KNOWLEDGE MANAGEMENT PRACTICES AND SUSTAINABILITY OF SUGAR COMPANIES IN KENYA

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Knowledge Management Practices on Sustainability of Sugar Companies in Kenya

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DECLARATION

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

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This Thesis has been submitted for Examination with our approval as the University supervisors;

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DEDICATION

To my beloved family; Benter and Judy for providing moral and financial support towards this accomplishment, my younger sons Olitah C.J, Eddy M.A, Akoko J.A and daughter Wenwa D.A whose company kept me warm during the writing of this thesis. May this work inspire you in your future scholarly ambitions?

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ABBREVIATIONS & ACRONYMS

APQC	American Productivity and Quality Centre
COMESA	Common Market for Eastern and Southern Africa
GDP	Gross Domestic Product
IC	Intellectual Capital
ICT	Intellectual Capital Theory
IFAD	International Fund for Agriculture and Development
KISCOL	Kwale International Sugar Company Ltd
KM	Knowledge Management
KMPs'	Knowledge Management Practices
KNBS	Kenya National Bureau of Statistic
KSA	Kenya Sugar Authority
KSB	Kenya Sugar Board
QRR	Questionnaires Response Rate
SDF	Sugar Development Fund
TBL	Tipple Bottom Line
TCD	Tonnage of Cane per Day
WCED	World Commission on Environment and Development

DEFINITIONS OF TERMS

Explicit knowledge	A form of knowledge that is formulated in formula, codes and can be verbalized and communicated.
Knowledge	Defined by Rizwan *et al* (2012) as a combination of skills and practice. While Groysberg Lee and Nanda, (2008) defines it as sum of education and experience. I have used it in the context of this study to refer to collection of insights experiences, information or skills generated through education, training and social interactions capable of increasing capacity, innovation and competitive advantage.
Knowledge acquisition	Also known as knowledge creation. It is used in this study to mean an on-going and dynamic process of devising novel ideas, insights and solutions and incorporating them within the organization Kankanhalli, & Tan, 2005)..
Knowledge application	It is also known as knowledge utilization and involves practical use of knowledge acquired into new situations or context that centres on organizations' product, processes and services (Butt, 2001).
Knowledge conversion	It is a spiral a process of transforming knowledge from explicit to tacit and from tacit to explicit (Sohrabi & Magahi, 2014).
Knowledge Management	It is a process of creating, acquiring, capturing, sharing and using knowledge wherever it resides to improve learning and performance in organizations (Corfield, & Paton, 2016). Corfield and Paton (2016) also defined it as an attempt to create, and exploit knowledge resources by organization to realize social, political and economic benefits. It is used in this study to refer to

	processes of efficiently creating, sharing and utilizing knowledge to help a firm realize improved performance and sustainable growth.
Practices	According to Oxford Learners Dictionary (2008) it means doing or executing a task that has been planned. It is used in the context of this study to refer to processes of knowledge acquisition, dissemination, storage and application
Sugar Companies	The term sugar companies is used in this study to refer to registered firms that produces sugar from sugar cane for profit within the sugar industry owned by state or individual organizations.
Sustainability	According to Loeber, Van Mierlo, Grin and Leeuwis (2007).; Hutton et al. (2007), Kuckartz and Wagner, (2010) it means 'meeting the demands of the present society without compromising future generations to satisfy their own needs by responding to current economic and social environmental challenges.' It is contextualized in this study to mean continuing to meet the needs of present and future generations in terms of providing products and services without breaching rules of social, economic and political justice.
Tacit knowledge	It is a form of knowledge that is present in people's minds, hard to formalise and which people are neither familiar with nor conscious about but is acquired by sharing experiences, observation and imitation (Ribeiro, 2013).

ABSTRACT

Knowledge management Practices (KMPs') has become increasingly important in the current world to firms that are looking for competitive advantage and sustainability. Sugar companies in Kenya like many other companies in the world have used KMPs' since 1959 to improve on their human capital resources in their quest for enhanced growth and sustainability but have realized dismaying results as their performance consistently decline. Some sugar companies in Kenya remain in perpetual debts, shortlisted for privatization as others go into receivership, making their dreams for sustainability more elusive; at a time occasioned with the rise in domestic demand for sugar causing spontaneous rise in sugar imports from 4000 tonnes in 1984 to 249,336 tonnes in 2001. Although studies have been conducted on KMPs' with focus to corporate performance using case studies and surveys in Multinational Pharmaceutical and Engineering companies in Italy, Pakistan, Malaysia, Norway and Jordan, none has fully considered the influence of KMPs' on sustainability of sugar companies and especially in Kenya. The general objective of this study was to establish the influence of KMPs' on sustainability of sugar companies in Kenya. The study was guided by the following specific objectives; to explore the influence of Knowledge acquisition, Application, Sharing and Conversion in addition to moderating influence of government policy on the relationship between KMPs' and sustainability. Data was collected using questionnaires and interview schedule were analyzed using descriptive and inferential statistics. The study used null hypotheses to test the objectives. Sample populations of 250 managers from the five functional state owned sugar companies were studied using Descriptive survey design. The study contributes to the theory, Knowledge and practice focused at up scaling performance of sugar companies to a sustainable level in the general interest of mankind in Kenya. The study concluded that KMPs' singly and jointly influence sustainability of sugar companies in Kenya and that government policy had least positive moderating effect on the relationship between KMPs' and sustainability of sugar companies in Kenya. The study concluded that KMPs' had influence on sustainability and government policy had low moderating contribution on the relationship between KMPs' and sustainability. The study recommended that sugar companies should adopt and sustain efficient KMPs' using monetary and non-monetary motivations. In addition, the study recommended that government should develop policy document to support implementation of KMPs' to enable sugar companies achieve sustainable growth in Kenya. The study recommended further research on influence of KMPs' with intermediation of government policy on sustainability of all sugar companies in Kenya using a larger sample.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Effective Knowledge Management Practices (KMPs') such as knowledge creation, sharing, acquisition and application are fundamental to organizations' performance and sustainability. Knowledge management was first introduced in 1959 and the term came to general usage in 1986 (Drucker, 2012; Schlögl, 2005). as a multidisciplinary field that includes Information system, Organization Theory, Strategic and Human Resource Management (Jusimuddin, 2006). It is one major factor in addition to ecological (environmental) factors (Wagner, 2005) and organizations' culture that influence competitive advantage of firms and thus their sustainability.

According to PPI,(2008) America and the rest of the world changed dramatically by the end of the 20th century by succumbing to the demands of knowledge era and that with the dawn of industrialization their growth depended on the new knowledge economy. Kramer (2009) asserted that the nations' drift from traditional economies predominated by fluid mixture of capital, labour and land did not make their growth possible without adoption of knowledge asset resources.

Knowledge assets used as business strategy to an organization possesses paradoxical characteristics that distinguishes it from other organization assets in that; its usage does not consume it and its transfer (sharing) doesn't result into its loss or depreciation. It is also considered abundant except the ability to exploit it is deficient. Finally, it's an asset that most organizations' loose due to employees' turn over and this has a negative consequence on firms 'competitiveness (Kimiz, 2005).

With current state of competition and globalization, organizations sustainability is not only dependent on state of technology but also on the contribution of its knowledge assets (Lin & Tseng, 2005).

Knowledge Management (KM) therefore prepares individual for success and organization for successful outcomes. In developed and developing countries such as

Italy, Pakistan and Malaysia, the study of Knowledge Management (KM) amongst multinational and pharmaceutical companies indicated that it had relationship with improved performance (Rizwan & Mohamud, 2012). KM is thus critical component of sustainable competitive advantage and is capable of giving a firm long term benefits (Omotayo,. 2015.; Gannon, Lynch, & Harrington, 2009).

In Norway, studies by Dingsoryr (2019) on KM also reveal that KMPs' are capable of influencing performance and growth and should therefore help corporate management to cut down on organization layers, increase flexibility of enterprise and contribute to sharing infrastructure (Oztemel, & Arslankaya, 2012). Oztemel, and Arslankaya (2012) also pointed out that KM may also help in reducing time wastage required to capture correct information or make decisions, reduce production costs, improve success rate and potentially reduce research and development costs and product development cycle time. In addition, they indicated that good KM can also help the organization in identifying cultural and behavioral changes that are prerequisite to the implementation of incentives and practices that foster improved changes.

According to Scardamalia, and Bereiter (2010) Knowledge management can influence man to develop flexible behavior in understanding and adjusting to the world around him as well as transforming it to suit his needs. He argues KM is capable of helping humans become subjects rather than objects of change.

In Nigeria, IFAD (2007) pointed out that KM became one of the keys that delivered corporate actions that influenced organizations' rapid transformations in agriculture and industry, and served as a means of alleviating poverty amongst the poor Rural Nigerians. According to Malaska *et al* (2002) companies register sustainable growth when the effect of their cumulative growth within the environment (social welfare) doesn't exceed effects due to their intensive improvements. And firms have to ensure viability and health of ecosystems to safeguard on catastrophic ecosystem collapse (Abel, Cumming, & Anderies, 2006

In China,India, Mesopotamia and Egypt KMPs' especially Knowledge acquisition and utilization enabled people to improve their ecosystems, adapted to it and diminished its impact on their civilization (Jean, 2010). Underperformance of Kenya sugar companies that has shattered the country's dream for sustainability could however be remedied by companies' embracing appropriate Knowledge Management Practices (KMPs') to rekindle the country's diminishing hopes for improving sugar productivity, the company's growth and sustainability.

According to Ojera et al. (2011) sugar companies in Kenya seem to have had little competitive advantage the reason they have been brought under focus of discussion in Kenya Parliament on poor performance; yet they are believed to have used KMPs' since sugar industry was established in 1922; for over five decades from the time KM was introduced in management in 1956 to transform individual knowledge into corporate assets capable of enhancing performance and sustainability.

The same phenomenon has also been pointed out by Kenya National Bureau of Statistics {KNBS}(2012) that between 2009- 2011 the sub-sector failed to meet its expected domestic capacity and exportable surplus despite the ecological and demographic endowments and that some firms are currently at the verge of collapse. This situation therefore calls for research into the influence of KMPs' on sustainability of sugar companies in Kenya.

1.1.1 Historical perspective of Sugar Companies in Kenya

The development of sugar companies in Kenya resulted from the introduction of industrial sugar in the country by Asians in 1902 as an attempt to empower Kenyans to cultivate a crop that was hitherto white settlers' and Asians' dominated activity for both domestic and export (Sharma, Chandna and Bhardwaj (2017). Mumias was the first sugar company to be set up in Kisumu in 1922 followed by Ramisi (presently referred to as Kwale International Sugar Company limited (KISCOL)in Coastal province in 1927 (Ojera, Ogutu, Siringi, & Othuon. 2011).

Other sugar companies developed in quick succession after independence as the government expanded its vision on the role and importance of sugar industry through

Sessional Paper No.10 of 1965 (Lam, & Lee, 2012) which sought amongst other things to accelerate economic development, redress regional imbalance, create job opportunities, promote indigenous entrepreneurship (growth of subsidiary industries) and promote foreign investment through partnership.

After independence five additional state owned Sugar companies were established such as Muhoroni in 1966, Chemelil in 1968, Mumias in 1973, Nzoia in 1978 and South Nyanza (SONY) in 1979.Later on privately owned sugar companies came in stream such as West Kenya (Kabras) in 1981, Butali sugar company in 2004, Soin in Kericho in 2006, Transmara in 2007, Sukari industries Ltd in 2009 and Kibos Allied Industries bringing a total to twelve sugar companies in the country.

The establishment of these state corporations was predicated on premises that they would make the country achieve self-sufficiency in sugar with surplus for export in a globally competitive market, create employment opportunities and wealth, facilitate the growth of subsidiary industries through the forward linkage effects, promote economic development of rural areas and promote import substitution initiative to save the country from the loss of foreign exchange (Lam, & Lee, 2012)..

Pursuant to the above policy goals, the development of sugar industry became apolitical issue and hence sugar became a political commodity (Lam, & Lee, 2012). As the Parliament resolved in 1965 to provide financial and technical support to the sugar industry to facilitate governments' realization of objectives, Sugar was viewed further both as a strategic and a political commodity. As a strategic commodity it provides multifunctional and strategic functions in industrial development. It promotes growth of Beverage industry, Confectionary industry, Wines, Spirit and Power Alcohol industry, Animal feeds industry as well as promoting co-generation (electric generation) from burning of Burges.

The sugar companies spread countrywide across western Kenya, Nyanza, Rift Valley and Coastal region in areas that share common favorable characteristics. These areas lie on altitude 1600m above the sea level, hot climate with temperature range of between 21^0c -27^0c with reliable rainfall pattern of at least 1270 mm per a year. They

also enjoy rich geological landscape of deep well drained alkaline soil with Ph of 4.8 – 8.5 that supports sugar farming.

In the production of sugar, the country is also favored by demographic possibilism (population to offer local labour and market) being located in densely populated areas due to economic pull factors such as fishing and rich populous neighborhood of Uganda and Rift valley from which abundant labour is attracted that are expected to enhance productivity and sustainable growth of Sugar industry (Ojera, et al., 2011).

The government in its bid to support sugar industry established Parastatal Act of parliament of 1966.With this, the companies received financial and technical support from the government and many other key players such as Kenya Sugar Board (KSB), Sugar Development Authority (SDA) and consulting agencies to enhance their performance and achieve sustainable growth (KSB, 2010).

In 2003, the government also set up a task force on sugar industry Crisis 1 whose recommendations led to further financial support for upgrading of industries. With the implementation of the structural reform of the taskforce and involvement of other key players in the industry such as KSB, SDA the government envisaged a rapid take- off of the companies to mark the beginning of growth of subsidiary industries in Kenya, increase job creation, sustain the local demand for sugar and meet the country's quota allocation of export. However, despite all these efforts in addition to favorable ecological determinism and demographic possibilism, the sugar companies continue to perform below public expectation, the reason they have often been brought under sharp focus of discussion in Kenya Parliament (Ojera, et al., 2011).

From 1990 to date Kenyan sugar sub sector continued to experience crisis's of underperformance and high debt burden of 20 million due to use of obsolete technology and lack of political good will, factors which caused the firms' decline in performance and growth (Mulwa, Emrouznejad, & Murithi, 2009

The country's situation worsened as local demands continue to outstrip production causing sugar import figures to rise from 4000 tons in 1984 to 249,336 tons in 2001, from COMESA region and other sugar producing countries such as Brazil, UK and

Mexico (KSB, 2007).The underperformance of the sugar industry has been attributed to many challenges faced by the sugar sub sector in Kenya that spans from bloated labour force, inadequate cane supply, inadequate steam capacity and heavy debt burden to the SDF which by 2005 stood at 20 million (Ojera, et al., 2011).

Others firms were threatened by rising cost of cane transport and rapidly diminishing size of land due to increasing population. The above challenges led to decline in company's growth and shuttered the Kenya's dream of achieving sustainability in the sugar industry. Some firms such as Miwani and Muhoroni were put under receivership. The institute of Economic Affairs attributed the failure in the sugar industry in the 1990's to the inconsistencies in policy, weak institutional and marketing structures and poorly coordinated knowledge resources (Omollo,2005). Finally, issues affecting Sugar companies seem to have been under researched in Kenya amongst sugar companies with regard to their KMPs' yet the sub sector is important alongside coffee, Tea and Horticulture as a key contributor to the country's Gross Domestic Product (GDP) and employment provision.

1.2 Statement of the Problem

Knowledge management has become increasingly important in the current world to firms that are looking for competitive advantage and sustainability. While studies conducted in many parts of the world; America, Italy, Pakistan, Malaysia, Norway and Jordan indicates that the use of KMPs' led to improved performance and growth in agriculture and industry. However, the implementation of KMPs' for over six decades to improve performance and achieve sustainability in the sugar industry in Kenya have led to dismaying result. Instead of improving on their human capital level of competence in their quest for enhanced growth and sustainability, sugar companies 'became characterized with consistent decline in performance which put them in perpetual debts, some of them into receivership and shortlisting for privatization. During the intervening periods, the country's situation worsened as the demand of sugar spurred spontaneous rise in sugar import figures from 4000 tonnes in 1984 to 249,336 tonnes in 2001, from COMESA region and other sugar producing countries such as Brazil, UK and Mexico (KSB, 2010).

Even with favorable ecological determinism, demographic possibilism and government continued financial and technical support, Kenya Sugar Board (KSB), Sugar Development Authority (SDA) and Consulting agencies to sugar companies to implement their KMPs' for enhanced performance and sustainable growth, the performance of sugar companies remain below sustainable growth expectation of the government. This scenario attracted interest of scholars as Miwani was put under full receivership, Muhoroni under partial receivership in 2010 while Nzoia, Chemelil and Sony shortlisted for privatization (Ojera, et al., 2011). While studies conducted in Italy, Pakistan and Malaysia amongst multinational and pharmaceutical companies indicated that KMP's had relationship with improved performance (Rizwan & Mohamud, 2012), others done in Norway by Dingsoryr (2019) also revealed that KM influenced performance and growth. In addition, a study conducted in Nigeria amongst agricultural sector indicated that KMPs' helped to transform agriculture and caused growth of industry. The studies used case studies and surveys in Multinational pharmaceutical and engineering companies in Italy, Pakistan, Malaysia, Norway and Jordan. However, none of the studies fully considered the influence of KMPs' on sustainability of sugar companies. The question of sustainability thus remains unanswered as these studies did not however reveal that KMPs' could lead to organizational sustainability. Little research seem to have been done in sugar companies in Kenya focusing on the relationship between Knowledge Management Practices and organizational sustainability. It was on the basis of the forgoing claims that this study was purposed to explore the influence of Knowledge Management Practices on Sustainability of Sugar companies in Kenya using descriptive survey.

1.3 Objectives of the Study

1.3.1 General Objective of the Study

The general intention of this study is to establish the influence of Knowledge Management Practices on sustainability of state owned Sugar Companies in Kenya.

1.3.2 Specific objectives of the study

The following specific objectives guided the study;

1. To establish the influence of Knowledge acquisition on sustainability of sugar companies in Kenya.
2. To establish the influence of Knowledge sharing and sustainability of sugar companies in Kenya.
3. To establish influence of Knowledge application on sustainability of sugar companies in Kenya.
4. To establish the influence of Knowledge conversion on sustainability of sugar companies in Kenya.
5. To establish mediating influence of government policies on the relationship between KMPs' and sustainability of sugar companies in Kenya.

1.4 Research Hypotheses

$H0_1$: Knowledge acquisition has no statistical significance on sustainability.

$H0_2$: Knowledge sharing has no statistical significance on sustainability.

$H0_3$: Knowledge application has no statistical significance on sustainability.

$H0_4$: Knowledge conversion has no statistical significant influence on Sustainability

$H0_5$: Government policies have no statistical moderating influence on the relationship between KMPs' and Sustainability.

1.5 Significance of the Study

The study of KMPs' may benefit a number of stakeholders namely the management of sugar companies, the government of Kenya and the future scholars in in the following ways. The governments may embrace suggestions made in the study to formulate policies that may aid sugar companies in implementing KMPs' focusing at improving their performance and sustainability. The report of this study will provide invaluable literature materials required for reference by future scholars who will be

studying related areas. Finally, the report of the study will provide insight to management of sugar companies on which aspects of KMPs' to give much attention to improve the companies' performance and sustainability.

1.6 Scope of the Study

This study was delimited to content, geographical, sample and time scope (Mugenda & Mugenda, 2013; Krathwohl 2009). In its content scope the study explored the influence of Knowledge Management Practices on sustainability of sugar companies. In its geographical scope the study covered five state sugar companies which included companies such as Mumias, Nzoia, Sony, Muhoroni and Chemelil that spread across Western and Nyanza regions of Kenya. In its sample scope the study considered a sample population of 300 respondents selected through purposive sampling from the managerial population for purposes of fair representation, the study employed systematic random sampling to the selected five companies. The study excluded private sugar companies in Kenya.

1.7 Limitations of the Study

According to Mugenda and Mugenda (2008) a limitation is a research aspect that could constrain the study and lead to misleading conclusions The managerial staff of sugar companies were the ones purposively selected tom participate in the survey and these were just a sample of the entire managerial workforce. The researcher used 250 managers (83.3%) to represent the entire managerial population as these were believed would give a generalized representation of all the managerial staff in the entire sugar companies. There was also limitation of lack of co-operation from key respondents due to sheer suspicion that information they provided could be used in to victimize them. To overcome this constraint, researcher sought introduction to targeted respondent by human resource managers who informed the participants of the purpose of my study. The researcher also used the occasion of introduction to staff to further eexplain to respondents the purpose of intended data not for victimization. Finally, due to unpredicted increase in the fuel prices the cost of transport and contingencies shot up. These were difficult to forecast with accuracy of time and thus constrained the research budget. This was however overcome by

researcher reviewing of research budget upwards and as well used new technology (whatsup) platform to receive back screenshot of filled questionnaire. The researcher also encouraged other respondent to send back their filled questionnaires through email. These challenges to a smaller extent delayed study completion time.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a critical review of existing empirical studies on Knowledge Management Practices (KMPs'. It also explains theoretical underpinning of the study, and conceptual framework. The study also presented empirical review covering themes and sub-themes of the independent variables, critique analyses of relevant literature before finally summarizing the chapter and establishing the research gaps.

2.2 Theoretical Framework

The theoretical framework refers to theories that are researcher chooses to explain research problem or inform the study (Blumberg, Cooper & Scindler, 2014). Even though there has not been a consensus on an all-inclusive knowledge based theory of firms; However firms continue to realize improved performance as a consequent of their competencies (Dave, & Shisodia, 2012). The study chose three theories that are associated to this study namely; Resources based theory, Human capital theory and intellectual capital theory. Three theories that are associated to this study include Resources based theory, Human capital theory and intellectual capital theory.

