out of business. The argument is not in agreement with other researchers, Prieto and Smith (2006) who asserted that, it is not only a firm being adaptive to the environment but also modifying and utilizing organization's resources well that will lead to superior performance.

Based on the above preposition, Dynamic capability has received a lot of criticisms from scholars. It has been criticized on ignoring other factors that affect performance of the organization. Teece and Pisano (1994) argued that the ability of an organization to perform better and realize competitive advantage against its competitor, lies on the ability of a firm to combine its resources and adjust to the environment. Dynamic capability has also been criticized on the grounds of value addition that has significant impact on performance of the organization. The theory ignored the time factor in production which determines the performance of an organization. Improved performance can only be realized after a long period of time but not short period of time (Memon & Mohanty, 2008).

This theory was relevant to this study because firms depend on the changes of the business environment which include government interventions. Competitive strategies that are formulated by firms must be aligned to the external environmental changes (government interventions). Government owned sugar producing firms adjust to changes for instance, technological changes, customer preferences and global market.

This theory underpinned the second objective which was; effect of operational strategy on the performance of government owned Kenyan sugar production companies. This is because an

organization will achieve its major objective when its customers are satisfied. A firm that produces goods that satisfies its customers will also have achieved its objective. This can only be achieved when the firm adjusts to the changing business environment. The products can be produced in a unique manner so that they can attract more customers. Consumers will prefer products that are perceived to be unique than those of the competitors.

2.2 Empirical Literature Review

2.2.1 Innovation Strategy and Organization Performance

Kenfac *et al* (2013) did a study on innovation strategy and its impact on performance in four Swedish Municipalities. The study was descriptive. It was revealed that approval innovation contributes positively on performance of a firm. It was further revealed that, corporate social responsibility contributes to sustaining the environment. The study concluded that, organizations should embrace innovation in order to realize superior performance in terms of increased units of products, increased speed of production. Innovation will enable organizations to have competitive advantage than rivalling firms thus enabling a firm to realize superior performance.

The above study concurred with the study conducted by Miniussi *et al* (2015) that analysed the importance of innovation strategy and the competitiveness of organic products in Brazil sugar industry. The study adopted an exploratory research design with 54 managers of different companies. It was revealed that innovation had a positive influence over the competitiveness of organic products. Innovation strategy allows a firm to realize competitive advantage in the sector that it belongs. The study concluded that organizations should invest heavily in innovation in order to realize competitive advantage that will enable them to realize superior performance in terms of increased production speed, increased customer satisfaction, increased units of production.

Similarly, Cabral *et al* (2015) conducted a research that examined the extent to which innovation capabilities of an organization contributes to its performance. Data was collected from 498 Brazilian exports. It was revealed that organization's capabilities influence product innovation and overall performance of an organization. This is evident that for a firm to realize superior performance, it should embrace innovation strategy that will enable it to produce more units at relatively low cost. Organizations that utilize its resources effectively and efficiently will achieve its performance target as compared to its key rivals in the industry that it belongs. An organization that uses its capabilities maximally for instance human resources and technological capabilities realizes superior performance.

Wujiabudula and Zehir (2016) determined how performance of a firm is realized through innovation of products in Turkey. The researcher used 295 respondents who included middle senior managers that were selected from firms which conduct manufacturing industries in Turkey. Results showed that innovation in products and organizational learning correlates positively with performance of an organization. However, the study ignored other strategies like operational effective strategies and technological capability strategy that can impact organizational performance positively. Organizations that invest heavily on new products that will satisfy customers usually have a competitive advantage as compared to its key rivals. Production of unique products usually attracts new customer's thus increasing customer loyalty.

Management innovation impacts performance of an organization positively. An organization that innovates in management will have competitive advantage. Kalay and Lynn (2016) studied organizational structure and the extent on which it affects management innovation in Turkey. 198 managers were the respondents. Findings revealed that centralization strategy has a significant negative impact on management innovation. However, the study never looked at other strategies

like; operational strategies and technological capability strategies that can improve performance of an organization. Different styles of management affect performance of an organization. Changes in management through, management innovation makes work easier and increases the production speed of an organization. This enables a firm to increase the number of units.

Bayraktar *et al* (2016) examined ways in which competitive strategies and innovation affects firm performance in Turkey. Data was from top managers through computer assistant telephone interviewing method. The study employed 140 respondents. Results showed that innovation leads to cost reduction and innovation through product differentiation leads to increase in market share of a firm which in turn leads to better performance. Cost leadership strategies and product differentiation are source of competitive strategies. From the study it was recommended that, management should invest heavily in innovation in order to better performance of an organization in terms of increased units of production, speed of productivity, increased customer satisfaction and improved sales.

Kurt and Zehir (2016) conducted a study on innovation, total quality management and financial performance of a firm. The study used survey research design and a sample size of 142 managers. The findings revealed that innovation strategy that aims at reducing cost of production correlates positively with performance of a firm financially. Any organization that is able to reduce cost of production through innovation and increases production will definitely realize financial performance. The study appreciates the impact of innovation strategy. However, the study ignored the impact of other strategies like; operation strategy and technology strategies.

A related study, Bas *et al* (2017) examined ways in which innovation affects use of technology differentiation and how it impacts organization performance. Data was collected through

Luxembourg community innovation survey and longitudinal data. It was revealed that innovation strategy, organization strategy and technological innovations correlates positively with performance of a firm. Persistence in technological innovation enables an organization to change with the changing world in terms of production. Once technological innovation is done persistently, a firm will realize better performance. It becomes hard for an organization to be knocked out of business because of the technology being employed. However, the study never looked at other strategies like technologically based strategies and operational strategies. All of these affect performance of an organization.

Many studies concur that innovation strategy can be used as a source of competitive strategy in manufacturing firms. Zhang *et al* (2018) assessed the relationship between innovation in management, technological innovation and their sustainability and how they affect performance of a firm. In this study data was collected from 304 respondents who were CEOs and top managers in Pakistan. These respondents were chosen by the researcher because they are strategy formulators. Results were analysed through analysis of a moment structure (AMOS). From the study it was revealed that management innovation and technological innovation correlates positively with performance of an organization and sustainability. Management innovation and technological innovation are key strategies for top management because they are key strategy formulators. Technological and innovation strategies are used by managers to reduce cost of production in the firm.

A related study that incorporated; innovation, technology and social responsibility strategies confirmed competitive strategies are used to realize an organization's goal. This was supported by a study conducted by Canh *et al* (2019) who examined the influence of innovation on performance of an organization in relation to corporate social responsibility of Vietnamese manufacturing firms

for a period from 2011-2013. Corporate social responsibility impacts performance of an organization because the firm gives back to the community through provision of services, for instance; garbage management, infrastructure development and provision of water. From the study it was revealed that process innovation, product innovation and corporate social responsibility improve firm performance through; market share, increased profits and improved organizational image. This improvement performance leads to realization of organization's goal. This means that for an organization to realize better profits it needs more time. It was also revealed that innovations can also make an organization to be obscure especially due to external factors.

Sahu (2018) conducted a study on Product innovation, assessing sugar industry: Suitability for production, consumption and utilization of resources. The study examined the importance of sugar and increased demand both domestic and international. The study analyzed environmental impact for sugar processing; recycling and utilization. The study focused on the importance of sugar industry that includes sugar process, pollution and how this can be mitigated with respect to wastes, by products due to innovations being used to produce valuable products that create employment opportunities. From the findings, it was revealed that Green industry is a result of product innovation that affects performance of a firm in Australia. This means that firms that puts into consideration, social responsibility perform better. Resource utilization is vital in any organization.

Sugar manufacturing firms that utilize innovation strategy in terms of product differentiation realize competitive advantage as compared to other sugar manufacturing firms that do not. Chuang *et al* (2014) conducted a study that established the relationship between strategic innovation and organization performance in relation to improved added value services in sugar firms in Taiwan. The study focused on the state -owned sugar manufacturing firms in Taiwan. Results revealed that Taiwan Sugar corporations had transformed their business models significantly, in terms of

adopting strategic innovation and promoting the practice of product differentiation. This leads to achievement of an organization goal. The study showed that organizations especially sugar manufacturing firms do better than their competitors when they do innovations. These innovations can be in terms of; product innovation that satisfies customer's needs and it could be innovations in terms of the speed of production. This in the long run leads to reduced cost of production.

Innovation strategy enables Brazil sugar manufacturing firms to be cost leaders thus realizing competitive advantage. Santos *et al* (2015) examined the effect of Eco-innovation on the performance of Brazillian sugar producing firms. The study included general innovation, environmental performance and the social aspect. The study was based on investment of fixed assets. It was revealed that for environmental aspect the company improves performance by coming up with strategies like; greenhouse gas emission and increase water re-use and energy efficiency. .

Competitive strategies are used by an organization to realize its goal. Sugar manufacturing firms that utilize its resources through innovations realizes superior performance than its competitors. Scheiterle *et al* (2017) explored the effects of product innovation and performance of sugar manufacturing firms in Brazil. The study was conducted in Brazil's bio-economy. The findings showed that, development of Brazil's international competitiveness in sugar was based on political influence. This means that government interventions have a significant impact on the performance of any organization. It is evident that sugar manufacturing firms cannot operate in isolation.

The Government of Brazil gives incentives to sugar manufacturing firms and farmers in terms of loans and tax rebates. The study recommended that existing innovation need to be expanded in order to improve performance of an organization. This means that innovation especially in the

market increases market base of the firm's products. An innovation in sugar industry reduces cost of production in the long run increases profit margins. This makes a firm to realize competitive advantage in relation to its competitors.

Sugar manufacturing firms that invest in Process product innovation and eco-innovation is a source of superior performance. Gomes, Basso and Santos (2018) studied how innovation strategies correlate with performance of Brazilian sugar-energy firms in Brazil. Data was collected through questionnaires in a period of three years (2015-2017). Factor analysis and multiple regression analysis were used to analyse data. It was revealed that innovation strategies were dedicated to products process innovation and eco-innovation and cost reduction. This means that innovation strategy and Sugar manufacturing firms correlated positively. Innovation on new products in the sugar sector can be used in cost reduction and increase in customer loyalty in the long run increase profit margin. Innovations in the sugar industry can be used to realize superior performance as compared to key rivals in the industry that cannot embrace innovations. This is one of the reasons as to why Brazil has a competitive advantage against other sugar manufacturing firms in the world for instance Kenya.

Lombardi, Maffia and Triacase (2019) conducted a study on technological innovation. From the study it was revealed that Technological innovation represents not only noteworthy sustainable business strategy for becoming more competitive in the market but also a system for ensuring more effective sugar transport mainly reduction in management costs in the sugar manufacturing firms up to 65% for buyers. Innovation is key in production and marketing of sugar products.

A firm becomes more competitive in terms of marketing its products. Focus strategy is key in production of sugar. Once the firm has produced sugar it has to be innovative on how to market its products at the lowest cost. This is done through technological innovation.

Innovation leads to creation of new products in the market. Such innovations attract new customers thus increase in sales. Okumu *et al* (2019) studied the effect of innovation on employment growth rate in Uganda. The study was survey on World Bank enterprises data base innovations are categorized as process innovation and product innovation. Findings revealed that process innovation and product innovation correlate positively with employment growth. Once new products are innovated it creates new market and new customers, this makes a firm to have superior performance in relation to other manufacturing firms thus increased profits. One of the aims of innovation strategy is to reduce cost of production. Innovation strategy works hand in hand with cost leadership strategy. Cost of production can be reduced through several ways; administrative costs, distribution costs and operational costs in order to become more competitive in the long run, this will lead to achievement of desired performance. Competitive advantage is attained when the organization charges sustainably low prices than its key competitors in the industry. This will lead to a positive impact on performance; increased sales, increased profits increased customer loyalty and increased production units for an organization. Innovation as a strategy emphasizes on efficiency of an organization. This will enable the firm to command the market.

Kombo *et al* (2015) conducted a study on knowledge strategy and innovation in manufacturing firms in Kenya. The study used cross-sectional survey research design. Target population was 655 manufacturing firms in Kenya. A sample size of 266 firms was used. Questionnaires were used to collect primary data.

It was revealed that, knowledge strategy has a positive significant effect on innovation activities of the firm. The study concluded that, higher levels of knowledge strategy would result in higher organizational innovation. However, the study ignored other strategies like operational strategies and Technological capability strategies. These strategies can also be used in government owned Kenyan sugar production companies in order to realize superior performance.

Innovation can be used as a source of competitive strategies. Marketing innovation strategy leads to increase in market base thus increased sales.

Njeri (2017) conducted a study on the impact of innovation strategy on telecommunication firms in Kenya. The target population was retail customer, customer operations and consumer business departments. The sample size was 181 respondents. Collected data was analysed through descriptive analysis. Results indicated that their innovation correlated positively with the organization performance.

However, the study never looked at other strategies such as operational strategy and Technological capability that an organization can use to realize competitive advantage.

Research design that was used was census. Collected data was analysed through descriptive statistics, Bavarian regression analysis and moderated regression analysis. From the analysed data it was revealed that innovation strategy implemented by sugar manufacturing firms (interactive control system) had a positive correlation with the competitive position of an organization. Kenyan sugar production companies cannot work in isolation. It depends on different systems. However the study never looked at other strategies that can act as a source of competitive advantage. Such strategies include; operational strategies, technological capabilities. Further the study ignored the effect of government interventions on performance of government Kenyan sugar production companies. Further the study was census not survey.

One of the innovation strategies is green sourcing that is used by sugar manufacturing to realize competitive advantage. This was a result of a study conducted by Machio and Keitany, (2018) on the effects of innovation strategy and performance of sugar manufacturing firms by use of green sourcing. The study employed a descriptive research design with the target population of employees in the purchasing department in all sugar manufacturing firms found in western part of Kenya (11) firms that totals to 173 workers. The study used a sample size of 121 employees. Questionnaires were distributed among 121 respondents to collect data. From the analysed data it was revealed that innovation strategy (green sourcing) had impact on how an organization performs. The study recommended organizations should embrace innovation strategy- green sourcing because it impacts performance of organizations positively. This strategy can act as a source of superior performance of an organization in relation to other sugar producing firms in the sector. Innovation, green sourcing can be used by government sugar manufacturing firms as a strategy to block new entrants into the market. However the study ignored the effect of other strategies that are sources of competitive advantage. Such strategies includes; technological capability, operational strategy. It further informs impact of government interventions and status of government owned sugar producing companies in Kenya. Strategies aligned to innovation and dynamics in business world is one of major weapon for competitive advantage thus superior performance to the organization. Product innovation, technological innovation and marketing innovation acts as a source of advantage in a more competitive business world for an organization.

Kiptoo and Koech (2019) studied how performance of an organization is influenced by strategic innovation. Descriptive design was used with a target population of 105 staff of producing firms in Kwale Kenya. Questionnaires were major tools for collecting data. There was a revelation that, performance of a firm correlated positively with strategic innovation. It implied that technological

innovation, product innovation and marketing innovation leads to realization of organization's goal. However the study ignored other factors that can be used by the firm to realize an advantage in a more competitive business world. Such strategies include; technology capabilities, government interventions and operational strategies.

Laban and Deya (2019) conducted a study by examining how innovations as a strategy and information communication technology influences operations of a firm. Descriptive survey research design was used with the population of 14 ICT firms in the cellular mobile. Data was collected from 98 respondents who included chief strategic officers, directors of innovations and line managers. It was collected using questionnaires. It was revealed that, market innovation was the most common and the highest predictor of an organization's performance. Product innovation was the second followed by the process innovation. The lowest was organizational innovation. However, the study never looked at other strategies like technological capability and operational strategies that can improve organization performance.

In summary, following literature reviewed it showed that performance of a firm correlates positively with innovation strategy. This happens through reduction of cost of production. For example, Kalay and Lynn (2016), Bas, Mothe, Thuc and Thi (2017), Kiptoo and Koech (2019), Okumu, Bbaale, Guloba (2019) this shows that organizations that uses innovation strategy use it to realize competitive advantage in the industry they operate. Organizations especially sugar manufacturing firms use innovation strategy to realize superior performance. However, reviewed literature never looked at other competitive strategies for instance; operation strategy and technological capability that would have a positive contribution for a firm. Most of them looked at different sectors of the economy but not the sugar sub-sector.

2.2.2 Operational Strategy and Organization Performance

A lot has been done on the effect of operational strategy and how it can be used to realize an organization's goal.

Aykan and Aksoylu (2013) carried out research on how operational strategies and accounting techniques strategies impacts performance of medium and large -scale businesses, in Keyseri, Turkey. The study used a cross-sectional research design and questionnaires were used to collect data that distributed among respondents were 229 managers.

The researcher found out that operational strategies had low significant impact on perceived performance of an organization. The study recommended that other competitive strategies should be used to increase performance; such strategies will be used to realize competitive advantage. However, the researchers ignored the role of other competitive strategies; innovation and technological strategies that can realize significant influence on performance of an organization. The study only focused on medium and large enterprises but never looked at sugar industry.

Organizations that have efficiency in their operations, in the long run realize superior performance. In a research that was carried out by Kaviani and Abbasi (2014), analysis of how the operational strategies affect manufacturing firms in Iran. The study used hybrid Grey DEA approach a case of Fars cement manufacturing companies in Iran. The study used interview as a tool for collecting data from nine companies. The study also used examination of company's documentation through visiting the cement companies of Far province. Grey DEA method was used to analyse the data. It was realized that operation strategies correlates positively with performance of a firm using a hybrid

Grey DEA approach. However, the study never looked at other strategies; innovation strategy and technological capability strategy that can equally impact an organization positively. Further the study used interviews as a tool of collecting data. It never used questionnaires that would give insight information. It also never looked at government owned sugar manufacturing firms.

In a related study conducted by Marjani and Keshavarzi (2015) on the influence of operational strategy and competitive advantage in Tehran. The study used 95 respondents that were drawn from experts and managers of rare perfume imports. Collected data was analysed through descriptive analysis. It was revealed that operational strategy where an organization produces unique products correlates positively with organization's performance.

The study suggested that managers should equip themselves with knowledge of identifying customer needs. However, the study ignored the impact of other competitive strategies like innovation and technological strategies which can impact the performance of an organization positively. The study ignored other manufacturing sectors, the sugar sub-sector. It also ignored the impact of government interventions on performance of an organization.

Liboni *et al* (2015) conducted on the effect of equipment supply as an operational strategy in sugar producing organizations, energy and ethanol in Brazil. The study used a survey research design. Data was collected through interviews. Collected data was analysed through descriptive analysis. From the analysed data, the study found out that use of modern technology in terms of equipment allows sugar manufacturing firms to increase units of production. It also allows an organization to produce more units at short period of time. In the long run sugar manufacturing firm will in turn realize superior performance by being able to meet market demands. However, the study only used

interviews as a tool of collecting data. It ignored questionnaires that give deep insight information on the study.

Ball (2016) carried out a study on how financial services of an organization are influenced by information technology and its operational effectiveness in a business. The study employed semi-structured interviews to collect data from members of departments. Collected data was analysed using quantitative inductive approach. From the analysed data it was revealed that, although there was intention to improve alignment between business and IT strategies with some noteworthy initiatives emerging there have been a number of factors inhibiting successful alignment. Some of the factors include: lack of trust in IT solution delivery, IT remaining ignorant to the impact of process changes. Information technology cannot be ignored by any organization. Information technology enables an organization to increase production at a relatively low cost. This leads to increased performance of an organization.

However, the study ignored the impact of government interventions on performance of an organization, further the study ignored the effect of other strategies for instance; innovation strategy and operational strategies that are also a source of competitive advantage. Sugar manufacturing firms that are flexible in terms of the strategies and operations do realize superior performance in terms of increased sales, increased profit and increased customer loyalty.

Silva and Ferreira (2017) conducted a study on how managers deal with uncertainties in business and the effect of flexibility in strategies in sugar manufacturing firms in Brazil. The study designed a theoretical model that presents convergent, discriminate validity. Data was collected from managers through questionnaires and interviews. Results showed that the ability of managers to predict the business environment, determines how organizations will perform. From the study, it

was further revealed that, if the organization is flexible in the business world then the negative effect of uncertainty will be minimal. Innovation strategies cannot be avoided by any organization that wants to remain relevant in a competitive world. Due to changes in the market, organizations are also adjusting to produce goods and services that will satisfy customers' needs. In fact, production of goods and services is becoming customer centred and not organization centred. Innovation is inevitable if the organization wants to remain relevant in market. However, the study ignored the impact of government interventions which can influence performance of sugar manufacturing firms either positively or negatively through its policies like; taxation policies, economic liberalization, privatisation policies and appointments in the management of sugar manufacturing firms.

In a study conducted by Gandhare *et al* (2018) on operational strategy of measuring performance can be maintained in sugar producing firms. Data was collected through, field visits, published reports and interviews. Collected data was analysed using correlation, multiple regression and cluster analysis. From the analysed results it was revealed that sugar manufacturing firms maintaining performance had a positive correlation with maintenance of approach, physical and financial management of sugar producing organizations. It was further revealed through Cluster analysis that sugar manufacturing firms focusing on operational strategy has a positive impact on the level of the firm's performance. Maintaining performance of sugar producing companies depends on, spare part management, this enables the firm to realize constant improvement in terms of performance for instance; financial performance, increased units of production, increased speed of production and increased total sales. This can make an organization to use it for superior performance of a sugar manufacturing firm in the sector. The Sugar manufacturing firm can use

operational strategy to realize competitive advantage and realize superior performance as compared to its key rivals in the sector. However, the study ignored technological strategies, innovation and government intervention. These strategies equally lead to superior performance. The study also ignored use of questionnaires as a data collection tool that could give deep insight information on how sugar producing firms perform.

Sugar producing organizations depends heavily on the environment in terms of the type of the soil, changes in climate and human activities on the water bodies in terms of disposals. Sugar manufacturing firms that preserve environment realize competitive advantage than those that don't. Melo *et al* (2018) conducted a study on business strategies that are put in place by organizations and how they influence environmental practices in sugarcane producing firms in Brazil. Tools for collecting data were; questionnaires, interviews, reviewed documents and reports. Collected data was analysed through content analysis. From the study, it was revealed that increasing efforts towards preventive behaviour and towards understanding environment sustainability acts as a major contributor of competitive advantage for sugar manufacturing firms. Operation is vital in determining how organizations performs. Due to changes that take place in the business world, sugar manufacturing firms that do not align its strategies with the environment will be knocked out of business. Environmental practices affect performance of sugar manufacturing firms. For instance, going green. Environmental sustainability has an advantage in sugar producing organizations that strives to maintain productivity of its soil, improvement of water bodies surrounded by the sugar manufacturing firm. The study never considered the effect of government interventions as a strategy. Similarly, the study ignored the effect of innovation and technological capability that can be used to compete favourably among sugar producing firms.

Increase in sales of sugar through exportation leads to competitive advantage of a sugar manufacturing firm as compared to the one that doesn't. In long run will lead to attaining organizational goals. Sheetal *et al* (2020), conducted a study on export competitiveness as an operational strategy and it influences performance of an organization. The study looked at the top 15 sugar exporting countries from 2001-2018. It was revealed that structural changes in cane belt, sugar and molasses over the time period between 2006 and 2015 comparative advantage was high. It was further revealed that despite very tough regulations, Guatemala, United States, China, India and Thailand had a comparative advantage of up to 7-9 which was high in sugar categories. Further it was revealed that despite the indulgence regulations in Columbia, Canada and Brazil comparative advantage was evident in the three sugar categories. Sugar manufacturing firms can use competitive advantage to penetrate a market as compared to sugar manufacturing firms that don't have. It makes it hard for them to compete favourably. Competitive advantage, operational strategy allows sugar manufacturing firm to realize superior performance in spite of the existence of tough regulations in the market that are put by respective governments. It is one of the reasons that make COMESA countries to penetrate into markets within COMESA countries and other markets in non-member countries.

Strategies that are formulated by organizations to better its performance can be used to realize superior performance. Onyango *et al* (2015) conducted a study that examined the relationship between organizational capabilities, operational strategies and how they influence performance of an organization. Respondents were heads of departments in sugar manufacturing firms in western Kenya. Data was collected using interviews, questionnaires and reports from the respective companies. Collected data was analysed using descriptive and inferential statistics.

From the findings, it was revealed that organizational capabilities correlated significantly with

performance of sugar producing organizations. This means that sugar manufacturing firms with high organization capability will be in position to realize better performance than those that don't. The researcher recommended that sugar manufacturing firms should strive to align their strategies with its capability. In the long run it will realize better performance in terms of increased sugar production, increased sales and improvement in profit margins.Organizations that differentiate their products may use it to fix relatively above normal prices in order to maximize profits. This strategy is also used to meet specific customer's needs.

Ondere *et al* (2016) conducted a study on how operational and differentiation strategies, contribute to general performance of sugar manufacturing firms in the western part of Kenya. Research design for the study was a descriptive survey. Four western sugar production companies participated in the research; Butali, West Kenya, Mumias and Nzoia sugar manufacturing firms, 179 respondents were sampled from a population of 1851. They included employees from managerial and non-managerial staff. Questionnaires, interviews and checklists from all the four sugar manufacturing firms were used as data collection tools.

Descriptive and inferential statistics were used to analyse data. Results showed that, Mumias Sugar Company stood out to be the most aggressive sugar manufacturing firms in Western Kenya. This means Mumias Company has proportional activities that rate it highly in terms of reputation and corporate image. It was revealed that there are a number of problems that face Kenyan sugar production companies that include; government policies and politics in management, economic liberalization that has paved ways for imported sugar from Brazil and COMESA countries.

Rewarding employees as one of the operational strategies motivates employees which leads to increased production, thus improvement in organization performance. Injendi and Migosi (2017) conducted a study on operational strategy by examining the employee's reward programmes and

how they influence job performance. A targeted population of 252 and a sample size of 76 employees was used in the study. Data was collected through questionnaires and interviews. It was revealed that, promotion of employees as a strategy, influenced employees' performance through increased productivity of employees in sugar manufacturing firms. The study was significant as it would advise management to revise its promotional strategies in order to realize an organization's objectives. However, it never looked at other strategies that can lead to better performance for instance, use of technological capabilities.

Muhande and Iravo (2017) conducted a study on the operational strategies by examining how performance of sugar firms are affected by inventory management control systems. The study used both descriptive and analytical research design. The study used 1200 employees of Nzoia Sugar Company. The researcher used questionnaires to collect data. Collected data was analysed through descriptive and inferential statistics. It came out clearly that performance of sugar producing organizations correlated positively, with operational strategy of inventory management control systems. This means that organizations that have up to date inventory control management systems realize better performance in terms of increased productivity, increased sales and increased profit margins.

Resources of an organization, if well managed will enable it to compete favourably in the business which in turn leads to improved performance. Bagaka and Moronge (2017) conducted a study on operational strategy by analysing how a firm can increase its performance through managing materials effectively and efficiently. The study was descriptive in nature. Questionnaires were used to collect primary data. From the study, it was revealed that operational strategies specifically material procurement correlated positively on the performance of Kenyan sugar production

companies. The study went ahead and recommended that there is need to have a full adoption of material procurement tool as a vital tool for auditing, clarification for payments, quality control and invoicing. This operational strategy can impact positively on firms especially sugar producing firms in Kenya.

Different organizations use different operational strategies in order to realize competitive advantage in sugar sector. Moraa and Senaji (2017) conducted a study on the relationship between operational strategies and how organizations react towards changes and competition in the sugar sector. Descriptive survey research design was used. The target population was managerial staff in sugar firms in west sugar firms in the western region. Primary data was collected though questionnaires. Quantitative data was analysed through descriptive and inferential statistics. Multiple regression analysis was used to determine the relationship between the variables. From the analysed data it was revealed that there was a positive significant correlation between operational strategies; channel of distribution, uniqueness of the products and sugar firms in Kenya.

Every firm has a responsibility to pay back to the community so that the community may feel part of the organization. Organizations that use corporate social responsibility as an operational strategy have a competitive advantage in relation to its rivals in the industry. Masinde (2017) conducted a study on operational strategy in relation to Social responsibility as a corporation for Kenyan sugar producing companies' business performance and personnel.

Data was collected for the period from 2008 to 2012. The study employed descriptive research design. The target population was 2450 employees where a sample size of 245 respondents was drawn from. Data was collected through questionnaires and interviews from the respondents. Analysed data revealed a positive correlation between operational strategies through corporate social responsivity and performance of employees which in turn leads to increased performance of an organization.

Diversification strategy as an operational strategy is used by sugar manufacturing firms to realize competitive advantage in the sugar sub sector. Muteshi and Bolo (2017) conducted a study on the operational strategy, diversification strategy and sugar producing firms in Kenya. The study integrated resources of an organization and diversification. The study employed a cross-sectional survey research design. From the analysed data, it was revealed that there exists a major interdependence between variables (operation strategy- diversification) and performance of sugar manufacturing firms. Diversification strategy can be used by a firm to penetrate into the market. Instead of over relying on one product for instance, sugar only, a firm may diversify its operation by producing different products like, ethanol, molasses and water in order to realize superior competitive advantage against its competitors.