2.2.1 Resource Based Theory

This theory originates from organizational economics and is associated with Witt (2016) cited in (Penrose, & Penrose, 2009). It states that a firm's competitive advantage is dependent on cumulative efforts of its resources and capabilities. This was partly supported by Corfield, and Paton (2016) who purported that credibility of the theory is based on the fact that it looks at KMPs' as an attempt to create and exploit organizations' knowledge resources for success in realizing its social, economic and environmental (benefits) sustainability.

Al-Bahussin and El-Garaihy (2013). also support the theoretical assertion that resources have capacity of bringing organizational performance and competitive advantage but are not sufficient in its self in the absence of knowledge capabilities. The theory is relevant to the study because it suggests that capability of an organization which lies in its knowledge resource base is fundamental in bringing performance without which sustainability may not be achieved. It implies therefore that an organization should focus it attention at improving the knowledge resources by enhancing the mechanisms of knowledge creation, sharing, conversion and application to achieve competitiveness and desired socio-economic and environmental integrity which are bottom line to sustainable growth. According to my findings Knowledge resources significantly to sustainable performance. However other factors outside the study contributed 53% of sustainability,. The findings was therefore supports previous studies of Al-Bahussin and El-Garaihy (2013).

2.2.2 Human Capital Theory

Human capital means knowledge, skills and capability of individual employees that permits their provisions of solution to customers (Lunemann, 2007). The theory was coined by an American economist, Theodore W. Schultz in 1960. It states that an institutional growth is dependent on an aggregate knowledge and skills in its workforce. The theory is relevant to this study since it points out at an organization, capability anchored on its human capital. It implies therefore that for an institution to grow and become sustainable must invest heavily in KMPs' (knowledge acquisition, Sharing, conversion and application).

Holdford (2018). also argues from resource based point of view that the source of a firm's competitive advantage lies in its human capital and their knowledge and not how it positions itself in the market. Schultz and Grant's perspectives are unrealistic because the firms' aggregate knowledge assets and its position in the market are complementary and vital to its performance, economic, ecological and social sustainability.

This theory argues that knowledge is a crucial source of innovation and strategic renewal whether it is from brainstorming or research laboratories or day dreaming at office, re-engineering new processes, improving personal skills or developing new sales lead (Costa, 2012).

The theory of Human Capital was reviewed in the study of intellectual capital by the Economics Institute of Washington DC, that broadens its worth beyond an institution or a firm to the nations that "the economic value of the nation's depends more on employees skills, knowledge and business problem aptitude than it does upon the market value of the firms commercial output" (Roos, Pike, & Fernström, 2007). This theory also justifies KMPs' as one of the main contributors to organizations' competitive advantage which is fine but fails to authenticate its effect on firms' sustained growth. That with other resources ceteris *peribu*s, in the absence of knowledge resources inherent in an organizations human capital, the organization would not realize competitive performance and sustainable growth. The theory is therefore in tandem with objectives of the study since it's through the KMPs' that firms organizes and coordinates other resources physical, financial and capital resources to realize economic, social and environmental sustainability. It is also important to note that human capital theory and Intellectual capital theory are interrelated since both drives the firm towards its pathways to competiveness and sustainability. Therefore, the findings are in agreement with the previous scholars such as Roos, Pike, and Fernström (2007). That efficient knowledge management practices helps to nature organizations capabilities which are drivers for other that economic sustainability but also environmental and social sustainability.

2.2.3 Intellectual Capital theory

According to Wall (2005) intellectual Capital Theory (ICT) describes a stock of capital knowledge based equity which a company possesses that may be end result of Knowledge transformation process or knowledge itself that is capable of transforming into intellectual property of the firm." Intellectual capital thus may be broken down into three areas, human capital, structural capital and customer capital.

Human capital is comprised of knowhow, competence, skills and capability of human members of the firm.

Structural capital is comprised of the capability that is developed to meet market requirements such as patents and trademarks, process improvements methodologies to improve effectiveness and profitability of the firm while Customer capital on the other hand includes communication between external and internal entities of the organization such as customer loyalty, good will and stakeholder's relationships. According to Tan, Plowman and Hancock (2008) the above three variable capital components correlate to deliver value to customers making organizations to cut competitive edge and built value platform that makes it sustainable.

The value platform may be illustrated as follows:

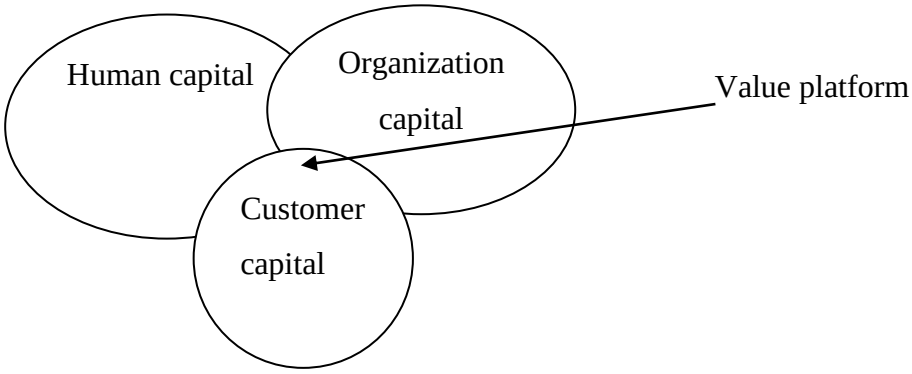


Figure 2.1: Value Platform Model

Source: Tan, Plowman and Hancock (2008)

Value platform articulates that the intersection of the three capitals creates value that is fundamental to corporate sustainability. From the forgoing theory, it's worth noting that the benefits of investing in KMPs' are intuitive and should be authentic to proactive managers that are attempting to compete in the 21st century and beyond since it brings benefits to individuals, organizations and Community of practice as follows:-

For individual Employees, KMPs' helps workers in enhancing their job performance, saving of time through better decision making and problem solving, enable individual workers build a sense of community bond within the organization. Knowledge acquisition helps to keep employees professionally relevant and up to date and provide employees with challenges and opportunities. Ovaska *et al* (2009) asserts that for Community of Practice, the sharing of companies' knowledge assets serves as a foundation for collaboration which is significant in developing professional skills, promoting peer to peer mentoring through knowledge strategy, facilitates effective networking, collaboration and development of a corporate culture.

According to Dalkir (2013) for Organizations, embracing appropriate KMPs' helps to drive strategies that enhance problem solving diffuses desirable corporate culture and best practices and improves knowledge that is embedded in product or services. KMPs' (Knowledge creation, sharing, application and conversion) may help organizations in innovation, improving customer service and commercialization of new products. Knowledge sharing facilitates cross fertilization of ideas and increases efficiency in application which leads to innovation.

Importantly, the theory is also relevant in that provides insight that effective KMPs' objectives; ii) on knowledge sharing and iii) knowledge application and iv) conversion application may improve an organizations' responses to market challenges (Taminian, Smit and Delanse, 2009), the attainment of customer capital that makes it to remain competitive and drives it towards sustainable growth.

In addition, Lu, Wang, Tung and Lin (2010) asserted that firms facing stiff competition within their remote environments should increase their value creation processes through intellectual capital because it is an important factor for sustaining competitive advantage in the market.

The relevance of ICT lies in its recognition to sum of firms' knowledge which is a key factor in production in quality. The theory also considers Customer capital which is an important element of performance and sustainability. Capturing Customer capital also results from corporate social responsibility necessitated by provision of

high quality products which as consequent leads to high revenue which makes corporate sustainability feasible. Therefore, for an organization to achieve sustainability, it has also to direct its KMPs' towards society through social responsibilities and improving its environment controls. According to Tan, Plowman and Hancock (2008), if a firm which does not have efficient KMPs' will not position itself to the market, will lack competitiveness, and compromise its survivability.

The findings of the study indicated that it's with the help of KMPs' (Knowledge conversion) that an organization may achieve three variable of the value platform model to attain competitive performance and sustainable growth; makes the findings in tandem with assertions of previous scholars that it's through the ICT that an institution may attain sustainability as outlined in value platform (Tan, Plowman &Hancock (2008). However, since th government must regulate customer capital through policy interventions, but even with the findings low positive significant correlation on the relationship between objectives of the study, the study therefore recommends that companies should take cognizance of the need to seek government policy support to create conducive environment that facilitate the implementation of KMPs'. This is because void of favorable government policy framework organizations would not gain much from the implementation of KMPs' and hence stagnate in its performance, growth and sustainability.

2.2.4 Conceptual Framework

This is a diagrammatical representation showing the existing relationships between the study variables (Kivunja, 2018).

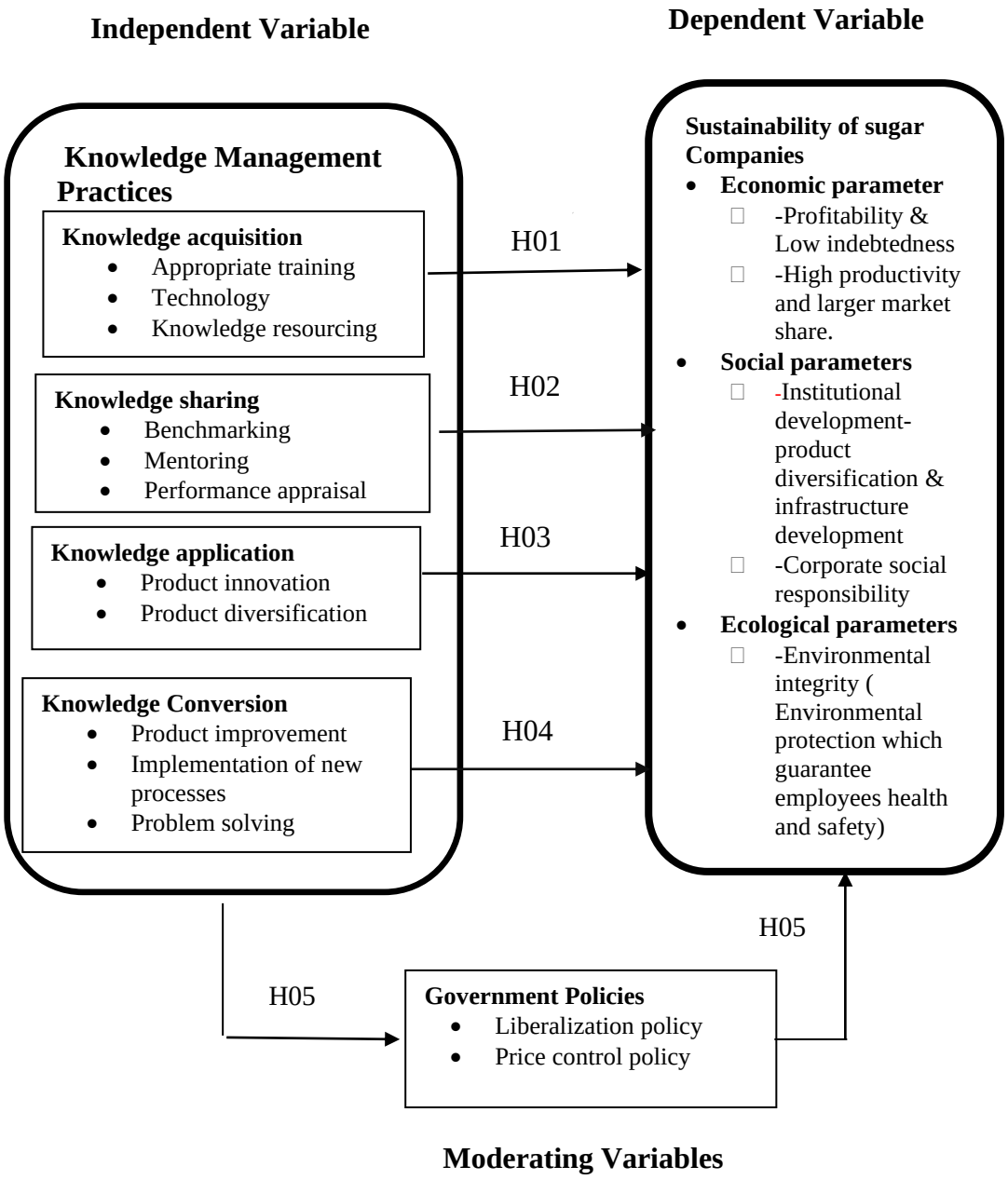


Figure 2.2: Conceptual framework

Author, 2022

Fig.2.2 illustrates the relationship between KMPs' as independent variables and Sustainability of sugar companies on the other hand as dependent variables. It shows the influence of independent variables on sustainability of sugar companies in Kenya. It also demonstrates possible implication of government policies' intermediation on the relationship between KMPs' and sustainability of sugar companies. It has been developed from suggestions of Islam and Clerke (2005), Guest (2010). It has also been blended by suggestions of Fugate *et al* (2009), Cho *et al* (2008) and Nikolaou and Matrakoukas (2016). to include triple bottom lime parameters-such as economic, social and ecological of sustainability measures of sustainability.

The framework articulates that effective KMPs' results in economic sustainability indicated by high productivity, innovation and differentiation, larger market share and profitability. It also illustrates that KMPs' may also lead to social sustainability measured by institutional diversification, corporate social responsibility. It also illustrates that KMPs' may also lead to social sustainability measured by institutional diversification, corporate social responsibility. Finally, the framework shows that the Independent variables may also influence ecological sustainability measured by ecosystem integrity (protecting work climate to provide employees health and safety climate) for sustaining productivity.

2.3 Review of the independent variables of the study

2.3.1 Knowledge Acquisition

Knowledge acquisition refers to experiences, values and skills that have been attained individually or collectively to improve an organizations human capital (Beattie & Smith 2010). The quality of human capital is therefore prerequisite in maintaining a firm's competitive advantage (Bowman & Tomes, 2010).

Also, Scholars such as Lu, Wang, Tung and Lin (2010) adds that firms facing stiff competition should increase their value creation processes through intellectual capital if they have to attain competitive advantage. They posit that acquiring relevant knowledge may give an organization ecological sustainability.

Siebenhüner and Arnold (2007) argues that companies register sustainable growth when the effect of their cumulative growth within the environment doesn't exceed the effects due to their intensity improvements and that firms have to ensure viability and health of ecosystems to safeguard ecosystem from catastrophic collapse (Abel, Cumming, & Anderies, 2006). It is therefore with the help of vast knowledge that firms attain ecosystem integrity.

Knowledge can be acquired through provision of relevant training that reflects needs and aspirations of customers, higher competition and better value for money. Training and development go on in firms every day to enhance knowledge acquisition yet, Keep (2006) asserts that whenever there is mismatch between needs and training provisions, training hardly increase employees' flexibility and employability which translates into corporate effectiveness and performance.

Knowledge is also acquired through benchmarking and adoption of state- of- the art technology, on the basis of which organizations build sustainable structures. Griffiths, Johnston and Kell, (2017). once indicated that ''giving a man fish feeds him only once but if trained to fish, he is fed for a life time", implying that training is key in knowledge acquisition and is fundamental in performance and sustainability.

Farrada and Serpell (2009) on the other hand indicated that knowledge acquisition is an effective tool that is capable of increasing productivity in manufacturing industry. IFAD (2007) also pointed out that in Nigeria; training was used as KM strategy to enhance organizations' dramatic transformations in agriculture and industry that helped to alleviate poverty amongst the poor rural Nigerians.

IFAD indicated that good KM practices can also help the organizations in identifying cultural and behavioral changes that are basic to the implementation of incentives and programs that foster improved changes. The advantages of KM practices may be summarized under operational and strategic benefits. Relevant training and development should be demand driven and aims at improving employee motivation and commitment thus corporate performance and increased market share in terms of production quality. Lyord (2006) suggests that production may only be effective if employers re-structure jobs to make acquired knowledge relevant.

Khan *et al* (2011) on the other hand authenticates that KMPs' have significant relationship with performance. It implies that organization must focus on training and development programs that shift forward their operatives' low skill-level equilibrium to meet customer expectations in the country in terms of product quality, implying that Knowledge Acquisition is capable of bridging skill gap which Phillip (2006) had argued could harness the performance and wealth of the economy.

Training is affirms knowledge acquisition strategy which helps to match the needs of an organization, increases employees' employability and translates skills to corporate effectiveness and performance (Keep, 2006). However, firms may not realize sustainable growth unless they embrace prudent KMPs' to make acquired knowledge relevant to enable them respond to the challenges of competition (IFAD, 2007).

Service providing companies like banking sectors are said to be knowledge centric in nature, investing heavily in the Knowledge Acquisition and relying on them to generate returns or competitive advantage. They often find knowledge assets more useful just as acquiring new forms of tangible assets to harness production, service delivery and competitiveness. In Britain, Germany and U.S.A previous studies indicate that under investment in employees' trainings (knowledge acquisition) besides inefficient size of firms impaired Britain's performance (Katou, & Budhwar, 2014)..

Other scholars such as Blackborn (2007) and Willard (2009) have emphasized that key firm's practices such as local resourcing, environmental management, employee constructive engagement, work life balance and ecological balance improve human welfare and protects sources of raw materials used for human needs. They are also important ingredients of sustainability. But without relevant knowledge resources to realign the practices to firm's objectives their presence adds little value if any to the firm. In a knowledge based economy, KMPs' are therefore viewed as pivotal to economic development (von Kardorff, 2019) and continuous knowledge creation and acquisition are basic to a firm's competitiveness (Dave, & Shisodia, 2012).

2.3.2 Knowledge Application

Knowledge application is a process by which firms transform knowledge into new products and services (Wilson, 2007). It is the practical use of knowledge into new products, context or situations that center on organizations' products, processes and services (Omotayo, 2015; Fink, & Ploder, 2009).

Knowledge application thus provides the firm with product benefits in which it direct costs and savings, reduce wastages and increase sales. West and Noel (2009) and Sheikh (2008) also confirm that a firm's competitive advantage directly depends on their capability to gather and use knowledge resources effectively. These scholars concur on the arguments that it's a firms' knowledge other than its physical assets and financial resources that is key to its competitiveness from which sustainability is scaffold.

Alauddin and London (2011) also suggest that sources of competitive advantage reside not in knowledge itself but in the application of knowledge. Application of knowledge may therefore give an organization strategic benefits and necessitate customer repeat buying behavior, attraction of new customers and as well increasing its market share (Robinson *et al* .,2005). Since trade liberalization emerged as an important issue, markets have been opened equally to small and large scale sectors and non- responsive firms to changes in knowledge risk being faced out of production. Wajaktrakal (2005) also argued that firms can achieve monopolistic and oligopolistic advantages to make them competitive and sustainable by developing and applying their knowledge capabilities effectively.

According to Wah (2013) knowledge Application should help a firm to innovate new products and services which (Lew & Sinkorics, 2012) further argued would give such firms competitive advantage. This is what Dalkir (2013) had reasoned that knowledge management through efficient application mechanisms would enable an organization to capture its collective expertise and disseminate it to whenever it could achieve the biggest payoffs.

Li & Tsai (2009) on the other hand assert that efficient use of knowledge should help a firm to innovate products of unique characteristics that are difficult to imitate by other firms in order to achieve competitive advantage. Other scholars such as Rios- Morales & Brenman (2009) also believed that innovation is an indirect outcome of knowledge application that can support competitive advantage.

According to Du Plessis (2007); Huang and Li (2009) innovation has profound effect on organizations' performance, survival and competitiveness. Yet innovativeness is not possible without efficient knowledge application. The research conducted in a manufacturing industry in Croatia suggests that knowledge management positively affect organizational outcomes of a company's innovation, product improvement and employees' improvement (Kiessling *et al*., 2009).

Erickson and Rothberg, (2009) also pointed out that when firms apply their knowledge efficiently in their production processes, they will emerge superior and achieve competitive advantage. This implies that organizational sustainability may be difficult to achieve without efficient knowledge application.

While Zack *et al* (2009) confirms that the study of KM influences various aspects of organizations financial performance, Westerberg (2008) adds that organizations engaged in innovation and exploration as a result of efficient management of its' Knowledge resources perform better. Henderson (2011) on the other hand further posits that firms can adopt KM practices of their physical and intangible assets to achieve sustainable development within the context of their competitive advantage.

On the other hand Jones (2008).); Kasim (2008) suggests that adoption and implementation of KMPs' in capturing, sharing best practices, delivering competitive intelligence and managing customer relationship are fundamental in building an organizations competitive advantage. On a similar note, Dasgupta (2007) posits that organizational sustainability is dependent on efficient use of knowledge assets to protect the environment, prudent use of available natural resources and maintaining high and stable level of economic growth and employment. Kim (2011) in his study of effect of KM on performance of public organizations in Virginias' 23 local CPS Departments in an online survey failed to

acknowledge that Knowledge sharing had any crucial role in influencing performance of CPS programs. His argument was contradicted by Radwan *et al* (2012) in their study of knowledge adoption and performance amongst 13 pharmaceutical firms in Jordan using survey which found that there was positive relationship between (communication) knowledge sharing and performance in influencing product innovation and profitability.

2.3.3 Knowledge Sharing

Knowledge sharing or dissemination is a process of distributing explicit and implicit knowledge amongst employees within an organization (Kankanhalli, & Tan, 2005). Fink, & Ploder, 2009). It involves information sharing or using qualified performance data. Knowledge sharing may take form of benchmarking which provides an opportunity to blend tacit and explicit knowledge possibly through socialization processes to produce innovative outcome (Nonaka &Takeuchi, 2007).

This practice thus helps organizations in transferring knowledge resources by identifying relevant information and disseminating it so that learning takes place. According to Autant-Bernard, Fadairoand and Massard, (2013) the new Knowledge based economy places great significance on knowledge diffusion and use of information as well as its creation. It is an organization Knowledge capacity in terms of skills, intelligence and expertise that give an organization its peculiarity, competitive performance and sustainability. Knowledge sharing is key in enhancing innovation and capability of firms (Saenz et al 2009) the reason Rowley and Hartley (2017), Winter et al. (2012) argued that Knowledge Management is worthless if adequate processes of diffusion are not structured in place. Roos, Pike, and Fernström (2007) also added to the argument that in an economy where creative destruction and new combinations predominate, it is the judicious integrations of knowledge creation and effective diffusion that stimulates business performance and its economic growth. Taminiau and De-launge (2009) also claim that the most important route to innovation is informal knowledge sharing because it has operational benefits which helps people to direct labour savings and reduce staff turnover.

It also increases employees' job satisfaction and effectiveness and promotes process benefits which help to increase Productivity. Fowler and O'Gorman (2005) suggest that mentoring is also a knowledge sharing mechanism and it involves providing emotional guidance, coaching and role modeling cultures friendship which in effect improves employees' motivation, work relationship, commitment and job performance.

Performance appraisal has also emerged as an important knowledge sharing methodology, Drake, Wong and Salter (2007) indicates that it focuses on empowering, motivating and rewarding employees' best practices. It helps organizations to correct mismatch in performance and this gives an organization competitive and sustainable advantage. Benchmarking on the other hand is an important way of Knowledge sharing. Blankenship and Ruona (2009). indicates that firms perform well when they share knowledge with others, form network to provide integrated quality products that enable them to gain large market share and profitability. It is the process of comparing performance of what the employees are doing in one organization with the colleagues in a competing firm.

Well disseminated knowledge by an organization creates intellectual capital base. Knowledge is sourced from many areas; explicit knowledge from socialization (Brainstorming, e-learning, community of practice and informal meetings); internalization sources (documentations and reports, seminars and trainings and informal meetings) and externalization (Workshops, seminars and trainings and informal visits) while Tacit knowledge may be sources from externalization, socialization and internalization (Takeuchi,2007; Hua & Li, 2010).

Knowledge diffusion may also be enhanced by interaction between social capital and organization capital (Armstrong, 2006). Sharing involves orienting information to fit culture and skills which are specific to organizational requirements; for this is fundamental to improved performance and sustainability.

According to Intezari, Taskin and Pauleen (2017) knowledge management especially sharing may significantly help corporate management to cut down on organization layers, increase flexibility of enterprise and contributes to its efficiency. In addition, they pointed out that KM also helps in reducing time wastage required to capture correct information or make decisions, reduce production costs, improves success rate and potentially reduce research and development costs and product development cycle time. Organizations' performance and sustainability depends on its capacity to manage its human capital competencies' (Knowledge) which is possible through varied practices such as mentoring, performance appraisal and bench marking which makes knowledge sharing feasible.

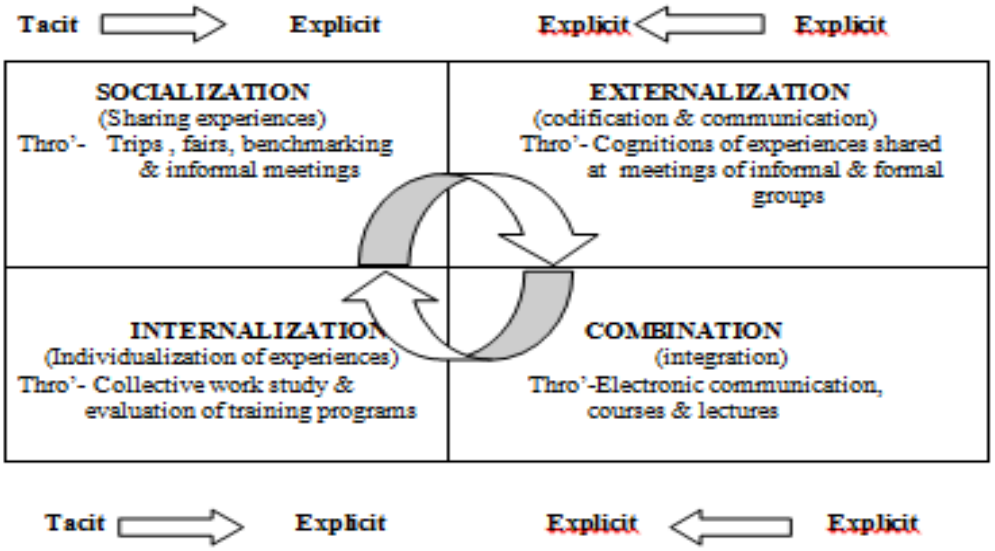
According to Armstrong-Flemming (2015) where a firm has efficient KMPs' such as sharing and application there would be competitive advantage as the firm acquire larger market by delivering competitive intelligence to make it withstand competition. However, Ferguson, Huysman, and Soekijad (2010) posited that firms should stop spending more time on technology at the expense of content, organization culture and motivational approaches in making knowledge management (KM) useful because such delays the dawn of corporate reality of effectiveness in performance, equality management, customer satisfaction and sustainability.

Finally, Matzler and Mueller (2011) argue that effective knowledge sharing can facilitate organization learning and innovation since before combining new knowledge, relevant knowledge must first be acquired and then incorporated into existing knowledge base. In conclusion they assert that knowledge sharing is critical in creating a firm's competitive advantage.

2.3.4 Knowledge Conversion

Knowledge conversion is process of translating knowledge from its explicit (abstract) into a more concrete (tacit) knowledge that can be realigned to provide solution to problems facing an organization. It is also defined as a social process through which individuals with varied information and experiences interacts to create new knowledge that increases quality of tacit knowledge, Sanchez & Palacios' (2005). Nonaka and Takeuchi (2007) define Knowledge conversion as a spiral effect

involving transformation of knowledge from explicit to tacit and re- transformation from tacit to explicit. They developed Knowledge conversion model which includes socialization, externalization, combination and internalization (SECI)



Source: Cairó Battistutti, and Bork, (2017)

Figure 2.3: Knowledge Conversion Model.

Knowledge combination is an aspect of conversion that brings together (integrating) wide range of knowledge processes through creation, coding, sharing and utilization (Grant & Grant, 2008). Cairó Battistutti and Bork (2017) states that combination enables an organization to collect explicit knowledge from varied sources, combine and edit before disseminating them to employees for application.

Aurum *et al* (2008) argued that integration helps to bring all the human, physical resources, processes and technology together to make an organization gain sustainable competitiveness. And for this to happen, employees who are willing to share their tacit experiences must be supported by management (Peresca *et al*., 2010).

Similarly, socialization concerns itself with the conversion of existing tacit knowledge into new Tacit knowledge through shared experiences which are facilitated by employees' social interactions in an organization. On this, Nonaka and Takeuchi (2007) argues that socialization is influenced by organization culture and that shared experiences during customer- employees' and customer-management interactions are pivotal in developing knowledge of improving products and customer services in an industry.

Externalization on the other hand is an aspect of knowledge conversion that help an organization in setting its rules and policies for attaining its goals (Cairó Battistutti & Bork, 2017). Its' through externalization that an organization authenticates the processes of articulating tacit into explicit knowledge, through documentation of reports that becomes reference in implementation of new concepts in innovation.

Internalization aspect of conversion helps an organization to re-cycle explicit knowledge into tacit knowledge indicating high level o employees' apprehension of concepts. It helps an organization in the management of knowledge to speed knowledge sharing and application by practicing (Nonaka & Takeuchi, 2007).

Montoya- Weiss (2006) authenticated the consensus that understanding conversion model may help organizations to provide solutions to their problems and perform their tasks and actions correctly. Nonaka and Von Krogh (2009) posited in a similar fashion that that knowledge conversion can build the capacity of an organization to implement newly acquired skills and experiences to improve its performances and undertakings in innovation.

Nonaka and Krogh (2009) pointed out that knowledge conversion is basic to an organization since it's capable of helping it to provide solutions to its problems as the employees socialize, externalize, internalize and integrate knowledge. It is common knowledge that organizations problems are problems of performance, growth and sustainability, implying that conversion may provide a firm's performance and sustainability problems. Scholars such as Soon and Zainol (2011), Sabherwal and Sabherwal (2005) acknowledged that knowledge conversion has fundamental bearing on organization performance.

The argument on performance was also supported by Gasik (2011); Yusoff and Dandi (2010) who asserted that the knowledge conversion practices are capable of giving firms competitiveness. On the same argument, Al-Debei and Avison (2010) posited that firms' knowledge and capability must be modeled in a manner that befits their goals in order to achieve their performance targets and consequently sustainability. Stephen and Muthe (2015) in their study conducted using cross sectional survey in the banking sector posited that knowledge conversion and knowledge application have positive influence on performance, which is bottom line in organizational sustainability.

Tseng, (2010) asserted that knowledge conversion makes it necessary for a firm to concretize the abstractness of knowledge by converting explicit knowledge through socialization into tacit for individual application. He insinuates that knowledge cannot conveniently be utilized unless it's processed through conversion to suit the users need.

On the same vein, Soon and Zainol (2011) supported Tsengs' argument that gathered knowledge from varied sources must be converted into required form to ease effective application. From these arguments, it is understood that acquired knowledge must be stored and utilized to improve firms' performance by facilitating problem solving, planning and decision making but only if its converted (Carlson, & Bloom, 2005).

Jasinskas, Svagzdiene and Simanavicius (2015) having acknowledged the existence of tacit and explicit, further justifies that explicit knowledge is that knowledge that can be coded, verbalized, processed, transfused and stored in journals, mass media and books - can be shared inform of data and translated into formulae such as business patent.

On the other hand, Tacit knowledge is personal and hard to formulae but can be put inform of procedures, actions and values- it is the knowledge we are unconscious about and can't be corded nor communicated. However, the duo says that it is acquired by sharing experiences, observation and imitation. Esterhuizen, Schutte, and Du Toit, (2011) asserts innovation is driven by knowledge conversion since it results

from integration of tacit and explicit. He concludes that innovation can influence a firm's competitive advantage.

Tacit knowledge is therefore bottom line in innovation and capable of positively influencing a firm's improved performance through collaborative sharing of experiences by its staff in and outside wither firms to enhance knowledge diffusion (Panahi, Watson, & Partridge, 2013).

Seidler-de Alwis and Hartmann (2008) asserted that for a firm to realize and maintain its level of innovation, performance and growth it has to as well control loss of its explicit knowledge through staff turnover. This is argued by Moyle, Cooke, Beattie, Jones, Klein, Cook, and Gray (2013**),** Hall and Sapsed (2005) that can be achieved by firms that maintain higher level of knowledge conversion through favorable human resource policies, performance management and implementing motivational reward systems.

It is worth noting that since company sustainability amongst other factors is influenced by innovation which depends on tacit knowledge, then sustainability also depends indirectly on the level of knowledge conversion-from explicit to tacit (Van Baalen *et al*., 2005). Since studies conducted in Europe in financial sectors have justified the competence of Knowledge conversion in positively influencing performance (Yeh, Lai & Ho, 2006).

On the other hand, Steyn and Kahn (2008) validated the resource-based theory following their empirical justifications that KMPs'- sharing, creation and application are fundamental in making the organization stronger and successful in gaining competitive advantage, there only exist few such studies that link knowledge conversion to organizational sustainability hence justifying further the need for this study especially in sugar manufacturing companies in Kenya.

2.3.5 Government Policies' mediating influence on the relationship between KMPs' and Sustainability of sugar companies in Kenya.

2.3.5.1 Liberalization Policy

Government policies are legal frameworks that are used to control varied situations of the economy (Hornby, 2008). In many parts of the world, policies may foster developments, bring ruins or decay, successes or failures of institutions. Most corporate performance, growth and sustainability are dependent on the feasible policies that are rolled by their governments. Some of the key policy reforms that are popularly used by many governments in managing their corporate sector economies are liberalization and price control.

In USA, liberalization policy was blamed for bringing cut throat competition that led to mortality of steel companies ((Iringo, 2005). This had general effect on workers and the economy. Workers were sacked and the economy suffered depression. By 1991 USA enacted anti- trust legislation such as Sharman Act of 1991 which restricted corporate conspiracy, Clayton Act of 1994 and Hart Scott Robbins Anti-Improvement Act of 1980 which outlawed corporate merger. (Iringo, 2005)

These Acts encouraged competition and broke monopoly powers of already existing firms which were occasioned with high prices and production of substandard products. According to Zambian Sugar Report (2009) Zambian liberalization policy also forced the government to subsidize heavily to make local sugar prices to match those of imports in order to salvage infant sugar companies from mortality. Without such incentives the companies could have compromised their performance and growth goals.

Iringo (2005) pointed out that Kenya's involvement in economic integration that led to removal of trade barriers as it subscribed to Preferential Trade Area (PTA) and Common Market for Eastern and Southern African (COMESA) membership, permitted liberalization in trade and industry. This led to negotiated quota of sugar import from COMESA states. It is under this guise that Private sugar millers and cartel sugar firms such as Rising Star Commodities Ltd, Krish Comodities Ltd, Shree

Sai Indistries Ltd, Rees Wood Enterprise Ltd, Shake distributors and Hydrey (P) Ltd owned by political 'big shots' began importing illegal cheap sugar from non-COMESA partners (Kamau, 2010). This led to importation of unlicensed 15,140.4 metric tonnes resulting into saturation of local market with cheap sugar and cash flow challenges to local sugar companies' which experienced stock piles.

This weakened the Kenyan Sugar economy in terms of growth and sustainability of its infant industries as the companies that were recovering from heavy debts re-submerged into huge debts putting their dream for growth and sustainability at stake as indicated in the Table 2.1

Table 2.1: State Owned Sugar Companies indebtedness in Kenya

Companies	**Debt Burden 1997-2001 2012-201 (Kshs- million)**	**(Kshs- billion)**
Mumias	860,000,000	**
Sony	640,000,000	5,000,000,000
Nzoia	580,000,000	37,000,000,000
Muhoroni	450,000,000	27,000,000,000
Chemelil	210,000,000	5,000,000,000
Miwani	**	28,000,000,000
Total	**2,740,000,000**	**100,000,000,000**

Source: Report of Departmental Committee on Agriculture, Livestock &Co-operatives (2015).

The effect of Liberalization was felt elsewhere. It caused collapse of Steel mill companies in USA with consequent mass lay off of workers and sagging of the economy (Iringo, 2005). In 2000, The Kenya government blamed liberalization for stiff competition faced in its export products, a Multinational corporation which had to rethink strategies to reposition itself once again to maintain its market share (Njoroge, 2018). However, advocates of liberalization such as Njoroge (2018) maintains that liberalization is beneficial since it opens up doors for investment opportunities, facilitate export trade, step up level of specialization and foster mutual political understanding between countries.

As a result of liberalization contraband sugar were imported into the country by cartel operating firms, repackaged to conceal identity and evade surveillance network of KSB and KRA on Crisis Facing Sugar in Kenya (Report of Departmental Committee of Agric. Livestock and Co-operatives, 2015). Taxation was evaded by repackaging of industrial sugar which ended up competing table sugar subjected to full duty-free taxation.

Katunyi's Anti-Corruption Report (2010) on the other hand indicates that Kenyan weak policy framework, high turnover of top management and political agitation for liberalization are factors that have worsens state of sugar industry. This report justifies poor performance of Kenyan sugar sub sector hence its decline in sustainability on liberalization which has given way to stiff competition to the local firms. But contrary to this argument, while assessing the impact of competition, Karen and Sigh (2010) indicated that poor performance of industries in developing nations (with sugar companies not exempted) should not be blamed on liberalization per see but also on the companies 'persistent usage of ageing technology and inefficient agronomic practices.

2.3.5.2 Price control Policy

Price control has been necessitated by buyers' complaints that prices are high and sellers complain that prices are low. Price control comes in form of price ceilings (the legally set maximum price at which consumers have to buy products and sellers have to sell products to enable both parties eliminate dissatisfaction which retards exchange processes (Phantorn, 2008).

Kenya is market-based economy with a few state-owned infrastructure enterprises but maintaining liberalized trade system without price control would worsen off its economy. By 1973 Kenya witnessed depressed economy with 100% inflation and frozen liberal and multilateral supports because of absence of price control.

During 1991-1993 Kenya began new economic liberalization reforms with assistance of the World Bank and International Monetary Fund (IMF) and part of the reform was removal of price control and import licenses, which Mr. Nalo Minister for

Eastern Africa Community then argued violated fundamental principles of world trade organization of which Kenya had subscribed to (Doing Business in Kenya, 2010).

In addition, World Bank (2010) asserts that crippling sugar economy in Kenya is due to political interferences. The report further indicates that powerful politicians have been involved in importation of cheap sugar in the country and this ushered in stiff competition to the infant sugar companies in the country.

2.3.5.3 Sustainability

According to Loeber, Van Mierlo, Grin, and Leeuwis, (2007). World Bank (2005), Kuckartz and Wagner (2010) sustainability means "meeting the demands of the present society without compromising ability of future generations to satisfy their own needs by responding to current economic and social environmental challenges". The purpose of sustainability is to improve economic, environmental and social performance of companies (BosBrouwers, 2010) to enhance their survivability and make them self-supporting.

A sustainable company is one that offers product and services that fulfill the societal needs while considering its ecological, social and economic impacts on earths' inhabitants and without compromising the needs of its future generations (Azapagic & Perdan, 2005).

Dasgupta (2007) further argued that sustainability is all about ensuring better quality life for every one now and for generations to come through social progress while meeting people's needs, protecting environment, ensuring prudent use of natural resources and maintaining stable economic growth and empowerment.

Inyang, Awa and Enuoh. (2011). argued that the essence of sustainable development is determined by the people and is attributed to changes of people's attitudes and habits. Sustainable development often includes social, environmental and economic variables often referred to as Tipple bottom line (TBL) parameters.

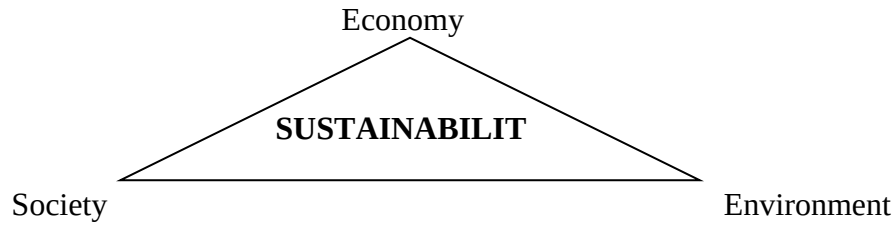


Figure 2.4: TBL parameters of Sustainability.

Dasgupta (2007) posited that sustainable development is about ensuring better quality life to society now and in future through social progress (development of infrastructure, heath and sanitation, environmental protection (tree planting and protection of biodiversity, ensuring effective use of natural and waste resources) and maintaining stable level of economic growth and employment).

According to Medne and Lapina (2019), organizational sustainability could be measured using economic, social and ecological parameters the achievement which anchors on firms prudent KMPs' and a country's political good will. The bottom line of sustainable development is to develop capacity to help the poor to maintain and improve their natural capital (natural resources) while developing their human capital (human resources) and manmade capital (investment infrastructure, social capital, cultural bases and political systems) that makes society function (Birasnav, Chaudhary, & Scillitoe, 2019). Precisely sustainability issues are focused on making organizations self-reliant in their social, economic and ecological growth and developments.

2.4 Empirical review

The rationale of this section was to provide insight on previous researches done on the study area.

2.4.1 Knowledge acquisition and sustainability

According to IFAD (2007) study conducted in Nigeria on training practices in agricultural sector, indicated that knowledge acquired from training impacted positive transformation in agriculture and industry and assisted in alleviating poverty

amongst the rural population. Even though the study was carried out in agriculture, it was not in sugar manufacturing sector. Secondly it limited itself to performance and not sustainable growth of the same.

Ferrada and Sarpell (2009) study on effect of knowledge acquisition on performance of manufacturing industry concluded that KMPs' especially acquisition had significant effect in enhancing performance by increasing productivity. Even though the study was on performance in a manufacturing industry, it was not in a sugar manufacturing sector.

The study did not also extend its analysis beyond performance to point of sustainability of the sector. Chatterjee (2014) indicated that under investment in knowledge acquisition impaired performance and as a result delayed sustainability of firms in those countries. Also, Aulawi, *et al*, 2008 in their study concluded that acquired knowledge not only increases stock of knowledge, opens up new avenues for innovation but also results into organizations' sustainable growth or competitive advantage. Even though the study gave good gesture on sustainability, it was conducted outside (the geographical scope of the study) Kenya.

2.4.2 Knowledge application and sustainability

Radwan *et al* (2012) in their study of knowledge application on performance of pharmaceutical firms in Jordan posited that knowledge application had significant relationship to performance which is a fundamental drive to sustainability. However, the study used survey and was in the field of medicine and not sugar manufacturing sector. Wah (2013) also concluded that innovation of new products due to knowledge utilization may result into competitive advantage which is bottom-line to performance and is a significant factor to sustainability.

2.4.3 Knowledge sharing and sustainability

In their study Saenz *et al* (2009) indicated that knowledge sharing is key in enhancing innovation and capability and thus performance. By insinuation the study pointed out that innovation and capability are pillars that support sustainability.

And Rasmussen and Haggerty (2008) indicated that an appraisal which is basic component of knowledge sharing is significant in empowering and rewarding employees' best practices which they concluded influences firms' competitive and sustainable growth.

2.4.4 Knowledge Conversion and sustainability

Without knowledge conversion a firm may not achieve innovative goals and thus remain underperforming. In his study of knowledge conversion Nonaka and Von Krogh (2009) pointed out that conversion has the capability to empower an organization to re-align acquired skills and experiences into improving performance and innovation which are milestones to sustainability.