The way resources are located in sugar manufacturing firms determines its performance. Organizations that utilize their resources effectively realizes relatively better performance than their competitors. Nyandara *et al* (2017) conducted a study on operational strategy by examining how resource allocation impacts outcome of the organization. This study used a descriptive research design. Data was collected through questionnaires. The target population was 994 employees of South Nyanza Sugar Company. A sample size of 329 employees was used in the study. Collected

data was analysed both quantitatively and qualitatively. It was revealed that resource allocation correlates positively with the level of organization performance.

Simiyu *et al* (2017) conducted a study Operational strategy and influence of strategic investment management practices on financial performance of sugar manufacturing companies in Kenya. The study's target audience consisted of all 12 sugar production companies in Kenya, and it utilised a descriptive research methodology. The research employed a sample size of 109 workers from Kenyan companies that produce sugar. Questionnaires were used to collect data. Multiple regression analysis was used to analyse the data. From the findings it was revealed that operational strategy- strategic investment management practices had a positive significant effect on financial performance of Kenyan sugar production companies.

Operational strategy; outsourcing of resources are used by organizations to realize superior performance in sugar manufacturing firms. Obura *et al* (2017) conducted a study on operational strategies by analysing the outsourcing cane haulage applied in sugar producing firms. The study applied survey research design that targeted public sugar producing firms in Kenya. The tool of collecting data was questionnaires. Collected data was analysed through descriptive and inferential analysis. Utilising regression analysis, the association between the variables in question was ascertained. It was revealed that there was a positive significant impact of operational strategy-outsourcing and performance of Kenyan sugar production companies.

Atingo and Kwasira (2018) conducted a study on how operational strategy, strategic reforms affect performance of sugar manufacturing firms. A target population was the employees of respective firms. A sample size of 254 respondents was used.

Questionnaires were used to collect data. Descriptive and inferential statistics were used in the study. From the analysed data it was revealed that operational strategy- strategic reforms had a significant effect on performance of sugar producing firms. The study recommended that, these firms should engage in other operational strategies for instance; product diversification, marketing strategies, improving in farming methods and corporate social responsibilities for better performance of sugar manufacturing firms.

The way resources are allocated by an organization determines its performance. Some departments require more resources than others. Mengich and Kiptum (2018) conducted a study on ways in which resources allocation affects performance of sugar producing firms in terms of service delivery. The target population that was drawn from Chemilil, Mumias, Kibos, Sonny, Nzoia and Soin sugar manufacturing firms was 734. The study used 259 as a sample size that was drawn from the target population of 734. Data was collected through questionnaires that were distributed among the respondents from six selected Kenyan sugar production companies. Collected data was analysed using descriptive and inferential statistics in order to determine the relationship between study variables. From the analysed data, it was revealed that service delivery depends on the resources that are allocated in the organization. The study recommended that appropriate operational strategies should be applied in order to better performance of Kenyan sugar production companies.

Cane crushing and machine maintenance as operational strategies are used by organizations to achieve set goals. Nganga and Byiringiro (2018,) conducted a study on the operation strategy by examining the effectiveness of maintenance of cane crushing mills. The study used root cause analysis (RCA) in assessing the impact of maintenance process and the performance of Nzoia sugar Company, Kenya. The tool of collecting data was a questionnaire. Collected data was analysed though descriptive and correlation analysis. From the analysed data, it was revealed that effective

maintenance correlates significantly with performance of sugar producing firms. This improved performance is realized in terms of cane crushing. The study recommended that maintenance strategy should be used in order to improve organization performance. However, the study never looked at other strategies like; technological strategies that can be used to improve performance.

Wandera (2018) conducted a study on operation strategy by examining the influence of turnover strategies on performance of state -owned sugar producing firms in Kenya. The study had a target population of five Kenyan sugar production companies with a population of 406 managers. The research employed a sample size of 197 responders. The study used a descriptive design of research. Data was gathered by means of questionnaires. Collected data was analyzed through descriptive and analytical research design. From the analysed data it was revealed that operational strategy specifically; re-organization and realignment strategies showed a commendable impact with performance of government owned sugar producing companies in Kenya. It was further revealed that retrenchment as operation strategy, diversification and modernization strategies revealed no significant results on performance of sugar producing companies in Kenya.

Sugar manufacturing firms compete with one another in order to realize a competitive edge, thus realizing superior performance. In a study that was conducted by Waswa *et al* (2018) on the effect of competitiveness as operational strategy on financial achievement of sugar producing firms in Kenya. The study used a sample size of 5 Kenyan sugar production companies. This study looked at data from 2005-2016. From the study it was revealed that sugar manufacturing firms with low costs per tonnage perform relatively better as compared to those with high cost of production per tonnage. The study concluded that the higher the production cost per tonnage, the less profit an organization realizes. It further showed a negative correlation between management efficiency and

Kenyan sugar production companies. It was recommended by the study that sugar producing firm's management should make sure that production cost is low as it drastically affects profitability of an organization.

A study conducted by Mweresa and Muturi (2018) on operational strategy and the impact of investment decisions on financial target achievement of public sugar producing firms in western Kenya showed that investment decisions are critical for organization performance. The study adopted survey research design with a target population of 2284 employees from six government owned Kenyan sugar production companies. The sample size of 786 respondents was used in the study. Both primary and secondary data was collected. Collected data was analysed through descriptive and inferential statistics. It was revealed that operational strategy of investment in distribution chain decisions has a moderate effect on financial performance of government owned sugar manufacturing firms that are found in western Kenya. It was further revealed that investment in production had positive significant effect on financial performance of an organization. Recommendations included, sugar manufacturing firm's managers should maximize investments in production and distribution chains to realize higher financial performance.

Financial decisions of an organization determine performance of any organization. Operational strategy that is geared towards minimizing unnecessary cost will lead to superior performance thus competitive advantage to an organization. Ongombe and Mungai (2018) conducted a study on operational strategies by examining the effect of capital structure decisions on financial performance of sugar manufacturing firms in Kisumu County in Kenya. Their study used a descriptive survey research design. The study used secondary data obtained from the published financial statements for the period between; 2011-2015. Collected data was analyzed through regression analysis. From the analyzed data, it was revealed that debt ratio had a negative effect on

financial performance of sugar manufacturing firms that are found in Kisumu County, Kenya. However, the study never looked at the effect of other strategies for instance technological strategy. This forms the basis of this study.

Operational strategy is geared towards enabling the community feel part of the organization through corporate social responsibility, this will enable a firm to realize a competitive edge. Wekesa and Kimutai (2018) conducted a study on the operational strategy by examining the effect of corporate social responsibility strategy and sustainability management systems on performance of selected sugar manufacturing firms. The study used ex-post factor research design. The target population was 158 employees in 7 Kenyan sugar production companies. Collected data was analyzed using descriptive analysis, inferential statistics, correlation analysis and multiple regression analysis. From the analyzed data it was revealed that, sustainability management systems correlate positively with performance of sugar producing organizations in Kenya. However, the study ignored the impact of other factors that lead to superior performance in Kenyan sugar production companies. For instance; use of technological strategy. This forms the basis of this study.

Organizations with operation strategy that is keen on the human resource capability will realize superior performance thus having a competitive edge in relation to those sugar manufacturing firms that have weak human resource capability. Imbambi *et al* (2019) conducted a study on operational strategy by examining the effect of human resource capability and how it affects organization performance, thus realization of a competitive edge of Kenyan sugar production companies. The target population was 727 managers drawn from sugar companies in Kenya. The study used a sample size of 88 respondents sampled from 727. Data was collected using questionnaires distributed among managers in the 7 sugar manufacturing firms in western Kenya. Descriptive and

inferential statistics were used to analyse data. Analysed data, showed that any sugar manufacturing firms that, its human resource capability were strong realized competitive advantage than those that didn’t. According to the study's findings, Kenyan sugar production companies with strong human resource skills are probably going to have a competitive edge over those with weaker capabilities. The study recommended that sugar manufacturing firms should invest intensively in human resource capabilities in order to enjoy superior performance. However, the study ignored the impact of other strategies like; technological capabilities and innovation strategies that can be a source of competitive advantage to sugar manufacturing firms. This forms the basis of this study.

Sugar manufacturing firms that use different types of operational strategies stand high chances of realizing competitive advantage than those that use only one operational strategy. Odollo (2019) carried out a research on the impact of operational strategies on performance of sugar manufacturing sector in Kenya. The study was descriptive in nature. The study used a target population of 12 Kenyan sugar production companies. One hundred and sixty-five respondents were involved in the study. Data was collected through; questionnaires and interviews. Collected data was analyzed using descriptive and inferential statistics. Regression analysis moderated multiple regression analysis and correlation analysis were used to analyze the data. Results indicated that operational strategies correlated positively with performance of an organization. The study recommended that management of these firms should identify appropriate operational strategies at their core operations.

Infrastructural choice of a sugar manufacturing firm as one of the operational strategy acts as a strong source of competitive edge in relation to those that do not use it. Odollo and Ochieng (2019) conducted a study that determined the effect of operational strategic and choices of infrastructure

on performance of sugar firms in Kenya. The study used descriptive research design. The study applied purposive sampling to arrive at 165 respondents. Data was collected using both interviews and questionnaires. Correlation and regression analysis were used to analyse data. From the analyzed data it was revealed that operational strategies- choices of infrastructure influences performance of sugar firms. Operational strategy- infrastructural choices can act as a source of superior performance. It can be used to shield sugar manufacturing companies to shield from the external forces in the sugar sector as it will have reduced cost of production.

Employees are a very important resource in an organization. Sugar manufacturing firms that train their employees more often as operational strategy realize a competitive advantage. This makes them to have superior performance.

Wasonga and Wekesa (2019) conducted a study on operational strategies by examining its effect on job training and performance of employees of sugar producing firms in Kenya with the reference of Sonny Sugar Company. The study used descriptive research design. Interviews and questionnaires were major tools used in collecting data. The target population was 945 employees of Sonny Sugar Company. Collected data was analyzed using qualitative and quantitative methods. From the study it was revealed that on -job training as a strategy impacts positively on how of employees of sugar manufacturing firms perform. In the long run, it leads into general improvement of sugar manufacturing firms.

However, the study ignored other strategies like innovation strategy and technological capability strategy that impacts the levels at which sugar manufacturing companies in Kenya perform. This forms the basis of this study.

Training suppliers especially farmers in the sugar industry on modern technology will reduce wastages. This is a competitive strategy because the organization will minimize wastage thus superior performance as compared to the key rivals in the same industry. Nasiche *et al* (2020) conducted a study on the operational strategies by examining the influence of suppliers training and performance of Kenyan sugar production companies. Results indicated that, supplier training correlated positively with how Kenyan sugar production companies perform. The study recommended that Kenyan sugar production companies should train farmers on the use of modern ways of sugar farming. However, the study ignored the effect of other strategies like; use of technological capabilities and use of innovation strategies that can lead to better performance of sugar manufacturing firms. This forms the basis of this study by incorporating technological capabilities, innovation strategies and the effect of government interventions.

Kenyan sugar production companies operate bellow their capacity. This is brought by inadequate funding and misappropriation of funds. A sugar manufacturing firm that strives to operate above its capacity will realize superior performance thus competitive advantage than others in the same industry. Nangulu *et al* (2020) conducted a study on the capacity management strategies and how sugar companies perform in Kenya. The study employed census survey research design where all these firms were considered. The sample size was 11 registered Kenyan sugar production companies. Respondents were selected from 11 sugar manufacturing firms. It was revealed that all the 11 sugar manufacturing firms operated bellow their installed capacity. It was further revealed that operational strategy, capacity management strategy was the most common strategy employed by these firms in Kenya. It was further revealed that these firms face many challenges which includes; inadequate material supply, high cost of firm inputs and poor plan maintenance. This

means that operational strategies that are used by sugar manufacturing firms affect them either positively or negatively. It was recommended by the study that significant funding through grants and loans schemes should be extended which will in turn lead to increased performance.

Sugar manufacturing firms that embrace operational strategy in terms of adjusting to change management have a competitive advantage thus superior performance. Kegoro *et al* (2020) conducted a study on operational strategy in relation to change management and performance of sugar producing organizations. Findings revealed that sugar companies that adjust to changes will realize superior performance and competitive edge than those that don't. This allows them to have increased sales and in the long run have realize increased profits.

Procurement outsourcing as one of the operational strategies, applied by sugar producing organizations is a tool of competitive advantage. This will reduce uncalled for expenses. Wanyonyi and Otinga (2021) conducted a study on the operational strategy and how procurement outsourcing strategy influences performance of purchasing functions in sugar manufacturing organizations in Kenya. The target population was drawn from two departments; procurement department and stores. The sample size was 54 respondents. The study was census because of the low number of respondents. Data was collected using questionnaires. Collected data was analyzed using descriptive and inferential statistics. The study revealed that, operational strategy; outsourcing of raw materials had a positive significant effect on performance. It was further revealed that, operational strategy; financial services outsourcing had a significant positive influence on performance of sugar manufacturing firms especially purchasing functions. The study concluded that raw material outsourcing and financial services outsourcing play a significant role on

performance of Nzoia sugar manufacturing firm. The study recommended that implementation of operation strategy; procurement outsourcing should be embraced for better performance of Nzoia as a sugar manufacturing firm.

Strategic leadership as one of the operational strategies affects performance of sugar manufacturing firms especially in state owned sugar manufacturing firms. Management of Upper echelon determines the direction of an organization. Some managers may assume changes in the business world that may work against the organization. The sample size of the study was 269 that were calculated from the target population of 917. Data was collected using questionnaires and documentary analysis of secondary data. Descriptive and inferential analysis was used to analyse data. It was revealed that there was a significant correlation between strategic leadership and performance of state -owned Kenyan sugar production companies. However, the study ignored the effect of other strategies like; innovation and technological capability that can impact positively on performance of government owned Kenyan sugar production companies. The study also ignored the effect of government interventions on performance of Kenyan sugar production companies. This forms the basis of this study.

In summary, following the reviewed literature, it is clear that there is positive correlation between operational strategies, product differentiation and performance of organization. For example, Majukwa & Haodud (2016), Melo *et al* (2018), Odollo and Ochieng (2019) & Kegoro *et al* (2020) agreed with Porters' Typology. However, the studies never looked at other competitive strategies; innovation and technical strategies. They never looked at the sugar-sector but looked at different sub-sectors. The reviewed literature was majorly conducted in developed countries like USA and European countries but not in developing countries like Kenya.

2.2.3 Technological Capability Strategy and Organization Performance

Technological capability and financial capability strategies determines competitiveness of an organization. Manufacturing firms that utilize technological capability and financial capability will realize competitive advantage than the key rivals in the industry. A study by Suryani *et al* (2016) assessed effect of technological capability in relation to financial abilities among small and medium enterprises in Indonesia. A questionnaire was used as the main tool for collecting data. Results revealed that growth in sales and profits had a positive correlation with the technological capability. However, they ignored the impact of other strategies like innovation strategy that can impact positively on how an organization perform. They also ignored the effect of government interventions through its policies like trade liberalization and taxation and how it affects performance of an organization.

Technological capability increases production of different products that serve different markets. This determines the market share of different products. An organization with high technological capability has a competitive advantage and in the long run lead to superior performance. In a study by Xuenan *et al* (2015) investigated the impact of technological strategy brand portfolio and product line strategy on brand market share on cell-phones in china. They applied a two -way model (fixed effect). They showed that foreign cell-phones, brands and Chinese local cell-phones brands responded differently on the price levels and product levels. The study suggested provisions of useful guidelines and managerial implications in the context of cell-phones in the Chinese markets. However, the managers should use other competitive strategies for instance, innovation and operational strategies in order to realize desired results in cell-phone companies. The study also ignored the effect of other factors like government interventions and how they affect performance

of an organization through its policies. Such policies include; taxation, trade liberalization and setting of prices, All these affects performance of an organization. This provides a basis of this study.

Technological capability strategy and supply chain management is used to gain a competitive edge to an organization. An organization can use its technological capability to reduce the cost of production. A study by Filho and Moon (2018) assessed the role of technological capabilities in the competitive advantage of companies in the manufacturing Tech Hub in Brazil. The study used exploratory mixed method study in ten companies. Results showed that technology has a positive impact on performance of an organization. Organization that uses modern technology will have a competitive advantage. This means that the cost of production will be reduced. In a competitive environment the organization will realize superior performance in relation to the key rivals in the industry. However, the study ignored other factors that impacts performance. Some of the strategies that were ignored include; innovation strategy and government interventions. All these affects performance of an organization.

Potjanajajaruwit (2018) assessed the casual factors of technological capability and inter organizational collaboration that affects competitive advantage of start-ups in manufacturing firms in Thailand. The study employed mixed research method; where quantitative and qualitative methods were used. Path analysis was used to analyse the data. Results revealed that casual factors of technological capability and inter organizational collaboration had a direct effect on competitive advantage setups in Thailand.

It was also revealed that technological capability had a positive correlation on organizational performance. However, the study never looked at other strategies like innovation and operational

strategies that have an impact on performance of an organization. Technological strategy can be used by a manufacturing firm to realize its objectives. This enables an organization to have superior performance in relation to the rivals in the industry.

Competitive advantage can be attained when a manufacturing firm can configure its resources to the available technology. In 2018, Li and colleagues carried a research on the relationship between organisational success and technology configuration competence in Chinese high-tech companies. The research made use of 439 high-tech Chinese companies. It became out that in an ever-changing setting, technology configuration capacity enhances the impact of strategy flexibility on organisational performance. An organization that embraces modern technology will realize superior performance. Technology can be used as a source of competitive advantage. However, the study ignored the effect of other competitive strategies that impacts organizations positively. Such strategies include; innovation strategy and operational strategy.

Manufacturing firms that have technological capability cannot be easily knocked out of the market because they have a competitive advantage against their key competitors. This will make them realize superior performance. Ahmad *et al* (2019) conducted a study on the relationship between technological capabilities and performance of manufacturing firms in Malaysia. Data was collected using questionnaires that were distributed to 302 respondents in small and large firms. The study revealed that there is a significant relationship between technological capability and performance of an organization. The study recommended that, further study is to be carried out in order to understand the impact of technological capability on performance of an organization. However, the study never looked at other competitive strategies for instance; innovation and operational strategies that lead to superior performance of an organization.

Increased production of sugar can be achieved when there is enhanced technology. Once technological capability is enhanced there will be increased production leading to increased sales thus increase in farmer's income. A research by Singh et al. (2019) examined the incorporation of sugarcane production technology for improved cane and sugar productivity with the goal of raising the revenue of Indian sugarcane farmers.

Descriptive research approach was adopted in the study. It was revealed that the target of increasing income of the sugar cane farmers will be achieved if the production is improved. The improvement of sugar production can be realized through development of cost effective technologies, offering educational services to the farmers and creating a linkage between all stakeholders. Improved technological strategies in sugar cane sector includes but not limited to the following; intercropping, pests and diseases management, use of biotechnological tools and minimizing post-harvest deterioration. Technological strategy is important for the improvement of performance of sugar manufacturing firms, this can be through; diversification of cane production system and integration of cane production technologies.

The study recommended that there is need to develop low-cost technologies to convert waste resources into use that will help farmers increase their income. Once the income of farmers is increased it will act as a motivator to farmers in the long run production will be increased.

Oghojafor *et al* (2014) conducted a study on competitive strategies, technological capabilities and organization performance; Nigerian manufacturing industry. The study used a cross-sectional survey research design. Data was collected using questionnaires. Data was analyzed using descriptive and simple regression analysis. It was revealed that there was no significant effect of differentiation strategy and firm's performance. It was further revealed that there was significant effect between cost leadership strategy and performance of an organization.

It was further revealed that technological capabilities have a significant effect on organization performance. However, the study never looked at other strategies like innovation and operational strategies that are a source of competitive advantage.

Competitive strategies like technological capability leads to superior performance of manufacturing firms. An organization that has high technological capability carry out constant maintenance than those that don't. Manufacturing firms that don't have technological capability wait until machines have failed then carry out maintenance which is expensive. Amaeshi *et al* (2015), carried out a study on the effect of technological capability in relation to production facilities maintenance on competitive advantage in Nigeria. The researcher employed a descriptive research design. Data was collected using questionnaires distributed to 30 respondents. From the findings results showed that, it becomes more expensive and costly to conduct maintenance of machines on the failed systems in the manufacturing firms, than preventing the system from failing because of the repairing costs, reduction in the number of units produced, and reduction in the number of customers and decrease in profits.

Technological capability in terms of intelligence makes an organization to realize superior performance. This superior performance can be realized through increased sales, increased market shares and increased profits. Asikhia *et al* (2019), carried out a study that examined how

technological intelligence contributes to performance of a firm through process innovations in Nigeria. The study adopted literature review of work of previous scholars. The result revealed that there is a positive significant relationship between a technological intelligence and organizational performance; it was also revealed that process innovation mediates the relationship between technological intelligence and firm performance. It was discovered that, technological innovation capability enables a firm to develop unique new products at a lower cost, gearing towards the differentiation and cost leadership strategy. Based on the Resource Based View theory (RBV) both process innovation and technological innovation capabilities are core resources for sustainable competitive advantages that leads to superior performance. This enables an organization to realize competitive advantage.

Technological capability in terms of outsourcing from the low suppliers and integration, either positive or backward integration acts as a source of competitive advantage. Bushuru *et al* (2014) asserts that an organization can realize superior performance when it employs outsourcing strategy. They studied the impact of early supplier participation, low-cost sourcing, reverse integration, and technical capacity adoption on the supply chain's efficiency in Kenya's public sugar industry. The research used inferential as well as descriptive statistics. Sixty respondents provided information via questionnaires. It was revealed that technological adoption had a positive correlation between supply chain and improvement of effectiveness of the supply chain function and early supplier's involvement. This means that technological capability in sugar manufacturing firm's acts as a source of competitive advantage. Manufacturing firms that embrace dynamism in technological capability realizes superior performance because it uses it to block entrance of new firms in the industry.

It was further revealed that technology is a vital dynamic capability that is required by all manufacturing firms to attain superior performance and strong competitive advantage among the rivals. However, the study never looked at other strategies for instance; process innovation as strategy that can better performance. This acts as a source of competitive advantage in the industry where the organization operates from.

Mwithiga *et al* (2017) carried out a study on information technology, integration and firm performance, among 44 commercial banks and 12 microfinance institutions in Kenya. The study adopted a pragmatist philosophical approach which underpins mixed research methodology. Senior IT executives completed surveys intended to gather primary data. The yearly report and statement of finances of the firms provided secondary data. The results showed that information technology and organisational performance had a strong positive link.

Technological capability as one of the competitive strategies aims at reducing cost of production through cost leadership strategy. Sugar manufacturing firms that use cost leadership strategy in terms of reduced cost of raw materials, reduced administrative cost and reduced production costs realize superior performance. Wekesa *et al* (2015) conducted a study on sugarcane in Vitro culture technology opportunities and performance of Kenya's sugar industry. The study was descriptive. It became clear that the bulk production of disease-free clone materials via vitro culture is a feasible and quick process. Increased sugarcane production in Kenya is possible with the application of vitro culture technologies. The speedy multiplication of recently released varieties, the revitalization of old, deteriorating varieties, the creation of disease-free seeds, the convenience of transporting seed materials, the removal of viruses, high cane productivity, and sugar yield are only a few benefits of this technology. These technical approaches seek to lower manufacturing costs, giving them a

competitive edge over other companies in the industry. Advanced technology strategies enable sugar production companies to achieve higher levels of performance.

Sugar manufacturing firms that utilize technological capability through E-marketing intelligence leads to superior performance thus realizing competitive advantage. Otiso (2017), argues that E-marketing leads to superior performance. In a study that he assessed the effect of technological capabilities on performance of Nzoia Sugar Company, Kenya. The study was anchored on Resource Based View theory. Case study and survey design were used in the study. The target population was 1403 employees. From the analyzed data, it was revealed that increase in customer's services management capability like repeat purchase, confidentiality of customer's information could translate to increased performance. Market capabilities like, E-marketing, marketing intelligence information, internet penetration and automation of process can improve performance of sugar manufacturing firms.

Sugar manufacturing firms will realize superior performance and competitive advantage when it utilizes technological capability. Imbambi *et al* (2017), asserts that technological capability enables a firm to realize competitive advantage this was based on the study they carried out on the influence of technological capability on competitive advantage of sugar companies in western Kenya. The study employed descriptive research design. The sample size was 88 from a target population of 727 senior and middle level managers. Data was collected using questionnaires from the primary data while the secondary data was collected from a respective company's reports.

Technological capability acts as a source of competitive advantage through lean production. It aims at producing goods at relatively low cost thus cost leadership. This cost leadership acts as a barrier to new entrants into the industry. Kunyoria (2018), asserts that sugar manufacturing firms that use

new technology in production minimizes cost of production thus competitive advantage. His study looked at the technological adoption and lean manufacturing in SONY sugar company, Kenya. The study employed a correlation research design. Data was collected using questionnaires and interview schedule. A sample size of 79 respondents was used. Data was analyzed through structural equation modelling to determine how variables affect one another. It was revealed that there was a positive correlation between technological adoption and the performance of sugar manufacturing firms.

Procurement in sugar manufacturing firms in key because, an organization can use technological capability to reduce unnecessary steps in the procurement procedure which may delay production. This will act as a source of competitive advantage. Simiyu *et al* (2021) argued that procurement is a very vital department in any organization. When resources are well procured, the cost of production will be reduced leading to competitive advantage. They affirm this in the study they conducted by examining the influence of technology used in the procurement performance of sugar manufacturing firms in relation to Nzoia Sugar Company. The study used a descriptive research design. The target population included employees of Nzoia Sugar Company who work in the procurement department. The study employed a census because of few respondents. The study used questionnaires as a tool for collecting data. Collected data was analysed using descriptive and inferential statistics. Regression analysis was used to determine the relationship between the use of technology, procurement and performance of Nzoia sugar manufacturing firm. From the analysed data, it was revealed that the use of technological practices had a significant effect on procurement performance of Nzoia sugar manufacturing firm. However, the study ignored the effect of other strategies like innovation strategies and operational strategies that can have an impact on

performance of sugar manufacturing firm. The study also ignored the effect of government interventions; political interference, trade liberalization, taxation and financial assistance. All these affects performance of sugar manufacturing performance.

In summary the reviewed literature showed that technological strategy had a positive correlation on performance of organizations. This supports Porters' Typology For example, Filho and Moon (2018), Mbithi *et al* (2015), Otiso (2017) and Kunyoria (2018). However, none of these studies looked at the effect of government interventions on performance of sugar manufacturing firms. Secondly, they never looked at other competitive strategies which could play a positive role on performance of the organization. Literature analysis further shows that there is no agreement on one theory that is suitable for realizing higher performance in relation to competitive strategies. Atikiya (2015), in her study on effect of competitive strategies on organization performance in relation to manufacturing firms in Kenya, it revealed that Porters' Typology was in sufficient in showing economic competitiveness in relation to key rivals in the industry. It was on that ground that the study was to be conducted by incorporating competitive strategies and organization performance in relation to government interventions.

2.2.4 Moderating Role of Government Intervention on the Relationship between Competitive Strategies and Organization Performance

A lot of studies have been conducted of the role of government interventions on the relationship between competitive strategies and organization performance. Fomassa and Cincera (2015), conducted a study in Brusells by examining the optimum effectiveness of government interventions in small and medium enterprises sector. The study used a quasi-experimental research design that involved control group. From the study it was revealed that government interventions (subsidies),

had a significant positive impact on the performance of small and medium enterprises in terms of profitability. It was also revealed that loans and equity had a positive impact on the performance of small and medium enterprises. The study encouraged government interventions for better performance. However, managers should incorporate competitive strategies; innovation, operational and technological strategies for superior performance. These competitive strategies with the support from government policies affect performance of an organization. The study suffers from one sector economy. It never looked at other sectors of the economy like sugar industry. The study was conducted in a developed country. There is need for a similar study to be carried out in developing countries like Kenya.

Interventions by government have positive and negative effects on performance of any organization. This can be through its appointments, political interferences in terms of appointments. Alhnity *et al* (2016), examined the relationship between entrepreneurial orientation and government interventions as a strategy to support small business in Jordan. The study used survey research design and questionnaires were used, as a major tool for collecting data among 384 respondents from ERAD. The study revealed that government interventions in terms of loan and other strategies had a positive impact on performance of small businesses in Jordan. It was further revealed that government interventions had a positive impact on entrepreneurial orientations. The study suggested a conceptual framework that can be used to survey on how entrepreneurial, orientation and government interventions affects the performance of business. However, managers should incorporate competitive strategies with government intervention for better performance. Government interventions affect performance of an organization for instance; access to affordable loans to the farmers, market extension for its products. Competitive strategies for instance;

innovation strategy, operational and technological strategies can act as a source of competitive advantage. This helps an organization to realize superior performance.

Intervention by government comes up with different strategies for instance, trade liberalization and appointments affect performance of sugar manufacturing firms. Such strategies may encourage or discourage importation or exportation. Joythi (2014), examined the influence of government policies on import and export of sugar from India. The study revealed that performance of sugar in India was on a declining trend. One of the major causes of such decline was government policies. It was further revealed that before government interventions, India was one of the best performing countries in sugar production. In fact, India could produce sugar that was enough for its consumption and export surplus. After government interventions India is producing sugar that is not enough. It ends up importing sugar to meet its demand. This shows that some of the government policies affect negatively performance of sugar manufacturing firms. The study recommended that the government should come up with strategies that will make sugar manufacturing firms perform better. This will allow sugar manufacturing firms to compete favourably with other sugar manufacturing firms on the global stage. It also acts as a source of competitive advantage in the sugar industry. A government through its strategies that allows sugar manufacturing firms to reduce cost of production in the long run makes them to perform better in terms of increased market share, increased profitability and increased customer satisfaction.