Neigh and Muthe (2005 also conducted their study of knowledge conversion on performance and concluded that it had positive influence on performance which is yardstick to sustainability. However, the study used cross sectional survey and was conducted in banking industry and not in sugar manufacturing sector. Similarly, Yeh *et al* (2006) in their study of knowledge conversion on performance reported positive relationship on performance. Nevertheless, the study was conducted in banking sector in Europe and not in sugar sub sector especially in Kenyan environment. It is worthwhile to note that the above inquiries did not relate KMPs' directly on sustainability; they attempted to relate it to fundamental indicators of sustainability.

From the forgoing studies, it's clear that there have not been adequate studies analyzing the impact of KMPs' on sustainability based on innovation, profitability, and diversifications of sugar companies other than scanty inquiries on sustainable competitiveness hence such a full-length study on influence of KMPs' on sustainability of sugar companies in Kenya was therefore meant to fill the gap in knowledge.

2.5 Critique of the Existing Literature relevant to the study

Scholars such as Aulawi, et al, (2008), Soon and Zainol (2011). in their contributions following their studies indicated that KM is an important driver to organization effectiveness and by extension performance but were not specific that the same could lead to sustainability. This is because not every level of performance may lead to sustainability. While Abbas and Sağsan (2019) indicated that KMPs' could cause innovation and consequent organizational growth and performance on which he concurs with Rizwan & Mohamud (2012), they were adamant on its influence on sustainability. Mills & Smiths' (2011) study also revealed direct relationship between KMPs' and Performance but were silent on specific KMPs' that have greater impact on performance and the extent at which the same could cause the firms' sustainable growth.

Jean (2010) indicated that efficient KMPs' could lead to improvement in ecosystem which is a significant aspect of sustainability but like many other scholars, didn't consider intervening factors that may undermine the efficacy of KMPs' like government policies on the companies market capital.

Other scholars Beatrice & Smith (2010), Bowman & Tones (2010) in their studies also indicated that KMPs' could bring quality in an organizations' human capital to enable a firm gain competitive advantage. However, these authors ignored to capture the fact that sustained performance could guarantee organizational sustainability.

Rizwan & Mohamud (2012) drew attention of researchers by reporting positive relationship between KMPs' and performance their survey that was conducted in developed countries in multinational corporations. However, like their colleagues they didn't point out explicitly specific sustainability parameters. West and Noel (2009) pointed out that efficient KMPs' (application and sharing) could lead to innovation with positive economic implications to firms. However, he didn't indicate possible impact that his findings would have on social and ecological parameters and firms sustained growth position in an event when they are faced with government policy interventions such as liberalization and price control.

Kim (2011) from his case study of KM of Public organizations in Virginias' 23 Local CPS departments failed to acknowledge that KMPs' could influence performance. His findings contradicted Radwan *et al* (2012) report of survey study of Pharmaceutical firms in Jordan that Knowledge sharing had positive influence to innovation and profitability. However, no-matter the contradictions and irony, these results were of cross sectional survey and case studies which limited the scope of their findings to warrant general applicability. It is therefore important to note that sustainability is only possible when firms have no bottlenecks emanating from economics, infrastructure, culture, human capital and government policies.

Lundvall and Nielsen (2007) tried to argue that effective KMPs' could result into product innovation and profitability but didn't consider the intervening effects of factors that affect KMPs' implementations such as governments' policies (pricing and liberalization) as the same could demean the value of firms' innovative processes, profitability and compromise its competitive advantage and by extension sustainability. Finally, these studies mainly concerned themselves in the medical and engineering enterprises. Very little interest had been shown in the manufacturing sectors especially sugar companies.

2.6 Chapter Summary

This chapter considered KMPs' that are crucial to organizations in realizing their competitive advantage, the context of which the firms stand to derive sustainable growth. In addition, the chapter outlined the moderating influence of government policies on the relationship between KMPs' and organizational sustainability. It has also presented a conceptual framework which analyzed the four independent variables such as knowledge acquisition, sharing, application, sharing and the mediating effect of government policy on the relationship between KMPs' as independent variables on sustainability as dependent variable. The empirical literature had also been outlined to capture the relationship between the variables as reflected in the conceptual framework. A critique of the contributions and level of coverage of previous studies and concluded with research gaps which informed the study.

2.7 Research gaps

Related studies had been conducted in developed countries such as Italy, and Pakistan by Rizwan and Mohamud (2012) and in Malaysia amongst multinationals Pharmaceutical and engineering companies established that there was relationship between KMPs' and performance. These studies were in engineering and medical firms.

Another related study conducted in Norway by Dingsoryr (2019) in medium sized company also established that an intranet based KMPs' for knowledge cartography and knowledge repository for larger software was significant in influencing performance and growth. This study was on information and Technology industry. Rizwan and Mohamud (2012) confirmed in their studies of KMPs' amongst Multinational firms that there was significant association between KMPs' with performance. The above studies however were conducted in developed countries in Multinational based medical and engineering and information and technology firms. It implies that similar studies had not been sufficiently conducted in developing countries especially in manufacturing based enterprise such as sugar companies which have national outlook and different perspectives in operation and structure.

Doo *et al* (2005) also indicated that many firms lacked understanding of how to develop KMPs' and strategies that are capable of driving the firms to innovation and sustainability implying the need for widespread studies to bring awareness of the importance of knowledge of KMPs', especially application and conversion in relation to sustainability of firms have been urgently demanding. Another gap is that even though the studies were in consensus that KMPs' were fundamental drivers to improved performance, there was failure by all of the scholars in singularizing specific knowledge based practices so fundamental to sustainability. These previous studies linked KMPs' influence to firm's economic sustainability but were blatantly silent on other measures of sustainability. It implies therefore that insufficient empirical verification of a strong link between KMPs' and organizational performance and sustainability in its diverse context exist which thus fueled the urgency for this study. This was because sustainability is measured against triple

bottom line parameters and there may not be absolute decision on sustainability based only on economic measurements (Inyang, Awa, & Enuoh. 2011)

Although the previous researcher's revealed positive relationship between KMPs' and economic sustainability gave them empirical support, they were basically products of case studies (Zaim, 2007) and normative survey which disqualified the findings from being generalized to a wider population. It also due to this reason that this study purposed for general application considered descriptive survey design to be appropriate. Furthermore, no previous studies had captured government policies moderating influence on the relationship between KMPs' and organizational sustainability especially in sugar companies. The studies only linked KMPs' and economic sustainability but were blatantly silent on other aspects of sustainability. It implies therefore that there has been inadequate empirical verification strong enough to link KMPs' and sustainable performance, a gap which fueled the urgency for this study. Finally, elsewhere in the world, researchers had based their interest on relationship between KMPs' and the firms' profitability (competitive advantage) deficient of knowledge that economic sustainability perse was insufficient measure of sustainability hence and very little interest if any, had been made to link KMPs' to other measures of corporate sustainability such social and ecological sustainability parameters. This study on KMPs' and sustainability of sugar companies in Kenya, intended to fill these gaps.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the detailed process of research problem solving and logical rationale of each stage involved as Kothari (2014) puts it. Such includes research design, target population, sampling frame, sampling techniques, Data collection instruments, procedure, Pilot study and data processing and analysis.

3.2 Research Design

This study used Descriptive Survey design to collect data from all the functional state owned sugar companies in Kenya. Design is a scheme or plan that is used to conduct the study to generate answers to research questions (Noum, 2007; Krathwohl, 2009), or a blue print of collecting, measuring and analyzing data (Kothari (2008)). Design had been chosen for this study to provide a basis upon which the study is configured and in which all aspects of research are linked to provide meaning (Kothari, 2008; Laurel, 2011). The relevance of research design is to provide direction of what methodology is to be used to collect and analyze data to answer research questions.

This choice of descriptive design allowed the collection of data by interviewing of respondents and administering of questionnaires to a sample of individuals (Krathwohl, 2009), analyzing and interpreting to provide answers to research problems. The suitability of descriptive survey in an extensive study of this kind was also based on its economy in terms of time and cost in research process (Oso & Onen, 2005) and the fact that it provideed answers to research questions in order to determine current position of given situation in respect to one or more variables further justifies its choice in this study (Cohen, Manion & Marrison, (2011). Besides, survey facilitates data gathering and presentation (Krathwohl, 2009). However, purposive sampling was also applied because of its appropriateness in the selection of respondents to engage for the study within the companies, on the basis of their experience and expertise in the subject under investigation (Uma, 2010) such

were the company's departmental managers. Consequently, like any other designs, the data collected were coded, edited, analyzed and interpreted to make them suitable for decisions regarding knowledge management practices and sustainability.

3.2.1 Research philosophy

According to Sunders and Lewis (2014). research philosophy outlines the process in which data of a certain phenomenon should be gathered and analyzed. This study adopted positivism research paradigm which is one of the three elements of an epistemological position which thrives on a simple belief that guides formally establishes a set of practices. The study was anchored on Positivism philosophy since it permitted the use of mathematical (quantitative prepositions) formulas to express functional relationship between variables hence (inferential statistics) to analyze data and test hypotheses. (Machenzie & Knippe, 2006). Positivism is characterized by a belief in theoretical underpinnings, formulation of hypotheses and testing of hypotheses using both inferential statistics, before research and statistical justification of conclusions from empirically testable hypothesis in social science (Cooper and Schundler 2011. Positivist belief that hypothesis developed from existing theories can be tested by measuring observable social realities. According to Kung and Sulaumar (2012) positivist approach involves stating theory, hypothesis generalization and testing quantitative methods which were used in this study. The positivist philosophy therefore informed the choice of descriptive design used in this study.

3.3 Target Population

This study involved five functional state owned sugar companies in Kenya whicy included Muhoroni, Chemelil, Nzoia, Sony and Mumias with a target population of 1200 managers. Target population of study is what Sekaran and Bougie (2010) defined as the entire group of people, events or things with common observable characteristic that researcher is interested in and wishes to investigate. The choice of target population was based on the fact common interest that they are all in pursuit of objective of providing sugar and improving the country's motivation for self-reliance and industrialization sustainability for job creation, which they didn't appear to

realize. The companies Managerial staff in addition to other senior officers had the competence and experience in providing reliable data.

3.4 Sampling Frame of the study

The sampling frame is a set of source of materials or frame from within which the sample is collected (Mugenda & Mugenda, 2013). State owned sugar companies such as Nzoia, Mumias, Sony, Chemelil and Muhuroni sugar companies formed the sample frame for this study. These companies spread across western and Nyanza regions of Kenya. The choice of the sample frame was based on the fact that in comprised of firms within sugar industry that had been struggling to sustain themselves by implementation of KMPs' for over six decades.

3.4 Sampling Technique and Sample size

3.4.1 Sampling Technique

The study adopted non probability sampling approach and in particular purposive random sampling technique. According to Mugenda and Mugenda (2013), Kumar (2011) sampling is a process of selecting a few respondents (sample) from a bigger group (sampling population) to become the basis of estimating or predicting the prevalence of unknown piece of information situation or outcome regarding a larger population in the study. This sampling technique was chosen because focuses researchers attention on the respondents with reliable experience tasked with knowledge implementation in the company that could help to meets the purposes of the study. Further, the choice was also based on its cost and time effectiveness in data gathering (Oso & Onen, 2005). Purposive random sampling also helped to increase the researchers' scope and flexibility in coverage in spite of the constraints of time and resources (Suen, Huang, & Lee, 2014).

According to Kinoti (2009) purposive technique is relevant and popular with experienced studies like this one that required specific information from experienced individuals, the reason choice of these techniques of sampling were made. It is further justified by Oso and Onen (2005) that random and purposive focus the

researcher's attention on the intended respondents and enables him/ her appreciate the economy of time and they often leads to collection of accurate information. Using these sampling techniques, the study restricted itself to managerial staffs that were charged with responsibility of supervising human resources in implementation of KMPs' in production and competency development functions in the organizations (Desler, 2011).

3.4.2 Sample size

From the staff of 1,200 managers within the sample frame, the study considered a sample of 300 respondents. According to Kumar (2011) a sample size is a subset of the population that researcher is interested in investigating and it is the number considered representative of the target population on which the study wishes to make inferences and unbiased generalized opinion. The choice of the sample size was based on the determination with adoption of Yamane's formulae at 95 % level of confidence in (Sarmah, & Hazarika, 2012) with 0.5.margin of error as given by;

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

Where: N - population sample; n - sample size; e - level of precision (confidence)

$$\frac{1{,}200}{1 + 1{,}200\,(0.05)^2}$$

=300

Yamane's formula was preferred due to its simplistic application in determining the sample size from research population making the researcher hence relieving researcher of tedious and complicated mathematical manipulations. This sample translates to 60 respondents from each of the 5 companies at an average of 6 managers from each of the 10 departments (Marketing, Human Resource, Agriculture, Operations (Manufacturing), Engineering, Accounting & Finance,

Security& Welfare, General administration, Procurement, and Transport & Logistics) of every company.

This obtained Sample size translates to 25% of the population, which was considered representative and adequate to minimize the likely error in generalizing findings of the study, since it is over 10% (Saunders et al., 2005, Mugenda & Mugenda, 2013). The sample population distribution in all the State Owned Sugar Companies was indicated in Table 3.1

Table 3.1: Population Sample and Sample distribution

Sugar Companies	Sample population	Managerial workforce (N)	Sample Size (n)
Mumias	1860	300	60
Sony	1700	280	60
Muhoroni*	800	180	60
Nzoia	1685	270	60
Chemelil	795	180	60
Miwani**	-	-	-
Total	6840	1200	300

Source: Companies HR Depts., (2018)

* Partial receivership ** Full receivership.

3.6 Data Collection Instruments.

The instruments are means which aided the researcher in data gathering. The study used questionnaires, interview guide and documentary analyses to collect data.

3.6.1 Questionnaires

Questionnaires were developed in the forms of open ended and closed ended questions to facilitate researches in gathering and analysis of quantitative data (Schwab, 2005). These were styled using structured in a 5 Likert scales to enable the researcher capture quantitative data used in testing the hypotheses. However, qualitative data were collected using interview guide. Significantly, the structured questionnaires restricted respondents to hypothetical views which made them very objective.

Besides open ended questionnaires, the researcher used Semi structured (closed ended) questionnaires because of their suitability in encouraging clientele responses (Kotler, & Armstrong, 2012). Open and closed ended questionnaires were constructed and administered with the assistance of "collectors" to a sample of respondents who aided in soliciting of primary data, (Krathwohl, 2009). Significantly the choice of questionnaires was based on the fact that they required little time, low cost of training for research assistants to administer and less cost of administration generally (Xiong, & Seligman, 2011).

3.6.2 Interview Schedule

Interview schedule/guide was also self-administered. According to Jair and Cheng (2018).interview questions were pre-determined but whose wording could be changed, explanation given for and additional question added or omitted as long as satisfactory responses are achieved.

Parallel to what was gathered through questionnaires, the interview questions assisted researcher to provide scholarly focus and built his intellectual ideas. Interview schedule comprised of structured questions were also used to interview 20 managers from the companies. This was in line with Mason (2010) who acknowledges that a sample of between 10-20 respondents is ideal for qualitative interview. Bearman (2019). posited that interview schedule makes it easy to comprehend constructs used by interviewees as a basis for their opinion and beliefs on issues.

Interview guide were appropriate for this study since it enabled, he researcher to check against ambiguity and inadequacy in the main instrument (Igwe, 2005). Finally, it also allowed the study to collect in-depth respondents' feelings and attitudes which could not however been captured by the questionnaire alone. They were also suitable for this study since they were easy to analyze, probed interviewee's independent views, gave respondents freedom, spontaneity of answers and eased the testing of hypotheses (Xiong, & Seligman 2011). According to (Onderi and Makori, 2012) these instruments derive their significance also in diversifying responses and reducing clienteles' question fatigue.

3.6.3 Documentary Analysis

The researcher also collected secondary data through the review of past empirical studies in journals, published thesis and companies' documentaries sources which had to be acknowledged in the reference to avoid blames of plagiarism (Mugenda & Mugenda, 2013). These helped the researcher to relate is findings for purposes f making informed decisions.

3.7 Data Collection Procedure

This is an outline or plan in which the intended data were to be collected. The researcher ensured that administration of research instruments complied with ethical principles requiring keeping the identity of respondents in anonymity and putting to use gathered data to its predetermined academic purpose (Gatara, 2010).

Guided by the same principles, the researcher ensured that informed consent of the were received from respondents after providing them with the pertinent information about the study and in particular, its purpose. In particular, the researcher received authorization from the companies where he was to conduct the study and met legality by obtaining research permit from National Commission of Science, Technology and Innovation (NACOSTI). The researcher also ensured that respondents participated freely in the study without coercion and were made free from any physical and mental injuries as their rights and dignity were respected (Hennik *et al.,* 2011).

The researcher also ensured that secondary data were collected through the review of past empirical studies in journals, published thesis and companies' documentary analysis sources which had to be acknowledged in the reference to avoid blames of plagiarism (Mugenda & Mugenda, 2013). The strength of using questionnaires in data collection was based on their convenience and cost effectiveness.

3.8 Pilot Study

The researcher made pre-visit to companies that were intended for the study before a full scale study was carried out. This was to make it possible for the researcher to pre-test the instruments to ensure that they were suitable so that they justify the

claims on what they were able to measure (Saunders *et al.,* 2008). In essence the exercise was purposed to ascertain validity and reliability of the questionnaires (Garg & Kothari, 2014). Piloting also enables the researcher to re-align the instruments to study objectives so that their outcome could answer the research questions. Mugenda and Mugenda (2013) also portend that a pilot study is a small scale preliminary study conducted in order to evaluate feasibility in an attempt to improve upon the study design prior to performance of a full scale one.

In these 25 respondents were engaged in the study comprised managerial employees who were not used in the final study (Cooper & Schindler, 2010). In order to improve reliability of questionnaire, the corrected items that were either ambiguous or displayed difficulty in being understood by the respondents were corrected or replaced altogether.

3.8.1 Reliability of Research Instruments

Reliability is the degree of consistency that the instrument or procedure demonstrates (Merom, & John, 2018). According to Lammers and Badia (2013) reliability is the absence of errors of measurement or the accuracy of measuring instrument. It is also said to be the consistency of a research instrument in producing the expected results when applied repeatedly under the same circumstances. To ensure reliability, the instruments were pilot tested during pre-visits and this permitted necessary modifications on the instruments. For this study, test-retest and measure of internal consistency of the items in each sub-scales of the questionnaire were used to test reliability of the instruments and remove bias.

3.8.2 Test-Retest Reliability

Test-retest reliability refers to the temporal stability of a test from one measurement session to another. The procedure is to administer the test to a group of respondents and then administer the same test to the same respondents at a later date. The correlation between scores on the identical tests given at different times operationally defines its test-retest reliability (Oso & Onen, 2005). Using the test-retest method where questionnaires were administered to the same group at two time intervals of a

period of one month, correlation between scores were computed using Pearson's Product Moment formula;

$$r = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{\{N\sum x^2 - (\sum x)^2\}\{N(\sum y^2) - (\sum y)^2\}}}$$

Where: N is number of respondents; x is test 1; y is test 2 and ∑ is summation.

The test retest method was meant to give consistent coefficient values. The correlation value which was computed between the scores at the two different times gave r=0.765 which was adopted for analysis since Krathwohl (2009) and Field (2009) recommends that a coefficient value of between 0.70 - 0.80 should be considered as it authenticate the instruments' reliability and suitability.

3.8.3 Internal Consistence of the Items

Internal consistency concerns the reliability of the test components; it measures consistency within the instrument and questions how well a set of items measures a particular behavior or characteristic within the test. For a test to be internally consistent, estimates of reliability are based on the average inter-correlations among all the single items within a test (Kumar, 2011). Although there are several methods of testing internal consistence, Cronbach's alpha coefficient was used in this study.

Internal consistency reliability of the instruments was obtained by computing Cronbach's alpha (α) using SPSS. The researcher computed the reliability for multi-item opinion items separately for all the six subscales in the questionnaires. Table 3.3 which shows the Cronbach's alpha for the KMPs' questionnaire reveals that each sub-scales had adequate reliability for the study.

Table 3.2: Internal Consistence: Cronbach's Alpha Results for the Questionnaire

Scale	No. Items	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items
Knowledge Acquisition	6	.721	.643
Knowledge Sharing	8	.811	.766
Knowledge Application	7	.778	.719
Knowledge Conversion	9	.795	.733
Government Policies	9	.755	.744
Sustainability of sugar companies	5	.730	.643
Total	**44**	**.765**	**.708**

Table 3.3 show that the internal consistency derived from the 44 items of all the subscales in the questionnaire) scored high Cronbach's Alpha of (α) =.765 which was considered adequate for the study. According to Krathwohl (2009), Cronbach's Alpha coefficient of value greater 0.70 is of adequate internal consistency. Therefore, these findings show that the questionnaires were generally suitable for data collection; because they adequately measured the constructs for which they were intended to measure. The results of the SPSS are as attached in the appendices.

3.8.4 Validity of Research Instruments

This is the extent to which the instruments are expected to measure the content, probe issues and produce results they are expected to generate. To justify validity of the instruments the researcher sought guidance of his supervisors whose suggestions were used to re-examine the questionnaires and remove ambiguities so that questions were realigned to the objectives of the study. This study also applied Content Validity Index (CVI) formula to measure and determine validity of the instruments. An expert in this field of the study was presented with the questionnaire and was asked to rate each statement as relevant or not relevant.

$$\text{CVI} = \frac{NrV}{TniQ}$$

Where; NrV - Number of questions rated as relevant.

TniQ -Total number of the items in the questionnaire.

Using Content Validity Index (CVI) formula the numbers of questions rated as relevant were divided by the total number of items in the questionnaire and this gave a CVI of 0.765 which was above 0.7 which is the acceptable minimal threshold adequate validity according to Hair (2009), it was concluded that the instruments were of adequate validity levels.

3.9 Data Processing and Analysis

This study used both quantitative and qualitative approaches involving both descriptive and inferential statistics in analyzing data. These involved the philosophical orientation that identified linkages between independent (IV) and the dependent variables (DV) which accordingly entailed interpretation of data and formulation of explanations of facts using inductive reasoning (Cooper,& Schindler, 2006;. Kothari, 2008).

Quantitative data were entered into the computer for analysis using SPSS version 22. Alili and Krstev (2019) observed that SPSS can handle large amount of data and due to its wide spectrum it befits social sciences to which the study belongs. This study used correlation analysis to justify the findings in a more pragmatic sense, and test hypotheses (Schober, Boer, & Schwarte, 2018).

Pearson's Coefficient correlation technique was used in the analysis due to its ability to test the hypotheses on the nature of influence of independent variable on dependent variable (Cooper & Schindler, 2006; Kothari,2008). Further, it also helped in determining the relationship between the variables at the time of study. The primary data that were collected were coded to ease the analysis (Mugenda & Mugenda, 2013).

Finally, the intervening variables were also regressed on independent variables to determine the moderating effects on them (Kelley, & Bolin, 2013). Linear and multiple regression techniques were also used because they were able to estimate

coefficients of linear equation involving one or more independent variables which best predict the value of dependent variable.

The regression Analysis was used due to its ability to test the nature of influence of independent variable on dependent variable (Cooper & Schindler, 2006; Kothari, 2008). The following regression model was thus developed and adopted to regress dependent variables against the independent variables, intervening variables against independent variables (Judd, Yzerbyt, & Muller, 2014). to determine their effect on dependent variable and hence make prediction on the future of the organization.

3.9.1 Regression Model

Multiple regression models were used to measure relationship between independent and dependent variables. The regression models helped to explain the scope and direction of relationship between the variables through the use of correlation coefficient of determination and level of significance.

3.9.2 Model Specification

The intervening regression equation used to test data is expressed as shown below:

Model 1:

It is a regression of the dependent variable and the independent variables

$$P_j = \beta_0 + \beta_1 X_{1ij} + \varepsilon \qquad (1)$$

Where: P = Organizational Sustainability j

X = KMPs measured by (KA_j; KS_j; $KApp_j$; $KCon_j$ and IC_j) in which

KA_j = Knowledge acquisition $_j$

KS_J = Knowledge sharing $_j$

$KApp_j$= Knowledge application $_j$

$KCon_j$=Knowledge Conversion

IC_j = KMPs' implementation

i and j represent the variables and organizations sustainability respectively

ε= error term

β_1 = regression co-efficient

In the above models β_0 the constant term while the coefficient β_i= 1-4 was used to measure the sensitivity of dependent variable Y to changes of the predictor variables X_1….X_4 u while ε of the error term which captures unexplained variation in the model which was assumed to be 0 normally not explained by independent variables (Ulosula *et al.*, 2013)

Model 2:

It introduces the government policy in order to establish their effect in the general organizational sustainability

$$P = \beta_0 + \beta_1 X_{ij} + \beta_2 Y_2 + \varepsilon \quad \text{..... (2)}$$

Where: $P_{;}$ X_{ij} and ε are as defined in equation 3.1 above while

Y = is the intervening (mediating) variable, that is, government policy:

Model 3:

It combines independent variables' the potential intervening variable and the cross product interaction term of the dependent and the potential intervening variable:

$$P = \beta_0 + \beta_1 X_{ij} + \beta_2 Y_{2ij} + \beta_3 X Y_{ij} + \beta_4 X Y_{ij} + \varepsilon \text{.....(3)}$$

Where: XY is the interaction term between KMPs' and government policy

β_1 β_2 β_3 and β_4 are the regression coefficients.

The interaction is entered last to ensure that the co-efficient is not confounded with variance arising from the main effects of the variables. In addition, Y can be considered a intervening variable only if the change in R^2 for the third equation compared to the second equation is statistically significant.

3.9.2 Model Specification

The intervening regression equation used to test data is expressed as shown below. It explains the magnitude and direction of relationship between the variables of the study through the use of coefficients such as correlation, co efficient of determination and the level of significance. In developing the models the independent and dependent variables were considered.

Model 1:

It is a regression of the dependent variable and the independent variables

$$P_j = a + \beta_1 X_1 ij + \varepsilon \text{..............} \quad (1)$$

Where: P = Organizational Sustainability j

X = KMPs measured by (KA_j; KS_j; $KApp_j$; $KCon_j$ and IC_j) in which

KA_j = Knowledge acquisition $_j$

KS_J = Knowledge sharing $_j$

$KApp_j$= Knowledge application $_j$

$KCon_j$=Knowledge Conversion

IC_j = KMPs' implementation

i and j represent the variables and organizations sustainability respectively

ε= error term

β_1 = regression co-efficient

In the above models β_0 the constant term while the coefficient β_i= 1-4 was used to measure the sensitivity of dependent variable Y to changes of the predictor variables $X_1 \ldots X_4$ u, the error term which captures unexplained variation in the model which was assumed to be 0 normally not explained by independent variables (Ulosula *et al.*, 2013)

Model 2:

It introduces the government policy in order to establish their effect in the general organizational sustainability

$$P= a + \beta_1 X_{ij} + \beta_2 Y_2 + \varepsilon \ldots\ldots (2)$$

Where: P; X_{ij} and ε are as defined in equation 3.1 above while

Y = is the intervening (mediating) variable, that is, government policy:

Model 3:

It combines dependent independent variables' the potential intervening variable and the cross product interaction term of the dependent and the potential intervening variable:

$$P= a + \beta_1 X_{ij} + \beta_2 Y_{2ij} + \beta_3 X\, Y_{ij} + \beta_4 X\, Y_{ij} + \varepsilon \ldots\ldots (3)$$

Where: XY is the interaction term between KMPs' and government policy

β_1 β_2 β_3 and β_4 are the regression coefficients.

The interaction term XY as shown in the equation is entered last to ensure that the co-efficient is not confounded with variance arising from the main effects of the

variables. In addition, Y can be considered an intervening variable only if the change in R^2 for the third equation compared to the second equation is statistically significant.

3.9.3 Diagnostic Tests

To ascertain the suitability of the data collected for correlation and regression analysis. Diagnostic tests were run through testing the assumptions of; normality, multi-collinearity, independency, heteroscedasticity and homoscedasticity. Results which were obtained were as follows;-

3.9.4 Normality Test

Normality of the data were tested through the use of formal test using Kolmogorov-Smirnov and Shapiro-Wilk tests, as shown in Table 3.3

Table 3.3: Tests of Normality of the Data Set

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Knowledge Acquisition	.119	250	.064	.202	250	.071
Knowledge Sharing	.127	250	.068	.877	250	.070
Knowledge Application	.130	250	.103	.935	250	.120
Knowledge Conversion	.125	250	.082	.904	250	.091
Government Policy	.122	250	.120	.922	250	.125
Sustainability of sugar companies	.155	250	.055	.879	250	.062

a. Lilliefors Significance Correction

The tests on the variables indicate violation of normality by the variables of "knowledge sharing", "Government policy" and "knowledge conversion"; hence these three variables had to be transformed first to remove positive skewness that was observed in their original data. Normality tests in Table 3.3 shows the results after transformations. Although the Normality test results in Table 3.3 shows both Kolmogorov-Smirnov (K-S) and Shapiro-Wilk (S-W) test results, this study used the S-W to interpret the normality of the variables. The Kolmogorov-Smirnov test is based on a simple way to quantify the discrepancy between the observed and expected distributions. It turns out, however, that it is too simple, and doesn't do a

good job of discriminating whether or not the data is sampled from a Gaussian distribution. Creswell (2014) recommends that Shapiro-Wilk's test should be used for small and medium samples up to n = 2000 because of sensitivity to identify normality in a data set. Shapiro-Wilk is comparable to the correlation between a given data and its corresponding normal scores, with S-W = 1 when their correlation is perfectly normal. This means that a significantly ($p < .05$) smaller S-W than 1 imply that the normality is not met. Hence, the data is normal when Shapiro-Wilk (S-W) $\geq .05$.

3.9.5 Test of Assumptions of Multi-Collinearity

This was done to find out whether multi-collinearity assumptions was met and that there was any predictor variable in the multiple regression model that could be linearly predicted from the others with a substantial degree of accuracy. Meyers, Gamst and Guarino (2006) assert that multi-collinearity is excessively high level of inter-correlation among the independent variables, such that the effects of the independent variables on the dependent variable cannot be easily detached from each other. Although correlation matrix is usually used to investigate the pattern of inter-correlation among all the variables, Creswell (2014) observed that use of correlation matrix to indicate signs of lack of multi-collinearity among the variables is not adequate. Further the study assessed the multi-collinearity assumption by examining tolerance and the Variance Inflation Factor (VIF) in table 3.4

Table 3.4: Tolerance and Variance Inflation Factor (VIF) Statistics

Model		Collinearity Statistics	
		Tolerance	**VIF**
1	Knowledge Acquisition	.824	1.214
	Knowledge Conversion	.462	2.167
	Government Policy	.551	1.816
	Knowledge Application	.493	2.029
	Knowledge Sharing	.527	1.898

a. Dependent Variable: Sustainability of sugar companies

Tolerance is the percentage of the variance in a given predictor that cannot be explained by the other predictors. When the tolerances are close to 0, there is high multi-collinearity and the standard error of the regression coefficients will be inflated. Therefore, a small value indicates that a predictor is insignificant, and tolerance values that are less than 0.10 may require further investigation. The variable's tolerance is $1\text{-}R^2$, while VIF is its reciprocal. Hence, a variable whose VIF value is greater than 10 may also need to be investigated (Stevens, 2012). A small tolerance value indicates that the variable under consideration is almost a perfect linear combination of other independent variables already in the equation and that it should not be added to the regression equation.

3.9.6 Test for Independence of Observations

Another assumption of multi-regression is that the observations are independent. This assumption is that the observations in the sample are independent from each other, meaning that the measurements for each sample subject are in no way influenced by or related to the measurements of other subjects. The Durbin Watson test was used to check if the assumptions of regression that the observations are independent were met, as indicated in Table 3.5.

Table 3.5: Test of Independence: Model Summary

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	Durbin-Watson
1	.693[a]	.481	.470	.43597	2.139

a. Predictors: (Constant), Knowledge Sharing, Knowledge Acquisition, Government Policy, Knowledge Application, Knowledge Conversion

b. Dependent Variable: Sustainability of sugar companies

Oso and Onen (2005) indicate that if there is no autocorrelation (where subsequent observations are related), the Durbin-Watson statistic should be between 1.5 and 2.5. Table 3.5 shows that the Durbin-Watson statistic is 2.139 which is between 1.5 and 2.5, implying that the data was not auto-correlated, indicating that the assumption of independence was not violated.

3.9.7 Heteroscedasticity and Homoscedasticity

The study investigated the assumption of heteroscedasticity and homoscedasticity, which describe a situation in which the error term is the same across all values of the independent variables. Creswell (2014) points out that if a model is well-fitted, then there should be no clear pattern to the residuals plotted against the fitted values. If the variance of the residuals is non-constant then the residual variance is said to be heteroscedastic. This study used graphical method to show this by fitting residuals versus fitted (predicted) values, as shown in Figure 3.1

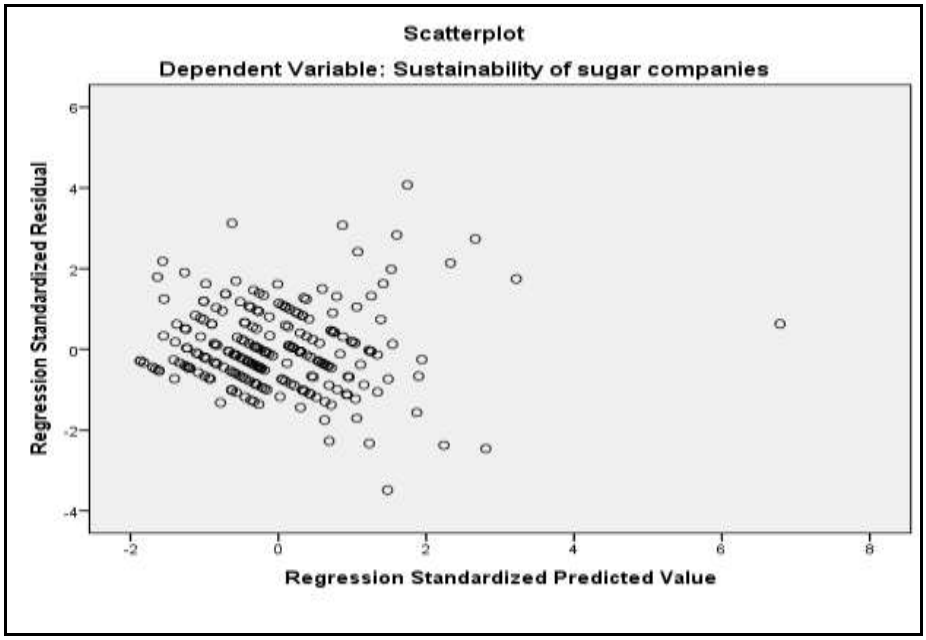


Figure 3.1: Scatter plot of standardized residuals against standardized predicted values

Heteroscedasticity is implied when the scatter is not even; fan and butterfly shapes are common patterns of violations. Figure 4.3 shows that the pattern of the data points formed almost pattern less cloud of dots indicative of homoscedasticity. Therefore, the assumption of homoscedasticity, which refers to equal variance of errors across all levels of the independent variables, was not significantly violated.

3.9.8 Operationalization of Variables and Measurements

‘Regression assumptions is that each independent variable is a linear related to the dependent variable, indicating the existence of homogeneity of the variance Y value spreading around the means of X in the population’ (Mugenda & Mugenda, 2013).

In the study the Knowledge acquisition measured in terms of knowledge resourcing and appropriate training; knowledge application measured in terms of product innovation and diversification; knowledge sharing measured in terms of bench marking and mentoring and knowledge conversion measured in terms of problem solving and product improvement. Similarly, mediating variable- government policy was measured in terms of liberalization and pricing control practices. Finally, sustainability was measured in terms of economic parameters, social parameters and ecological parameters.

All the variables were weighed on a 5 likertscale (1-5). According to Servqual model of Solomon and Brisini (2017) these were used to gather opinions from the respondents. It is imperative to note that the parameters were used to operationalize the variables as against the scales evidenced in Table 3.6.

Table 3.6: Operationalization of study variable parameters

Type of variable	Variable Parameters	Measurements of the variables
Dependent Variable		
Sustainability	Economic factors	
	Social factors	5 Likert scale- a scale of 1 to 5; where 5 meant strongly agree, agree neutral, disagree and strongly disagree respectively
	Ecological factors	
Independent Variables		
Knowledge acquisition	Knowledge resourcing Appropriate training;	On 5 Likert Scale; where 5 meant strongly agree, agree neutral, disagree and strongly disagree respectively
Knowledge application	Product innovation	On 5 Likert Scale; where 5 meant strongly agree, Agee neutral, disagree and strongly disagree respectively
	Product diversification	
Knowledge sharing	Bench marking Mentoring	On 5 Likert scale- a scale of 1n to 5; where 5 meant strongly agree, agree neutral, disagree and strongly disagree respectively
Knowledge conversion	Problem solving Product improvement	On 5 Likert scale- a scale of 1to 5; where 5 meant strongly agree, agree neutral, disagree and strongly disagree respectively
Government policy		On 5 Likert scale- a scale of 1 to 5; where 5 meant strongly agree, agree neutral, disagree and strongly disagree respectively
	Liberalization Pricing control	

3.9.9 Hypotheses Testing

The study formulated five hypotheses from its five objectives. During the pilot study the test re- test was applied to ascertain the significant influence on dependent variable. The researcher tested the variables at 95 % level of confidence and in the circumstances when the p- value appeared greater than 0.005 for all the independent variables, the null hypotheses was rejected (H0) and the alternative (Ha) was accepted.

The following were the hypotheses tested in the study;

$H0_1$: Knowledge acquisition has no statistical significance on sustainability.

$H0_2$: Knowledge sharing has no statistical significance on sustainability.

$H0_3$: Knowledge application has no statistical significance on sustainability.

$H0_4$: Knowledge conversion has no statistical significant influence on sustainability.

$H0_5$: Government policies have no statistical moderating influence on the relationship between KMPs' and Sustainability.

Table 3.7: Summary of Test Statistics for the Hypotheses

S/n	Hypothesis to be tested	Objectives	Analytical tool to be used	Test Statistics and decision
1	Ha: $\beta_{1=0}$ Ha: $\beta_{1\neq0}$	To establish the influence of knowledge acquisition on sustainability of sugar companies in Kenya	Descriptive statistics, Regression analysis	PMCC and R^2 Values H_0 if p-value < 0.05
2	Ha: $\beta_{1=0}$ Ha: $\beta_{1\neq0}$	To establish the influence of knowledge sharing on sustainability of sugar companies in Kenya	Descriptive statistics, Regression analysis	PMCC and R^2 Values H_0 if p-value < 0.05
3	Ha: $\beta_{1=0\neq}$ Ha: $\beta_{1\neq0}$	To establish the influence of knowledge application on sustainability of sugar companies in Kenya	Descriptive statistics, Regression analysis	PMCC and R^2 Values H_0 if p-value < 0.05
4	Ha: $\beta_{1=0}$ Ha: $\beta_{1\neq0}$	To establish the influence of knowledge conversion on sustainability of sugar companies in Kenya	Descriptive statistics, Regression analysis	PMCC and R^2 Values H_0 if p-value < 0.05
5	Ha: $\beta_{1=0}$ Ha: $\beta_{1\neq0}$	To explore the influence of government policy on the relationship between sustainability of sugar companies in Kenya	Descriptive statistics, Regression and Correlation Analysis	PMCC and R^2 Values H_0 if r =.507 >β=.0416p-value < 0.05

PMCC- Pearson Moment Correlation Coefficient (r)

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the findings and interpretation of the study. The chapter begins by demographic data of respondents, presentation of the findings and discussion of objectives. Descriptive statistics were used to describe and summarize the data inform of graphs, tables, charts, frequencies and percentages. This led to adoption of statistical Package for Social Sciences (SPSS) version 22 in analyzing the data. All tests of significance were computed at $\alpha = .05$.

The findings were presented, analyzed, interpreted and hypotheses of the study tested using Pearson's product moment of correlation coefficient and regression analysis e.g ANOVA and Chris Preachers' Zero-order correlation to test the hypotheses and establish mediating influence between intervening variable on the relationship between IVs' and the DVs' respectively.

4.1.1 Demographic Information of the Respondents

4.1.2 Questionnaire Response Rate

Out of 300 questionnaires administered to the employees 250 of them were returned. This translated to 83.3% response rate. The researcher considered this response rate adequate for analysis since it was above 80 % supported as an acceptable response rate for survey questionnaires administered. (Oso and Onen, 2005). Table 4.4 highlights the response rate.

Table 4.1: Summary of Rate of Response

Respondents	Questionnaires administered	Questionnaires returned	Response rate (%)
1200	300	250	83.3

4.1.3 Respondents' by Gender Distribution

The study found that 250 respondents involved in the study were comprised of 230 (92%) males and 20 (8.0%) females. There was less than 30% representation of female gender in managerial staff of sugar companies. This implies that there is poor gender representation in the appointments since it does not reflect affirmative action rule which require at least 30% representation of female gender in public organizations. This is illustrated in Table 4.5

Table 4.2: Respondents by gender

Gender	Frequency	Percentage
Male	230	92.0
Female	20	8.0
Total	250	100.0

4.1.4 Respondents by Age

It is evident from the table that a significant proportion of 113 (45.2%), of the employees of the state owned sugar companies in Kenya were in the age group of 35-45. Only 5 (2.0%) and 75 (30.0%) were aged above 56 years and under 35 years, respectively. This implies that 180 (68%) of the managerial employees in sugar companies were of working age between 35 – 56 years and were capable of implementing KMPs' geared towards achieving sustainability in the sugar companies. The distribution is shown in table 4.6.

Table 4.3: Distribution of Age of the Respondents

Age (Years)	Frequency	F (%)	Cumulative %
24-34	75	30.0	30.0
35-45	113	45.2	75.2
46-56	57	22.8	98.0
> 56	5	2.0	100.0
Total	250	100.0	

4.1.5 Respondents by Work Experience

The findings of the study revealed 105 (42%) of the employees who took part in the survey had 12-17 years of work experience. The survey revealed that 63 (25.2%) managers in industry had served for (0-5 years. This means that many of the employees were capable of effectively implementing improvements and quality strategies for the companies' sustainability. Similarly, 5(2.8 %) of its workforce had served for over 17 years and capable of providing the perquisite technical orientation, induction and internal consultancy to the newly recruited staff that constituted 63 (25.2%) who had served for between 0 – 5 years. This is highlighted in table 4.7.

Table 4.4: Respondents by work experience in the company

Years	Frequency	F (%)	Cumulative %
0-5	63	25.2	25.2
6-11	75	30.0	55.2
12-17	105	42.0	97.2
>17 years	7	2.8	100.0
Total	250	100.0	

4.1.6 Respondents' Marital Status

The figure 4.1 revealed that 182 (72.8%) of the managerial employees in the sugar companies were married. Only 60(24%) and 8(3%) were single and divorced respectively. This implied that many of the managerial staff were responsible and could be able to demonstrate commitment to the strategic goals of the organizations. Only 60 (24%) and 8(3%), who were single and divorced respectively could suffer job-family role conflicts and psychological stress.

However, the top management had a duty to initiate stress management programs for such kind of staff in order to reduce their chances of digressive stressful confrontations to the employees whom they supervise as this could adversely affect staff morale and organizational performance and sustainability.