Performance of sugar manufacturing firms to some extent is determined by government interventions. It affects performance of sugar manufacturing firms through its policies. Policies that are taken by government that will bring uniformity in the sugar sector are usually aimed at providing

a fair competition in the sugar sector. Sheetal and Kumar (2019), conducted a study on government interventions and rethinking on growth mechanism of Indian sugar industry. Organizations that don't come up with unique strategies that can be used as a source of competitive advantage may be knocked out of business. It was revealed that government influences the whole value chain of sugar manufacturing firms. The government influence is realized through; supplier's mechanisms, marketing sugar and expansion of sugar mills infrastructure. Secondly the government influences sugar firms through nationwide uniformity in terms of sugar policy, rational and mutual benefit-based on decisions made collectively by the government, mills management and sugar cane growers, and product diversification in production processes. It was recommended that all sugar manufacturing firms should adhere to the above strategies taken by the government in order to realize better performance. However, the study ignored the effect of other strategies like; innovation strategy, technological capabilities and operational strategies. All these strategies can affect performance of sugar manufacturing firms. Secondly, the study was done in India therefore similar study need to be carried out in developing country like Kenya.

Performance of sugar manufacturing firms to some extent depends on government interventions. Government interventions that are aimed at encouraging cane farming implementing different strategies that include; extending loans to farmers at low interest rate, protecting sugar manufacturing firms from external competitors and provision for market for their products.

Kegode (2015), carried out a study on Sugar in Mozambique: Balancing competitiveness with government protection. The study used a survey research design. Questionnaires were the major tools for collecting data. The researcher analysed data through inferential and descriptive analysis. From the analysed data it was revealed that government intervention for instance, extension of loans

to farmers, government protection, and subsidized fertilizers contributes to better performance. Findings showed that, countries like Tanzania sugar manufacturing firms, perform better as compared to other sugar manufacturing firms in East Africa. Good performance of sugar manufacturing firms in Tanzania is attributed to government regulations. Government intervenes through extending loans to the farmers at a low interest rate with aim of motivating farmers to invest heavily in sugar farming, looking for market for the products produced by sugar manufacturing firms in COMESA Countries and beyond, making sure that farmers are paid on time that motivates farmers to invest in sugar production and improvement in infrastructure for instance roads that enabled movement of canes and sugar easier. These are some of the reasons that make Tanzania to perform better than Kenya in terms of sugar production. These strategies enable sugar manufacturing firms in Tanzania to have a competitive advantage as compared to other East Africa countries. In fact Tanzania has only five sugar processing firms as compared to Kenya which has over ten manufacturing firms, including government owned and private owned. Government interventions has a positive impact on performance of sugar manufacturing firms and in the long run, a firm realizes superior performance thus competitive advantage. However, the study ignored the impact of other strategies like; innovation strategy and the use of technological capability on performance of Kenyan sugar production companies.

Some government strategies make government owned sugar manufacturing firms hard to survive. They include; not being strict on the smuggling inn of sugar and political appointments in the government owned sugar manufacturing firms. Owiye *etal* (2016), established the effect of Government intervention through Trade Liberalization on performance of producing firms. The study sought to establish why it is becoming difficult for Kenyan government owned sugar

manufacturing firms to compete within the changing business environment in the region and beyond. Changing business environment includes; stiff competition from COMESA Countries, technological capabilities, innovations and operational strategies. Kenya sugar manufacturing organizations don't operate in isolation. The study applied census as a methodology. Data was collected from all the six governments owned Kenyan sugar production companies that are mainly found in western Kenya. The main data collection tool was questionnaires. From the study findings revealed that government owned Kenyan sugar production companies face stiff competition from the imported sugar. The imported sugar majorly comes from COMESA member countries. Some sugar is smuggled into the country from the neighbouring countries that is sold at a relatively cheaper price as compared to locally produced sugar. Low prices that are charged on smuggled sugar makes locally produced sugar to become more expensive. In the long run cost of producing sugar in Kenya becomes high thus making difficult for sugar manufacturing firms to compete favourably within the region and beyond. The study recommended that, strategic response should be embraced. Strategic responses are geared to making government owned sugar manufacturing firms to remain competitive in business world. Such strategic responses are very important to performance of sugar manufacturing firms. However, the study ignored the effect of other strategies like; innovation and technological capability on performance of sugar producing companies in Kenya.

Intervention by government through extension of loans to the farmers, motivates cane farmers thus increased production. Wanjawa *et al* (2017), examined contributions of government strategy of extending agriculture loans on performance of sugarcane farming in Kenya. The study aimed at establishing the impact of loans on Kenyan sugar production companies. The study applied casual research design on the target population of 1850 employees and the sample size of 329 respondents

that was drawn from sugar producing companies in Kenya. From the study it was revealed that government interventions through extension of loans to the sugar cane farmers had a significant positive impact on their performance. Sugarcane farmers are motivated by affordable loans that are given to them by the government. This is aimed at motivating and encouraging them to invest in cane farming. It also enables them to reduce cost of production thus increase in production of sugar. When more farmers invest in sugar cane production, the government will realize increased revenue from the tax paid by the firms producing sugar. The study recommended that government should come up with policies that will enable farmers to access loans with a lot of ease in order to motivate them invest in cane production. This in the long run will lead to increased performance in terms of high productivity, increased sales and increased profits. Government interventions allow sugar manufacturing firms to perform better which leads to competitive advantage. However, the study never looked at other strategies like, innovation and technological capability that can improve performance of sugar firms in Kenya.

Profits of sugar manufacturing firms are also determined by the government interventions in terms of price fixing. When the price of sugar products is increased then the sugar manufacturing firms will earn more and vice versa. Birgen and Bogonko (2018), conducted a study on the effect of price interventions by government on Mumias sugar manufacturing firm in Kenya. Researchers used transactional cost theory. They adopted mixed research design. The target population was employees of Mumias Sugar Company and the farmers who are out growers. Their target population included; chief executive officer, managing director, departmental managers, supervisors and representatives of Mumias sugar out growers. A sample size of 236 respondents was used in the study. They collected data through questionnaires. Collected data was analyzed through inferential

and descriptive statistics. From the analyzed data it was revealed that there was a positive significant relationship between price intervention by the government and financial performance of Mumias Sugar Company. The study recommended that before government injects money in Mumias Sugar Company it has to do cost benefit analysis, more so how such finances will be put into use. They further recommended that government should review the management of Mumias Sugar Company and consider privatization of the milling firm. However, the study never looked at other government interventions like, trade liberalization and political inference in terms of appointments. The study also ignored other strategies like; innovation strategy and technological capabilities that can impact positively on performance of sugar manufacturing firms.

Empirical literature shows that little has been done on ways government interventions affects performance of an organization in relation to competitive strategies. Government interventions for instance government subsidies, taxation and loans affect performance of an organization. Fommasse and Cincera (2015), Alhnity *et al* (2016), Wanjawa, Yugi and Muli (2017), Owiye *et al* (2016), showed a positive effect between government intervention and performance sugar manufacturing firms. Government intervention has positive effect on performance of the organization. Joyth (2014), government intervention through government policies on import and export shows negative impact on performance of sugar manufacturing firms. However, the reviewed literature did not look at how government regulations play a moderating role in the relationship between competitive strategies and performance of government owned sugar manufacturing firms. Most of the studies were conducted in developed countries but not in a developing country like Kenya.

2.3 Summary of Research Gaps

In summary, following the literature reviewed showed positive correlation between innovation strategy and performance of the organization. For example, Miniussi, *et al* (2015) , Wujiabudula and Zehir (2016), Zhang *etal* (2018). All these studies showed a positive relationship on the performance of an organization. In Kenya similar studies were conducted for instance; Kombo *et al* (2015), Laban and Deya (2019). However, the above studies used different research methodologies for instance Miniussi (2015), used exploratory research, Kurt and Zehir (2016), used survey research design. Secondly, they never looked at other competitive strategies for instance operational strategy and technological strategy. Very few studies were conducted in the sugar industry -reviewed literature that would contribute positively to the performance of the organization. Most of them looked at different sectors of the economy but not the sugar sub-sector. Studies that were conducted in sugar sub-sector showed a positive correlation between innovation and performance of sugar manufacturing firms. For instance; Santos *et al* (2015), conducted a study on Eco-innovation and its impact on performance of sugar manufacturing firms. Gomes *et al* (2018), conducted a study on sugar innovation strategy in Brazil and the study was comparative. Sahu (2018), Mbithi (2015), conducted a study marketing innovation, market development strategy on sugar industry in Kenya.

Kaviani and Abbasi *(*2014), agreed with Porters' Typology. Some studies showed a positive correlation between operational strategies and performance of an organization. For instance, Majukwa and Haodud (2016), conducted a study on operational strategies of strategic fit. Ball (2016), Silva and Ferreira (2017), Gandhare, Akarte and Patil (2018), Mora and Senaji (2017). Masinde (2017), Muteshi and Bolo (2017), most recently Kegoro *et al* (2020), Odollo (2019), Odollo and Ochieng (2019), adopted both descriptive and experimental research design. Such

studies do not agree with Porters' Typology. From the reviewed literature none of them looked at the factor of government interventions. Secondly none of them incorporated other competitive strategies for instance; innovation strategy and technological strategy. Additionally, different studies used different research methodology. The conflicting results show that there is need to carry out further studies in this area. Similarly, other studies have shown that implementing only one competitive strategy does not necessarily lead to better performance. In fact, implementing three strategies (hybrid strategies) lead to better performance. It is on this ground that, this study will be conducted.

From the reviewed literature on technological strategy, it was evident that technological strategy correlates positively with organization performance. Some studies used research methodology. For instance, Filho and Moon (2018), used exploratory mixed research, Li *et al* (2018), Kihara *et al* (2016), used mixed research design, Zulu *et al* Tlali (2019), Kunyoria (2018), Imbambi, Oloko and Rambo (2017), Otiso (2017) Singh *et al* (2019). From the empirical reviewed literature none of the studies incorporated government interventions as one of the factors that affect performance of Kenyan sugar production companies. A study ignored other factor of competitive strategies; innovation strategies and operational strategy. Different studies used different research methodologies which led to different results. It is on this conflicting results that forms a basis for this study.

Empirical literature shows that little has been done on how government regulations moderate performance of an organization in relation to competitive strategies. Most of the studies that were conducted included all the registered sugar manufacturing firms but not government owned sugar

manufacturing firms. Government regulations for instance; government subsidies, taxation and loans affect performance of an organization.

Fommasse and Cincera (2015), Alhnity, Mohamad and Kuishak (2016), Wanjawa, Yugi and Muli (2017) show that, a government regulation has positive effect on the performance of the organization. Joyth (2014), conducted a study on impact of government policies on import and export of sugar in India. The study used experimental research design. Kegode (2015), conducted a study on sugar in Mozambique: Balancing competitiveness with government protection. The study used survey design. Owiye *et al* (2016), carried a study on effect of government interventions through trade liberalization on performance of sugar firms in Kenya, Methodology used was census. Birgen and Bogonko (2018), conducted a study on effect of price interventions by government on Kenyan sugar production companies used mixed research design. However, the reviewed literature did not look at how government regulations play a moderating role in the relationship between competitive strategies and performance of government owned sugar manufacturing firms. From the reviewed literature there is no any reviewed study that was conducted using the three competitive strategies; innovation strategy, technological strategy and operational strategy simultaneously, in relation to the performance of government owned Kenyan sugar production companies. Studies that were conducted in Kenya none of them narrowed down to government owned sugar manufacturing firms, and how government interventions affect performance of such sugar manufacturing firms. This provides an avenue for this study to bridge this gap.

Table 2.1: Research Gap

Variable	Author	Title of the study	Findings	Gap
Innovation strategy				
	Miniussi, Cotezalati & Arujo (2015)	Role of innovation strategy in competitiveness of Brazilian Organic products in sugar industry	Findings revealed that innovation strategy had a positive influence on competitiveness of organization performance.	The study was an exploratory research design not descriptive survey research design.
	Zhang *et al* (2018)	The impact of technical and management innovation on the performance of organizations in Pakistan	The results demonstrated a strong and positive relationship between an organization's sustainability and its innovation strategy.	Results were analysed through Analysis of a moment Structure (AMOS).
	Njeri (2017)	Impact of innovation strategy on Kenya's telecom sector's performance: the case of Safaricom	The results showed that the performance of the telecommunications industry and innovation strategy were positively correlated.	This was a case study thus being unique. This study was conducted in Telecommunication industry not in government owned sugar manufacturing firms.
	Laban & Deya (2019).	Effect of strategic innovation and performance of information communication technological firms in Nairobi Kenya.	It was discovered that there was a favorable association between innovation and the performance of businesses in the markets, processes, and organizations.	The study was carried out in Telecommunication industry not in agricultural sector; sugar sub-sector.
	Santos *et al* (2015)	Effect of ECO-innovation strategies in Brazilian sugar-ethanol industry.	The results showed that innovation in terms of green housing, gas emission and water re-use strategy improves performance of sugar industry in Brazil.	This was a case study thus unique.

	Gomes *et al* (2018)	Effect of innovation strategies in performance of Brazilian Sugar – energy industry.	The results indicated a beneficial relationship between Brazilian sugar manufacturing companies' success and their innovation initiatives.	The study was conducted in developed country, Brazil, not in government owned Kenyan sugar production companies. Study was comparative for a period from 2015-2017.
	Sahu (2018)	Assessment of sugar industry: Sustainability for production, consumption and utilization of resources in Australia.	It was revealed that innovation strategy (green industry) is an agent of product innovation thus improvement of performance of sugar manufacturing firms.	The study was carried out in Australia not in Kenya.
	Kiptoo & Koech (2019)	Effect of strategic innovation on organization performance	It was revealed that strategic innovation had a positive and significant effect on performance of manufacturing firms	The study was conducted in manufacturing firms not in government owned Kenyan sugar production companies.
Operational strategy	Kaviani & Abassi (2014).	Analysis of operational strategies and its effect on manufacturing firms cement companies in Iran.	It was revealed that operational strategies had a positive effect on cement manufacturing firms in Iran.	The study was carried out in cement manufacturing industry not in government owned sugar manufacturing firms.
	Gandhari, Akarte & Patil (2018)	Effect of operational of maintaining performance measurement, a case of sugar industry.	The findings revealed that sugar manufacturing firms that use operational strategy with maintaince approach has a positive effect on its performance	The study was carried in sugar industry that was generalized not in government owned Kenyan sugar production companies.

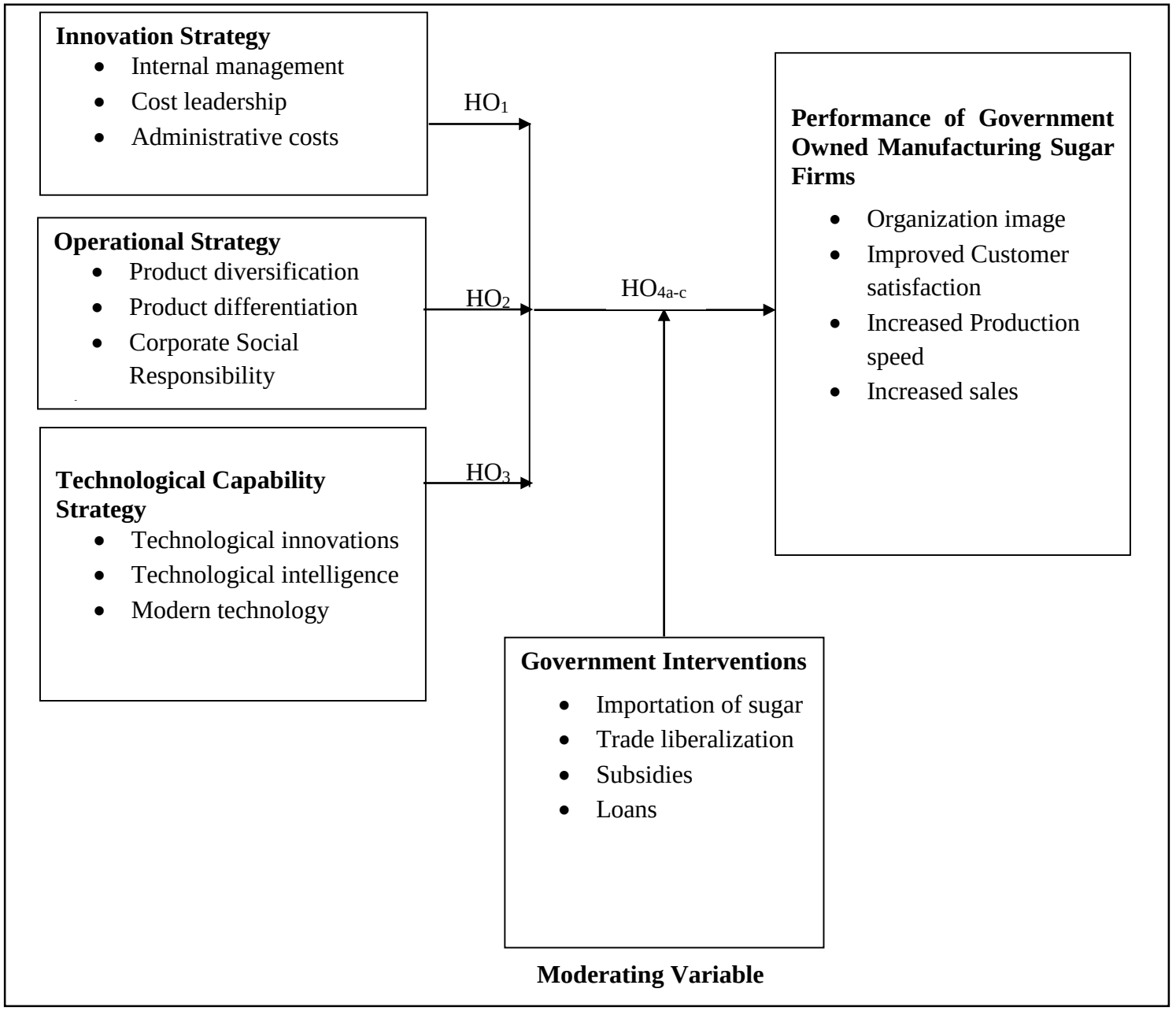
	Masinde (2017).	An examination of the operational strategy with respect to the business performance of Kenyan sugar production businesses and their corporate social responsibility towards their employees.	It was discovered that the employees' performance in Kenyan sugar manufacturing firms is influenced by the operational strategy and corporate social responsibility.	This study used a descriptive casual survey research approach and was unique since it was a case study and was not conducted in government-owned sugar producing companies.
	Kegoro, Akoyo & Otieno (2020).	Effect of change management as operational strategy on performance of Kenyan sugar production companies.	Findings showed that change management had a positive correlation with performance of Kenyan sugar production companies.	This was a case study thus being unique. It was not conducted in government owned Kenyan sugar production companies. The study was cross-sectional research design approach.
	Odollo (2019)	Effect of operational strategies on performance of sugar manufacturing sector in Kenya.	Findings showed that there is a positive correlation between operation strategy and performance of Kenyan sugar production companies.	The study was conducted in twelve (government and private) Kenyan sugar production companies not in six government owned Kenyan sugar production companies. The study adopted both descriptive and experimental research.
Technological strategy	Filho & Moon (2018)	Technology plays a key role in a company's capacity to compete in Brazil's manufacturing tech center.	It was discovered that a strategic supply chain improves an organization's competitive edge and technological capabilities.	The study was conducted in manufacturing firm (Tech-hub) in Brazil not in Kenyan sugar production companies. The study was exploratory mixed method.
	Li *et al* (2018)	Role of technological capability, configuration capability, strategic flexibility and	It was revealed that technological capability improves strategic flexibility on organization	It was conducted in high tech organization not in sugar manufacturing firms.

		organization performance in Chinese High -tech organization.	performance in dynamic world.	
	Kunyoria (2018)	Effect of Technological adoption and Lean manufacturing: A case of Sony sugar.	It was revealed that technological adoption had a positive correlation with performance of sugar manufacturing firms.	This was a unique case study. It was not conducted in all government owned Kenyan sugar production companies.
	Imbabi, Oloko & Rambo (2017).	The impact of technology on Western Kenyan sugar businesses' competitive advantage.	The results showed that technological capability and competitive advantage have a favorable and significant link that improves the performance of sugar producing companies.	The study was conducted in both private and public sugar manufacturing firms in Western not in only government Kenyan sugar production companies.
	Otiso (2017).	Assessment of the effect of technological capabilities on firm performance: A case study of Nzoia sugar company.	Findings showed that technological capabilities in terms of service management lead to increased performance.	This was a case study thus unique. It was not conducted in all government owned sugar manufacturing firms.
Government interventions	Fommasse & Cincera (2015)	Examination of the optimum effectiveness of government interventions in small and medium enterprises sector in Brussels.	I t was revealed that government intervention had a positive impact on the performance small and medium enterprises in terms of profitability.	The study was significant on small and medium enterprise not large scale manufacturing firms like sugar sector. The study was quasi-experimental research design.
	Alhnit, Mahamed & Kuishak (2016)	Examine the relationship between entrepreneurial orientation and government intervention as a strategy to support small business in Jordan	Findings showed that government interventions in terms of loans and other strategies had a positive impact on performance of small business in Jordan.	The study was conducted in small and medium enterprises not in large business firms. The study was survey.

	Sheetal & Kumar (2019).	Government interventions and rethinking on growth mechanism of Indian sugar industry.	It was revealed that government intervention influences the whole value chain of sugar manufacturing firms thus determining performance of sugar manufacturing firms.	The study was comparative study. The study was survey.
	Wanjawa, Yugi & Muli (2017).	Contributions of government strategy on extending agricultural loans and performance of sugarcane farming in Kenya.	The study showed that government interventions through extension of loans to farmers had a positive significant impact on performance of sugar firms. Loans motivate farmers to invest in sugar industry.	The study considered only government interventions in sugar industry not other strategies like competitive strategies that affect Kenyan sugar production companies. The study was applied casual research design.
	Birgen & Bogonko (2018)	Effect of price interventions by government on Mumias Kenyan sugar production companies.	Findings revealed there was a positive significant relationship between price intervention by government and financial performance of Mumias sugar company.	It was a case study thus being unique. It did not consider all government owned Kenyan sugar production companies. The study adopted mixed research design.

2.4 Conceptual Framework

The major role of conceptual framework was to show the relationship between the variables. In this study, the conceptual framework showed the relationship between independent variable (competitive strategies) Innovation strategies- internal management, cost leadership and administrative costs. Operational strategy- product diversification, product differentiation and Corporate Social Responsibility and Technological strategy- market segment and market orientation and how they influence dependent variable (performance of government owned Kenyan sugar production companies).



Source: Author, (2021).

Figure 2.1: Conceptual Framework

In the figure above the competitive strategies which were independent variables; are innovation strategy, operational strategy and technological capability strategies, when those competitive strategies were implemented, the output was the end product of the system which could be measured

in terms of performance. The input and output of an organization showed the relationship between the variables. In this case the above diagram showed the relationship between the dependent variable, independent variable, and moderating variable. The dependent variable is organization performance that is measured in terms of organizational image, customer satisfaction and production speed. Independent variables were innovation strategy, operational strategy and technological capability strategies while government intervention was the moderating variable.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Philosophy

According to Odollo (2019) a research philosophy is a theoretical framework that underpins the research process. Research philosophy provides guidelines, structures and different research tools that assists the researcher to look for answers for the hypotheses that are being used in the study. He avers that there are majorly two research paradigms which are, phenomenological and positivist. Mbithi (2016) argued that positivists and phenomenology are research philosophies that are mainly used in social sciences. Phenomenology deals with ways in which human beings make sensible conclusions in the world. Lee (2006) as cited by Odollo (2019) argued that research paradigms compete on the three fundamentals which are Ontology, Epistemology and Positivism. The three have interrelated assumptions. Ontology is the nature or form of the reality that the researcher intends to investigate. Epistemology is a research philosophy that is based on the relationship of the researcher and the reality of the subject matter. Epistemology research approach is based on personal approach and interpretation that seeks to describe but not explanation (Mbithi 2016)

Matula *et al* (2018) observe that Positivist research approach is grounded on the idea that reality is divided into different components. Mbithi (2016) observes that positivist research philosophy looks for the truth about social phenomena while paying little attention to people's subjective status. According to positivists, knowledge can only be measured and quantified by things that are visible and quantifiable. Positivists are concerned with the correspondence of the real world, conformability, truth, impartiality consistence and explanation of regularities. Different studies used positivist research philosophy including, Atikiya (2015), who looked at how competing tactics affected Kenyan manufacturing companies' performance. Positivist philosophy concerns with the

objective pessimism in measuring the outcome. In a related study, Imbambi (2017) established the impact of strategic competencies on western Kenyan sugar firms' competitive advantage. The researcher also used positivists' paradigm because the study relied on the primary and secondary quantitative data, he intones that he used positivist because of its applicability in quantitative methods for empirical testing of the formulated hypothesis and showing the relationship between the study variables. Odollo (2019) established the effect of operations strategies on performance of Kenyan sugar production companies. His study adopted realism (post- positivism) he puts more emphasizes on objectivity. It assumes that situations cannot be manipulated and reality is imperfect. Based on the above assumptions this study employed Positivist research approach.

3.2 Research Design

Ohen and Yuko (2009) as cited by Odollo (2019) defined research design as the overall strategy that is used when research is conducted, chosen to combine several elements of the study in a logical and cohesive manner, guaranteeing that the research challenge is successfully handled. The researcher observes that the main role of research design is to minimize possibilities of drawing incorrect casual inference from the collected and analyzed data in order to achieve the set objectives (Matula *et al* (2018). A descriptive research design consists of analysis measurement, comparison classifications and interpretation of data. According to Kothari (2010) as cited by Imbambi (2017), the main aim of a descriptive research design is to describe and explore the state of affairs. The researcher observes that descriptive research design consists of longitudinal and cross-sectional research designs. Longitudinal research design deals with the population of the study in a given period of time. On the other hand, cross-sectional design deals with the individual's attitude or belief at a given time. Cross-sectional research design is the most predominant design used in social sciences fields. It is well suited for describing variables and how they are distributed. This study

used descriptive research design in order to establish the relationship among the study variables. It was also used for statistical inferences to border population and generalization of the findings to real life. Descriptive survey design was used to determine how the study variables relate to one another. It was used to establish how competitive strategies; innovation strategy, operational strategy, technological capability strategy relates with performance of sugar manufacturing firms in order to facilitate predictions.

3.3 Study Area

The study was carried out in 6 government owned Kenyan sugar production companies. These firms are majorly found in western part of Kenya, and Nyanza provinces. These firms are found in Bungoma, Kakamega, Kisumu and Migori Counties. Appendix III showed the location of the firms.

3.4 Target Population

Matula *et al* (2018) defines population as the entire group of individuals, events, or things that a researcher draws conclusion. A target population is one to whom a researcher hopes to apply the study's conclusions. It is the entire group of individuals that the researcher has chosen to study. Target population is a section of entire group of people on which a researcher generalizes his/ her findings (Mugenda and Mugenda, 2013). This is in agreement with Sekarani (2013). The target population of this study consisted of senior managers (Heads of Departments, Managing Directors and Supervisors) and middle level managers consisting of Departmental managers and assistant managers from 6 sugar manufacturing companies in Kenya. Kenyan sugar production companies include; Miwani, Chemilil, Muhoroni, Sony sugar, Nzoia and Mumias. The respondents were 186 senior managers and 636 middle level managers from government owned sugar manufacturing firms totalling to 822 respondents from government owned Kenyan sugar production companies.

Table 3.1: Study Population

Company	Senior managers	Middle level managers	Total no of managers
Muhoroni	15	55	70
Sony	30	130	160
Mumias sugar	30	180	210
Nzoia sugar	65	200	265
Chemil	31	40	71
Miwani	15	31	46
Totals	**186**	**636**	**822**

Source: Respective sugar companies, January (2021)

3.5 Sampling Technique and Sample size

3.5.1 Sample size

A sample is a portion of the entire population. A sample represents the entire population (Imbambi 2017). Respondents in this study were drawn from 822 senior (Heads of Departments, Supervisors and Managing Directors) and middle level (Departmental managers and assistant managers) who work in the six government owned sugar manufacturing firms in Western Kenya, these are: Chemilil, Sony sugar, Nzoia, Muhoroni, Mumias and Miwani. Mugenda and Mugenda (2012) observed that it is advisable to use a big sample in order to have better representation. The researcher targeted senior managers and the middle level managers who were perceived to be crucial in strategic formulation and implementation. They were selected because they would provide relevant information required by the researcher. Six sugar manufacturing firms owned by the government

are concentrated in western part of Kenya. The researcher used the 269 sampled managers from 822 managers in the government owned Kenyan sugar production companies.