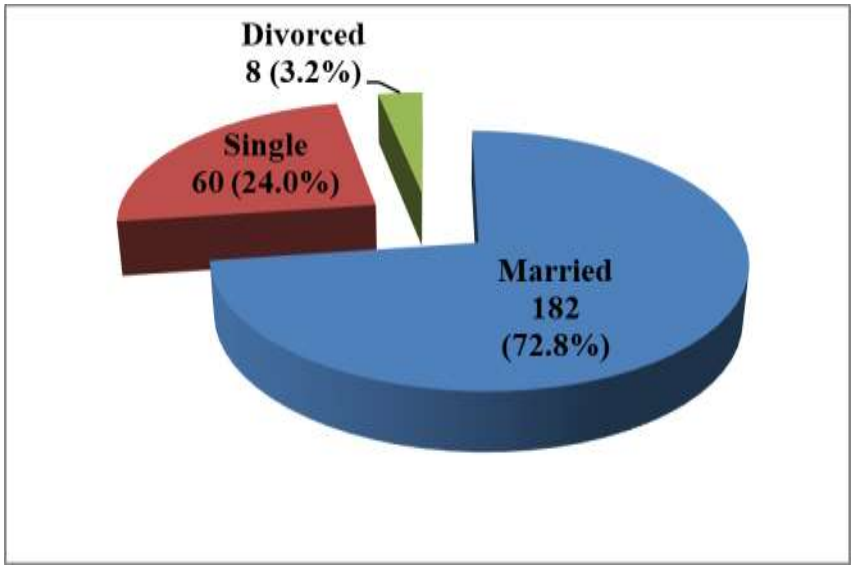


Figure 4.1: Respondents Marital Status

4.1.7 Respondents by Academic Qualification

Figure 4.6 indicates that 49 (19.6%) managers were holders of Masters or PhDs' degrees; 88 (35.2%) of management team had first degrees while 75(30 %) held Diploma qualifications. This finding implies that most of the managers had perequisite qualification for effective supervisory roles to steer the industry towards effective performance and sustainability. However, it emerged that 38 (15.2%) of the employees had certificate academic qualifications.

The implication of this finding is that the companies ought to develop skills and competencies of their junior managerial staff in sugar technology through scholarship and internship training in world leading sugar producing countries such as Brazil, South Africa and Mauritius.

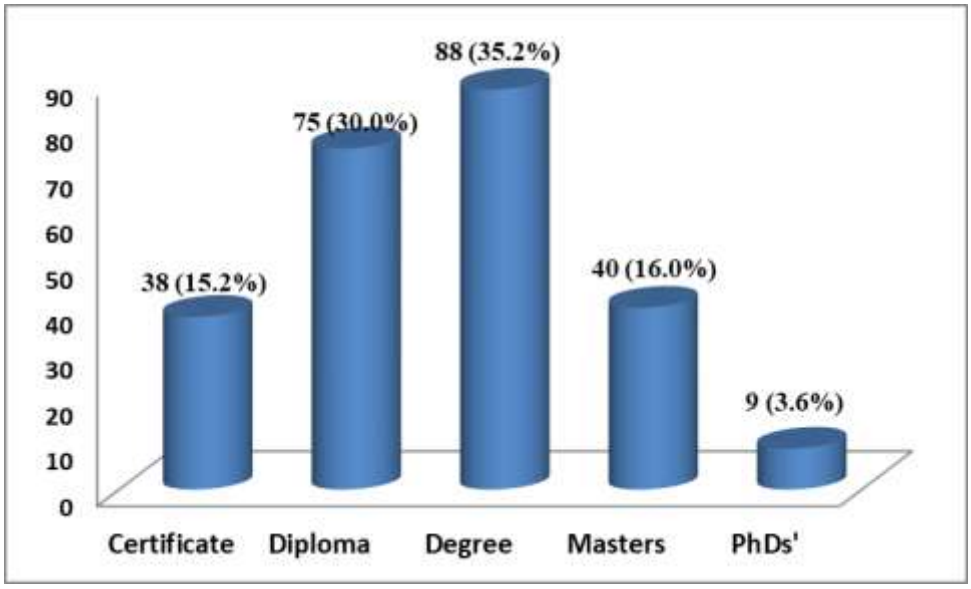


Figure 4.2: Distribution of Respondents by Qualifications academic.

4.2 Descriptive Statistics

4.2.1 The Influence of Knowledge Acquisition on Sustainability of Sugar Companies in Kenya

The findings on influence of knowledge acquisition on sustainability reflected a mean of 3.02 and (standard deviation=.97). Similarly, 192 (76.8%) of the respondents confirmed that knowledge acquisition through training improves the company's growth positively. Also 184 (73.6%) of respondents confirmed benchmarking as an important source of knowledge.

On the same breath 161 (64.4%) of respondents confirmed performance appraisal also as a source of knowledge which provides additional information used as a basis for promotion and compensation. Similarly, 192 (76.8%) of respondents confirmed that acquired knowledge makes the company responsive to global challenges such as pollution control. This table also confirms from 219 (87.6%) respondents that knowledge acquisition contributes to the growth of the company hence justified a mean score of 3.76 and standard deviation of 0.93 which is in excess of overall mean of 3.20. Similarly, more than three quarters 192 (76.8%) of the respondents confirm that knowledge acquisition through training positively affects sustainability of sugar

companies in Kenya because it has improved their growth. These findings also revealed that184 (73.6%) of the respondents strongly support benchmarking as important source of knowledge.

On the same breath, performance appraisal was also confirmed by 161 (64.4%) of respondents as a source of knowledge which generates useful information that serves as a basis for promotion and compensation. Performance appraisal is a level of knowledge management practice through which firms try to realign the acquired knowledge and make it more relevant to the organization. Similarly, a significant majority of 192 (76.8%) of the managerial employees agreed that acquired knowledge made the company responsive to global challenges such as pollution control that is pre-requisite to sustainability. Implying yhatb acquired knowledge was significant in protecting the environment that improves employees' health and safety. Further, the findings concur with views expressed by the employees who were interviewed by the researcher. This was shown in Table 4.9.

Table 4.5: Knowledge Acquisition on Organizational Sustainability (n=250)

Item	SA	A	N	D	SD	Mean	Std.Dev
Kac1	96(38.4%)	18(7.2%)	10(4.0%)	9(3.6%)	117(46.8%)	1.82	1.04
Kac2	23 (9.2%)	169(67.6%)	19(7.6%)	27(10.8%)	12(4.8%)	3.66	0.96
Kac3	184(73.6%)	14(5.6%)	18(7.2%)	28(11.2%)	6(2.4%)	2.50	1.04
Kac4	161(64.4%)	8(3.2%)	25(10.0%)	31(12.4%)	25(10.0%)	2.44	1.12
Kac5	35(14.0%)	158(63.2%)	31(12.4%)	14(5.6%)	12(4.8%)	3.76	0.93
Kac6	34 (13.6%)	185(74.0%)	18 (7.2%)	6(2.4%)	7(2.8%)	3.93	0.74
Total Average Mean						3.02	0.97

Key: SA-Strongly Agree, A-Agree, N-Neutral, D-Disagree and SD-Strongly Disagree

Some of the respondents asked for comments said:

"Tailor made trainings have resulted into firms' increase of efficiency and productivity. Such trainings have yielded knowledge that led to increase in creativity and innovation of cost cutting strategies"

Respondent No. 2

'It is also with the help of the many workshops and seminars that the firms are able to achieve production targets and sustain growth'.

Respondent No. 4

On the contrary, another respondent held a different point of view:

'Some knowledge may be irrelevant and have no meaningful impact on performance due to implementation challenges and wrong choice of participants'

Respondent No. 3

4.2.2 The influence of Knowledge sharing on sustainability of sugar companies in Kenya

Views of respondents on Knowledge sharing and sustainability registered a mean of 3.55 with a standard deviation of 0.46 and with an overall mean of 3.55 and standard deviation of 0.46 were in a consensus that knowledge sharing as an aspect of KMPs' had considerable influence on sustainability of sugar companies in Kenya. A significant number of about 240 (96.0%) of the respondents confirmed that companies' public open day education fora and benchmarking programs had positive influence on their sustainability.

With 180 (72.0%) of the respondents supported benchmarking of company's staff with foreign firms. On the same note, the findings also revealed that many 164 (65.6%) of the respondents concurred on performance appraisal and induction of new recruits led to innovation and reduced staff mobility which were basic parameters of sustainability. With 87 (34.8%) of the respondents undecided on the importance of

bench marking, 48 (19.2%) of them observed that undertaking with foreign firms brought cultural re-orientation. Similarly, 187 (74.8%) of the respondents confirmed that knowledge sharing led to product diversification. This was highlighted in table 4.6

Table 4.6: Knowledge Sharing on Organizational Sustainability (n=250)

Item	SA	A	N	D	SD	Mean	Std.
Ks1	37(14.8%)	203(81.2%)	0 (0.0%)	4 (1.6%)	6 (2.4%)	4.04	0.65
Ks2	14(5.6%)	166(66.4%)	2(0.8%)	68(27.2%)	0(0.0%)	3.50	0.95
Ks3	93(37.2%)	71(28.4%)	6(2.4%)	60(24.0%)	20(8.0%)	3.63	1.39
Ks4	50(20.0%)	160(64.0%)	2(0.8%)	25(10.0%)	13(5.2%)	3.84	1.02
Ks5	41(16.4%)	146(58.4%)	24(9.6%)	20(8.0%)	19(7.6%)	3.68	1.08
Ks6	88(35.2%)	79(31.6%)	5(2.0%)	55(22.0%)	23(9.2%)	3.62	1.39
Ks7	23(9.2%)	165(66.0%)	16(6.4%)	24(9.6%)	22(8.8%)	3.57	1.07
Ks8	26(10.4%)	22(8.8%)	87(34.8%)	30(12.0%)	85(34.0%)	2.50	1.32
Total Average Mean						3.55	0.46

Key: SA-Strongly Agree, A-Agree, N-Neutral, D-Disagree and SD-Strongly Disagree

The participants who were interviewed by the researcher also recorded the findings informs of comments;

“I agree that our company’s open day’s education has created good public relations with other stakeholders but I am not very sure if this has really translated to direct economic benefit to the company. I do not think open days has any positive influence on sustainability in economic sense” Respondent No. 7

This implies that the respondent believed that open day in a company is only useful for creating public relations and image of building but not sustainability.

“Benchmarking is very powerful knowledge sharing practice because most of my colleagues who have been taken to foreign firms have come back with relevant skills and knowledge towards their areas of operations” Respondent No. 5

According to this statement the respondent held that benchmarking was very important knowledge sharing practice and that their company had taken it seriously. The respondent confirmed that a number of their colleagues who had been taken for bench mark with other foreign firms have brought with them relevant skills and knowledge to the company worth the desired innovation, operational efficiency and growth of the companies.

"Last year a number of our staff in the waste management department were taken to South Africa to learn new methods of waste management, we have started seeing that their ideas are working towards enhancement of environmental control". Respondent No. 1

It is evident from the statement that waste management improved as a result of bench marking exercises. Similarly, the respondents confirmed that firms had gone into innovation as a way of managing waste products burgess by using them in manufacturing briskets (charcoal) and chipboards, for example the tenth respondent submitted as follows;

> 'That Last year a number of our staff taken to South Africa to
>
> learn new methods of waste management, in brazil and Mauritius,
>
> on return proposed the ideas that burgess could be used to
>
> manufacture charcoal and chipboards to generate additional
>
> profits to help in both ecological and economic sustainability
>
> of the companies" Respondent No. 10

4.2.3 The Influence of Knowledge application on Sustainability of Sugar companies in Kenya.

Table revealed that knowledge application had a high mean=3.43 and standard deviation=1.24), with all the indicators rated high (average mean ranging between 2.91 and 3.84). In the table 182 (72.8%) respondents confirmed that utilization of

knowledge resource in developing new products accounted for the highest mean=3.84, standard deviation=1.29.

On the same note, 173 (69.2%) of the respondent agreed that their company recognizes employees' on knowledge application in product innovation by compensation. Similarly, 157 (62.8%) of the respondents confirmed that knowledge application in product designs results to wider market. This consensus scored a (mean =3.34; standard deviation=1.20). From the table 175 (70.0%) respondent confirmed that knowledge application has significant bearing on ecosystem integrity (mean=3.55; standard deviation=1.10).

The table also revealed that knowledge application had led to the company's infrastructural development as affirmed by184 (73.6%) of the respondents. However, 130 (52.0%) respondents supported the claim that knowledge application had to some extent made companies to withstand negative effects of liberalized market on sugar. The findings were highlighted in table 4.6.

Table 4.7: Knowledge Application and Sustainability (n=250)

Item	SA	A	N	D	SD	Mean	Std. Dev
Ka1	99(39.6%)	83(33.2%)	16(6.4%)	32(12.8%)	20(8.0%)	3.84	1.29
Ka2	110(44.0%)	63(25.2%)	16(6.4%)	30(12.0%)	31(12.4%)	3.76	1.43
Ka3	25(10.0%)	132(52.8%)	25(10.0%)	38(15.2%)	30(12.0%)	3.34	1.20
Ka4	38(15.2%)	146(58.4%)	15(6.0%)	27(10.8%)	24(9.6%)	3.59	1.16
Ka5	45(18.0%)	65(26.0%)	10(4.0%)	105(42.0%)	25(10.0%)	3.00	1.34
Ka6	32(12.8%)	143(57.2%)	25(10.0%)	31(12.4%)	19(7.6%)	3.55	1.10
Ka7	26(10.4%)	67(26.8%)	24(9.6%)	125(50.0%)	8(3.2%)	2.91	1.14
Total Average Mean						**3.43**	**1.24**

Key: SA-Strongly Agree, A-Agree, N-Neutral, D-Disagree and SD-Strongly Disagree

These findings were supported by the personal interviews conducted by the researcher. For example, some of the respondents commented:

"The relevance of knowledge we acquire is due to the fact that trainings' are tailor made to suit the interest of various departmental needs hence workshops and

seminars are organized to help us bridge the skill gaps making us efficient and productive". Respondent No. 5

'We acquire relevant trainings through workshops and seminars which have improved staff efficiency and the firms' productivity. Such trainings have yielded knowledge that have led to increase in creativity and innovation of cost cutting strategies.'

"A reflection of the relevance of knowledge is seen in the company's new product innovations and implementations of cost cutting programs such as initiating ethanol, spirit and wines production, establishing water bottling plant and Bricket (charcoal making) plant. Our company has embarked on serious diversification due to stock of relevant knowledge in resources order to improve financial economies and become sustainable. Our company work closely with the private investors in making Bricket with the view to improving environmental control by reducing the publics' overdependence on wood fuel and pollution." Respondents No. 7 & 10

But responding to question on activities the companies have initiated to explain their intellectual actions towards ecosystem integrity, 128(51%) of the interviewees responded as follows;

"That the companies have proposed forward linkage-brisket making plant (makes Charcoal from burgess) to reduce communal overdependence on charcoal from trees, have enhanced environmental management systems (EMS) by distributing free seedlings and encouraging tree planting and have complied to ISO 9001 the companies have built incinerators to improve environmental hygiene to creat environmental health and safety'.

On the same breath some companies had established waste treatment plant to ensure that waste waters and chemicals from the companies were treated before being released into the rivers to reduce water and environmental pollution. This was established from the response of one of the interviewees who opinioned that the industry had established water treatment plant to ensure that it reduces adverse effects on biodiversity. One respondent who was interviewed asserted as follows;

With the knowledge that we have acquired over the years working with this company at home and abroad, through bench marks and research, we have initiated the treatment plant of water from the factory to the rivers and streams to safeguard against biodiversity degradation and hence reduced harmful effects on fauna and flora, aquatic, animal, people's lives'.

4.2.4 The Influence of Knowledge Conversion on Sustainability of Sugar Companies in Kenya.

The findings revealed that knowledge conversion had a high mean=3.24, standard and deviation=1.21, with all the indicators rated above average influence average mean ranging between 2.89 and 3.81. The findings also revealed that significant majority of 181 (72.4%) respondents held the view that knowledge conversion by socialization of the staff led to product designs and quality improvement. This consensus registered a mean=3.81 and standard deviation=1.17) influence in contributing to sustainability of sugar companies. Similarly, 180 (72.0%) of the respondents agreed that internalization of knowledge led to re-alignment of concepts and experiences that improved the companies innovation. In addition, 174 (69.6%) of the respondents confirmed that knowledge conversion by integration of gathered skills and experiences by staff led to the company's improved creativity and innovativeness.

The findings also reveal that 153 (61.2%) of the respondents agreed that the companies improved on response to social responsibilities obligations due to knowledge conversion by socialization, as indicated by a mean influence rate of 3.11 with a standard deviation of 1.28. On the same vein, 147 (58.8%) the respondents agreed that Knowledge conversion led the companies marked growth and development. With 120 (48.0%) of the managerial employees strongly acknowledged contribution of knowledge conversion by externalization in companies' ecosystem control, 110 (44.0%) respondents however, rejected any role of Knowledge conversion by externalization in ecosystem management. This were highlighted in table 4.8.

Table 4.8: Knowledge Conversion and Sustainability (n=250)

Item	SA	A	N	D	SD	Mean	Std. Dev
KCn1	101(40.4%)	80(32.0%)	21(8.4%)	30(12.0%)	22(8.8%)	3.81	1.17
KCn2	90(36.0%)	63(25.2%)	16(6.4%)	30(12.0%)	41(16.4%)	3.11	1.48
KCn3	45(18.0%)	112(44.8%)	25(10.0%)	58(23.2%)	50(20.0%)	3.07	1.67
KCn4	80(32.0%)	100(40.0%)	10(4.0%)	35(14.0%)	29(11.6%)	3.61	1.35
KCn5	50(20.0%)	70(28.0%)	20(8.0%)	85(34.0%)	25(10.0%)	2.89	1.57
KCn6	82(32.8%)	65(26.0%)	25(10.0%)	41(16.4%)	39(15.6%)	3.07	1.09
KCn7	96(38.4%)	77(30.8%)	14(5.6%)	50(20.0%)	13(5.2%)	3.13	1.16
Total Average Mean						**3.24**	**1.21**

Key: SA-Strongly Agree, A-Agree, N-Neutral, D-Disagree and SD-Strongly Disagree

4.2.5 Influence of government policies moderation on the relationship between KMPs' and Sustainability of Sugar Companies in Kenya.

The views of the managers were sought on the influence of government policy moderation on the relationship between KMPs' and sustainability. The findings revealed that 190 (76.0%) of the respondents purported that politicizing the sugar industry in Kenya had negative effect on knowledge application. On the same vein 200 (80.0%) of the respondents confirmed that Knowledge acquisition and sharing of knowledge had negatively been affected by political intervention in the industry. Similarly, 189 (75.6%) respondents in the survey indicated that liberalization of the sugar industry had negatively weakened the positive contribution of KMPs' (knowledge acquisition, sharing, application and Conversion) in influencing improved performance and growth. Price control was also confirmed by 179 (71.2%), of the respondents as having considerable adverse effects on KMPs' especially application. Their views were computerized in percentage frequencies as in Table 4.9.

Table 4.9: Moderating influence of Government Policies on KMPs' and sustainability of sugar companies

Item	SA	A	N	D	SD	Mean	Std. Dev
Gp1	28(11.2%)	172(68.8%)	12(4.8%)	31(12.4%)	7(2.8%)	3.73	0.91
Gp2	22(8.8%)	172(68.8%)	12(4.8%)	26(10.4%)	18(7.2%)	3.62	1.03
Gp3	39(15.6%)	150(60.0%)	13(5.2%)	19(7.6%)	29(11.6%)	3.60	1.18
Gp4	160(64.0%)	40(16.0%)	13(5.2%)	18(7.2%)	19(7.6%)	4.22	1.27
Gp5	147(58.8%)	43(17.2%)	13(5.2%)	25(10.0%)	22(8.8%)	4.07	1.35
Gp6	136(54.4%)	67(26.8%)	6(6.4%)	16(10.8%)	25(12.0%)	4.09	1.31
Gp7	16(6.4%)	161(64.4%)	16(6.4%)	27(10.8%)	30(12.0%)	3.42	1.14
Gp8	21(8.4%)	157(62.8%)	14(5.6%)	32(12.8%)	26(10.4%)	3.46	1.14
Gp9	10(4.0%)	110(44.0%)	11(4.4%)	45(18.0%)	74(29.6%)	3.73	0.91
Total Average Mean						**2.75**	**1.38**

Key: SA-Strongly Agree, A-Agree, N-Neutral, D-Disagree and SD-Strongly Disagree

These findings were supported by the results of the qualitative data from interviews with managerial staff. For instance, some respondents had this to say;

"Liberalization trade policy on sugar has led to illegal importation of cheap sugar from non-COMESA states such as India, Brazil, Mauritius, Sudan, Zambia and South Africa, causing unbiased competition and reducing the local industries market share. That damped sugar has threatened growth and sustainability of Kenyan sugar companies".

"……liberalization reduces firm's productive capacities……. influx of cheap sugar imports diminishes market share causing stock piles and reduces participation in social responsibilities due to low cash flow. That enormous effect of liberalization has made the sugar companies non–competitive due to weak regulatory policy framework that creates opportunity to sugar cartels under the guise of private millers to indulge in illegal sugar imports and repackaging in their own names at low costs".

In regard to price control, the findings of the study revealed that a significant majority, 179(71.2%), of the respondents held the general belief that lack of price control on local sugar has considerably mediated between implementation of knowledge application and organizational sustainability.

Personal interview with one of company managers confirmed this; that;

“Prices of sugar in Kenya are decontrolled making domestic sugar more expensive due to high comparative cost of production the government has failed to control imports from non- COMESA states so as to create level ground for the operation of sugar industry.’ This statement implies that lack of price control in sugar industry is to blame for the woes in the industry in Kenya.