The Yamane (1980) formula for estimating sample size was used to obtain the sample of 269. It was used to reduce the large population of the study to a manageable sample size that was used in this study.

$$n = \frac{N}{1+N(e)^2}$$

Where

n = Sample size

N = Population size

e = the level of significance or limit of tolerable error /precision

1 = Constant

The level of significance or limit of tolerable error in this sample estimate

(e) = 0.05

N = 822 (senior managers and middle level managers)

1 = 1

$$n = \frac{N}{1+N(e)^2} = \frac{822}{1+822(0.05)^2}$$

n = 269

In similar studies, response had been found to range from 60% (Imbambi, 2017) to as high as 88% (Agenyi 2015 & Odollo 2019). A study conducted by Kiongera (2021) used none response of 25

%. Considering this, a non-response of 25% was considered therefore the effective sample size is $269/0.75$ = 358.6 ≅ 359 respondents.

Several studies have used Yamane (1980) sampling formula. Halilu *et al* (2016) conducted a study on the growth and development of entrepreneurship in Nigeria, moderated by microfinance in rural setting. Another study that used Yamane (1980) was Eze (2017) who conducted a study on the marketing and fundraising of public universities in Anambra state in Nigeria. To achieve a targeted response in the study, a researcher should distribute a large number of research instruments than the expected response rate (Wathigo 2016). In this study the researcher distributed 359 questionnaires.

Table 3.2: Sample Size.

Company	**Senior managers**	**Middle level managers**	**Total no of managers**
Muhoroni	7	24	31
Sony	13	57	70
Mumias sugar	13	79	92
Nzoia sugar	28	87	115
Chemil	13	17	30
Miwani	7	14	21
Totals	**81**	**278**	**359**

Source: Respective sugar companies, January (2021)

3.5.2 Sampling Frame

The researcher listed all the elements of population where sample was drawn from. Respondents were identified from the population. Sampling frame was determined from the senior and middle

level managers that are perceived to be strategic formulators and implementers in the six government operated companies in Western Kenya that manufactured sugar. The researcher identified research assistants who assisted the researcher in data collection. It became easy to follow up because researchers had contact numbers from management of these sugar manufacturing firms. The sampling frame for the study was determined based on the availability of the respondents. According to Denscombe (2007) as cited by Yatundu (2020) intones that a good sampling frame should be up to date, precise and complete. This was dealt with, by preparing questionnaires for managers in order to address competitive strategies and how they affect performance of government owned Kenyan sugar production companies.

3.5.3 Sampling Procedure

In this study purposive and stratified sampling were used. According to Patton (2002) as cited by Matula *et al* (2018) defines purposive sampling as a technique of non-random of sampling where the researcher selects information rich cases for in-depth study. According to Ngumi (2013) as cited by Odollo (2019), purposive sampling is applicable to experts of the knowledge of population in order to select in non-random manner. Purposive sampling was used by the researcher to select specific respondents that provided relevant and detailed information on variables in the study. In this case senior managers and middle level managers were purposively sampled. Purposive sampling was used because it was appropriate in a case where the respondents were perceived to be relevant to the topic of the study. They were believed to provide the necessary information to the researcher.

Matula *et al* (2018) argue that purposive sampling aims at dealing with prescribed purpose. This study targeted senior management and middle level managers of the government owned Kenyan

sugar production companies. Stratified sampling technique is a technique where the population is divided into sub-groups (Mugenda & Mugenda 2013).

Respondents were stratified according to the region and level of management in terms of middle level managers and senior managers. Stratified sampling was adopted because government owned Kenyan sugar production companies were not proportionately spread in the country and the researcher considered accommodating each of the six government owned sugar manufacturing firms. These managers had the greatest responsibility in decision making.

3.6 Data Collection

3.6.1 Instrumentation

Data was collected from the senior and middle level managers using questionnaires. Questionnaires were administered to the respondents through drop and pick method. The collection tool was chosen because it gave perceptions of the senior managers and middle level managers appropriately. Questionnaires are common tools used to gather very important information about the population. The researcher used self-constructed structured questionnaires because analysing them in immediate form was easier. This type of questionnaires is easier to be administered and more economical in terms of money and time. Innovation strategy, operation strategy technological capability strategy and organization performance were the study variables.

Kothari (2004) as cited by Imbambi (2017) states that use of questionnaires is very instrumental for descriptive correlation and inferential statistics. Questionnaires are seen as the most appropriate data collection tools that are used for measuring relationships between objectives and self-beliefs. Based on the previous studies, this saved time and was used in testing validity and reliability (Owiye *et al*, 2016; Atikiya, 2015). Adopted and altered were the study's items from Jaworski and Kohli

(1993) as cited by Atikiya (2015). Questionnaires from other studies were helpful to the researcher as it saved time for developing new questionnaires. Five Likert scale was used in the study. Questions ranged from strongly agree, (SA) through agree, (A) neutral, (N) disagree (D) and strongly disagree. (SD). All questionnaires were formulated based on the specific objectives.

3.6.2 Data Collection Procedures

Administering of questionnaires were distributed by the help of research assistants to the chosen sample for the study. Respondents were allowed enough time to complete the questionnaires after which the researcher collected them back.

3.6.2.1 Validity Test

Mutula *et al* (2018) defined validity as the degree at which the data collection instruments generate data. According to Thietary (2001) as cited by Mbithi (2016) validity is the level of accuracy and its meaningfulness in terms of inferences that is based on the research results. Sekaran (2003) argue that validity of the questionnaires highly depends on the level of willingness of the respondents to provide the required information. Content validity was tested in this study. Content validity refers to the accuracy in which the research instrument measures the item that is involved in the study. Content validity was concerned with how accurately designed questions provided the required information. The research instrument was assessed for content validity by providing questionnaires to the supervisors and research experts in the study area. The experts reviewed the item and suggested how to improve the items in order to obtain accurate data.

The other validity that was used was construct validity. Mbithi (2016) defined construct validity as a validity that looks at the extent to which operation of constructs (practical tests) measured in accordance with a theory and performs as the theory predicts. According to Odollo (2019), proof for the validity of a construct consists of both theoretical and empirical backing for the concept's

interpretation. Construct validity, according to the researcher, is a gauge of how well data from an instrument meaningfully and precisely capture a theoretical idea. Construct validity evaluates whether the design of a questionnaire will cause respondents to provide the necessary information (Imbambi 2017). Validity was tested by providing questionnaires to supervisors and experts who improved on them in order to get accurate data

3.6.2.2 Reliability Test

Creswell (2013) define reliability as the measure of the degree to which research instrument give the same results after repeated trials. A pilot study was carried out at Butali sugar Company. This Company was selected because it is a private owned sugar manufacturing firm and it was not included in the main study. 36 respondents from the company participated in the pilot study. These respondents were arrived from a sample size of 359 respondents of the main study. Mugenda & Mugenda (2003) asserts that a pilot study with 1% to 10% of the sample size is better for pilot testing. 36 respondents account for 10% of 359 respondents of the main study. The researcher used split- half method to calculate Cronbach Alpha coefficient (Cronbach, Hair, Babin, Anderson & Tatham 2006) which argued that Cronbach Alpha should be higher than 0.70 in order to retain the item in an adequate scale. Chronbach Alpha coefficient was used to test reliability. Pilot study was important because it enabled the researcher to establish whether the developed research instruments would collect the required information according to the research questions.

After conducting a pilot study there were some areas in the questionnaires that required some adjustments. They included; some space that was provided (box), where respondents were supposed to tick, some of them could tick outside the box. This was dealt with by proving adequate space and clear instructions. Secondly, on some items for instance such as competitive strategies and

organization performance. Some respondents could tick on the instructions and not the item meant for. The researcher used responses from respondents to adjust boxes and they were drawn horizontally with the aim of avoiding confusion. Thirdly, there were some questions that were very long that respondents could not to get the intended meaning. The researcher used the response to adjust questions but retained the meaning in order to cover objectives of the study.

The reliability investigation proceeded by using Cronbach's Alpha, which gauges internal consistency by determining if specific items on a scale measure the same construct.

Malhotra (2015) established that Alpha value threshold at 0.7 forms a benchmark for the study thus forming the study's benchmark as presented in Table 3.3.

Table 3.3: Reliability Analysis

Variables	**No. of items**	**Cronbach alpha**	**Comment**
Innovation strategy	8	.766	Reliable
Operational strategy	9	.778	Reliable
Technological strategy	8	.806	Reliable
Government intervention	7	.745	Reliable
Performance	7	.861	Reliable
Overall Reliability Coefficient = .911	39		

Source: Research Data (2021)

Cronbach Alpha was established for every objective which formed a scale. The findings in Table 3.3 illustrated that every variable met the required criterion of 0.7, indicating that their dependability values were all above 0.7, (Malhotra, 2015). Additionally, the overall reliability coefficient was far more than the recommended threshold. This, therefore, provided evidence that there was no need for modifications since the research tool was dependable.

3.7 Data Analysis and Presentation

Data was analysed through descriptive (mean, percentages, standard deviation and frequencies) and inferential statistics that enabled the investigator to provide a useful explanation of the score distribution (Kothari, 2004).

The Inferential statistics used to analyse data was Pearson Product Moment correlation and regression analysis. Utilised was the moment of the Pearson product of correlation to test strength of the relationship between the study variables. According to (cohen, 1988), the Pearson correlation r, takes a range of values between +1 to -1. An r -value of 0.01-0.29 implied a weak relationship, an R-value of between 0.03 - 0.49 implied a moderate relationship whereas an R-value of between ≥ 0.5 -1 shows a strong relationship. Correlation results are reported at a significance level of 0.01 in line with other studies such as pierce (2014),

The relationship between the variables was determined using both simple and multivariate regression analysis. Direct models were used to test the effect that exists between competitive strategies and organisation performance of government owned Kenyan sugar production companies as shown in model (i) to (iii)

$$\mathbf{Y = \beta o + \beta_1 X_1 + \varepsilon} \quad \textbf{..... (i)}$$

Where:

Y = Organization Performance of government owned sugar manufacturing firms,

β_o = Constant (coefficient of intercept),

β_i = change in organization performance for each unit increment change in (i = 1), that is, Innovation strategy

X_1 = score on Innovation strategy which predicts the value of organization performance,

ε = the error term reflecting other factors that influence organization performance of government owned sugar manufacturing firms

$Y = \beta o + \beta_2 X_2 + \varepsilon$ …… (ii)

Where:

Y = Organization Performance of government owned sugar manufacturing firms,

β_o = Constant (coefficient of intercept),

β_i = change in organization performance for each unit increment change in (i = 2), that is, Operational strategy

X_2 = score on Operational strategy which predicts the value of organization performance,

ε = the error term reflecting other factors that influence organization performance of government owned sugar manufacturing firms

$Y = \beta o + \beta_3 X_3 + \varepsilon$ …… (iii)

Where:

Y = Organization Performance of government owned sugar manufacturing firms,

β_o = Constant (coefficient of intercept),

β_i = change in organization performance for each 1unit increment change in (i = 3), that is, Technological capability strategy

X_3 = score on Technological capability strategy which predicts the value of organization performance,

ε = the error term reflecting other factors that influence organization performance of government owned sugar manufacturing firms to analyze the combined effect of the competitive strategies and organisation performance of government owned Kenyan sugar production companies, the following model was used.

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

Y = Organization Performance

β_0 = Constant

β_i = Regression coefficient for X_i (i = 1, 2, 3)

X_1 = Innovation strategy

X_2 = Operational strategy

X_3 = Technological strategy

ε = Error term

A moderating variable (Government interventions) was introduced and regressed together with the independent variables (Innovation strategy, Operational strategy and Technological capability). As a result, as shown in the models of regression below, the interaction term involving the moderating and predictor factors was calculated by multiplying each of them that resulted in an interaction effect conducted at various stages for each unique interaction.

$Y = \beta o + \beta_1 X_1 M + \varepsilon$ ……..……iv (a)

Where

Y = Organization Performance

β_0 = Constant

β_i = Regression coefficient for X_i (i = 1)

X_1 = Innovation strategy

M = Government interventions (moderator)

X_iM = Interaction term of the moderating variable with each term of the independent variable (X_1, X_2, X_3)

ε = Error term

$Y = \beta o + \beta_2 X_2 M + \varepsilon$ ……..……iv (b)

Where

Y = Organization Performance

β_0 = Constant

β_i = Regression coefficient for X_i (i = 2)

X_2 = Operational strategy

M = Government interventions (moderator)

X_iM = Interaction term of the moderating variable with each term of the independent variable (X_2)

ε = Error term

$Y = \beta o + \beta_3 X_3 M + \varepsilon$ ……..……iv(c)

Where

Y = Organization Performance

β_0 = Constant

β_i = Regression coefficient for X_i (i = 3)

X_3 = Technological strategy

M = Government interventions (moderator)

X_iM = Interaction term of the moderating variable with each term of the independent variable (X_3)

ε = Error term

To analyze the combined effect of moderating effect of Government interventions on the competitive strategies and organisation performance of government owned Kenyan sugar production companies, the following model was used.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_1 * M + \beta_5 X_2 * M + \beta_6 X_3 * M + \varepsilon$$

Where

Y = Organization Performance

β_0 = Constant

β_i = Regression coefficient for X_i (i = 1, 2, 3)

X_1 = Innovation strategy

X_2 = Operational strategy

X_3 = Technological strategy

M = Government interventions (moderator)

X_{1-3}M = Interaction term of the moderating variable with each term of the independent variable (X_1, X_2, X_3)

ε = Error term

Table 3.4: Summary of Research Objectives, Hypotheses, Analytical Models and Interpretations

Objective/ Hypothesis	Statistical test	Analytical model	Decision Criteria
i) To determine the effect of Innovation Strategy and performance of government owned Kenyan sugar production companies. **Ho_1**: There is no statistically significantly effect of Innovation Strategy and performance	Pearson correlation Simple Regression analysis	**$Y = \beta o + \beta_1 X_1 + \varepsilon$ ……I** Where: Y =Organisation Performance, β_o = Constant (coefficient of intercept), β_1= change in performance for each 1 increment change in X_1, that is, innovation strategy, X_1 = score on innovation strategy ε = the error term on other factors influencing organisation performance.	Reject H_{0i}, if $p<0.05$, otherwise fail to reject if $p>0.05$ Reject H_{0i}, if $p<0.05$, otherwise fail to reject if $p>0.05$ Reject H_{0i}, if $p<0.05$, otherwise fail to reject if $p>0.05$
ii) To determine the effect of Operational Strategy and performance of government owned Kenyan sugar production companies. **Ho_2**: There is no statistically significant effect between Operational Strategy and Performance of government owned Kenyan sugar production companies. ,	Pearson's correlation Simple Regression analysis	**$Y = \beta o + \beta_2 X_2 + \varepsilon$ ……...ii** Where: Y= Organisation Performance, β_o = Constant (coefficient of intercept), β_2= change in performance for each 1 increment change in X_2, that is, Operational Strategy. X_2 = score on Operational Strategy ε = the error term on other factors influencing organisation performance	Reject H_{0i}, if $p<0.05$, otherwise fail to reject if $p>0.05$ Reject H_{0i}, if $p<0.05$, otherwise fail to reject if $p>0.05$ Reject H_{0i}, if $p<0.05$, otherwise fail to reject if $p>0.05$

iii) To determine the effect of between Technological Strategy and performance of government owned Kenyan sugar production companies. **Ho_3**: There is no statistically significant effect between Technological Strategy and performance of Government owned Kenyan sugar production companies.	Pearson's correlation Simple Regression analysis	**$Y = \beta o + \beta_3 X_3 + \varepsilon$ ……...iii** Where: Y= Organisation Performance, β_o = Constant (coefficient of intercept), β_3= change in performance for each 1 increment change in X_1, that is, Technological capability X_3 = score on Technological capability ε = the error term on other factors influencing organisation performance	Reject H_{0i}, if $p<0.05$, otherwise fail to reject if $p>0.05$
iv_a) To determine the moderating role of government interventions in the effect between innovation strategy and performance of Government owned Kenyan sugar production companies. **Ho_{4a}** Government intervention has no statistically significant role to moderate the effect between Innovation strategy and performance of government owned Kenyan sugar production companies.	Simple Regression analysis	**$Y=\beta o+\beta_1 X_1 M + \varepsilon$ ……iv(a)** Where Y= Organisation Performance, β_0 = Constant β_i = Regression coefficient for X_1 X_1 = Innovation strategy M = Government interventions (moderator) X_1M = Interaction term of the moderating variable with ε = Error term	Reject H_{0i}, if $p<0.05$, otherwise fail to reject if $p>0.05$

iv$_b$) To determine the moderating role of government interventions in the effect between Operational Strategy and performance of Government owned Kenyan sugar production companies. **Ho$_{4b}$** Government intervention has no statistically significant role to moderate the effect between Operational Strategy and performance of government owned Kenyan sugar production companies.	Simple Regression analysis	**$Y=\beta o+\beta_2 X_2 M+\varepsilon$ ……iv(b)** Where Y= Organisation Performance, β_0 = Constant β_i = Regression coefficient for X_2 X_2 = Operational strategy M = Government interventions (moderator) X_2M = Interaction term of the moderating variable with ε = Error term	Reject H_{0i}, if $p<0.05$, otherwise fail to reject if $p>0.05$
Iv$_c$) To determine the moderating role of government interventions in the effect between Technological strategy and performance of Government owned Kenyan sugar production companies. **Ho$_{4c}$** Government intervention has no statistically significant role to moderate the effect between Technological strategy and performance of government owned Kenyan sugar production companies.	Simple Regression analysis	**$Y=\beta o+\beta_3 X_3 M+\varepsilon$ ……iv(c)** Where Y= Organisation Performance, β_0 = Constant β_i = Regression coefficient for X_3 X_3 = Operational strategy M = Government interventions (moderator) X_3M = Interaction term of the moderating variable with ε = Error term	Reject H_{0i}, if $p<0.05$, otherwise fail to reject if $p>0.05$

Source: Research Data (2021).

3.7.1 Test of Assumptions

3.7.1.1 Tests of Normality

The model takes the notion of normal distribution for granted. The data was determined to be regularly distributed by the Kolmogorov-Smirnov and Shapiro-Wilk analyses of normality.

3.7.1.2 Linearity Test

The assumption is that the relationship between X and the mean of Y are linear. All the predictors should not be significant (means) from the dependent variable ($p>0.05$).

3.7.1.3 Homoscedasticity Tests

According to Field as cited by Odollo (2019) Homoscedasticity occurs when (independent variables) in the study at different levels shows similar variance of error. Homoscedascity can lead to wrong findings thus weakening the analyzed data that can lead to an error. The problem of homoscedasticity was redused or eliminated by ensuring that data normality in hypothesis testing as well as correct applicability forms of regression model is used.

3.7.1.4 Test of Multicoliearity

Correlation matrix, Variance Inflation Factor was generated to determine multicolinearity. The Multicolinearity test results should show that the variance inflation factor (VIF) should be below 10 and tolerance score more than 0.1, hence no multi-collinea. The higher the correlations above 0.9 showed the presence of collinearity.

3.7.1.5 Autocorrelation Test

Autocorrelation was tested using Durbin-Watson test. While Durbin Watson assumes values between 0 and 4, values around 2 show no autocorrelation.

3.8 Ethical Considerations

Ethical consideration is the way in which individuals involved in research were protected. Before proceeding to the field, the researcher got clearance from Kisii University. The clearance letter was presented to the National Council of Science and Technology (NACOST) to obtain a research permit. The research permit enabled the researcher to collect data from targeted government owned Kenyan sugar production companies. The researcher sought consent of the respondents before administering questionnaires. Respondents were assured of anonymity throughout the study as well as assured of confidentiality of the information provided.

CHAPTER FOUR

DATA ANALYSIS INTERPRETATION AND DISCUSSIONS

4.1 Response Rate

A total of three hundred and fifty-nine (359) questionnaires were distributed out of which three hundred and eighteen (318) were returned. Twelve (12) questionnaires among the returned were not dully filled especially on organization performance. Thus, the usable questionnaires were 306 accounting for 85.2%. According to Rindfuss (2015) as cited by Wandera (2018) argue that a study with 50% response rate is rated as adequate; a response rate with 60% response rate is rated as good and the one with a response rate of 70% is rated as very good. The response rate was excellent because of the good data collection procedures that were used by the researcher. The rate of response is indicated on Table 4.1

Table 4.1: Response Rate

Questionnaires	**Number**	**Percent**
Questionnaires Distributed	359	100%
Questionnaires Returned	318	88.6%
Not returned Questionnaires	41	11.42%
Non usable Questionnaires	12	3.34%
Usable Questionnaires	**306**	**85.2%**

Source: Research Data, (2021)

4.2 Screening and Preparation

Data was screened, edited, and prepared for further multivariate analysis. Hair *et al* (2010) intones that data screening eliminates any potential breach of the fundamental presumptions associated with multivariates strategies. In essence, outliers were eliminated, out of range values and missing data were checked and treated accordingly.

4.2.1 Analysis of Outliers

An outlier is generally considered to be a data point that is far outside the norm for a variable or population. The presence of outliers reduces the data available to be analyzed, compromising the statistical power of the study, and eventually the reliability of its results (Aggarwal, 2015). In general, there are two main ways of dealing with outliers. The first is to try to identify all outliers and then eliminate them manually from the analysis. The other approach is to assume that we can never really be sure whether any particular measurement is an outlier, but to weigh samples according to how likely they are to be correct in a model averaging approach (Cousineau & Chartier, 2010). For this study, all the outliers were manually removed.

4.2.2 Analysis of Out-of-Range Values

Data was subjected to the equal treatment as outlined above to ensure that there was no skewness, errors, outliers, bias, or any violations that could later affect the regression analysis.

4.2.3 Analysis of Missing Data

The researcher used a strategy at the time of collecting data with the aim of reducing their occurrence (Bartholme, 2011). After receiving completed questionnaires, they were checked by the researcher in order to guarantee that each item in questionnaires was properly dealt with. Considerations of the respondents were addressed if any question (s) were overlooked and kindly requested that questionnaires are filled accurately.

4.3 Demographic Characteristics of the Respondents

4.3.1 Respondents Years of Experience

The respondent's length of service at the firm as a middle level manager or senior manager in government owned Kenyan sugar production companies were captured and presented in table 4.3. It showed that 16% of the respondents have worked for their sugar manufacturing firms for less

than 3 years. Respondents who worked for their companies for a period between 3-5 years were 19% while those who have worked between 6-10 years were 25.2%, accounting for the highest percentage. Managers (respondents) who worked for 11-15 years were 17.3% and finally those managers who have worked 15 years and above were 22.5%

Table 4.2: Working Experience

	Frequency	Percent
Less than 3 years	49	16.0
3-5 years	58	19.0
6-10 years	77	25.2
11-15 years	53	17.3
15 years and above	69	22.5
Total	**306**	**100.0**

Source: Field Data, (2021)

From the above information it clearly indicated that most of the managers worked for their respective organizations for a long period of time more than 3 years accounted for 84%. This means they have necessary skills, knowledge and key competencies that can be used by an organization to realize superior performance thus competitive advantage (Imbambi 2017). These managers also understand performance of those organizations. This is in agreement with Braxton (2008) as cited by Wandera (2018) who intones those respondents of an organization who are experienced usually have a strong influence on performance of an organization. This is because these managers are more experienced in those organizations. Because these government owned sugar manufacturing organizations are old enough in terms of age they are expected to perform better because they have fixed assets that can be used to perform relatively better.

Key competencies acqiured by these managers in terms of experience, time, processes of an organization, routines and contigents of functions can be used to realize superior performance thus competitive advantage. This is in tandem with the results of the study that was conducted by

Imbambi (2017) findings indicated that employees with high levels of experience can be used as A foundation of competitive edge for Kenyan companies producing sugar. These employees have good understanding of organization's mission, vision, dynamics and its key values. He argues that human resource departments should strive to retain employees with more than 10 years experience. He further argues that employee turnovers discourages and frustrates employees thus impacting negatively on the performance of sugar manufacturing firms. Employee turnover interupts employees experience and good working relationship among employees that had been built for years. In the long run it interupts implementation of organization's strategies.

4.4 Descriptive Statistics

In this study, the respondents attempted to rank the level of influence of each variable on the organizational performance. The Likert scale measurement tool was employed with having the following options; Strongly Agree (SA = 5), Agree (A = 4), Neutral (N = 3), Disagree (D = 2), and Strongly Disagree (SD = 1). These variables relate to various strategies employed by organisations in order to realize better performance. Competitive strategies are one of the strategies that can be used to realize superior performance as compared to their key rivals in the industry (Atikiya, 2015).

Various summary statistics were used to characterize the study variables based on the scores given in the Likert scales. The total numbers of observations were used, as well as the minimum and maximum scores of the scale. In addition, arithmetic mean was used in order to provide average scores given by the respondents. Standard deviation (*SD*) was used to show variations of the scores from the mean value. In order to provide characterization of the distribution of the study variables considered the use of both skewness and kurtosis. Skewness is used to measure the symmetry of a distribution. A distribution is regarded as asymmetrical when it's left and right-hand side are not mirror images. While interpreting skewness, if the value of the skewness coefficient is between

negative 0.5 and 0.5 then the data is regarded as fairly symmetrical. The skewness coefficient between either -1 and -0.5 or 0.5 and 1 then the data is regarded as moderately skewed. For kurtosis, coefficient greater than +1 suggests leptokurtic distribution (has a sharper peak and thicker tail indicating that the data has a higher concentration of values around the mean and a higher probability of extreme values compared to a normal distribution) on the other hand a coefficient of less than -1 indicates platykurtic distribution (The peak of the distribution is flatter than the normal distribution).

4.4.1 Innovation Strategy

Finding out how innovation strategy affected the success of Kenyan government-owned sugar production companies was the study's primary goal. Table 4.3 presents the results of the analysis using means and standard deviation.

Table 4.3: Descriptive Analysis for Innovation Strategy (N=306)

	Min	Max	M	S.D	Skewness	Kurtosis
B1: The firm process innovation that allows us to charge relatively lower prices on our products lower than our competitors	1	5	3.48	1.108	-.77	-.370
B2: A company reduces cost of production by avoiding of uncalled for expenses through organization innovation	1	5	3.75	.991	-1.06	.823
B3: The firm embrace innovation technology in order to align with customer needs	1	5	3.73	.959	-.601	.114
B4: Because of innovation we normally charge higher prices than our competitors in order to maximize profits.	1	5	2.72	1.139	-.501	-.808
B5: The organization pursue cost reduction through reduction of administrative costs through organizational innovation.	1	5	3.63	.908	-.860	.471
B6: The firm pursue cost reduction through managerial efficiency	1	5	3.73	.884	-1.07	1.270
B7: The firm innovate in order reduce cost of production by accessing raw materials at relatively low cost	1	5	3.58	.966	-.774	.001
B8: A firm innovate in order to adjust to changes in the business world so that we are not knocked out of business	1	5	3.83	.929	-1.01	.845
Average Mean			**3.56**	**.986**	**-0.56**	**0.293**

Source: Field Data, (2021). Key; M= Mean, S.D= Standard Deviation.

A total of eight (8) Likert items relating to innovation strategy and how it influenced performance of government owned Kenyan sugar production companies were used.

The findings in table 4.5 indicate that majority (*M* = 3.48, *SD* =1.108) of participants agreed with the assertion that: The firm processes innovations that allows them to charge relatively lower prices on their products than their competitors. Further, they agreed that their companies reduce cost of production by avoiding uncalled for expenses through organization innovation (*M* = 3.75, *SD* =.991). In the same breath, most participants were in agreement that their firms embrace innovative technology in order to align with customer needs (*M* = 3.73, *SD* =.959). However, majority of the respondents disagreed with the assertion: because of innovation we normally charge higher prices than our competitors in order to maximize profits (*M* = 2.72, *SD* = 1.139).

The study findings indicate that firms pursued cost reduction strategy through reduction of administrative costs (*M* =3.63, *SD*=0.908). Similarly, firms pursue cost reduction through managerial efficiency (*M* =3.73, *SD* =.884). The respondents also ranked highly the idea that sugar manufacturing firms innovated in order to reduce cost of production by accessing raw materials at a relatively low cost was ranked (*M* =3.58, *SD* = 0.966). Most respondents were in agreement that a firm innovate in order to adjust to changes in the business world so that we are not knocked out of business (*M* =3.83, *SD* = 0.929). The findings concur with that of Makina and Oundo (2020), who observed that any organization that is able to achieve and sustain low cost of production will realize superior performance. The overall value of arithmetic mean *M* = 3.57 was high enough to indicate that in principle, the respondents were in agreement with various statements presented to them relating to innovation strategy. The overall mean for the scores related to innovation strategy was (*M* = 3.56, *SD* = 0.986). This was an indication that innovation strategy can have a significant influence on performance of government owned Kenyan sugar production companies.

As pointed out earlier, statistical distribution of the scores given by the respondents with regard to the Likert items was analyzed from the perspective of both skewness (in order to measure the symmetry) as well as kurtosis (to measure the peakedness or flatness of the distribution curve). All the values of skewness were negative suggesting negatively skewed distribution for all the scores, with the highest value of skewness, $sk = 1.01$ associated with the idea that government owned sugar manufacturing firms innovated in order to adjust to changes in the business world not to be knocked out of business. With regard to kurtosis, the results suggest that three out of eight kurtosis coefficients were negative, suggesting that data was predominantly platykurtic.

Overall, the findings suggest that various innovation strategies correlate with organisational performance; which is in tandem with what was observed by Miniussi *et al* (2015) whose study on Brazilian organic products in sugar industry revealed that innovation strategy allows the firm to realize competitive advantage which ultimately impacts on its performance. The study findings were also in agreement with Wujiabudula and Zehir (2016), who's study on manufacturing industries in Turkey revealed that innovation was one of the strategies associated with superior organisational performance. Similarly, descriptive findings of the study agree with the findings of the study conducted by Cahn *et al* (2019) on the impact of innovation on performance of an organization and corporate social responsibility of Vietnamese manufacturing firms. The results of the research showed a favourable relationship between organisational success and innovation strategy. In relation to sugar industry findings also conforms to the study conducted by Gomes *et al* (2018) on the effect of innovation strategy on performance of Brazilian sugar energy firms. Descriptive statistics indicated a positive correlation between innovation strategy and performance of sugar manufacturing firms in Brazil.

Moreover, the findings were in agreement with what was established in a study in Kenya by Farah *et al* (2018), whose study analysed the nexus between competitive strategies and organization performance. Descriptive analysis of the findings revealed that product innovation strategy positively influences performance of commercial airlines in Kenya. The study findings were also in agreement with yet another study in Kenya by Laban and Deya (2019) whose study on information and communication technology firms in Nairobi suggested that both market and product innovation can lead to superior organisational performance. Organizations can use innovation strategy to reduce cost of production. The study also is in agreement with the study that was conducted by Okumu *et al* (2019) on effect of innovation strategy and how it affects employee growth. Findings in their study indicated a positive correlation between innovation strategy and performance of sugar firms in Kenya.

4.4.2 Operational Strategy

The study's second goal was to ascertain how operational strategy affected the performance of Kenyan government-owned companies that produced sugar. Table 4.4 presents the results of the analysis using means and standard deviations.

Table 4.4: Descriptive Analysis for Operational Strategy (N=306)

	Min	Max	Mean	S.D	Skewness	Kurtosis
C1: The firm has low production cost that allows us to diversify production	1	5	3.11	1.173	-.285	-.997
C2: The firm's operational costs are managed effectively that allows it to realize competitive advantage	1	5	3.42	1.105	-.673	-.520
C3: Resources in the company are usually deployed in response to changes in technology	1	5	3.46	.937	-.895	.112
C4: Organization's employees are usually in position to perform different tasks effectively	1	5	4.02	.793	-1.15	2.150
C5: The firm's manufacturing system is able to perform different processes	1	5	3.49	1.047	-.810	-.213
C6: The company's system takes short time to deliver products on demand	1	5	3.59	.992	-.794	.064
C7: Customers complains are effectively dealt with	1	5	3.90	.872	-1.15	1.804
C8: The company's manufacturing system meets environmental conservation requirements	1	5	3.91	.800	-1.185	2.156
C9: The production process ensures consistency in operation that enable us to realize competitive advantage	1	5	3.58	.932	-.943	.283
Average mean			**3.61**	**.961**	**-0.88**	**0.04**

Source: Field Data, (2021). Key; M= Mean, S.D= Standard Deviation.

The study also sought to establish the effect of operational strategy on performance of government owned Kenyan sugar production companies as presented in table 4.4. The notion that the employees were in a position to perform different tasks effectively was ranked highest amongst the respondents based on the value of the arithmetic mean (M = 4.02, SD =0.793). This was closely followed by statements suggesting that manufacturing systems met the environmental requirements (M =3.91, SD= 0.800); as well as customer complaints were effectively dealt with (M = 3.90, SD=0.872). On the other hand, the notion that the systems in the organisation took shorter time to deliver products on demand was also strongly agreed to (M = 3.59SD= 0.992).

Furthermore, the mean score associated with the statement that production processes and human consistency in operation enabled the employees to realise competitive advantage was also highly ranked at (*M* = 3.58, *SD*=0.92), followed by the idea that the manufacturing systems were able to perform different processes (*M* = 3.59, *SD*=0.992). The production process also ensures consistency in operation enabling the company to realize competitive advantage (*M* = 3.58, *SD*=0.932). The idea that firm's manufacturing system is able to perform different processes was fairly agreed to with mean score (*M* = 3.49, *SD*= 1.047). The findings also revealed that resources in the company are usually deployed in response to changes in technology (*M* = 3.46, *SD*= .937). This was followed by the idea that the operational costs were managed effectively which allowed them to realise competitive advantage (*M* =3.42, *SD*= 1.105). The least value of the mean was associated with the notion that there was low production cost that allowed them to diversify production (*M* = 3.11, *SD*= 1.173).

The overall value of (*M* =3.61, *SD* = 0.961) was high enough to indicate that in principle the respondents were in agreement with various statements presented to them relating to operational strategy and performance of government owned sugar firms in Kenya.

Further, analysis of the distribution of the scores relating to operational strategy was conducted. Again, the overall mean exhibited negative skewness of – 0.88 suggesting negatively skewed distribution of the scores Likert items. A kurtosis of 0.04 suggests that the distribution has slightly heavier tails than the normal distribution, but the deviation from normality is very small.

These findings however contradict what was established by Aykan and Aksoylu (2013) whose study targeting medium and large size businesses in Turkey revealed that operational strategy had a low significant impact on perceived performance of the organisation. The findings were however consistent with a study by Marjani and Keshavarzi (2015) whose study targeting organisations in

Tehran revealed that adoption of operational strategy where organisations produced unique products positively impacted on organisational performance. The findings were also consistent with Akarte and Patil (2018) who conducted a study on sugar industry established that implementation of an operational strategy has a positive and significant influence on organisational performance. Findings are in conformity wih the study that was conducted by Sheetal *et al* (2020) whose findings confirmed a positive correlation between export competitiveness as operational strategy and performance of sugar manufacturing firms. This results were found after a study was conducted on effect of diversification and performance of sugar firms in India.

The study findings agreed with the findings of Onyango (2015) who explored the nexus between organisational capabilities, operational strategies and performance of sugar companies in Kenya.

The findings revealed that organisational capability significantly correlated with performance of the sugar manufacturing firms in Western Kenya. The findings were also in agreement with the findings of study conducted on four sugar manufacturing firms in Western Kenya by Ondere *et al* (2016) that revealed Mumias Sugar Company emerged as the most aggressive sugar company in terms of operational strategy and stood to gain in terms of corporate image and reputation as a result of higher promotional activities. Descriptive statistics findings further conform to a study that was conducted by Wekesa and Kimutai (2018) on impact of CSR on Kenyan sugar producing companies' performance. Corporate social responsibility as one of the operational strategies correlates positively with Kenyan sugar producing enterprises' performance.

Findings were consistent with the study conducted in Kenya sugar manufacturing firms. Nasiche *et al* (2020) examined the influence of suppliers training on performance of Kenyan sugar production companies. It was evident in their results that suppliers training as one of the operational strategy correlates positively with the performance of Kenyan sugar production companies. Nangulu *et al*

(2020) study agree with these finding. In their study on capacity management strategies and how they affect performance of sugar producing firms in Kenya concluded that capacity management as an operational strategy correlates positively with performance of sugar firms. The findings are further in tandem with the study conducted by Wanyonyi and Otinga (2021) on procurement outsourcing strategy as an operational strategy on performance of purchasing functions on Nzoia sugar firm in Kenya. In their findings it was concluded that outsourcing as an operational strategy has a positive correlation on purchasing function of Nzoia sugar manufacturing firm.

4.4.3: Descriptive Analysis of Technological Strategy

The third goal of the research was to ascertain how Kenyan government-owned sugar production companies performed in relation to their technical capabilities plan. Means and standard deviation was used and the findings are presented in the Table 4.5

Table 4.5: Technological Strategy (N=306)

	Min	Max	M	S.D	Skewness	Kurtosis
D1: The firm utilize new technology to produce products that serve geographical market segment	1	5	3.51	1.019	-.841	.054
D2: The organization invest in strategic supply chain management that gives it competitive advantage	1	5	3.59	.934	-.939	.416
D3: The organization invest in technology that enables it to produce products that serve a specific group of customers.	1	5	3.09	1.167	.020	-1.196
D4: The company invest in technological intelligence that enables it to produce new products that satisfies our customers' needs	1	5	3.55	.923	-.941	.346
D5: The firm always emphasize on technological capability that enables it to produce more products. It also invest on marketing specialty products.	1	5	3.50	1.019	-.749	-.213
D6:The firm invest in technological innovation capabilities as core resources for sustainable competitive advantage.	1	5	3.53	1.009	-.873	.095
D7:A firm use modern technology to produce more products that is used as a competitive advantage	1	5	3.41	1.099	-.632	-.552
D8:The firm invest in technological capability to enable us serve diverse market.	1	5	3.49	1.063	-.849	-.060
Average Mean			**3.46**	**1.03**	**-0.73**	**-0.08**

Source: Field Data, (2021). Key; M= Mean, S.D= Standard Deviation

Results in Table 4.5 showed that firms utilize new technology to produce products that serve geographical market segment (*M* =3.51, *SD* =1.019). The findings also revealed that organizations invest in strategic supply chain management that gives it competitive advantage (*M* =3.59, *SD* =.934). Respondents however were indifferent with the notion that organizations invest in technology that enables it to produce products that serve a specific group of customers (*M* =3.09, *SD* =1.167). Companies also invested in technological intelligence which enabled them to produce

new products that satisfies customers' needs (*M* =3.55, *SD* =.923). This was further supported by respondents who asserted that firms always emphasize on technological capability that enables it to produce more products (*M* =3.50, *SD* =1.019). A majority of respondents were also in agreement that their firms invest in technological innovation capabilities as core resources for sustainable competitive advantage (*M* =3.53, *SD* =1.009). Respondents were however neutral with regard to use of modern technology to produce more products used as a competitive advantage (*M* =3.41, *SD* =1.099). Relatively lower values of arithmetic mean were registered for the statement that the firm invest in technological capability to enable us serve diverse market (*M* =3.49, *SD* =1.63).

The findings also indicated that overall mean of (*M* =3.46, *SD* = 1.029), which implied that technological strategy moderately influenced performance of government-owned Kenyan sugar production companies.

From the perspective of statistical distribution of the scores, overall mean exhibited negative skewness of – 0.73 suggesting negatively skewed distribution of the scores Likert items. A kurtosis of -0.08 suggests that the distribution has slightly heavier tails than the normal distribution, but the deviation from normality is very small.

With a clear nexus between technological capability and improved productivity within organisations exhibited in the foregoing findings, this was a clear demonstration that technological adoption correlates positively with performance of an organization. This means that technological capability strategy in sugar manufacturing firms acts as a major contributor of competitive advantage in the industry thus superior performance. The findings validate the notion of linkages between technological capabilities and organisational performance, which correlates with Filho and Moon (2018) who showed that performance of an organization increases by the increase in use of technological capability. The study outcomes are in conformity with the outcomes for the study

targeting Chinese Hi-Tech organisations by Li *et al*. (2018) who noted that technology configuration capacity has the potential to enhance the impact of tactical adaptability on organisational effectiveness in a changing environment. Accordingly, the analysis revealed that organisations that use modern technology have a competitive advantage. This means that the cost of production will be reduced as a result of adoption of new technology. In a competitive environment the organization will realize superior performance in relation to the key rivals in the industry. It was also revealed that technological capability positively correlate performance of organizational. Technological capability strategy can be used by manufacturing firms as a source of competitive advantage. This enables an organization to have superior performance in relation to the rivals in the industry.

The above descriptive analysis underscores the significance of adoption of technology in the quest to improve competitive advantage; a finding which is in tandem with what was observed by Kihara *et al* (2016) whose study on small and medium enterprises in Kenya underscore the significance of technological innovations towards improving competitive advantage. Further, the study findings were in conformity with the findings of Imbambi *et al* (2017) in which a positive relationship was exhibited between technological capability and competitive advantage which eventually leads to better performance of the Kenyan sugar production companies. Further the above descriptive analysis underscores the adoption of technological capability strategy with the aim of improving organizational performance. Findings are consistent with the study that was conducted by Simiyu *et al* (2021) in which a positive correlation was exhibited between the uses of technology in procurement on performance of Kenyan sugar production companies.

4.4.4 Descriptive Analysis of Government Interventions

The study sought to determine the moderating effect of government interventions between Kenyan government-owned sugar production enterprises' competitive tactics and results. Means and standard deviation was used and the findings are presented in the table 4.6

Table 4.6: Descriptive Analysis for the Effect of Government Interventions

	Min	Max	M	S.D	Skewness	Kurtosis
E1: Government has reduced tax on our products	1	5	1.94	.776	1.42	3.403
E2: Government protects us from importation of sugar from other countries that enables us to sale our products at relatively higher prices.	1	5	2.53	1.247	.196	-1.353
E3: The organization is affected by government policies like economic integration	1	5	3.65	1.056	-.989	.377
E4: Government protects our organization from external markets like COMESA	1	5	3.07	1.146	-.365	-.901
E5: Government intervenes by setting prices of our products	1	5	3.05	1.102	-.186	-1.132
E6: The firm is usually negatively affected by government appointments in leadership in sugar factories	1	5	3.66	1.044	-.736	.078
E7: Government bails out our organization, when we are in financial crisis	1	5	3.21	1.108	-.538	-.541
Average Mean			**3.02**	**1.07**	**-0.17**	**-0.01**

Source: Field Data, (2021). Key; M= Mean, S.D= Standard Deviation

From the analysis it was reported with a very low arithmetic mean of (*M= 1.94, SD=* .776) the respondents ranked low the idea that government has reduced tax on our products. Further the arithmetic mean, of (M*=2.53, SD= 1.247)* was also reported low by the respondents on the idea that government protects us from importation of sugar from other countries that enables us to sale our products at a relatively higher prices. From the analysis of the arithmetic mean, the respondents highly-ranked the ideas that the organisation was affected by government policies like economic integration. Furthermore, the standard deviation associated with this statement was relatively low (*M* = 3.65, *SD* = 1.056). Similarly findings revealed arithmetic mean of (*M= 3.07, SD= 1.146).*

This showed a positive but weak agreement with statement that government protects our organization from external markets like COMESA. At the same time arithmetic mean of (*M 3.05, SD= 1.102)* showed that average of the respondents agreed with the statement that government intervenes by setting prices of our products. On the other hand the arithmetic mean of (*M*=3.21 *SD= 1.108)* showed that most of the respondents agreed with the idea that government bails out our organizations, when we are in financial crisis. Finally the arithmetic mean (*M=3.66, SD= 1.044)* registered the highest mean. This implied the majority of responders approved of the concept that the firm is usually affected negatively by government appointments in leadership in government owned sugar manufacturing firms.

This was an indication that respondents were strongly in agreement with an idea of economic integration as a government policy that affects the organisation, and this was further reaffirmed by the consistency in the scores as a result of low standard deviation. The study findings therefore indicated that government interventions (subsidies) had a significant positive role on performance of government owned Kenyan sugar production companies. This finding agrees with Alhnity *et al* (2016) which revealed that government interventions in terms of loan and other strategies had a positive impact on performance of firms. Government interventions enables farmers to invest in cane farming. In addition, the overall mean government intervention (*M* = 3.06, *SD* = 1.127), which underscored the significant role played by government intervention on the relationship between the competitive strategies and performance of government owned Kenyan sugar production companies.

A government through its strategies that allows sugar manufacturing firms to reduce cost of production in the long run makes them to perform better in terms of increased market share, increased profitability and increased customer satisfaction. Sheetal and Kumar (2019) concurred that firms which do not come up with unique strategies to realize competitive advantage may be

knocked out of business. The study further revealed that government influences the whole value chain of sugar manufacturing firms. The government influence is realized through; supplier's mechanisms, marketing sugar and expansion of sugar mills infrastructure.

Secondly, the government influences sugar firms through nationwide uniformity in terms of sugar policy, logical and mutually beneficial choices made jointly by the government, mill operators, sugar cane farmers, and production processes that diversify the products produced.

Government interventions for instance government subsidies, taxation and loans affect performance of an organization. Fommasse and Cincera (2015), Alhnity, Mohamad *et al* (2016), Wanjawa *et al* (2017). Owiye *et al* (2016) posted positive effect in relation to government intervention and performance sugar manufacturing firms. Government intervention has positive and significant role on performance of the government owned sugar firms in Kenya. A related research by Simiyu et al. (2021) found a substantial positive link between the success of sugar production enterprises and their technical skills when it comes to procurement. The overall value of arithmetic mean $M = 3.06$ was high enough to indicate that in principle the respondents were in agreement with various statements presented to them relating to government intervention strategy and performance of government owned sugar firms in Kenya.

The average skewness of -0.17 implied that the distribution has a long tail on the left side and is characterized by extremely low values. Similarly, kurtosis of -0.01 suggests a distribution with slightly lighter tails than the normal distribution. This value indicates a platykurtic distribution, which means it has fewer outliers.

4.4.5 Descriptive Analysis on Performance of Sugar Manufacturing Firms

Table 4.7: Descriptive Analysis for Performance of Government Owned Sugar Manufacturing (N=306)

	Min	Max	M	S.D	Skewness	Kurtosis
F1: Our image has been improved because of competitive strategies we put in place	1	5	3.56	.901	-.692	-.225
F2: Increased sales in our firm is because of internal management that input by our organization	1	5	3.68	.869	-.666	.205
F3: Our customers get satisfied with our products because they are given variety of them	1	5	3.56	.940	-.732	-.400
F4: Our production speed is usually high that is brought by constant machine maintenance	1	5	3.20	1.003	-.075	-1.17
F5: We produce more products that allow us to meet our customer needs.	1	5	3.24	.981	-.164	-1.27
F6: We realize increased profits that are as a result of innovation, increased market and reduced cost of production.	1	5	3.18	.953	-.225	-1.25
F7: Our production is high because of efficient and effective utilization of available resources.	1	5	3.33	1.008	-.243	-1.185
Average Mean			**3.39**	**0.951**	**-0.4**	**-0.76**

Source: Field Data, (2021). Key; M= Mean, S.D= Standard Deviation

Descriptive analysis was conducted with regard to performance of government owned Kenyan sugar production companies. In order to achieve this, the question was operationalised into seven (7) Likert scale items relating to performance. The results of the descriptive analysis were summarised in Table 4.7. The highest value of the arithmetic mean was associated with the idea that the increase in sales were attributed to internal management (M = 3.68, SD =0.869); followed by the notion that customers to get satisfied with the products because they are given variety of them (M = 3.56, SD =0.94). This was closely followed by the score on the idea that the image of the organisation had improved because of competitive strategies that had been put in place (M = 3.56, SD =0.901); while the notion that the production was high due to efficient and effective utilization of the available resources was also ranked fairly high (M = 3.33, SD = 1.008). The low

values of arithmetic mean were an indication that the respondents were noticed only agreement with the statements presented to them with regard to performance.

For instance, the notion that there was an increase in profits resulting from innovation, increased market shares and reduction of cost of production scored a fairly low value of arithmetic mean (*M* = 3.18, 0.953); followed by the suggestion that the production speed was usually high that was brought about by constant machine maintenance (*M* = 3.20, *SD* = 1.003). The value of the arithmetic mean that was associated with the statement that the firm produced more products that allow them to meet their customer needs (*M* = 3.24, *SD* = 0.981). The overall value of arithmetic mean *M* = 3.39 was high enough to indicate that in principle the respondents were in agreement with various statements presented to them relating to performance of the organisations. Additionally, with an overall mean of (*M* =3.39, *SD*= 0.951) was an indication of the significance attached to performance of government owned Kenyan sugar production companies.

Based on the findings of the statistical distribution of the scores, the skewness of -0.4 implied that the distribution has a long tail on the left side and is characterized by extremely low values. Similarly, kurtosis of -0.76 suggests a distribution with slightly lighter tails than the normal distribution. This value indicates a platykurtic distribution, which means it has fewer outliers.

The idea that production speed was high as a result of constant machine maintenance was in agreement with a study by Konyuhov, Gladkih, and Semenov (2019) who attributed the improved production efficiency to among other factors repairs and maintenance to the machines. The findings on competitive strategies were also in agreement with what was established in a study in Kenya by Farah *et al* (2018) who underscored the significance of competitive strategies in terms of an improvement in organisational performance of the commercial airlines in Kenya.

4.6 Correlations Analysis

Correlation analysis was conducted as a form of bivariate analysis aimed at measuring the strength of association between two sets of variables as well as the direction of the relationship. Relationship in the study variables was determined through, Pearson Product Moment correlation coefficient (*r*). A correlation was used to show the direction of variables. Correlation coefficient ranges from +1, 0 to -1. A positive slope line of the regression indicates that *r* is positive. On the other hand, a negative slope line of the regression indicates that *r* is negative. The results of multiple correlation analysis were summarised in Table 4.8**.**

Table 4.8: Correlations Table

		Innovation Strategy	Operational Strategy	Technological Strategy	Organization Performance
Innovation Strategy	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	306			
Operational Strategy	Pearson Correlation	.677**	1		
	Sig. (2-tailed)	.000			
	N	306	306		
Technological Strategy	Pearson Correlation	.569**	.583**	1	
	Sig. (2-tailed)	.000	.000		
	N	306	306	306	
Organization Performance	Pearson Correlation	.751**	.604**	.579**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	306	306	306	306

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

Source: Field Data, (2021).

A correlation that reports 0.49 and bellow depicts a weak relationship between the study variables. On the other hand, a correlation that shows 0.5 and above depicts a strong positive correlation between the study variables. From the findings innovation strategy has the highest and strong effect on performance of government owned Kenyan sugar production companies at r= 0.751 As table 4.8 depicts, a positive, strong and significant (n=306; r = 0.751; *p*-value < 0.05), The P-value of .0000

<0.05 shows that there exists an effect of innovation strategy on performance of an organization correlation was exhibited between innovation strategy and government intervention. It means that additional unit in innovation strategy leads to increase in performance of an organization. The findings corroborate what was observed by Kenfac *et al* (2013); who attributed to superior performance in Swedish to innovation which brought about competitive advantage. The findings also echo what was noted earlier by Cote *et al* (2015) whose analysis of the role of innovation strategy in competitive of the Brazilian organic products in the sugar industry revealed that an improvement in competitive advantage was attributed to implementation of innovation strategies. The findings collaborated with what was realized by Zhang *et al.* (2018) who attributed good performance in Pakistan to innovation in the industry that resulted to competitive advantage. Findings further agreed with what was observed by Okumu *et al* (2019) who attributed superior performance in sugar firm in Kenya as a result of innovation strategy.

Findings further revealed that there is a strong, a strong and favourable correlation between performance of an organization and operational strategy (n=306; $r = 0.604$; p-value < 0.05). The p value of 0.000< 0.05 indicates that there exists an effect of operational approach to performance of Kenyan government-owned sugar production companies. Therefore, an increase in operational strategy will lead to an increase in the performance of government owned Kenyan sugar production companies. This positive relationship was also exhibited in a study in Tehran by Marjani and Keshavarzi (2015) who indicated that good results in organisational performance was attributed to proper use of operation strategy. The study findings also reaffirm what was established by Gandhare *et al* (2018); whose study also focused on the sugar industry where the findings indicated that operational strategy positively and significantly influenced organisational performance.

A moderate, positive and significant relationship between organization performance and technological capability strategy at (n=306; $r = 0.579$; p-value < 0.05) was also realized. The p-value of 0.000 < 0.05 shows that there exists an effect of technological capability strategy on performance of government owned Kenyan sugar production companies. Therefore, an increase in technological capability strategy will lead to an increase in the organization performance increase in performance of an organization. The results showed a favourable and statistically significant association between organisational effectiveness and technology capabilities strategy. These findings corroborate what was established by Filho and Moon (2018) whose study suggested a positive relationship between technological capabilities and organisational performance. The study findings were also in agreement with Potjanajajaruwit (2018) who established a positive relationship between technological capability and competitive advantage amongst start-ups in manufacturing firms in Thailand.

4.7 Diagnostic Tests

The researcher duly conducted the necessary diagnostic tests to ensure that there were no violations when running regression analysis. The tests conducted included normality, linearity, homoscedasticity, multicollinearity and autocorrelation.

4.7.1 Tests of Normality

Normality checking was carried out with a goodness of fit test - the Kolmogorov-Smirnov test or Shapiro-Wilk test - conducted on the residuals themselves. The Shapiro-Wilk test was constructed to check for normality which ensured that the residuals in the model behaved normal. Normality was also checked through Q-Q plots and P-P plots to identify any deviations from normality. In essence, therefore, the normality assumption of the regression model was accordingly met. Accordingly, normality relating to the residuals was presented in Figure 4.1.

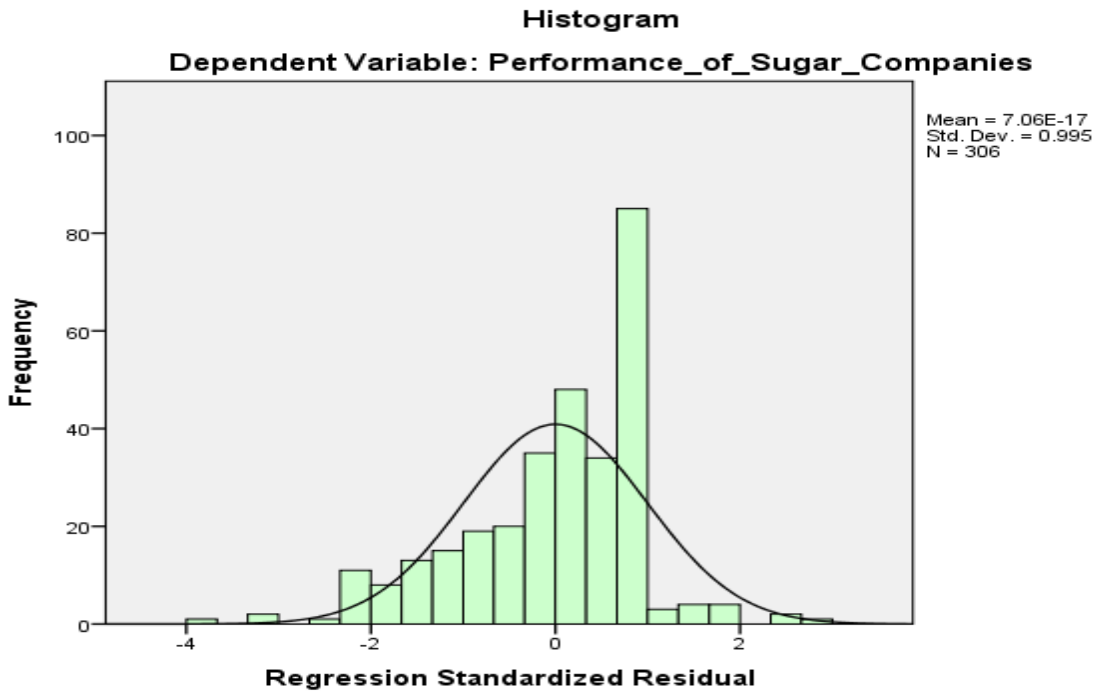


Figure 4.1: Histograms of the Residuals
Source: Field data (2021)

The distribution of the regression residuals depicted in the above histogram suggest that majority of the data points were lined with a normal distribution Gaussian curve (bell-shaped curve). This was an indication of and normal distribution of most of the data points and therefore suggesting that the residuals were normally distributed; which is a condition that need to be fulfilled in order to utilise linear regression model is. In addition to the histograms, normality of the distributions was checked using the Q-Q plots presented in Figure 4.2.

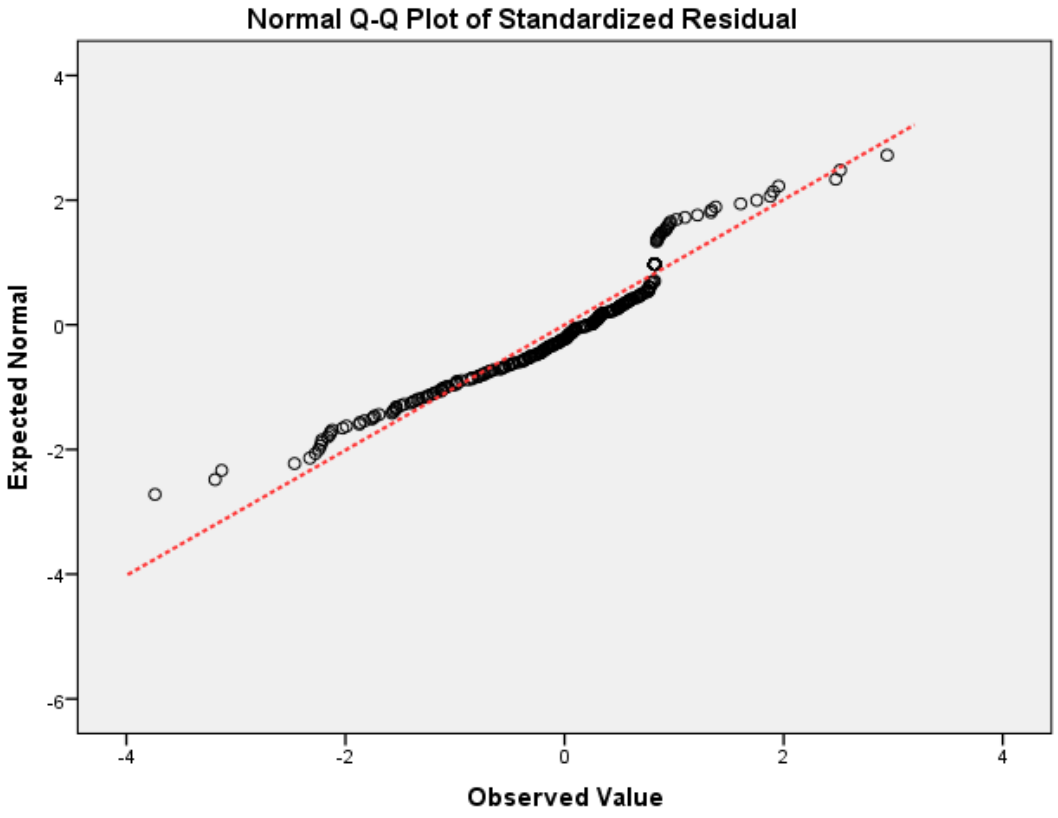


Figure 4.2: Q-Q Plots of the Residuals

Source: Field data (2021)

The Q-Q plots indicated that majority of the observed points were distributed along the fitted line; an indication of normality of the residuals of the regression model. Q-Q plots can be used as visual inspection tools to check for normality in the residuals; and usually make use of a reference line which is used as a benchmark for checking normality of the distribution of the residuals (Cremona *et al*., 2020; Rathnayaka, & Samarasinghe, 2021). This followed by generating a P-P plot which is presented in Figure 4.3.