4.2.6 Level of Sustainability of Sugar Companies in Kenya

The findings revealed that Sustainability of Sugar Companies had a mean = 3.43 and standard deviation =0.85 suggesting. This implied that with the available hnowledge resources and practices, they were capable of sustaining themselves. The respondents viewed the rated sustainability between 2.87 to 3.92 as shown in the table. It emerged that 160 (64. 0%) of the respondents confirmed there had been improved growth of the company over the years. Similarly, 150 (60.0%) of respondents confirmed that their company had registered expansion of the market in the recent past. On the same note, 150 (60.0%) of respondents confirmed their company had registered expansion of product market in the recent past.

While 158 (63.2%) established that there has been product diversification in the sugar companies. However, 150 (60.0%) of the respondents confirmed that sugar companies have not countered the effects of liberation policy on the sugar market. About 70 (28.0%) of the managers who took part in the survey rejected the assertion that their company enjoy product diversification. On the same note 69 (26.4%) of the respondents said their company had not made enough efforts to withstand competition occasioned by the liberalization in the sugar industry as 68 (27.2%) respondents alluded that their company had not registered any expansion of product market in the recent years. This was highlighted in table 4.8.

Table 4.10: Sustainability of Sugar Companies in Kenya

Code	SA	A	N	D	SD	Mean	Std dev
S1	37(14.8%)	123(49.2%)	50	14(5.6%)	26(10.4%)	3.24	0.65
S2	44	106 (42.4)	32(12.8%)	38(15.2%)	30	3.92	0.95
S3	93(37.2%)	71(28.4%)	6(2.4%)	60(24.0%)	20(8.0%)	3.41	1.26
S4	58(23.2%)	100(40.0%)	22(8.8%)	25(10.0%)	45(18.0%)	3.74	1.12
S5	61(24.4%)	89(35.6%)	34(13.6%)	41(16.4%)	25(10.0%)	2.87	1.08
Total						**3.43**	**0.85**

Key: SA-Strongly Agree, A-Agree, N-Neutral, D-Disagree and SD-Strongly Disagree

4.3 Diagnostic Test Results

The study ascertained the suitability of the data collected for correlation and regression analysis. Diagnostic tests were run through testing the assumptions of; normality, multi-collinearity, independency, heteroscedasticity and homoscedasticity. Results which were obtained were as follows;-

4.3.1 Normality Test Results

Normality of the data were tested through the use of formal test using Kolmogorov-Smirnov and Shapiro-Wilk tests, as shown in Table 4.11

Table 4.11: Tests of Normality of the Data Set

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Knowledge Acquisition	.119	250	.064	.202	250	.071
Knowledge Sharing	.127	250	.068	.877	250	.070
Knowledge Application	.130	250	.103	.935	250	.120
Knowledge Conversion	.125	250	.082	.904	250	.091
Government Policy	.122	250	.120	.922	250	.125
Sustainability of sugar companies	.155	250	.055	.879	250	.062

a. Lilliefors Significance Correction

Initial tests on the variables indicate violation of normality by the variables of "knowledge sharing", "Government policy" and "knowledge conversion"; hence these three variables had to be transformed first to remove positive skewness that

was observed in their original data. Normality tests in Table 4.12 shows the results after transformations. Although the Normality test results in Table 4.12 shows both Kolmogorov-Smirnov (K-S) and Shapiro-Wilk (S-W) test results, this study used the S-W to interpret the normality of the variables. The Kolmogorov-Smirnov test is based on a simple way to quantify the discrepancy between the observed and expected distributions. It turns out, however, that it is too simple, and doesn't do a good job of discriminating whether or not the data is sampled from a Gaussian distribution. Creswell (2014) recommends that Shapiro-Wilk's test should be used for small and medium samples up to n = 2000 because of sensitivity to identify normality in a data set. Shapiro-Wilk is comparable to the correlation between a given data and its corresponding normal scores, with S-W = 1 when their correlation is perfectly normal. This means that a significantly ($p < .05$) smaller S-W than 1 imply that the normality is not met. Hence, the data is normal when Shapiro-Wilk (S-W) $\geq .05$.

It is evident from Table 4.12 that all the variables follow normal distribution, after they were transformed, given that there were no statistical significant differences noted in any of the variables with their corresponding normal scores.

4.3.2 Test of Assumptions of Multi-Collinearity

The study sought to investigate whether the data met multi-collinearity assumptions. This was done to find out whether there is any predictor variable in the multiple regression model that could be linearly predicted from the others with a substantial degree of accuracy. Meyers, Gamst and Guarino (2006) assert that multi-collinearity is excessively high level of inter-correlation among the independent variables, such that the effects of the independent variables on the dependent variable cannot be easily detached from each other. Although correlation matrix is usually used to investigate the pattern of inter-correlation among all the variables, Creswell (2014) observed that use of correlation matrix to indicate signs of lack of multi-collinearity among the variables is not adequate.

Hence, this study assessed the multi-collinearity assumption by examining tolerance and the Variance Inflation Factor (VIF). Table 4.12 shows SPSS output indicating tolerance and Variance Inflation Factors.

Table 4.12: Tolerance and Variance Inflation Factor (VIF) Statistics

Model		Collinearity Statistics	
		Tolerance	**VIF**
1	Knowledge Acquisition	.824	1.214
	Knowledge Conversion	.462	2.167
	Government Policy	.551	1.816
	Knowledge Application	.493	2.029
	Knowledge Sharing	.527	1.898

a. Dependent Variable: Sustainability of sugar companies

Tolerance is the percentage of the variance in a given predictor that cannot be explained by the other predictors. When the tolerances are close to 0, there is high multi-collinearity and the standard error of the regression coefficients will be inflated. Therefore, a small value indicates that a predictor is insignificant, and tolerance values that are less than 0.10 may require further investigation. The variable's tolerance is $1\text{-}R^2$, while VIF is its reciprocal. Hence, a variable whose VIF value is greater than 10 may also need to be investigated (Stevens, 2012). A small tolerance value indicates that the variable under consideration is almost a perfect linear combination of other independent variables already in the equation and that it should not be added to the regression equation. From Table 4.13, it is evident that collinearity conditions were met, given that each of the variables had adequate tolerance (tolerance value > .10) and Variance Inflation Factor (VIF <10), indicating that there was no violation of multi-collinearity assumptions which is a requirement for multiple regression analysis.

4.3.3 Test for Independence of Observations

Another assumption of multi-regression is that the observations are independent. This assumption is that the observations in the sample are independent from each other, meaning that the measurements for each sample subject are in no way influenced by or related to the measurements of other subjects. The Durbin Watson

test was used to check if the assumptions of regression that the observations are independent were met, as indicated in Table 4.13.

Table 4.13: Test of Independence: Model Summary

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	Durbin-Watson
1	.693[a]	.481	.470	.43597	2.139

a. Predictors: (Constant), Knowledge Sharing, Knowledge Acquisition, Government Policy, Knowledge Application, Knowledge Conversion
b. Dependent Variable: Sustainability of sugar companies

Oso and Onen (2009) indicate that if there is no autocorrelation (where subsequent observations are related), the Durbin-Watson statistic should be between 1.5 and 2.5. Table 4.13 shows that the Durbin-Watson statistic is 2.139 which is between 1.5 and 2.5, implying that the data was not auto-correlated, indicating that the assumption of independence was not violated.

4.3.4 Heteroscedasticity and Homoscedasticity

The study investigated the assumption of heteroscedasticity and homoscedasticity, which describe a situation in which the error term is the same across all values of the independent variables. Creswell (2014) points out that if a model is well-fitted, then there should be no clear pattern to the residuals plotted against the fitted values. If the variance of the residuals is non-constant then the residual variance is said to be heteroscedastic. This study used graphical method to show this by fitting residuals versus fitted (predicted) values, as shown in Figure 4.3.

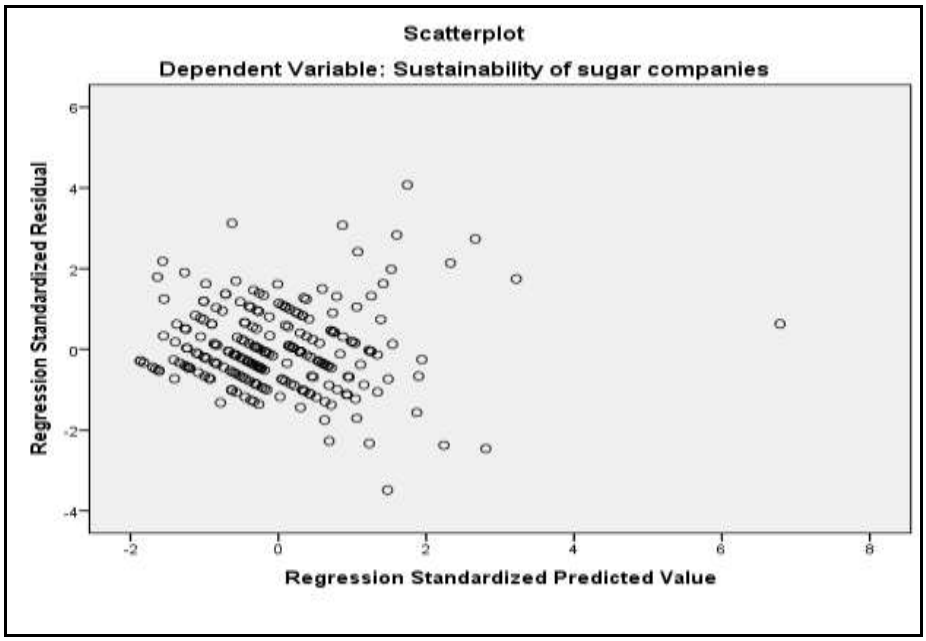


Figure 4.3: Scatter plot of standardized residuals against standardized predicted values

Heteroscedasticity is implied when the scatter is not even; fan and butterfly shapes are common patterns of violations. Figure 4.3 shows that the pattern of the data points formed almost pattern less cloud of dots indicative of homoscedasticity. Therefore, the assumption of homoscedasticity, which refers to equal variance of errors across all levels of the independent variables, was not significantly violated. This means that it was assumed that errors were spread out consistently between the variables, indicating that the variance around the regression line was the same for all values of the predictor variables.

4.4 Inferential Statistics

The rationale of using the inferential statistics is to help further analyze quantitative data and test the hypotheses.

4.4.1 The influence of Knowledge acquisition on sustainability of sugar companies in Kenya

To further illustrate this relationship, a scatter plot was generated. It indicated that there was evidence of a positive correlation between knowledge acquisition and sustainability of sugar companies. It was clear that the pattern of dots sloped from lower left to upper right, an indication of a positive correlation between the two variables as shown in Figure 4.4.

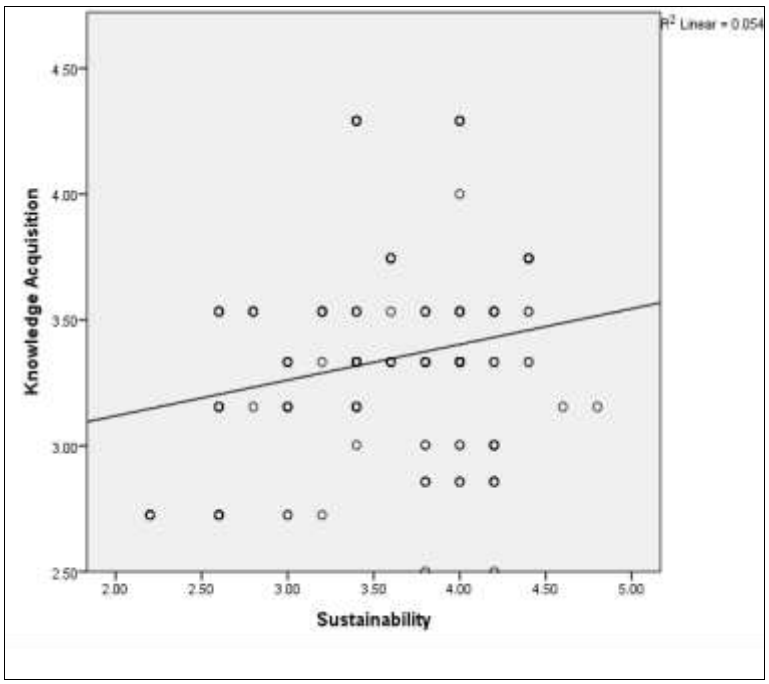


Figure 4.4: Scatter Plot; Influence of Knowledge Acquisition on Sustainability.

4.4.2: Hypothesis Testing –Objective 1

H01: Knowledge acquisition has no statistical significant influence on sustainability of sugar companies in Kenya.

To establish the level of influence of knowledge acquisition on sustainability, a coefficient of determination was computed. This was done using regression analysis. The model shows that implementation of knowledge acquisition accounted for 5.4% as signified by coefficient of .054 of the variation in sustainability of sugar companies in Kenya.

However, to determine whether knowledge acquisition was a significant predictor of sustainability of sugar companies, Analysis of Variance (ANOVA) was computed. The table shows [F (1, 248) = 14.213, p < .05) implying that knowledge acquisition was a significant predicator of sustainability of sugar companies. Agreed that the relationship was significant, the hypothesis that, "there is no statically significant influence of implementation of knowledge acquisition on sustainability of sugar companies" was rejected. The results were as shown in Table 4.14.

Table 4.14: Model Summary on Regression Analysis of Influence Knowledge Acquisition on Sustainability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.233[a]	.054	.050	.54310

Predictors: (Constant), Knowledge Acquisition.

To further confirm that knowledge acquisition significantly influence sustainability. From the results it was clear that implementation of knowledge acquisition explains a considerable amount of the variance in the level of sustainability of sugar companies in Kenya, as revealed from the findings from the sampled sugar companies. This was highlighted in able 4.15.

Table 4.15: ANOVA –Influence of Knowledge Acquisition on Sustainability

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.192	1	4.192	14.213	.000[b]
	Residual	73.150	248	.295		
	Total	**77.342**	**249**			

a. Dependent Variable: Sustainability
b. Predictors: (Constant), Knowledge Acquisition

4.4.3: Hypothesis Testing -Objective 2

H02 Knowledge sharing has no statistical significant influence on sustainability of sugar companies in Kenya.

To investigate whether there was any significant influence of knowledge sharing on sustainability of sugar companies in Kenya, the null hypothesis was tested. This was done by use of Pearson Product Moment Correlation Coefficient analysis, using the scores computed from frequency of responses. The p-value was set at .05, where the null hypothesis was rejected when the p-value was less than .05 but it was adopted (accepted) when the p-value obtained was greater than .05.

The finding of the study showed that there was statistically significant positive correlation (r=.292, n=250, p<.05) between implementation of knowledge sharing and sustainability of sugar companies, with increase in implementation of knowledge sharing resulting into increase in sustainability of sugar companies and vice-versa. Agreed that the relationship was significant, the hypothesis that, "*there was no statically significant influence of implementation of knowledge sharing on sustainability of sugar companies*" was rejected. It was therefore concluded that implementation of Knowledge sharing had positive influence on sustainability of sugar companies in Kenya. However, it was weak. Table 4.16 shows the correlation analysis results in SPSS output.

Table 4.16: Influence of Knowledge Sharing and Sustainability

		Sustainability
Implementation of Knowledge Sharing	Pearson Correlation	.292**
	Sig. (2-tailed)	.000
	N	250

**correlation is significant at the .05 level (2-tailed).

To further illustrate this relationship, a scatter plot was generated. The figure revealed that there was some positive correlation between knowledge sharing and sustainability of sugar companies. It was evident that the pattern of dots slopes from lower left to upper right indicating a positive correlation between the two variables. This was as shown in as shown in Figure 4.5.

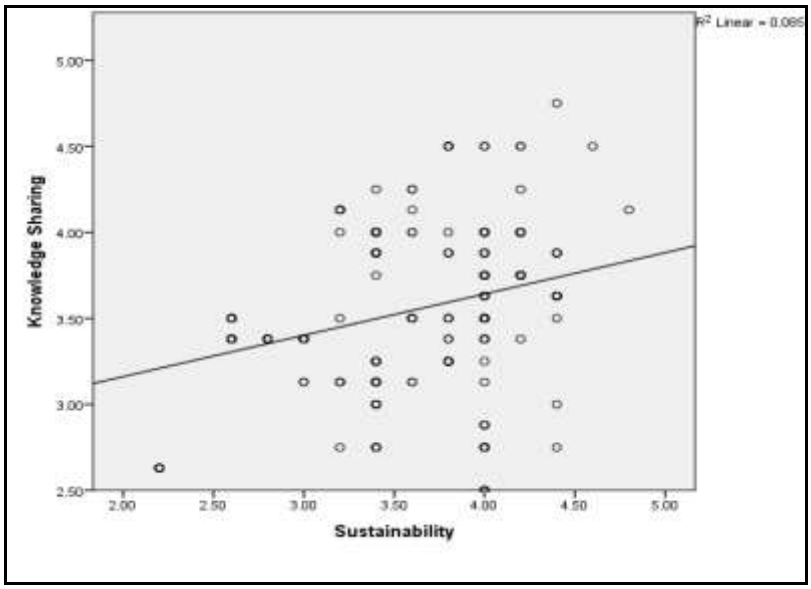


Figure 4.5: Scatter Plot: Influence of Knowledge Sharing on Sustainability

However, to estimate the level of influence of implementation of knowledge sharing on sustainability, a coefficient of determination was computed by use of regression analysis. The model shows that implementation of knowledge sharing accounted for R=0.292 (29.2%) of the variation in levels of sustainability of sugar companies in Kenya. However, to determine whether knowledge sharing was a significant predictor of sustainability of sugar companies, Analysis of Variance (ANOVA) was computed. This was shown in Table 4.17.

Table 4.17: Model Summary on Regression Analysis of Influence Knowledge Sharing on Sustainability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.292[a]	.085	.081	.53417

a. Predictors: (Constant), Knowledge Acquisition.

The table below is evidence that knowledge sharing was a significant predicator of sustainability of sugar companies confirmed by [F (1, 248) = 14.213, p < .05). From the results it was clear that implementation of knowledge sharing explains a considerable amount of the variance in the level of sustainability of sugar companies in Kenya. This is shown in table Table 4.18.

Table 4.18: ANOVA –Influence of Knowledge Sharing on Sustainability

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.578	1	6.578	23.055	.000[b]
	Residual	70.764	248	.285		
	Total	77.342	249			

a. Dependent Variable: Sustainability
b.Predictors: (Constant), Knowledge Sharing.

4.4.4 Hypothesis Testing –Objective 3

H03 Knowledge Application has no statistical significant influence on sustainability of sugar companies in Kenya.

To investigate whether there was any statistical significant influence of knowledge application on sustainability of sugar companies in Kenya, the null hypothesis was tested. This was done by use of Pearson Product Moment Correlation Coefficient analysis, using the scores computed from frequency of responses. The table indicated that ($r=.542$, $n=250$, $p<.05$) showing that there was statistically significant positive correlation between implementation of knowledge application and sustainability of sugar companies. Implying that increase in implementation of knowledge application results into increase in sustainability of sugar companies and vice-versa. This finding was highlighted in table 4.19.

Table 4.19: Inferential statistics: Influence of Knowledge Application and Sustainability

		Sustainability
Implementation of Knowledge Application	Pearson Correlation	.542**
	Sig. (2-tailed)	.000
	N	250

**correlation is significant at the .05 level (2-tailed)

Given that the relationship was statistically significant, the hypothesis that, “there is no statically significant influence of implementation of knowledge application on sustainability of sugar companies” was rejected.

To further illustrate this relationship, a scatter plot was generated showing by the pattern of dots slopping from lower left to upper right, implied that there was a positive correlation between knowledge application and sustainability of sugar companies. This was illustrated in figure 4.6.

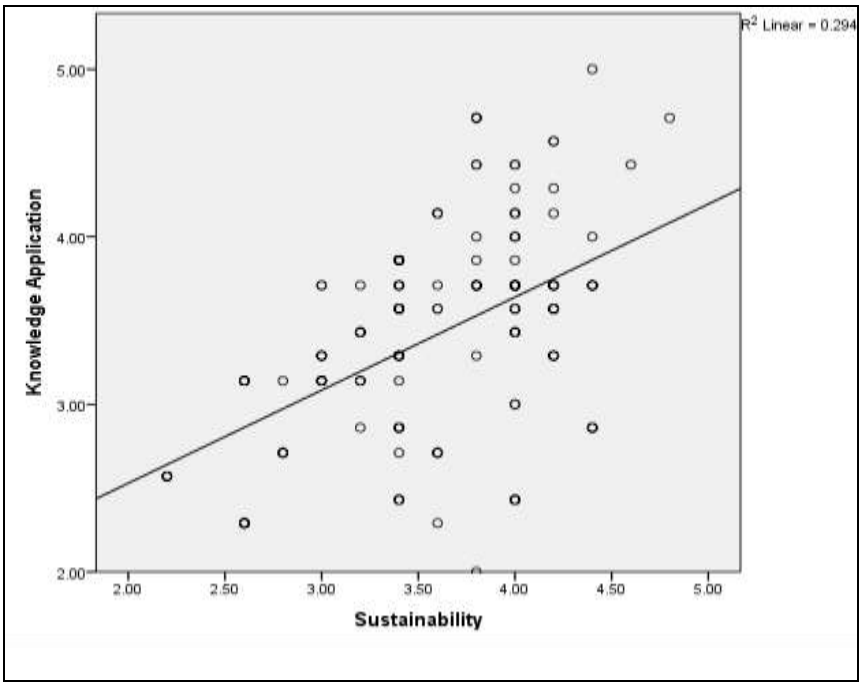


Figure 4.6: Influence of Knowledge Application on Sustainability.