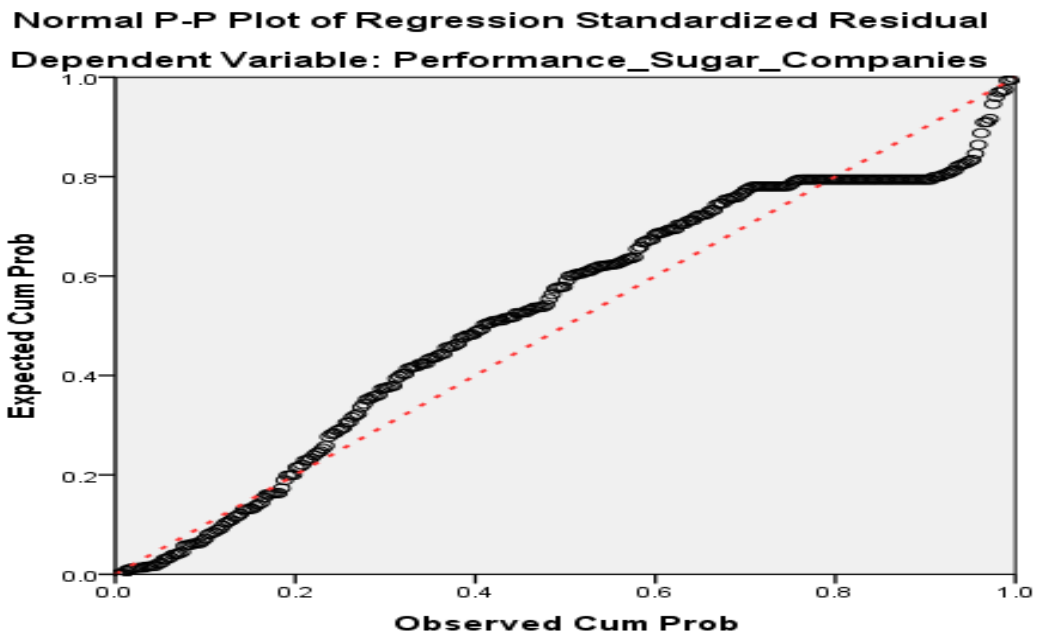


Figure 4.3: P-P Plots of the Residuals

Source: Field Data (2021).

P-P plots are widely used in depicting normality of the distribution of the residuals of a regression model (Liu *et al*., 2022). Nassiraei and Rezadoost (2022) contend that P-P plots are used to indicate normality of the residuals by making a comparison between empirical cumulative distribution functions of a given data set with those of the assumed true cumulative probability. An inspection of the P-P plots above suggests that majority of the data points lie along the 45^0 reference line which is also a clear indication that there was normal distribution exhibited in the residuals. The plot therefore provided evidence of existence of normality in the residuals of the fitted regression model; which was an indication that then the normality requirement for the model was met. Furthermore, normality was checked in statistically using both Kolmogorov-Smirnov test and Shapiro Wilk test and the findings are summarised in Table 4.9.

Table 4.9: Statistical Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Standardized Residual	.121	306	.214	.935	306	.202

a. Lilliefors Significance Correction

Source: Field Data, (2021).

Both test of normality registered a *p*-value > 0.05 which suggests that the standardized residuals followed to the normal distribution; suggesting that the model met the assumption of normality of the residuals of the model. This is in line with the threshold recommended by studies suggesting that a *p*-value < 0.05 suggests a lack of normality in the residuals of a model (Lund *et al*., 2019). This is an agreement with studies suggesting that a p-value of less than 0.05 is an indication of lack of normality the residuals of a model (Nouri *et al* 2022).

4.7.2 Linearity Test

Linearity means that figures of outcomes variables for every increase that is associated with the predictor (s) is found within linear regression line. A proposed multiple regression can only be a good predictor if it is in position to determine any estimation of how productivity relates with the productivity of government owned Kenyan sugar production companies and competitive strategies variables when the relationships are linear in nature.

4.7.3 Tests for Homoscedasticity

The purpose of homoscedasticity test is to establish whether the errors of a regression model have constant variance among independent variable values (Terefe, 2019). Homoscedasticity can also refer to a test whose aim is to establish whether there is constant variance of residuals across the variables (Kim, & Shahandashti, 2022). Nozawa *et al*. (2021) suggest that one of the approaches

used in measuring homoscedasticity is by generating a residual plot against the predicted value (fitted value). This is corroborated studies suggesting that homoscedasticity can be checked with the scatter plot of the residuals (Juniati, & Budayasa, 2022; Raju *et al*., 2022). Figure 4.4 shows the scatter plot of the residuals.

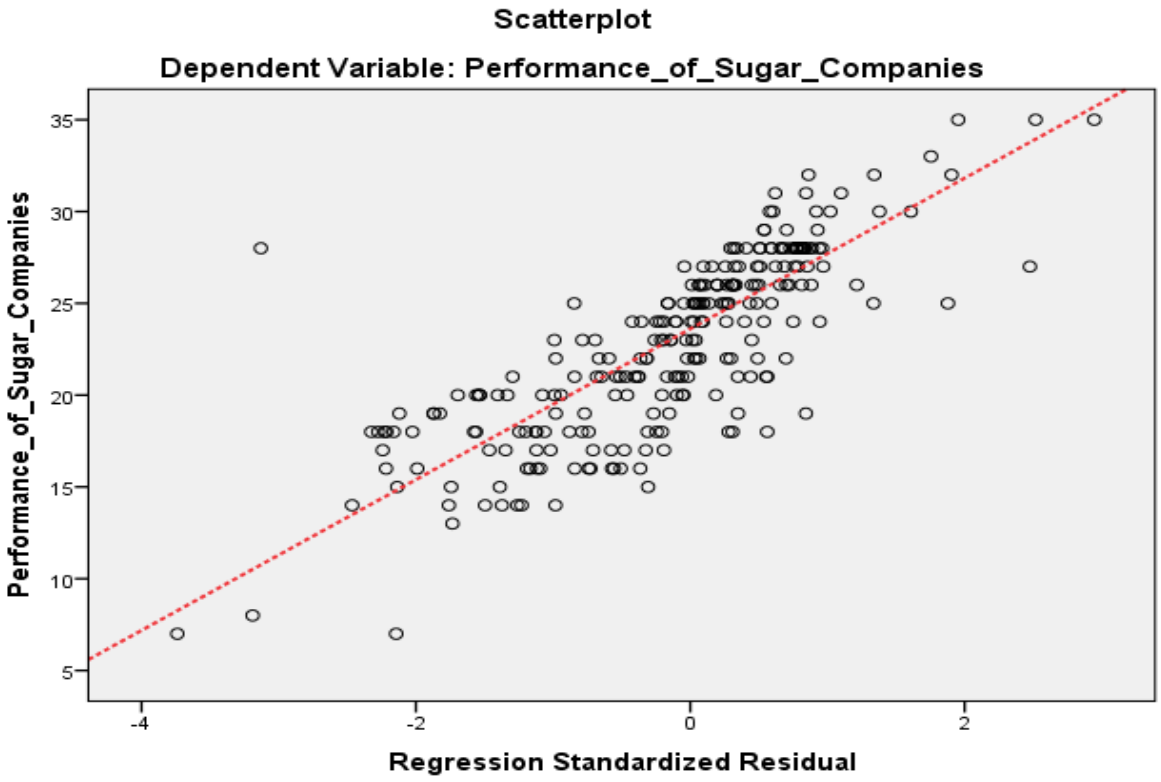


Figure 4.4: Scatter Plot of the Residuals

Source: Field data (2021)

Figure 4.4 indicates that most of the data points lie along the reference line which is an indication of constant variance (homoscedasticity) of the residuals; which implies that the condition of constant variance of the residuals was met.

4.7.4 Multicollinearity

According to Andren (2012) as cited by Odollo (2019) argues that a multiple regression model that has a strong correlation between the study variables is referred to as multicollinearity. He argues that the model poses very little threats if it has very minimal collinearity levels. Increase in collinearity and standard error leads to increase in the probability of the good predictor variables. This means that it is statistically insignificant thus the model is rejected. According to Haine *e t al* (2006) as cited by Atikiya (2015) multicollinearity is used when the same value can be measured through different variables. It occurs when the independent variables relate strongly that is able to determine a given dependent variable. It usually has a significant effect on the statistical and regression outcomes. Values of correlations can be used to detect multicollinearity. According to Pallant (2005) as cited by Atikiya (2015) multicollinearity between two variables with the values of 0.8 or 0.9 will depict a relationship

Table 4.10: Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Innovation Strategy	.494	2.023
	Operational Strategy	.484	2.068
	Technological Strategy	.603	1.659

Source: Field data (2021)

From table 4.10, the researcher noted that VIF values ranged between 1.659 and 2.068 which were less than 10 while tolerance scores ranged between 0.484 and 0.603 which was more than 4 implying that there was no Multicollinearity.

4.7.5 Autocorrelation Test

The purpose of conducting the autocorrelation test was to establish whether there was a correlation between independent variables and their residuals of the model. Autocorrelation analysis was conducted using the Durbin-Watson.

Table 4.11: Autocorrelations Analysis

	Collinearity Statistics	
	Tolerance	**VIF**
Innovation Strategy	0.346	1.891
Operational Strategy	0.322	2.114
Technological Strategy	0.321	3.227
Government Interventions	0.521	1.815

a Dependent Variable: performance

Source: Field Data, (2021).

The results for this test were summarised in Table 4.11. As Agiakloglou and Agiropoulos (2022) note, Durbin-Watson test is usually applicable in AR (1) or single lagged time series models. According to the findings, the moderating, independent, and control factors' Durbin-Watson values range from 1.5 to 2.5. It is evident from this that the research data satisfies the independence test (no autocorrelation) condition.

4.8 Regression Analysis

4.8.1 Innovation Strategy and Performance Government Owned Sugar Manufacturing Firms

The research aimed at determining the effect of innovation strategy and performance of government owned Kenyan sugar production companies. It made use of a single-variate regression model. The reported results are the model summary in Table 4.12 a, b and c respectively.

Table 4.12(a): Model Summary for Effect of Innovation Strategy on Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.734[a]	.539	.538	.42283

a. Predictors: (Constant), Innovation Strategy

Source: Field Data, (2021).

The results in table 4.12(a) indicated that 53.9% of the total differences on performance among government owned sugar companies in Kenya are explained by innovation strategy. This was indicated by an (*R* square = .539). This shows that innovation strategy significantly impacts the performance of government owned Kenyan sugar production companies.

Table 4.12(b) ANOVA for Effect of Innovation Strategy on Performance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	63.582	1	63.582	355.632	.000[b]
	Residual	54.351	304	.179		
	Total	117.934	305			

a. Dependent Variable: Organization Performance

b. Predictors: (Constant), Innovation Strategy

Source: Research Data, (2021).

Analysis of variance (Table 4.12(b) for this model showed that there was existence of the effect of innovation strategy and performance of government owned Kenyan sugar production companies. This effect is statistically significant ($p = 0.000 < 0.05$) and thus this model was fit to explain the relationship between innovation and organizational performance. The hypothesis that there is no significant statistical effect on innovation strategy and performance of government owned Kenyan sugar production companies was rejected at 5% level of significance.

The results of regression suggest that innovation strategy had a positive and significant effect of performance of government owned sugar firms. This finding was in agreement with Bayraktar *et al* (2016), whose study on organisations in Turkey revealed that innovation lead to cost reduction, and

innovation through product differentiation lead to increase in market share of a firm which in turn lead to better performance. The findings also corroborated with that of Zhang *et al*. (2018), who established that both management and technological innovations can have a statistically significant effect on performance of organisations. The positive relationship between innovation strategy and performance also corroborates what was established by Canh *et al* (2019), whose study on Vitnamese manufacturing industries revealed that both process and product innovations can lead to improved firm performance.

This is in tandem with what was observed in a study by Ojera *et al* (2017) whose study on sugar producing companies in Western part of Kenya revealed that innovation strategy positively correlates with competitive position of the organisations which ultimately affects organisational performance. The findings also corroborated Farah, Munga, and Mbebe (2018) whose study established a positive relationship between innovation strategy and performance. The findings were also in agreement with yet another study by Kiptoo and Koech (2019), whose research findings indicated that strategic innovation can have a positive and significant influence on performance of manufacturing firms. In conclusion from the above findings and in relation to reviewed literature innovation strategy can be used by different organizations to realize superior performance.

Table 4.12(c): Coefficients for Effect of Innovation Strategy on Performance

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	T	Sig.
1	(Constant)	.547	.182		3.004	.003
	Innovation Strategy	.864	.046	.734	18.858	.000

a. Dependent Variable: Organization Performance

Source: Research Data, (2021)

From table 4.12(c), it was revealed that holding innovation strategy constant; the performance of government owned Kenyan sugar production companies would be .547. Similarly, a unit increase in innovation strategy would result to 0.734 increase in performance of government owned Kenyan

sugar production companies. The study also found that the p-value ($p = 0.000 < 0.05$) was less than 0.05 an indication that the predictor variables was statistically significant in establishing performance among government owned Kenyan sugar production companies.

From the model coefficients (table 4.12(c)), the regression equation was obtained:

$Y = 0.547 + 0.864X_1$

4.8.2 Operational Strategy and Performance of Government Owned Sugar Manufacturing Firms

The research sought to establish the effect of operational strategy on performance of government owned Kenyan sugar production companies. The model summary is presented in table 4.13 a, b and c.

Table 4.13(a): Model Summary for Effect of Operational Strategy on Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.594[a]	.353	.351	.50103

Source: Research Data, (2021)

Findings on table 4.13(a) the results stated that operational strategy accounts for 35.3% of the total changes in performance of government owned sugar manufacturing firms. This is indicated by ($R^2 = 0.353$)

The ANOVA on table 4.13(b) gives the findings for the significance test of this model. According to the analysis, the model significantly assessed the effect of operational strategy on performance of government owned sugar manufacturing firms.

Table 4.13(b): ANOVA for Effect of Operational Strategy on Performance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	41.621	1	41.621	165.801	.000[b]
	Residual	76.313	304	.251		
	Total	117.934	305			

Source: Research Data, (2021)

Table 4.13(b) displays the results of the ANOVA. The results pointed to a broad model that is of statistical significance. The reported 165.801 F supported this. A recorded p value of 0.000, which was less than the normal probability of 0.05, provided further evidence in favour of the results. The results show that the model that connects the method of operation to performance is of statistical significance. Hence, the hypothesis that there is no significant statistical effect of operational Strategy and performance of government owned Kenyan sugar production companies is thereby rejected at 5% level of significance.

Table 4.13(c): Coefficients for regression of Performance on Operational Strategy

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.442	.197		7.319	.000
	Operational Strategy	.657	.051	.594	12.876	.000

a. Dependent Variable: Organization Performance

Source: Research Data, (2021)

Table 4.13(c) shows that if operational strategy was to be held constant, performance of sugar manufacturing firms would be at 1.442 (the value of the constant in Table 4.13(c). Similarly, increasing operational strategy by one unit, the performance of sugar companies would increase by 0.594. All the p values are less than 0.05 indicating significant role of the constant on the operational strategy and performance of Kenyan sugar production companies. Therefore, the new regression equation for estimating performance of sugar companies based on the operational strategy was;

$Y = 1.442+0.657X_2$

The findings are in tandem with the study that was conducted by Sheetal *et al* (2020) in China. In their results there was a significant relationship between sugar manufacturing firm and competitiveness as one of the operational strategy.

Results also corroborates with another study that was conducted in Kenya sugar firm by Wekesa and Kimutai (2018) their results indicated a significant positive relationship between corporate social responsibility and performance of sugar manufacturing firm in Kenya. Still in Kenyan perspective, findings are in tandem with the results that were found by the study that was conducted by Nasiche *et al* (2020). They found that suppliers training as one of the operational strategy affects positively with performance of sugar producing organizations.

4.8.3 Technological Capability Strategy and Performance of Government Owned Sugar Manufacturing Firms

Regression analysis was conducted to determine the effect of technological strategy on performance of government owned Kenyan sugar production companies. The results are as presented in table 4.14a, b and c.

Table 4.14(a) Model Summary for Effect of Technological Capability Strategy on Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.562[a]	.316	.314	.51519

a. Predictors: (Constant), Technological Strategy

Source: Research Data, (2021)

Subsequently, the model summary presented in table 4.14(a) showed that the technological capability strategy explains 31.6% (R^2 = 0.316) of the performance of sugar manufacturing companies observed.

Table 4.14(b): ANOVA summary for Effect of Technological Capability Strategy on Performance

Model			Df	Mean Square	F	Sig.
1	Regression	37.246	1	37.246	140.330	.000[b]
	Residual	80.687	304	.265		
	Total	117.934	305			

a. Dependent Variable: Organization Performance

b. Predictors: (Constant), Technological Strategy

Source: Research Data, (2021)

As table 4.14(b) depicts, technological capacity strategy is a significant predictor of performance of government owned sugar manufacturing firms (p = 0.000 < 0.05). The model was therefore deemed appropriate to explain how Technological capability strategy affects performance of government owned sugar manufacturing firms. The hypothesis that there was no statistically significant effect of technological capabilities strategy and performance of government-owned Kenyan sugar production companies was therefore rejected at 5% level.

Table 4.14(c) Coefficients Effect of Technological Capability Strategy on Performance

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	T	Sig.
1	(Constant)	1.865	.179		10.448	.000
	Technological Strategy	.537	.045	.562	11.846	.000

a. Dependent Variable: Organization Performance

Source: Research Data, (2021)

The linear regression coefficients on Table 4.14(c) indicated that technological capability strategy has a positive linear effect on the values of performance of sugar manufacturing companies in Kenya (β = 0.562). This effect was statistically significant at the same time that of the constant was also significant. Using these coefficients, the linear regression model;

$$\mathbf{Y = 1.865 + 0.537X_3}$$

Regression analysis results show that technical competence has a favourable and substantial impact on the performance of government-owned sugar producing companies in Kenya. This relationship is in agreement with the findings of prior studies linking but incisional performance to adoption of technological capability strategy. For instance, the findings reflect what was noted by Ahmad *et al.* (2019) who targeted Malaysian manufacturing firms where the findings indicated that technological capability significantly and positively affected organisational performance. Further, the findings corroborate a systematic review conducted by Magaji and Muritala (2019); where the findings of the synthesis revealed that technological intelligence can positively influence organisational performance. Further, the study findings corroborated Singh *et al*. (2019) whose study on integration of sugarcane production technologies revealed that improvement of sugar production can be attributed to development of cost-effective technologies among other factors.

The findings are also in agreement with what was observed in Kenyan studies suggesting the role of technological strategies on improving organisational performance. For instance, Kihara *et al* (2016) whose study on small and medium firms in Thika, Kenya revealed that technology can enable organisations to realize superior performance. Findings of this study are in tandem with the findings for a study that was conducted by Simiyu *et al* (2021) on how technological capability used in procurement affects performance of Kenyan sugar production companies. Where findings showed a significant positive correlation between the study variables. In conclusion from the above findings and the findings from the reviewed literature, technological strategy impacts organization performance.

4.8.4 Model Summary for Effect of Competitive Strategies on Performance

Regression analysis was also conducted to establish the joint effect of the three competitive strategies on performance of the Government owned Kenyan sugar production companies. The model summary related to this analysis was presented table. 4.15a, b and c.

Table 4.15(a) Model Summary for Effect of Competitive Strategies on Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.759[a]	.576	.571	.40707

a. Predictors: (Constant), Technological Strategy, Innovation Strategy, Operational Strategy

Source: Research Data (2021)

The R^2 value indicates how much variation in the outcome variable is attributed to the predictor variables incorporated in the model. Adjusted R-squared takes care of the degrees of freedom. Basing on the model, the combined prediction of all the variables accounted for 57.6 % of the total variation in performance of the Government owned Kenyan sugar production companies (R^2 = .576).

Table 4.15(b) ANOVA Summary for Effect of Competitive Strategies on Performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	67.890	3	22.630	136.565	.000[b]
	Residual	50.044	302	.166		
	Total	117.934	305			

a. Dependent Variable: Organization Performance
b. Predictors: (Constant), Technological Strategy, Innovation Strategy, Operational Strategy

Source: Field Data, (2021).

The result of analysis of variance presented in table 4.15(b) Indicate that jointly, innovation strategy, operational strategy as well as technological capability strategy alongside with the process

of government interventions as the moderating variable significantly affects performance of government Kenyan sugar production companies. (p = .000<.05), which implies that the model was fit to explain the competitive strategies relates with government interventions and performance of the sugar companies.

The regression coefficients relating to the effect of performance and competitive strategies was summarised in table 4.15(c).

Table 4.15(c): Coefficients for Effect of Competitive Strategies on Performance

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	.234	.187		1.251	.212
	Innovation Strategy	.653	.063	.555	10.415	.000
	Operational Strategy	.126	.060	.114	2.108	.036
	Technological Strategy	.171	.046	.179	3.702	.000

a. Dependent Variable: Organization Performance

Source: Field Data, (2021).

The findings indicate that the regression coefficient for innovation strategy was (β = 0.555, p = 0.000). This suggested that any unit increases associated with innovation strategy would contribute to the improvement in performance of the selected companies by 0.555. Since the p-value (p = .001 <.05) It implies the effect was statistically significant at 5% level. Additionally, the regression coefficient for operational strategy was (β= 0.114, p = .044). This means that a unit increase associated with operational strategy would lead to an increase in performance of the selected sugar companies by a factor of 0.114. The p-value associated with this finding (p = .000< .05); which implies that the effect was statistically significant at 5% level.

Further, technological capability was found to positively affects performance with a regression coefficient of (β= 0.179, p = 0.000). This means that a single increase in various aspects of technological capacity will account for an improvement of 17.9% of performance of the sugar companies. The model is represented in the following equation:

$$\mathbf{Y=0.234+0.653X_1+0.126X_2+0.171X_3}$$

4.9 Role of Government Interventions on the effect of Competitive Strategies and Performance Government Owned Sugar Manufacturing Firms

Determining the moderating influence of government involvement on the connection between competitive approaches as well as achievement government owned sugar production companies was the fifth goal of the research. The research used the Ongore and Kusa (2013) methodology, testing the moderating influence for each target. The study added the interaction effect (government interventions *competitive strategies) to the previous model (model 1, 2 and 3) as well as look for both a substantial influence by the new term of interaction and a significant change in the R2 value. There is a moderating effect if both are substantial. Hence, the following three sub hypotheses were tested:

Ho_{4a}: Government intervention has no statistically significant role to moderate the effect of Innovation strategy and performance of government owned Kenyan sugar production companies.

Ho_{4b} Government intervention has no statistically significant role to moderate the effect of Operational strategy and performance of government owned Kenyan sugar production companies.

Ho_{4c} Government intervention has no statistically significant role to moderate the effect of Technological strategy and performance of government owned Kenyan sugar production companies.

4.9.1 Role of Government Interventions the effect of Innovation Strategy and Organization Performance

The results of simple regression predicting innovation strategy, organization performance and the interaction between innovation strategy and government interventions (X_1*M) are reported in table 4.16 (a) (b) and (c). The results of step one (model 1) indicate that the variance of organization performance accounted for by innovation strategy is 53.9% before inclusion of interaction term (X_1*M). The simple regression model (model 1) produced $\bar{R}2 = .538$.

Table 4.16(a): Model Summary of Innovation Strategy, Government interventions and Organization Performance

					Change Statistics			
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.734[a]	.539	.538	.42283	.539	355.632	1	304	.000
2	.794[b]	.630	.628	.37930	.091	74.790	1	303	.000

Source: Research Data, (2021).

In the second step, the interaction term between innovation strategy and government interventions (X_1*M) was entered into the regression equation. The results of simple regression as indicated by table 4.16a show a statistically significant effect of organization performance, innovation strategy and government interventions, = .630. The results of step two (model 2) indicate that the variance of organization performance accounted for by innovation strategy and government interventions is 9 % after the inclusion of interaction term (X_1*M).

The next step was to conduct an analysis of variance (ANOVA) in order to determine the goodness of fit of the model in explaining how innovation strategy influenced forms of government and sugar

manufacturing firms under the moderating effect of the government intervention. The results of these tests are summarised in table 4.16(b)

Table 4.16(b): ANOVA of Innovation Strategy, Government interventions and Organization Performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	63.582	1	63.582	355.632	.000[b]
	Residual	54.351	304	.179		
	Total	117.934	305			
2	Regression	74.342	2	37.171	258.372	.000[c]
	Residual	43.591	303	.144		
	Total	117.934	305			

Source: Research Data, (2021).

As indicated in table 4.16b, the moderating effect of government interventions on the relationship between innovation strategy and organization performance is positive and statistically significant ($F = 258.372$ and Sign. $= 0.000$ at $\alpha = 0.05$), hence H_{4a} is rejected.

Table 4.16(c): Coefficients of Innovation Strategy, Government Interventions and Organization Performance

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.547	.182		3.004	.003
	Innovation Strategy	.864	.046	.734	18.858	.000
2	(Constant)	1.597	.204		7.846	.000
	Innovation Strategy	.219	.085	.186	2.578	.010
	X_1M	.097	.011	.626	8.648	.000

Source: Research Data, (2021).

Tests of the slope was then performed as reported in table 4.16c. Model 2 shows that the regression coefficient (β) value of innovation strategy was .186 with a significance level (p-value) of 0.010. The regression coefficient value of interaction term (X_1M) was .626 with a significance level (p-

value) of 0. 000. The model shows that increase of innovation strategy moderated by government interventions leads to a unit increase of organizational performance output by 0.626 units. Based on the above results the study derived the following simple linear regression model as shown below.

$$Y= 1.597 + 0.97X_1$$

4.9.2 Role of Government Interventions on the effect of Operational Strategy and Organization Performance

The second sub hypothesis of the fourth objective the study was designed to whether government interventions positively moderates the relationship between operational strategy and organization performance. The findings were presented in Table 4.17(a) (b) and (c).

Table 4.17(a) Model Summary of Operational Strategy, Government interventions and Organization Performance

					Change Statistics			
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.594[a]	.353	.351	.50103	.353	165.801	1	304	.000
2	.705[b]	.497	.494	.44243	.144	86.852	1	303	.000

Source: Research Data, (2021)

The results of step one (model 1) indicate that the variance of organization performance accounted for by operational strategy is 35.1% before inclusion of interaction term (X_2*M). The simple regression model (model 1) produced R^2=. 351. The interaction term between operational strategy and government interventions (X_2*M) was entered into the regression equation. The results of simple regression as indicated by Table 4.18a show a statistically significant relationship between organization performance, operational strategy and government interventions, R^2= .497. The results of step two (model 2) indicate that the variance of organization performance accounted by government interventions is 14.4%.

Analysis of variance (ANOVA) was done to determine the goodness of fit of the model in explaining how operational strategy influenced forms of government and sugar manufacturing firms under the moderating effect of the government intervention. The results of these tests are summarised in table 4.17(b)

Table 4.17 (b) ANOVA of Operational Strategy, Government interventions and Organization Performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41.621	1	41.621	165.801	.000[b]
	Residual	76.313	304	.251		
	Total	117.934	305			
2	Regression	58.622	2	29.311	149.738	.000[c]
	Residual	59.312	303	.196		
	Total	117.934	305			

Source: Research Data, (2021)

The moderating effect of government interventions on the operational strategy and organization performance is positive and statistically significant (F = 149.738 and Sign. = 0.000 at $\alpha = 0.05$), hence H_{4b} is rejected.

Table 4.17(c) Coefficients of Operational Strategy, Government Interventions and Organization Performance

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.442	.197		7.319	.000
	Operational Strategy	.657	.051	.594	12.876	.000
2	(Constant)	2.672	.218		12.236	.000
	Operational Strategy	.171	.100	.155	1.721	.006
	X_2M	.130	.014	.840	9.319	.000

Source: Research Data, (2021)

Tests of the slope was then performed as reported in table 4.17c. Model 2 shows that the regression coefficient (β) value of operational strategy was .155 with a significance level (p-value) of 0.006.

The regression coefficient value of interaction term (X_2M) was .840 with a significance level (p-value) of 0. 000. The model shows that increase of operational strategy moderated by government interventions leads to a unit increase of organizational performance output by 0.840 units.

Based on the above results the study derived the following simple linear regression model as shown below.

$Y=2.672 + 0.130X_2$

4.9.3 Role of Government Interventions on the Effect of Technological Capability and Organization Performance

The last sub hypothesis of the fourth objective was designed to whether government interventions positively moderates the effect of technological capability and organization performance. The findings were presented in Table 4.18 (a), (b) and (c).

The findings in Table 4.18a shows that step one (model 1) indicate that the variance of organization performance accounted for by technological capability strategy is 31.6% before inclusion of interaction term (X_3*M). The simple regression model (model 1) produced $R^2 = .316$.

Table 4.18(a): Model Summary of Technological Capability, Government interventions and Organization Performance

					Change Statistics			
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.562[a]	.316	.314	.51519	.316	140.330	1	304	.000
2	.719[b]	.517	.514	.43363	.201	126.114	1	303	.000

Source: Research Data, (2021)

The interaction term between technological capability strategy and government interventions (X_3*M) was entered into the regression equation. The results of simple regression as indicated by

Table 4.19a show a statistically significant effect of organization performance, technological capability and government interventions, $R^2 = .517$. The results of step two (model 2) indicate that the variance of organization performance accounted for by technological capability and government interventions is 20.1% after the inclusion of interaction term (X_3*M).

Analysis of variance (ANOVA) was performed in order to determine the goodness of fit of the model in explaining how technological capability influenced forms of government and sugar manufacturing firms under the moderating effect of the government intervention. The results of these tests are summarised in Table 4.18(b)

Table4.18(b): ANOVA[a] of Technological Capability, Government interventions and Organization Performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37.246	1	37.246	140.330	.000[b]
	Residual	80.687	304	.265		
	Total	117.934	305			
2	Regression	60.960	2	30.480	162.099	.000[c]
	Residual	56.974	303	.188		
	Total	117.934	305			

Source: Research Data, (2021)

The moderating effect of government interventions on the relationship technological capability and organization performance is positive and statistically significant (F = 162.099 and Sign. = 0.000 at $\alpha = 0.05$), hence H_{4c} is rejected. The findings echo what was observed Ye, Chen, Zhu, Ren and Zhang (2018), whose study identified government policy as one of the moderating factors on operational strategy and how it affected organisational outcomes in the context of electricity distributors and retailer's companies in China.

Table 4.18(c): Coefficients of Technological Capability, Government Interventions and Organization Performance

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.865	.179		10.448	.000
	Technological Strategy	.537	.045	.562	11.846	.000
2	(Constant)	2.814	.172		16.324	.000
	Technological Strategy	.240	.079	.251	3.035	.003
	X_3M	.136	.012	.928	11.230	.000

Source: Research Data, (2021).

Tests of the slope was then performed as reported in table 4.18c. Model 2 shows that the regression coefficient (β) value of technological capability was .251 with a significance level (p-value) of 0.003. The regression coefficient value of interaction term (X_3M) was .928 with a significance level (p-value) of 0. 000. The model shows that increase of technological capability moderated by government interventions leads to a unit increase of organizational performance output by 0.928 units. The study derived the following simple linear regression model as shown below.

$Y=1.865 + 0.136X_3$

4.10 Comparison of the Direct Model and the Indirect Model on the Basis of Regression outputs

The study sought to establish the extent to which government interventions moderate the effect of competitive strategies on organization performance of government owned Kenyan sugar production companies. A multiple regression analysis was generated as shown in table 4.19 (a) (b) and (c).

Table 4.19(a): Model Summary of Competitive Strategies, Government Interventions and Organization Performance

						Change Statistics			
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.759[a]	.576	.571	.40707	.576	136.565	3	302	.000
2	.804[b]	.646	.639	.37372	.070	19.769	3	299	.000

Source: Research Data, (2021).

The results in Table 4.19a indicates that competitive strategies and government interventions explained 64.6 % of the changes in organisation performance of government owned Kenyan sugar production companies. Model one indicated that competitive strategies exclusively explained 57.6 % of the variance in organisation performance. The results of step two (model 2) indicate that the variance of organization performance accounted for by competitive strategies and government interventions is 7% after the inclusion of interaction term ($X_1.X_2.X_3$*M)

Table 4.19(b): ANOVA[a] of Competitive Strategies, Government Interventions and Organization Performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	67.890	3	22.630	136.565	.000[b]
	Residual	50.044	302	.166		
	Total	117.934	305			
2	Regression	76.173	6	12.695	90.898	.000[c]
	Residual	41.761	299	.140		
	Total	117.934	305			

Source: Research Data, (2021).

The ANOVA findings in Table 4.19b shows the moderating effect of government interventions on the relationship between competitive strategies and organization performance is (F = 90.898 and Sign. = 0.000 at $\alpha = 0.05$). This implied that government interventions had a significant effect on the relationship between competitive strategies and organisation performance of government owned

Kenyan sugar production companies. The findings generally attest to the significant role played by Government interventions towards improving how various competitive strategies yield an improvement in performance of the government owned sugar manufacturing firms. Additionally, this implied that various government interventions can also lead to an increase in the performance of the selected sugar manufacturing companies. This reaffirms the findings of an empirical research targeting Jordanian small businesses by Alhnity *et al* (2016) who attributed an increase in performance of the small businesses to government interventions through loans and other strategies. The findings however contradict Joythi (2014) whose study on Indian sugar industry revealed that government policies scaled-down the performance of the industry leading to reduction in sugar exports from the country. The study findings also resonate with what was established in Mozambique Mozambican sugar industry by Kegode (2015) who illustrated a nexus between improved productivity and government policies through interventions such as loans, government protection as well as subsidized fertilizers.

Based on the findings, there is need for concerted efforts by the players in the sugar industry, notably the Kenyan government in working on policies aimed at improving performance of government owned sugar manufacturing firms. to this end, the government needs to work on issues such as subsidies, loans, restrictions, protectionism among other factors in a manner that is favourable towards the improvement in sugar production in the selected manufacturing industries.

Table 4.19(c): Coefficients[a] of Competitive Strategies, Government Interventions and Organization Performance

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	.234	.187		1.251	.012
	Innovation Strategy	.653	.063	.555	10.415	.000
	Operational Strategy	.126	.060	.114	2.108	.036
	Technological Strategy	.171	.046	.179	3.702	.000
2	(Constant)	1.521	.240		6.330	.000
	Innovation Strategy	.304	.252	.258	1.207	.029
	Operational Strategy	.605	.248	.547	2.437	.015
	Technological Strategy	.016	.170	.017	.093	.026
	X1M	.228	.066	1.469	3.479	.001
	X2M	.177	.068	1.144	2.604	.010
	X3M	.034	.045	.231	.752	.003

Source: Research Data, (2021)

Next, slope tests were conducted, as shown in table 4.19c. Model 2 indicates that the innovation strategy's coefficient of regression (β) value was.258 at a level of significance (p-value) of 0.029. With a level of significance (p-value) of 0.001, the interaction term's regression coefficient value (X1M) was 1.469. Operational strategy's coefficient of regression (β) value was.547, with a 0.015 significance level (p-value). With a level of significance (p-value) of 0.010, the interaction term's regression coefficient value (X2M) was 1.144. Operational strategy's coefficient of regression (β) value was.017, with a 0.026 significance level (p-value) attached. With a level of significance (p-value) of 0.003, the interaction term's regression coefficient value (X3M) was.231. The model shows that increase of innovation strategy**,** operational strategy**,** technological capability moderated by government interventions leads to a unit increase of organizational performance output by 1.469, 1.144 and 0.231 units respectively.

The study derived the following simple linear regression model as shown below.

$$Y= 1.521+.304\ X_1 + .605X_2 + .016X_3 + .228X_1M + .177X_2M + .034\ X_3M$$

4.11 Summary of Hypothesis Testing Results

The findings presented in Table 4.21 indicate that the decision rule associated with each of the hypotheses was to reject the null hypothesis, implying statistical significance was realised for all the six (6) hypotheses. In a nutshell, innovation strategy, operational strategy, technical strategy significantly affected performance of government-owned Kenyan sugar production companies. Furthermore, the findings also indicated that government intervention can moderate how each of the identified strategies affect performance of the selected sugar companies. The results of the test hypothesis are presented in Table 4.20.

Table 4.20 Summary of Hypothesis Testing Results

Hypothesis	Analytical model	R^2	*p*-value		Decision
Ho_1: There is no statistically significant effect of Innovation Strategy and performance	**$Y = \beta o + \beta_1 X_1 + \varepsilon$ ……i**	.539	.000 < 0.05	**H_{01}**	Null Rejected
Ho_2: There is no statistically significant effect of Operational Strategy and Performance of government owned Kenyan sugar production companies. ,	**$Y = \beta o + \beta_2 X_2 + \varepsilon$ ……...ii**	.353	.000 < 0.05	**H_{02}**	Null Rejected
Ho_3: There is no statistically significant relationship between Technological Strategy and the success of Kenyan sugar manufacturing firms owned by the government.	**$Y = \beta o + \beta_3 X_3 + \varepsilon$ ……...iii**	.316	.000 < 0.05	**H_{03}**	Null Rejected
Ho_{4a} Government intervention has no statistically significant role to moderate the effect of Innovation strategy and performance of government owned Kenyan sugar production companies.	**$Y=\beta o+\beta_1 X_1 M + \varepsilon$ ……iv(a)**	.628	.000 < 0.05	**H_{04a}**	Null Rejected
Ho_{4b} Government intervention has no statistically significant role to moderate the effect of Operational Strategy and performance of government owned Kenyan sugar production companies.	**$Y=\beta o+\beta_2 X_2 M + \varepsilon$ ……iv(b)**	.497	.000 < 0.05	**H_{04b}**	Null Rejected
Ho_{4c} Government intervention has no statistically significant role to moderate the effect of Technological strategy and performance of government owned Kenyan sugar production companies.	**$Y=\beta o+\beta_3 X_3 M + \varepsilon$ ……iv(c)**	.517	.000 < 0.05	**H_{04c}**	Null Rejected

Source: Research Data, (2021)

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

This study sought to establish the effect of competitive strategies on performance of government owned Kenyan sugar production companies; the role of government interventions. The study was guided by Michael Porter Competitive Typology Theory, Configuration theory, Resource Based View Theory and Dynamic Capability Theory. The positivists' paradigm research philosophy guided the methodology in terms of data, which was collected, analyzed and interpreted to determine the various effects among the different variables. Regression analyses were used to analyze the relationships among the various variables of the study. This study stands out from other previous studies; as referred from empirical studies, in introducing the government interventions as a moderator on the effect of competitive strategies and performance of government owned Kenyan sugar production companies.

5.1.1 Innovation Strategy and Performance of Government Owned Kenyan sugar production companies

The first objective of this study was to find out the effect of Innovation Strategy on performance of government owned Kenyan sugar production companies. The correlation coefficient indicated a strong positive correlation between these two variables. Based on Descriptive statistics there is an indication that innovation strategy can have a significant effect on performance of government owned Kenyan sugar production companies. On the basis of correlation analysis, this result implies

that innovation strategy plays a strong effect on performance among sugar government owned Kenyan sugar production companies. Analysis of variance for this model revealed that the relationship that exists between innovation strategy and performance of government owned Kenyan sugar production companies was statistically significant (p = 0.000 <0.05) thus this model could be considered a sufficient tool to explain the organizational performance trend. The hypothesis that there was no significant statistical effect of Innovation Strategy and performance of government owned Kenyan sugar production companies is thereby rejected at 5% level of significance.

5.1.2 Operational Strategy and Performance of Government Owned Kenyan sugar production companies

The second objective of this study was to establish the role of Operational Strategy on performance of government owned Kenyan sugar production companies. To find out the extent to which performance of government owned sugar manufacturing firms is affected by operational strategy. Descriptive statistics revealed that operational strategy affects performance of government owned Kenyan sugar production companies. The simple correlation coefficient revealed a strong positive relationship between the independent and dependent variables. According to the analysis, the model significantly assessed the effect of operational strategy on performance of government Kenyan sugar production companies. The significance (p = 0.000<0.05) this means that the operational strategy significantly positively has a role on performance of government owned Kenyan sugar production companies. Therefore, the hypothesis that there is no significant statistical effect of Operational Strategy and Performance of government owned Kenyan sugar production companies was rejected at 5 % level of significance. All the p values are less than 0.05 indicating significant role of the constant on the operational strategy and performance of sugar manufacturing companies.

5.1.3 Technological Capability and Performance of Government Owned Kenyan sugar production companies

The third objective was to assess the effect of technological capability strategy on performance of government owned Kenyan sugar production companies Observed. From the descriptive statistics as indicated by the overall mean and standard deviation technological capability has an effect on performance of government owned Kenyan sugar production companies. The correlation coefficient showed a moderate positive correlation between the two variables. On the basis of correlation analysis this result means that technological capability strategy plays a role on performance of government owned Kenyan sugar production companies. Significance test under the analysis of variance affirmed that the role of technological capability strategy on performance of government owned sugar manufacturing firms was statistically significant ($p = 0.000<0.05$) at 5% level of significance. The hypothesis that there was no significant effect of technological capability strategy on performance of sugar manufacturing companies was rejected.

5.1.4 Competitive Strategies, Government Interventions and Performance of Government Owned Kenyan sugar production companies

The fourth objective was to determine the role of government interventions on the effect of competitive strategies and performance of government owned Kenyan sugar production companies. Descriptive statistics indicated that government interventions have effect on performance of government owned Kenyan sugar production companies. The model summary showed that competitive strategies and government interventions explains 64.6% ($R^2 = 0.646$) of the performance of sugar manufacturing companies observed. Further, there existed a strong positive correlation ($R = 0.804$) between the variables.

This happens through reduction of cost of production. For example, Kalay and Lynn (2016), Bas, Mothe *et al* (2017), Kiptoo and Koech (2019), Okumu *et al* (2019) this shows that organizations that uses innovation strategy use it to realize competitive advantage in the industry they operate. Organizations especially sugar manufacturing firms use innovation strategy to realize superior

performance. Innovation as a strategy emphasizes on efficiency of an organization. This will enable the firm to command the market. However, innovation strategy was not the only factor that plays a role on organizational performance but also require other competitive strategies for instance; operation strategy and technological capability that would contribute positively to the performance of the organization.

Sugar manufacturing firm can use operational strategy to realize competitive advantage and realize superior performance as compared to its key rivals in the sector. Suffice to say, this is one of the reasons that make COMESA countries to penetrate into markets within COMESA countries and other markets in non-member countries. Thus, following the study findings and reviewed literature, it was revealed that operational strategies have a positive and significant role on performance of government owned Kenyan sugar production companies. The findings agreed with Majukwa and Haodud (2016), Odollo and Ochieng (2019), Kegoro *et al* (2020) which in turn agreed with Porters' Typology.

Technological strategy can be used by manufacturing firms as a source of competitive advantage. This enables an organization to have superior performance in relation to the rivals in the industry. Firms that use modern technology will have a competitive advantage. This means that the cost of production will be reduced. In a competitive environment the organization will realize superior performance in relation to the key rivals in the industry. It was also revealed that technological capability had a positive correlation on organizational performance. This means that technological capability in sugar manufacturing firms acts as a means of gaining a competitive edge.

The research supported the conclusions of Imbambi et al. (2017), who found that technical capacity and competitive advantage have a substantial positive association that improves the performance of Kenyan sugar manufacturing companies. More so, the study agreed with most studies which

showed that technological capability strategy had a positive correlation on performance of organizations. This supports Porters' Typology for example, Filho and Moon (2018), Mbithi *et al* (2015), Otiso (2017) and Kunyoria (2018).

The purpose of the research was to ascertain the impact of competitive strategies on performance of government owned Kenyan sugar production companies; the role of government interventions. From the study it was revealed that government interventions (subsidies) had a significant positive impact on the performance of government owned Kenyan sugar production companies. It was also revealed that loans and subsidies had a positive impact on the performance of government owned Kenyan sugar production companies. This finding agrees with Alhnity *et al* (2016) which revealed that government interventions in terms of loan and other strategies had a positive impact on performance of firms. A government through its strategies that allows sugar manufacturing firms to reduce cost of production in the long run makes them to perform better in terms of increased market share, increased profitability and increased customer satisfaction. Government interventions for instance government subsidies, taxation and loans affect performance of an organization. Fommasse and Cincera (2015), Alhnity *et al* (2016), Wanjawa, Yugi and Muli (2017). Owiye *et al* (2016) showed a positive effect between government intervention and performance government owned sugar manufacturing firms. Government intervention has positive and significant role on performance of the government owned Kenyan sugar production companies.

5.2 Conclusion

The first objective was to determine the effect of innovation strategy on performance of government owned Kenyan sugar production companies. From the findings the study concluded that innovation strategy plays positive and significantly great effect on performance of government owned Kenyan sugar production companies.

The second objective was to determine the effect of operational strategy on performance of government owned Kenyan sugar production companies. From the findings the study also concluded that operational strategy plays positive and significantly great effect on performance of government owned Kenyan sugar production companies.

The third objective was to determine the effect of technological capability strategy on performance of government owned Kenyan sugar production companies. From the findings the study further concluded that technological capability strategy plays positive and significantly great effect on performance of government owned Kenyan sugar production companies.

Finally, the fourth objective was to determine the effect of government interventions on the relationship between competitive strategies and performance of government owned Kenyan sugar production companies. The study also found that there were a positive and significant effect government interventions play on competitive strategies and performance of government owned sugar firms in Kenya.

5.3 Implications on Theory

The present study was anchored on theoretical postulations of Michael Porter's Competitive Business Strategy Typology, that articulates three pillars of competitive strategies in

organisations—cost leader, product differentiation and focus. The study findings provided evidence on how low cost of production and subsequent increase in profits was realised as a result of innovation; affirming Michael Porter's postulation of low-cost of production as a tenet of cost leadership. The findings also provided evidence of product differentiation in terms of use of innovation, technological and operational strategies to come up with unique products. This is an agreement with postulations of Michael Porter's competitive business strategy typology which places emphasis on the need to come up with competitive strategies founded on uniqueness of the products and services. Further, having observed that the selected firms use technology to come up with the products that serve geographical market segments is in agreement with Porter's typology of focus; which underscores the need to identify a specific market segment in the quest to realise a competitive advantage by providing services that meet their needs.

5.4 Recommendations

5.4.1 Recommendations for Policy and Practice

The study recommended that in order for the organization to remain competitive in sugar industry, it need to undertake the appropriate and persuasive strategies in order to compete favourably among other rivals in the sugar industry. The study further recommended that sugar manufacturing firms should be keen on other operational strategies for instance, pricing, channels of distribution so as to gain from repeat business and boost its competitive advantages over its key rivals. The study recommended that there is need to have a full adoption of material procurement tool as a vital tool for auditing, clarification for payments, quality control and invoicing. This operational strategy can impact performance of Kenyan sugar production companies.

The study recommended that managers, investors of Kenyan sugar production companies should proactively participate in employee-oriented activities. The study recommended that, sugar

manufacturing firms should engage in other operational strategies for instance; product diversification, marketing strategies, improving in farming methods and corporate social responsibilities for better performance of sugar manufacturing firms. It was recommended by the study that sugar manufacturing firm's managers should maximize the investments in production and distribution chains to realize higher financial performance. According to the report, managers of companies that produce sugar should choose the best operational techniques for their main business activities. This will provide Kenya's sugar production industries a competitive edge. It also suggested that, once used, the distinct advantages of these strategies would aid in differentiating one sugar manufacturing company from the other in terms of resource planning, strategy execution, and business performance.

It was recommended by the study that significant funding through grants and loans schemes should be extended to these sugar manufacturing firms. It was further recommended that there should be an alignment of the existing policies that governs the sector supply chain in order to create an enabling business environment which will in turn lead to increased performance. Also, the study recommends that, management should invest heavily in innovation in order to better performance on an organization in terms of increased units of production, speed of productivity, increased customer satisfaction and improved sales. The study recommended that every sugar manufacturing firms should pay attention to good use of technological capability in order to realize competitive and compete favourably in COMESA.

The study recommends government interventions for better performance. However, managers should incorporate competitive strategies; innovation, operational and technological strategies for superior performance. These competitive strategies with the support from government policies affect performance of an organization. It was recommended that all sugar manufacturing firms

should adhere to the competitive strategies taken by the government in order to realize better performance.

The study recommended that government should come up with strategies that will make sugar manufacturing firms perform better. This will allow sugar manufacturing firms to compete favourably with other sugar manufacturing firms on the globe. It also acts as a source of competitive advantage in the sugar industry. A government through its strategies that allows sugar manufacturing firms to reduce cost of production in the long run makes them to perform better in terms of increased market share, increased profitability and increased customer satisfaction.

5.4.3 Recommendations for Further Research

The researcher recommended that future researchers should research intensively on other dimensions of competitive strategies and organizational performance specifically suggesting a conceptual framework that can be used to survey on combined roles of government interventions, competitive strategies, and sustainability on performance of government owned sugar firms in Kenya.

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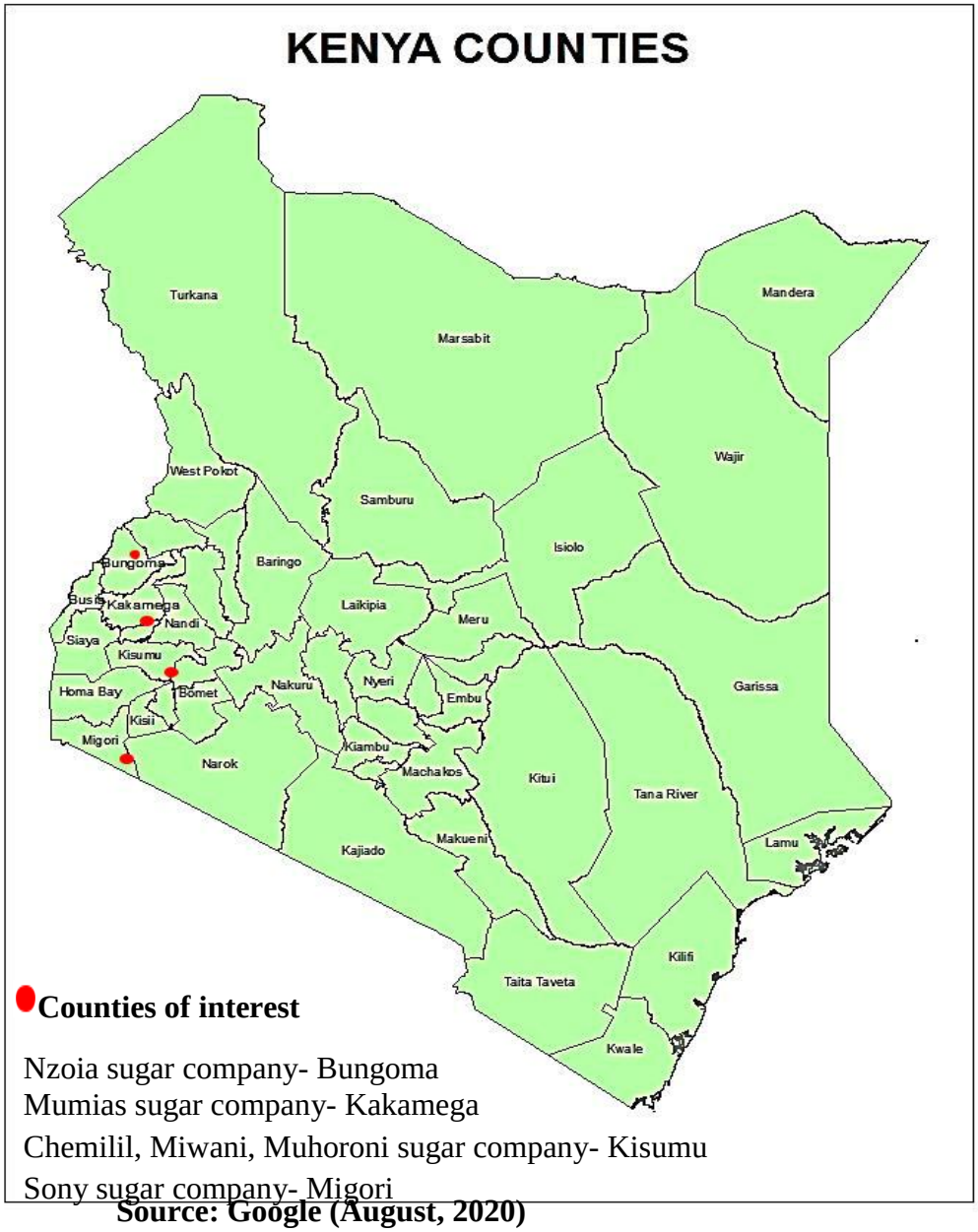
APPENDICES

APPENDIX I: MAP OF THE COUNTIES OF INTEREST



Source: Google (August, 2020)

APPENDIX II: LETTER OF INTRODUCTION

Dear sir/ madam,

I am a post graduate student pursuing (PhD) with business Administration, strategic management option at Kisii university. Currently I am conducting a research on **Effect of Competitive Strategies on Performance of Government owned Kenyan sugar production companies Role of Government interventions**. The aim of this letter is to request you to fill the attached questionnaires in order to facilitate my study. Information that will provided information will be treated with a lot of confidence and it will not be accessed by unauthorized persons or institutions. Information provided will be used strictly for academic purpose. Thank you for cooperation and your time in advance.

Makina Ibrahim
PhD. Student
DCB/10430/15

APPENDIX III: QUESTIONNAIRE

Please attempt all questions.

SECTION: (A) BACKGROUND INFORMATION

Name of your organization…….

1: Work Experience

For how long have you worked for your organization as a senior manager?

Less than 3 years [ ] 3-5 years [ ] 6-10 years [ ] 11-15 years [ ]

15 years and above [ ]

SECTION: (B) INNOVATION STRATEGY

(Please tick)

To what extent do you agree with the following statements related to competitive strategies; (Innovation strategy, Operational strategy and Technological capability strategies) that your organization uses to improve performance? Use the following scale.

5-**(SA)** = Strongly Agree

4-**(A)** = Agree

3-**(N)** = Neutral

2-**(D)** = Disagree

1-**(SD)** = Strongly Disagree

SECTION B: INNOVATION STRATEGY

		5	**4**	**3**	**2**	**1**
s/no	**Innovation Strategies**	SA	A	N	D	SD
B1	The firm process innovation that allows us to charge relatively lower prices on our products lower than our competitors					
B2.	A company reduces cost of production by avoiding of uncalled for expenses through organization innovation.					
B3	The firm embrace innovation technology in order to align with customer needs					

B4.	Because of innovation we normally charge higher prices than our competitors in order to maximize profits.					
B5.	The organization pursue cost reduction through reduction of administrative costs through organizational innovation.					
B6.	The firm pursue cost reduction through managerial efficiency					
B7.	The firm innovate in order reduce cost of production by accessing raw materials at relatively low cost					
B8.	A firm innovate in order to adjust to changes in the business world so that we are not knocked out of business					

SECTION C: OPERATIONAL STRATEGY

		5	**4**	**3**	**2**	**1**
s/no	**Operational Strategy**	SA	A	N	D	SD
C1.	The firm has low production cost that allows us to diversify production					
C2.	The firm's operational costs are managed effectively that allows it to realize competitive advantage					
C3.	Resources in the company are usually deployed in response to changes in technology					
C4.	Organization's employees are usually in position to perform different tasks effectively					
C5.	The firm's manufacturing system is able to perform different processes					
C6.	The company's system takes short time to deliver products on demand					

C7	Customers complains are effectively dealt with					
C8	The company's manufacturing system meets environmental requirements					
C9	The production process ensures consistency in operation that enable us to realize competitive advantage					

SECTION D: TECHNOLOGICAL CAPABILITY STRATEGY

		5	**4**	**3**	**2**	**1**
s/no	**Technological capability Strategy**	SA	A	N	D	SD
D1.	The firm utilize new technology to produce products that serve geographical market segment					
D2.	The organization invest in strategic supply chain management that gives it competitive advantage					
D3.	The organization invest in technology that enables it to produce products that serve a specific group of customers.					
D4.	The company invest in technological intelligence that enables it to produce new products that satisfies our customers' needs.					
D5.	The firm always emphasize on technological capability that enables it to produce more products. It also invest on marketing specialty products.					
D6.	The firm invest in technological innovation capabilities as core resources for sustainable competitive advantage.					
D7.	A firm use modern technology to produce more products that is used as a competitive advantage					
D8.	The firm invest in technological capability to enable us serve diverse market.					

SECTION E: GOVERNMENT INTERVENTIONS.

To what extent do you agree with the following statements relating to government interventions in your organization using the following scale?

5- (SA) = Strongly Agree

4-(A) = Agree

3-(N) = Neutral

2 – (D) = Disagree

1- (SD) = Strongly Disagree

		5	4	3	2	1
S/NO	**Government Interventions**	SA	A	N	D	SD
E1.	Government has reduced tax on our products					
E2.	Government protects us from importation of sugar from other countries that enables us to sale our products at relatively higher prices.					
E3.	The organization is affected by government policies like economic integration					
E4.	Government protects our organization from external markets like COMESA					
E5.	Government intervenes by setting prices of our products					
E6.	The firm is usually negatively affected by government appointments in leadership in sugar factories					
E7.	Government bails out our organization, when we are in financial crisis					

SECTION F: PERFORMANCE OF SUGAR COMPANY

		5	4	3	2	1
S/NO	**Performance of Sugar Company**	SA	A	N	D	SD
F1.	Our image has been improved because of competitive strategies we put in place					
F2.	Increased sales in our firm is because of internal management that input by our organization					
F3.	Our customers get satisfied with our products because they are given variety of them					
F4.	Our production speed is usually high that is brought by constant machine maintenance					
F5.	We produce more products that allow us to meet our customer needs.					
F6.	We realize increased profits that are as a result of innovation, increased market and reduced cost of production.					
F7	Our production is high because of efficient and effective utilization of available resources.					

Thank you for your co-operation

APPENDIX IV: LIST OF THE ORGANIZATIONS SAMPLED

Government owned sugar producing firms and the percentages of government ownership in terms of shares.

COMPANY % OF GOVERNMENT OWNERSHIP

1. Mumias sugar company 70.76%
2. Nzoia Sugar Company 97.93%
3. Sony Sugar Company 98.8%
4. Muhoroni Sugar Company 74.17%
5. Chemilili Sugar Company 95.38%
6. Miwani 49%

APPENXIX V: RESEARCH AUTHORIZATION LETTER

REPUBLIC OF KENYA

MINISTRY OF EDUCATION
State Department of Early Learning and Basic Education

Telephone: (059) 20420
Fax: 05920420
When replying please
quote

COUNTY DIRECTOR OF EDUCATION
MIGORI COUNTY
P.O. Box 466-40400
SUNA – MIGORI

REF: MIG/CDE/ADMN./73/VOL.I/ 195

DATE: 21st July, 2021

Mr. Makina Ibrahim Makina
Kisii University

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on **"Relationship Between Competitive strategies and performance of government owned manufacturing firms in Kenya. An Examination of The Role of The Government Interventions in Migori County, Kenya"** and subsequent approval by **NACOSTI** vide research license no.: **NACOSTI/P/21/11790.** I am pleased to inform you that you have been authorized to undertake research in **Migori County** for a period ending 12th **July, 2022.**

During the research, you are expected to exercise high levels of research integrity.

COUNTY DIRECTOR
MINISTRY OF EDUCATION
MIGORI COUNTY
P O Box 466-40400, MIGORI

Sign.....

Fredrick Maoga Date.....
For: County Director of Education
MIGORI COUNTY

REPUBLIC OF KENYA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
State Department of Basic Education and Early childhood – Bungoma County

When Replying please quote
e-mail: bungomacde@gmail.com

County Director of Education
P.O. Box 1620-50200
BUNGOMA

Ref No: BCE/DE/19/VOL.II1/190

Date: 27th July 2021

TO WHOM IT MAY CONCERN

RE: AUTHORITY TO CARRY OUT RESEARCH –MR. MAKINA IBRAHIM.

NACOSTI/P/21/11790

The bearer of this letter Mr. Makina Ibrahim has been authorized to carry out research on "***RELATIONSHIP BETWEEN COMPETITIVE STRATEGIES AND PERFORMANCE OF GOVERNMENT OWNED SUGAR MANUFACTURING FIRMS IN KENYA AN EXAMINATION EXAMINATION OF THE ROLE OF GOVERNMENT INTERVENTIONS ' For the period ending 12th July 2022.***

Kindly accord her the necessary assistance

For: COUNTY DIRECTOR OF EDUCATION
BUNGOMA
P. O. Box 1620,
BUNGOMA - 50200

CHRISTINE OWINO
FOR: COUNTY DIRECTOR OF EDUCATION
BUNGOMA COUNTY

OFFICE OF THE PRESIDENT

MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telephone: (059) 20511
FAX (059)20361
Email:
countycommissionermigori@yahoo.com

When replying please quote

OFFICE OF THE COUNTY COMMISSIONER
MIGORI COUNTY
P.O. BOX 2 - 40400
SUNA- MIGORI.

Ref. No: CC ED.12/19VOLIII/192 **Date:** 21ST July, 2021

TO WHOM IT MAY CONCERN

This is to confirm that **Mr. Makina Ibrahim NACOSTI**/P/21/11790 of Kisii University, has been authorized to conduct a research on "***Relationship between competitive strategies and performance of government owned sugar manufacturing firms in Kenya .Region, Kenya.***" An examination of government the role of Government interventions for the period ending 12th July, 2022.

Accord him the necessary assistance.

JOHN K. MAGUTA
FOR: COUNTY COMMISSIONER
MIGORI COUNTY

CC:
County Director of Education
MIGORI COUNTY

REPUBLIC OF KENYA

THE PRESIDENCY

MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telephone: 055-30326.
Fax: 055-30326.
E-mail: ccbungoma@yahoo.com
When replying please quote

Office of the County Commissioner
P.O Box 550-50200
BUNGOMA

Ref: ADM.15/13/VOL.III /90

27th July, 2021

TO WHOME IT MAY CONCERN

RE: RESEARCH AUTHORIZATION

The bearer of this letter Mr. Makina Ibrahim Makina has sought authority to carry out research on **"Relationship between competitive strategies and performance of Government owned sugar manufacturing firms in Kenya. An examination of the role of Government interventions** for the period ending 12th July 2022.

Authority is hereby granted for the specific period and any assistance accorded to him in this pursuit will be highly appreciated.

COUNTY COMMISSIONER
BUNGOMA

Anne N. Wilson
For: County Commissioner
BUNGOMA COUNTY

REPUBLIC OF KENYA

THE PRESIDENCY
MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT

Telephone: 056 -31131

Email: cckakamega12@yahoo.com
When replying please quote:

County Commissioner
Kakamega County
P O BOX 43 - 50100
KAKAMEGA

Ref: ED 12/1/VOL.V/173

Date: 27th July, 2021

Mr. Makina Ibrahim Makina
KISII UNIVERSITY

RE: RESEARCH AUTHORIZATION

Following your authorization vide letter **Ref: No. NACOSTI/P/21/11790** dated 12th July, 2021 by **NACOSTI** to undertake research on "***Relationship between Competitive Strategies and Performance of Government owned Sugar Manufacturing Firms in Kenya. An Examination of the Role of Government Interventions***" for the period ending 12th July, 2022. I am pleased to inform you that you have been authorized to carry out the research on the same in this county.

COUNTY COMMISSIONER
KAKAMEGA COUNTY

EREDI C.M.
FOR: COUNTY COMMISSIONER
KAKAMEGA COUNTY

KISII UNIVERSITY

Telephone : 020 2610479
Facsimile : 020 2491131
Email :fcommerce@kisiiuniversity.ac.ke

P. O. Box 408-40200
KISII, KENYA.
www.kisiiuniversity.ac.ke

SCHOOL OF BUSINESS AND ECONOMICS

OFFICE OF THE COORDINATOR, POST-GRADUATE PROGRAMMES

Ref: KSU/SBE/DCB/10430/15

Monday, 31st August, 2020

The General Manager,
Butali Sugar Company Limited,
KAKAMEGA

Dear Sir,

REF: APPLICATION FOR A RESEARCH PERMISSION TO CARRY OUT PILOT TEST FOR IBRAHIM MAKINA REG. NO. DCB/10430/15.

The above named is a PhD student in our institution who intends to carry out a Pilot test of his research instrument. The intended study is titled; **"The role of Government Interventions in the relationship between Competitive Strategies and Performance of Government owned Sugar Manufacturing Firms in Kenya".**

The purpose of this letter is to request you to give him permission to enable him conduct his pilot test at your institution.

Thank you.

KISII UNIVERSITY
CO-ORDINATOR, POST-GRADUATE PROGRAMMES
P.O. Box 408-40200 KISII-KENYA
31 AUG 2020

Dr. Joshua Wafula, PhD
COORDINATOR, POST-GRADUATE PROGRAMMES

WJC/pa

REPUBLIC OF KENYA

MINISTRY OF EDUCATION
STATE DEPARTMENT OF EARLY LEA3RING AND BASIC EDUCA4TION

Telephone: 056 -30411
Fax: 056 – 31307
E-mail: rceducation2016@gmail.com
When replying please quote our Ref.

County Director of Education
Kakamega County
P. O. BOX 137 - 50100
KAKAMEGA

REF: KAKA/C/GA/29/17/VOL.V/145 **27th July, 2021**

MR. MAKINA IBRAHIM MAKINA
KISII UNIVERSITY

RE: RESEARCH AUTHORIZATION

The above has been granted permission by National Council for Science & Technology vide letter Ref. NACOSTI/P/21/11790 dated 12th July, 2021 to carry out research on **"Relationship between competitive strategies and performance of Government owned sugar manufacturing firms in Kenya. An examination of the role of Government interventions - Kakamega county '** for the period ending 12th July, 2022".

Please accord him/her any necessary assistance he may require.

COUNTY DIRECTOR OF EDUCATION
KAKAMEGA COUNTY

DICKSON O. OGONYA
COUNTY DIRECTOR OF EDUCATION
KAKAMEGA COUNTY

***Copy to*:**

The Regional Director of Education
WESTERN REGION

APPENDIX VI: RESEARCH LICENCE

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **844568**

Date of Issue: **12/July/2021**

RESEARCH LICENSE

This is to Certify that Mr.. MAKINA IBRAHIM MAKINA of Kisii University, has been licensed to conduct research in Bungoma, Busia, Kakamega, Kisumu, Migori on the topic: RELATIONSHIP BETWEEN COMPETITIVE STRATEGIES AND PERFORMANCE OF GOVERNMENT OWNED SUGAR MANUFACTURING FIRMS IN KENYA. AN EXAMINATION OF THE ROLE OF GOVERNMENT INTERVENTIONS for the period ending : 12/July/2022.

License No: **NACOSTI/P/21/11790**

844568

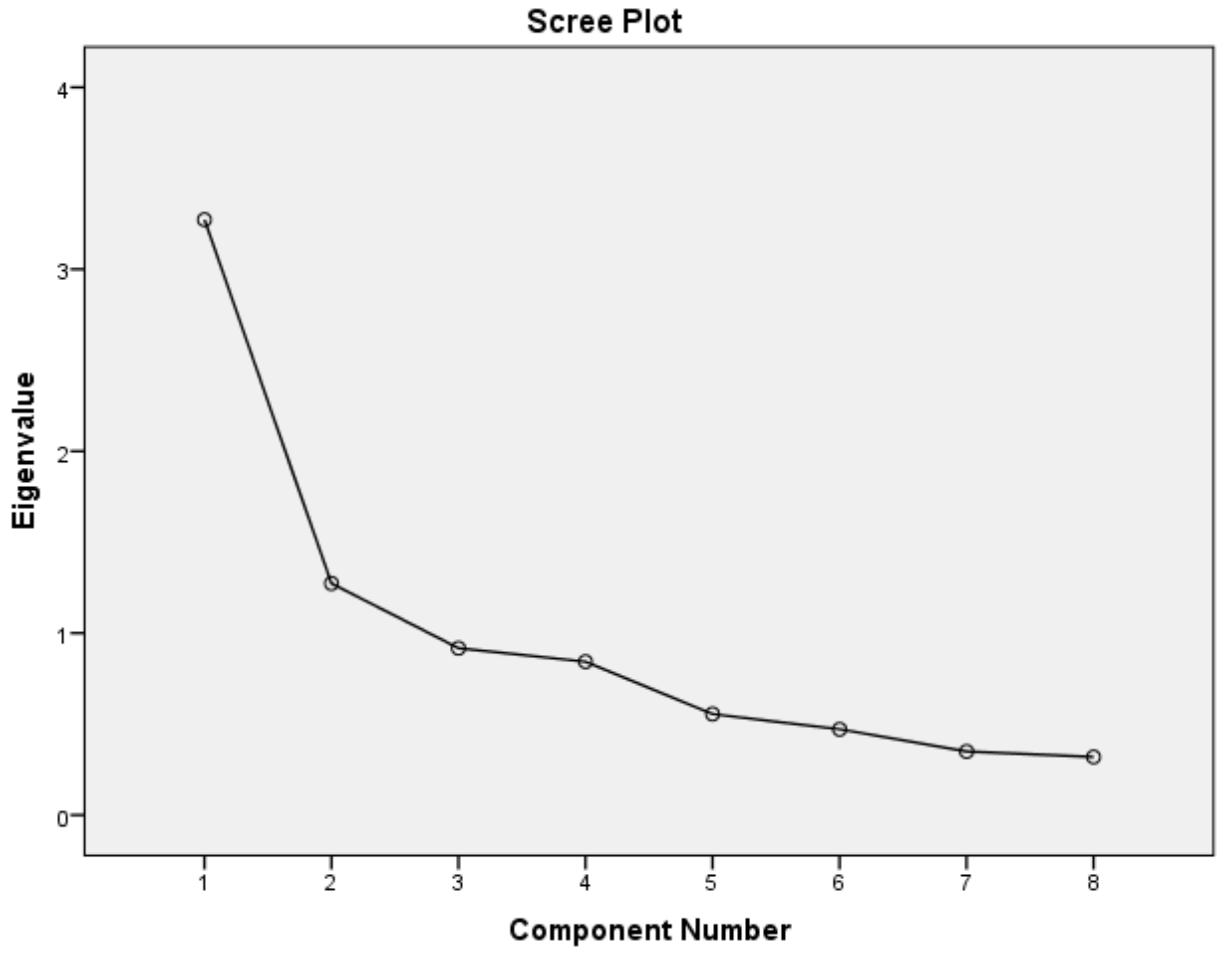
Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

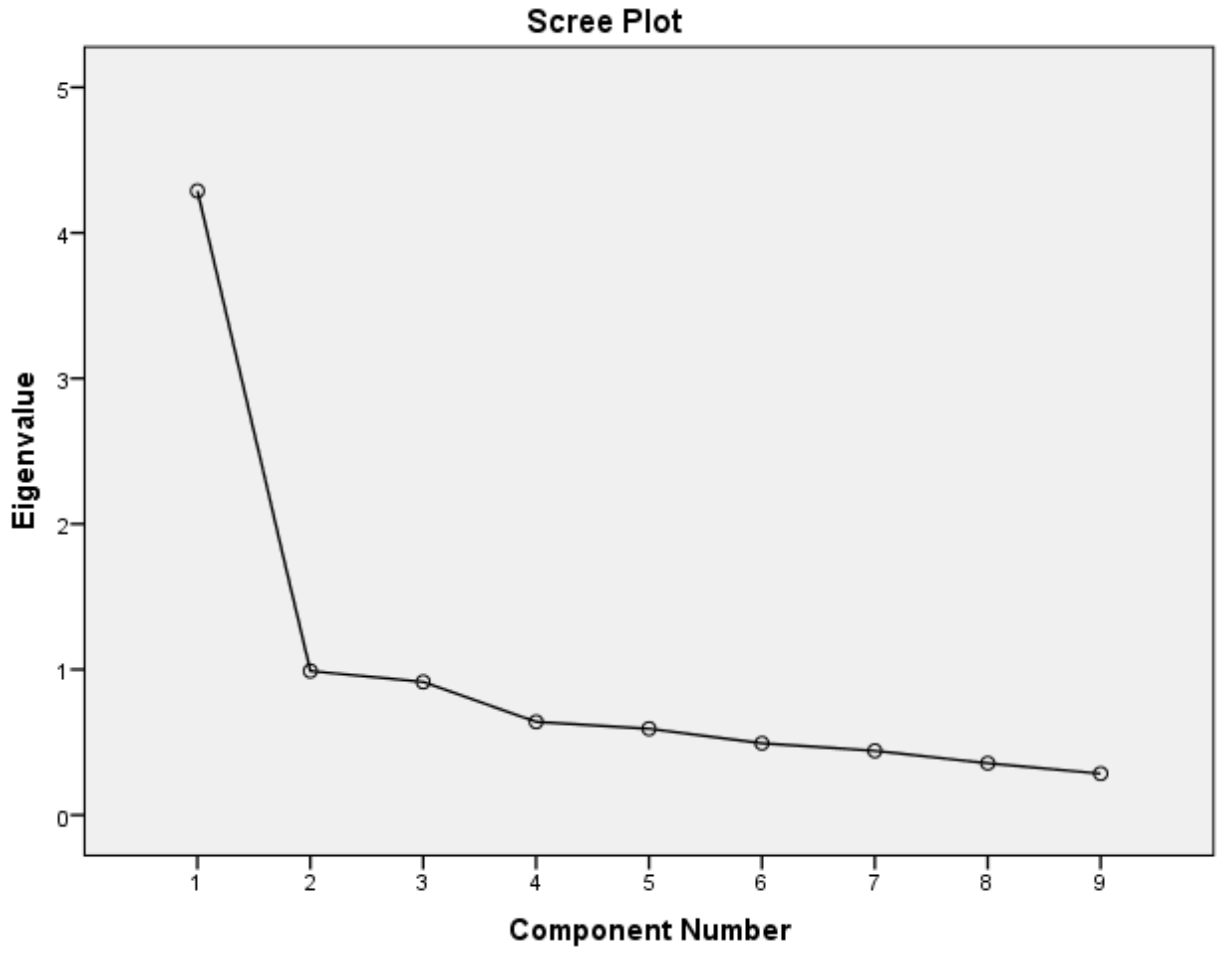
Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

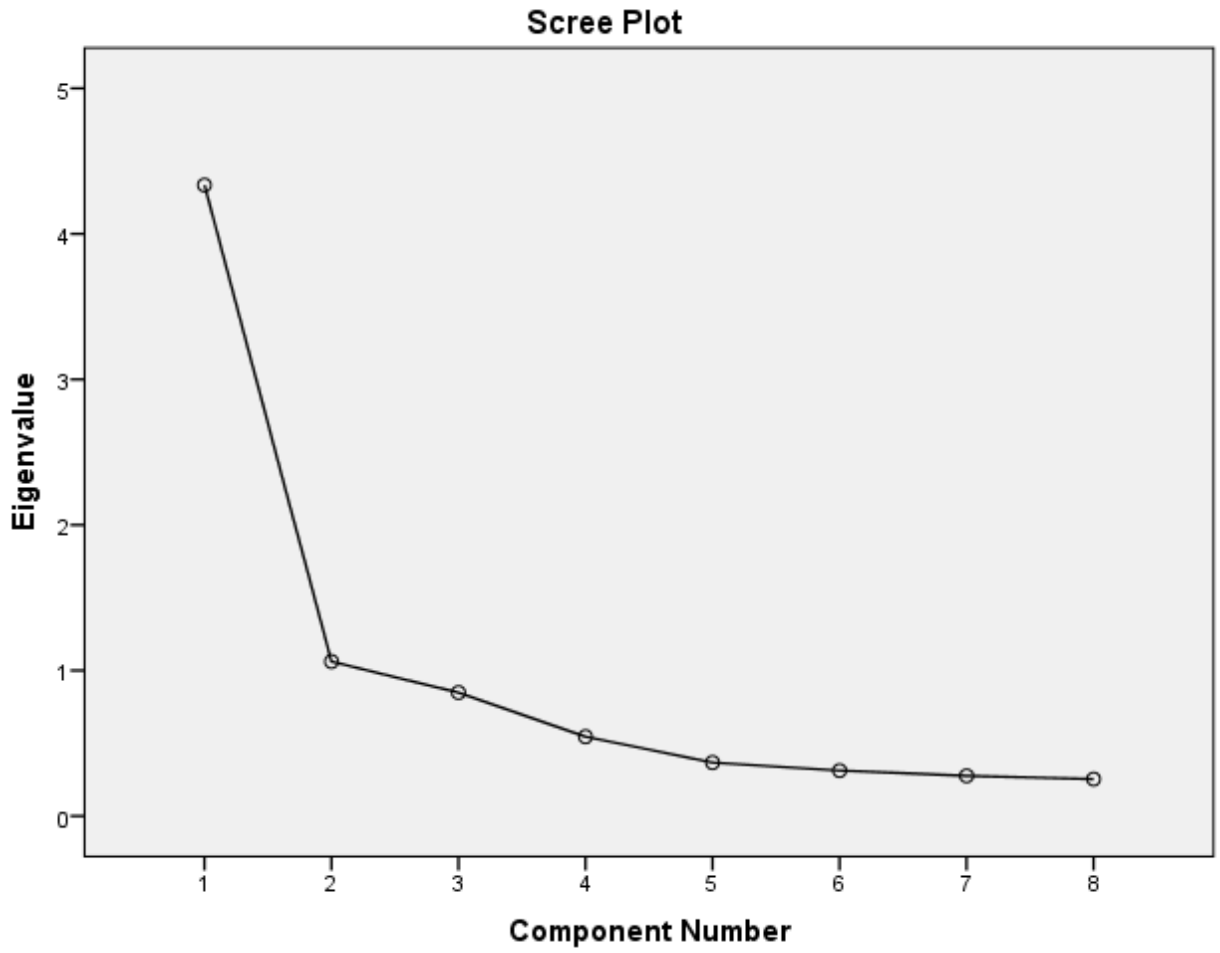
APPENXIX VII: SCREE PLOT FOR INNOVATION



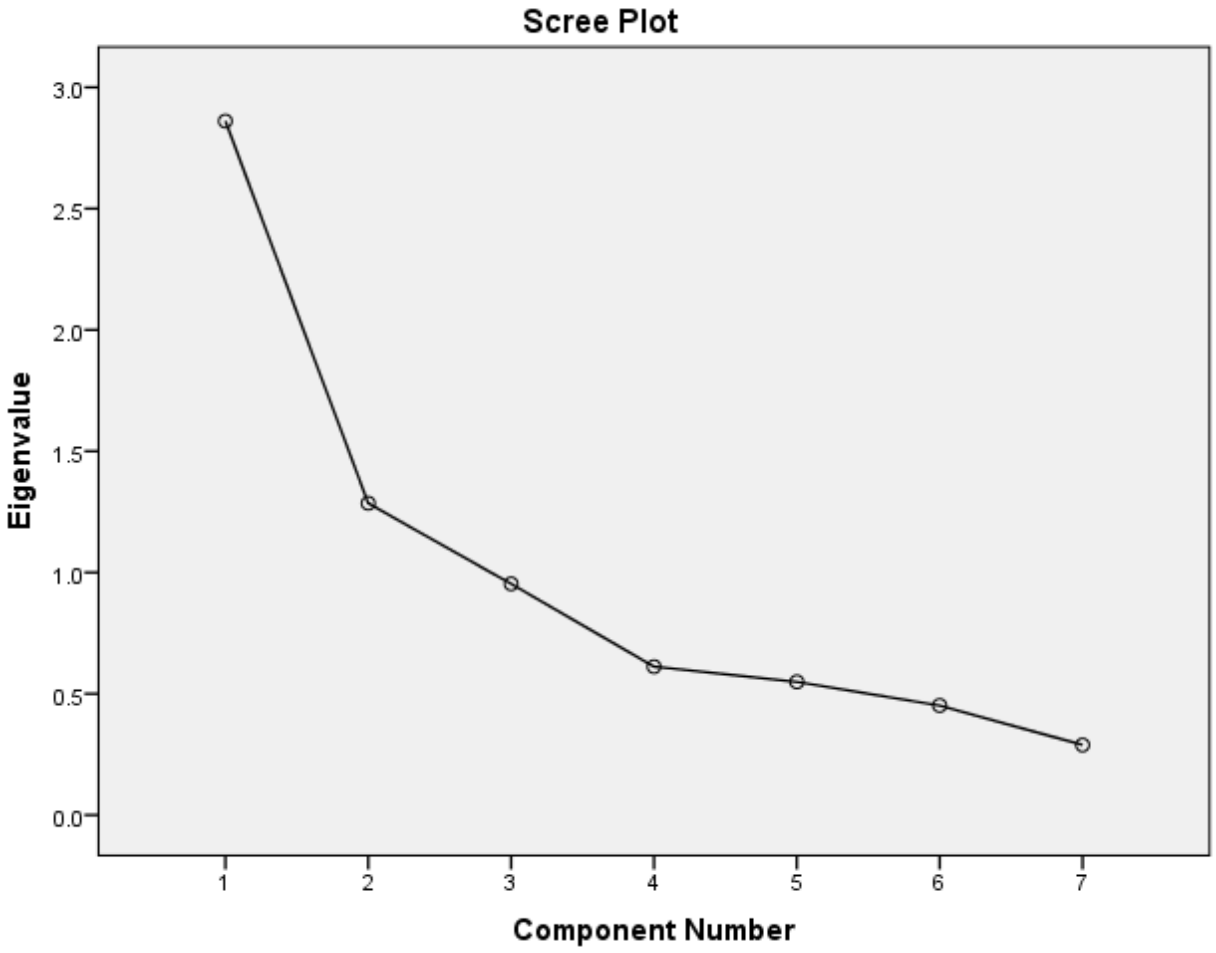
APPENXIX VIII: SCREE PLOT FOR OPERATIONAL STRATEGY



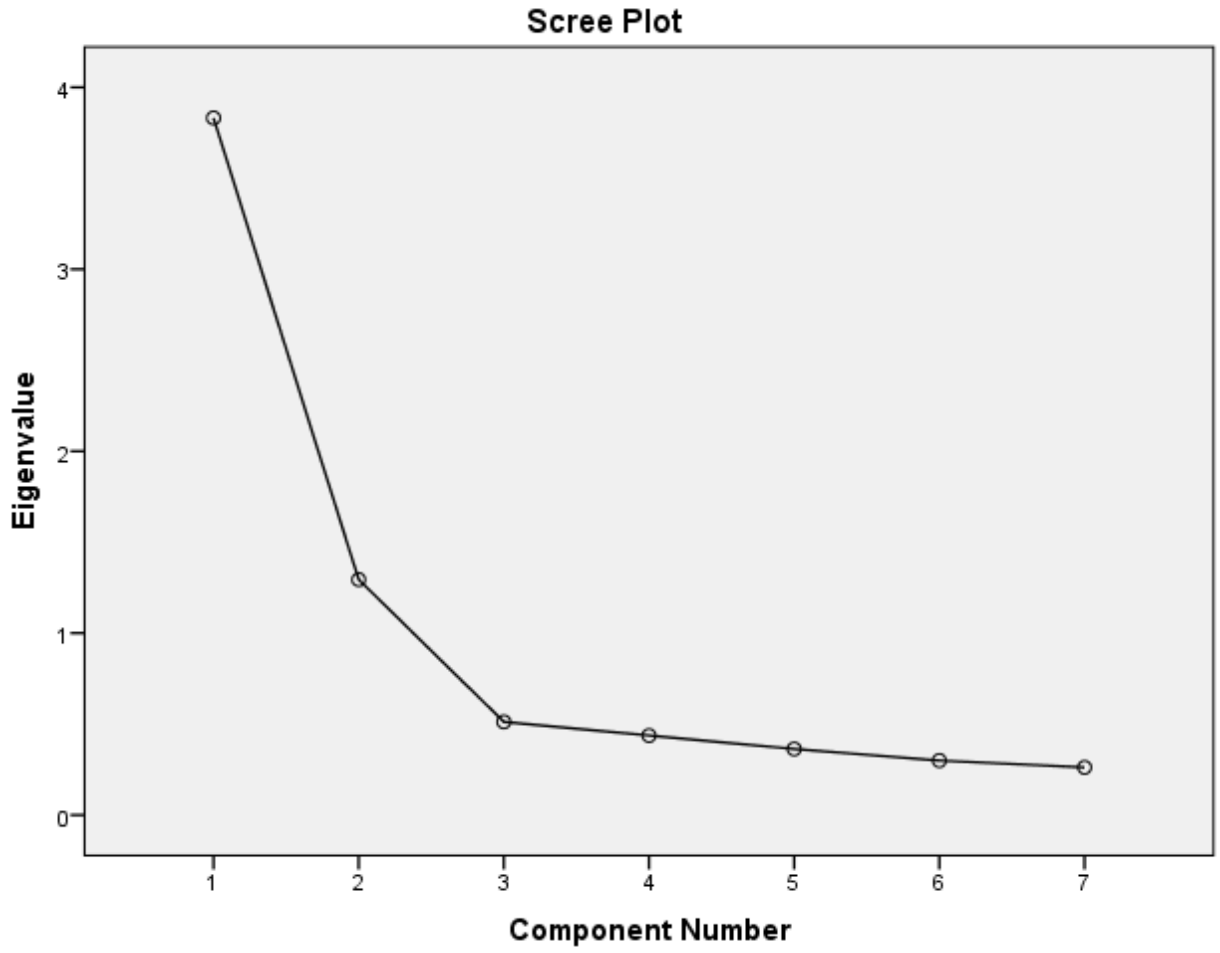
APPENXIX IX: SCREE PLOT FOR TECHNOLOGY STRATEGY



APPENXIX X: SCREE PLOT FOR GOVERNMENT INTERVENTION



APPENXIX XI: SCREE PLOT FOR PERFORMANCE



APPENDIX XII: PLAGIARISM REPORT

EFFECT OF COMPETITIVE STRATEGIES ON PERFORMANCE OF GOVERNMENT OWNED KENYAN SUGAR PRODUCTION COMPANIES, ROLE OF GOVERNMENT INTERVENTIONS

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