Further, to estimate the level of influence of implementation of knowledge application on sustainability, a coefficient of determination was calculated by use of regression analysis, the model showed that implementation of knowledge application accounted for 29.4% (R^2 =.294) of the variation in levels of sustainability of sugar companies in Kenya as shown table 4.18.

Table 4.18: Model Summary on Regression Analysis of Influence of Knowledge Application on Sustainability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.542[a]	.294	.291	.46913

a Predictors: (Constant), Knowledge Application.

However, to determine whether knowledge application was a significant predictor of sustainability of sugar companies, Analysis of Variance (ANOVA) was computed showing an [F (1, 248) = 103.423, p < .05)], indicating an evidence that knowledge application was a significant predicator of sustainability of sugar companies. From the results it was clear that implementation of knowledge application accounts for a substantial amount of the variance in the level of sustainability of sugar companies as shown in table 4.19.

Table 4.19: ANOVA –Influence of Knowledge Application on Sustainability

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.762	1	22.762	103.423	.000[b]
	Residual	54.581	248	.220		
	Total	77.342	249			

a. Dependent Variable: Sustainability
b. Predictors: (Constant), Knowledge Application

4.4.5 Hypothesis Testing –Objective 4

$H_0$4: Knowledge Conversion has no statistical significant influence on sustainability of sugar companies in Kenya.

To investigate whether there was any statistical significant influence of knowledge conversion on sustainability of sugar companies in Kenya, the null hypothesis was tested using Pearson Product Moment Correlation Coefficient analysis of the scores computed from frequency of responses. The result of computation indicated (r=.505, n=250, p<.05) implying that implementation of knowledge of knowledge conversion occasioned an increase in sustainability of sugar companies and and vice-versa. Given that the relationship was statistically significant, the hypothesis that, "*there is no statically significant influence of implementation of knowledge conversion on sustainability of sugar companies*" was rejected. It was therefore concluded that implementation of knowledge conversion as an aspect of Knowledge Management Practices had positive influence on sustainability of sugar companies in Kenya. This was highlighted in Table 4.20.

Table 4.20: Influence of Knowledge Conversion and Sustainability

		Sustainability
Implementation of Knowledge Conversion	Pearson Correlation	.505**
	Sig. (2-tailed)	.000
	N	250

**correlation is significant at the .05 level (2-tailed)

To further illustrate this relationship, a scatter plot was generated whose pattern of dots slopes from lower left to upper right, suggesting a positive correlation between the two variables. The finding reveals that there was some positive correlation between knowledge conversion and sustainability of sugar companies. This is shown in Figure 4.7.

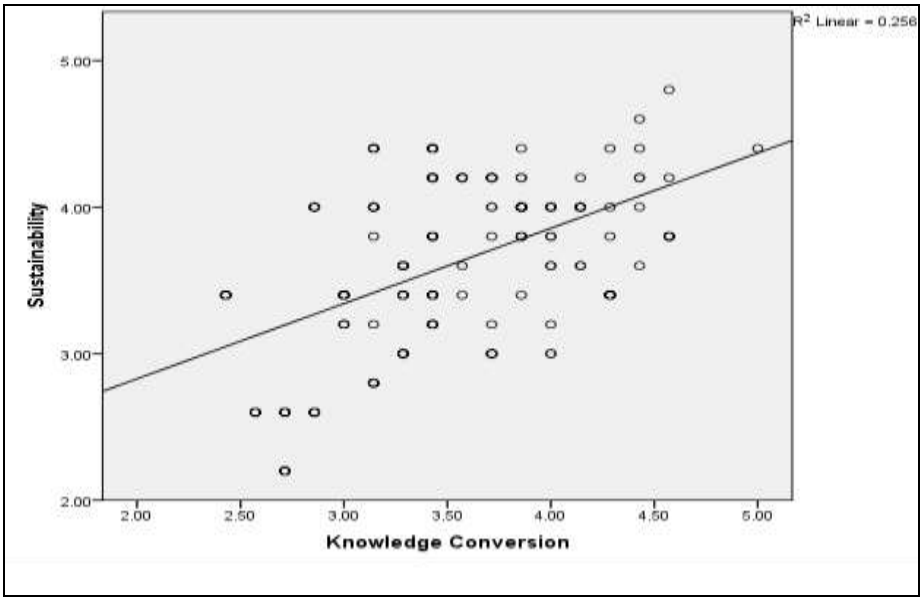


Figure 4.7: Knowledge Conversion and Sustainability

To confirm further that Knowledge conversion was a predictor of sustainability, regression Analysis table was computed. The model output showed that implementation of knowledge conversion was signified by r^2 =.286 this implied that implementation of knowledge conversion accounted for 28.6% of the variation in levels of sustainability of sugar companies in Kenya. This was shown in Table 4.21.

Table 4.21: Model Summary on Regression Analysis of Influence Knowledge Conversion on Sustainability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.537[a]	.289	.286	.50605

a. Predictors: (Constant), Knowledge Conversion

However, to determine whether knowledge conversion was a significant predictor of sustainability of sugar companies, Analysis of Variance (ANOVA) was computed. The table shows [F (1, 248) = 85.112, p < .05)] which indicated that knowledge conversion was a significant predicator of sustainability of sugar. From the results it was clear that implementation of knowledge conversion accounted for a considerable amount of the variance in the level of sustainability of sugar companies in Kenya as shown in Table 4.22.

Table 4.22: ANOVA –Influence of Knowledge Conversion on Sustainability

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.761	1	19.761	85.112	.000[b]
	Residual	57.581	248	.232		
	Total	77.342	249			

a. Dependent Variable: Sustainability

b. Predictors: (Constant), Knowledge Conversion

4.4.6 Moderating effect of Government Policy on the Influence KMPs' and Sustainability of Sugar Companies.

Hypothesis Testing –Objective 5.

$H_0$5: Government Policy has no statistical significant mediating influence on the relationship between KMPs' and Sustainability of Sugar Companies.

To establish the influence of mediating variable (Government Policies) on the implementation of KMPs' on sustainability of sugar companies, the hypothesis that mediation of Government Policy has no statistical influence of on relationship between KMPs' and Sustainability of Sugar Companies in Kenya was tested using

both Zero order correlation and regression analysis. For mediation to occur the study showed that; i) KMPs' must be correlated with sustainability; ii) KMPs' must be correlated with government policy; iii) government policy must be correlated with sustainability holding constant any direct effect of KMPs' on sustainability. When the effect of government policy on sustainability is removed and KMPs' was no longer correlated with sustainability, then it was complete mediation. However, when the correlation between KMPs' and sustainability was reduced then it was partial mediation. It was evident from the finding that direct effect of KMPs' on sustainability alone had a higher Beta weight (Beta=.721) than with the interaction effect (beta=.190) reflecting that an increase of KMPs' by one unit results to .721 improvement in sustainability of sugar companies, however, an increase of the interaction effect by one unit only resulted to improvement of sugar companies' sustainability by only .190 which is a decrease. This implied that there was a partial moderating effect. However, the reduction rate didn't not have statistical significance on the relationship between Knowledge management and sustainability of sugar companies. Therefore, from the coefficient the mediation effect was not statistically significant (Sig. F Change = 0.05). This was shown in Table 4.23.

Table 4.23: Coefficient values for Interaction Effect of Government policy on KMPs'

Model		**Unstandardized Coefficientsts**		**Standardized Coefficient**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	.524	.128		4.088	.000
	Knowledge Management Practices	.721	.065	.575	11.071	.000
2	(Constant)	1.154	.147		7.873	.000
	Knowledge Management Practices	.011	.116	.009	.096	.924
	KMPs*Government Policy	.190	.027	.659	7.132	.000

a. Dependent Variable: Sustainability of sugar companies

In addition, it was evident from the findings that KMPs' contributed to R^2 .462 ; However with mediation of government policy it comes to R^2 = .467 implying that the interaction effect of KMPs' and government policy only accounted for R^2 = .005 (0.5%) which was insignificant. Adding the interaction effect of government policy

on KMPs', the overall Beta weights goes up but at insignificant rate. That however was not adequate evidence to reject the null hypothesis, it was concluded that although there is effect of Government policy on KMPs on sustainability of sugar companies, the effect was insignificant. This was shown in Table 4.24.

Table 4.24: Coefficient of Model-KMPs' Predicating Government Policy

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	Sig. Change	F
1	.680[a]	.462	.458	.44084	.462	106.248	.000	
2	.683[b]	.467	.460	.44007	.005	1.869	.173	

a. Predictors: (Constant), Knowledge Management Practices, Government Policy

a. Predictors: (Constant), Knowledge Management Practices, Government Policy, KMPs*Government Policy

4.4.7 Multiple Regression Analysis

The study established a linear model that could be used to predict the optimal level of sustainability of sugar companies in Kenya. This was done by use of standard multiple regression analysis, where all the four aspect of Knowledge Management Practices (knowledge acquisition, acknowledge sharing, knowledge application and knowledge conversion) were included in the model at once. It was suitable because it could help to investigate how well the set of the independent variables was able to predict the level of sustainability, in line with the views held by Kelley and Bolin (2013).

The analysis provided information about the relative contribution of each of the variables that made up the model. Each independent variable was evaluated in terms of its predictive power, over and above that offered by all the other independent variables. It enabled the researcher to know how much unique variance, in the dependent variable, each of the independent variables explained. Preliminary analyses had been performed to ensure no violation of the appropriate assumption. The model indicated the value of R=.680 column represented in multiple correlation

coefficients, was a measure of the quality of the prediction of the dependent variable – sustainability showing a good level of prediction.

However, the value of R^2 = .462 indicated how much of the variance in the sustainability of sugar industries was explained by the model (which includes the variables of acquisition, sharing, application and conversion of knowledge). This value meant that the model explained 46.2 % of the variance in sustainability of sugar companies in Kenya. That was the proportion of variance in sustainability that was explained by the independent variables; it was the proportion of variation accounted for by the regression model beyond the mean model.

Further, to assess the statistical significance was highlighted in the regression analysis model output shown in Table 4.25.

Table 4.25: Regression Analysis Model summary output

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.680[a]	.462	.451	.44354

a. Predictors: (Constant), KMPs*Government Policy, Knowledge Acquisition, Knowledge Sharing, Knowledge Application, Knowledge Conversion
b. Dependent Variable: Sustainability of sugar companies

However ANOVA table was used to show statistical significance implementation of KMPs' and sustainability revealed [F (5, 244) = 41.987, R^2=.462, sig.<.05], implied that the model was highly significant and adequate enough to explain the variance in sustainability of sugar companies in Kenya. In other words, the results showed that the knowledge of the level of implementation of KMPs' could be used to significantly predict the level of sustainability, meaning the regression model was a good fit of the data. This was shown in Table 4.26.

Table 4.26: ANOVA- Implementation of KMPs' and Sustainability

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	41.299	5	8.260	41.987	.000[b]
	Residual	48.000	244	.197		
	Total	**89.299**	**249**			

.a Dependent Variable: Sustainability of sugar companies
Predictors: (Constant), KMPs*Government Policy, Knowledge Acquisition, Knowledge Sharing, Knowledge Application, Knowledge Conversion

4.5 Discussion on the Findings of the Study

The following is the discussion on findings of the study starting from Knowledge acquisition, sharing, application, conversion and mediating influence of government policy on sustainability of sugar companies in Kenya**.** It further discusses level of sustainability of the companies in Kenya.

4.5.1 The Influence of Knowledge Acquisition on Sustainability of Sugar Companies in Kenya

The first objective of the study was to establish the influence of Knowledge acquisition on sustainability of sugar companies in Kenya. From Table 4.6 it is evident that knowledge acquisition as an aspect of Knowledge Management Practices has considerable influence on sustainability of sugar companies in Kenya, as reflected by a mean of 3.02 (standard deviation=.97). Similarly, more than three quarters 192 (76.8%) of the respondents confirm that knowledge acquisition through training positively affects sustainability of sugar companies in Kenya because it has improved their growth.

This finding concurs with Khan *et al* (2011) that Knowledge acquisition has significant relationship with performance since it is capable of bridging skill gap. Philip (2006) also supports that knowledge acquisition is capable of improving performance and wealth of an economy.

Companies should therefore select appropriate training strategies such as benchmarking which 184 (73.6%) of the respondents strongly confirmed as an

important source of knowledge. On the same breath, performance appraisal has also been confirmed by 161 (64.4%) of respondents as a source of knowledge which generates useful information that serves as a basis for promotion and compensation.

Performance appraisal is a level of knowledge management practice through which firms try to realign the acquired knowledge and make it more relevant to the organization. This finding supports Keep (2006) that unless employee is trained to remove the mismatch between objectives and aspiration of the organization, acquired knowledge may not be of benefit in creating flexibility, effectiveness and performance which are the hallmarks to organizations' sustainability.

Similarly, a significant majority of 192 (76.8%) of the managerial employees who were sampled for the study agree that acquired knowledge makes the company responsive to global challenges such as pollution control that is pre-requisite to sustainability. This finding supports Jean (2010) in his studies in India, Mesopotamia and China that established that Knowledge acquisition is capable of helping to improve the ecosystem and reduce its impact on people's welfare.

This suggests that acquisition of relevant knowledge may make an organization respond to global challenges concurring with IFAD (2007) findings that firms may not realize sustainable growth until they embrace prudent KMPs' to make acquired knowledge relevant to enable them respond to challenges of competition. The findings also concur with LuWang, Tung & Lin (2010) that acquisition of relevant knowledge may give the firm its ecological sustainability. This study also reveals that knowledge acquisition contributes to the growth of the company as this is supported by nearly nine out of ten, 219 (87.6%), of the managerial employees who took part in the survey.

This finding agrees with Dave, and Shisodia (2012) that continuous knowledge creation and acquisition are basic to a firm's competitiveness. This is justified with a mean score of 3.76 at standard deviation of 0.93 which is in excess of overall mean of 3.20. The findings relate to intellectual capital theory which attributes organizational sustainability to elements in Capital (1997) value platform model, Figure 1.2; that points out human capital, customer capital and organization capital

as fundamental outcome of efficient Knowledge sharing and hence, firms superior performance, competitiveness and sustainability.

The findings also relates to human capital theory which acknowledges that for growth and sustainability, a firm must invest heavily in knowledge acquisition by its workforce. Further, the findings concur with views expressed by the employees who were interviewed by the researcher respondents 2 and 4, purported that "Tailor made trainings have resulted into firms' increase of efficiency and productivity.

Such trainings have yielded knowledge that has led to increase in creativity and innovation of cost cutting strategies" and that many workshops and seminars make the firms achieve production targets and sustainable growth'. These respondents confirms previous studies; Jean (2010); Keep (2006), Dave, and Shisodia (2012). that indicates that trainings, workshops and benchmarking are important mechanisms through which firms acquire knowledge which is an important firms asset necessary in bringing operational flexibility, innovation, competitiveness, growth and ecosystem management which collectively results into sustainability.

To estimate the level of influence of knowledge acquisition on sustainability, a coefficient of determination was computed. This was done using regression analysis and the results were as shown in table 4.16; which indicates that implementation of knowledge acquisition accounted for R^2 =.077 (7 %) as signified by coefficient of .054 of the variation in sustainability of sugar companies in Kenya.

However, to determine whether knowledge acquisition was a significant predictor of sustainability of sugar companies (ANOVA) was computed in Table 4.17. The Table indicated that knowledge acquisition was a significant predicator of sustainability of sugar companies [$F(1, 248) = 20.682$, $p < .05$). This further confirms that knowledge acquisition significantly influence sustainability. From the results it was clear that implementation of knowledge acquisition explains a considerable amount of the variance in the level of sustainability of sugar companies in Kenya, as revealed from the findings from the sampled sugar companies.

Scatter Plot Figure 4.4 also confirms that there was evidence of a positive correlation between knowledge acquisition and sustainability of sugar companies. It is clear that the pattern of dots slopes from lower left to upper right, an indication of a positive correlation between the two variables.

The line of best fit (trend line) further reveals that there was correlation between the variables. This is because the coordinate points fell near the line of best fit and were scattered around it forming almost a visible pattern; implying that the two data sets were agreeing. The scatters tend to concentrate in the vicinity of the identity line, meaning the relationship was real and not by chance.

4.5.2 The influence of Knowledge Sharing on Sustainability of Sugar Companies in Kenya.

The second objective of the study was to establish the influence of Knowledge sharing on sustainability of sugar companies in Kenya. The views of the respondents were summarized in percentage frequencies, as presented in Table 4.7 which established that knowledge sharing has considerable influence on sustainability of sugar companies in Kenya. This was indicated by the respondents' overall agreement mean of 3.55 with a standard deviation of 0.46 in Table 4.7. Specifically, the study confirms that the companies share their endowed knowledge through its public open day education, benchmarking programs and performance appraisal of its staff.

It emerged that most companies' public open day education fora and benchmarking programs has positive influence on their sustainability. This was confirmed by a significant majority of 240 (96.0%) of the respondents who took part in the survey. This implies that through the company's public open education days it improves its public image with consequent expansion in product market. Furthermore, benchmarking of company's staff with foreign firms was established to have positive effect on sustainability, as indicated by 180 (72.0%) of the respondents. They believe that sharing knowledge with foreign based firms not only brings cultural re-orientation that leads to institutional growth and development but also enhances environmental control.

On the same note, the findings also reveal that many 164 (65.6%) of the respondents concur that performance appraisal as well as new staff induction leads to innovation and reduced staff mobility. The findings suggest that increased knowledge sharing through performance appraisal and efficient staff induction not only leads to innovation but also reduces staff turnover in the sugar companies. This finding is in accord with that of Saenz et al., (2009) which had shown that knowledge sharing is vital in enhancing innovation and capability of firms.

Equally, these findings support De-lounge (2009) who had indicated that the route to innovation is informal knowledge sharing since its through which way the operational costs and staff turnover are reduced to help organization in increase employees' satisfaction and the firms' productivity.

Bench marking as a knowledge sharing methodology is important in influencing company's sustainability. Although, many 87 (34.8%) of the respondents were undecided on the importance of bench marking, 48 (19.2%) of them observed that benchmarking with foreign firms has brought cultural re-orientation that has led to institutional development of their company.

Similarly, the findings of the study confirm that knowledge sharing has led to product diversification leading to the growth of the companies, a point supported by 187 (74.8%) of the managerial employees who took part in the study. On the same note, sharing knowledge with foreign based firms and immediate social environment was proved to enhance environmental control and to fulfill social responsibility obligations of the companies.

This supports Lafuente, Solano, Leiva, and Mora-Esquivel, (2019). who established that 'a firm is able to perform well when they share knowledge with others and form network that makes them provide integrated quality products thus gaining large market share and profitability'; which are fundamental drivers for organizational sustainability.

These findings oscillate with the views of the study participants 7, 5, 1 and 10 who were interviewed who indicated that" open day's education helps to create good

public relations with other stakeholders and is useful in creating public relations and image of firms and that "Benchmarking is very powerful knowledge sharing practice because workers who were in waste management department, taken to South Africa returned with relevant skills and knowledge towards their areas of operations and demonstrated enhanced environmental control.

This statement means that the respondent holds that benchmarking is very important knowledge sharing practice and that their company has taken it seriously. The respondent confirms that a number of their colleagues who have been taken for bench mark with other foreign firms brought relevant skills and knowledge, the desired innovation, operational efficiency and growth of the companies.

It is evident from the statement that waste management improved as a result of bench marking exercises. This finding is in support of the study conducted by Huosong Xia, et al (2003) that KMPs' help in reducing time wastage required to capture correct information or make decisions, reduce production costs, improve waste management, potentially reduce research and development costs and product development cycle time.

Similarly, the respondents confirms that firms have gone into innovation as a way of managing waste products- burgess by using then in manufacturing briskets (charcoal) and chipboards, as the 1^{st} , 5^{th} and 10^{th} respondent s submitted. To establish whether there was any significant influence of knowledge sharing on sustainability of sugar companies in Kenya, the null hypothesis was tested.

This was done by use of Pearson Product Moment Correlation Coefficient analysis, using the scores computed from frequency of responses in table 4.19. The p-value was set at .05, where the null hypothesis was rejected when the p-value was less than .05 but it was adopted (accepted) when the p-value obtained was greater than .05. Table 4.19 shows the correlation analysis results in SPSS output. The finding in Table 4.18 shows ($r=.556$, $n=250$, $p<.05$) indicating that there was statistically significant positive correlation between implementation of knowledge sharing and sustainability of sugar companies.

Implying that increase in implementation of knowledge sharing results into increase in sustainability of sugar companies and vice-versa. Agreed that the relationship was significant, the hypothesis that, "there is no statically significant influence of implementation of knowledge sharing on sustainability of sugar companies" was rejected. It was therefore concluded that implementation of Knowledge sharing has positive influence on sustainability of sugar companies in Kenya. However, it was weak.

To further illustrate this relationship, a scatter plot was generated as shown in Figure 4.8. The scatter plot reveals that there was some positive correlation between knowledge sharing and sustainability of sugar companies. It is evident that the pattern of dots slopes from lower left to upper right, an indication of a positive correlation between the two variables. The trend line further exposes that there was correlation between the two variables. This is because the coordinate points were scattered around it forming almost a visible pattern showing that the two data sets were agreeing. The scatters seem to concentrate along the identity line, meaning that the relationship was not by chance. However, to estimate the level of influence of implementation of knowledge sharing on sustainability, a coefficient of determination was computed by use of regression analysis as shown in Table 4.19 which shows that implementation of knowledge sharing accounted for 30.9% (R^2 =.309) of the variation in levels of sustainability of sugar companies in Kenya.

However, to determine whether knowledge sharing was a significant predictor of sustainability of sugar companies, Analysis of Variance (ANOVA) was computed in Table 4.20 showing [$F (1, 248) = 110.961$, $p < .05$)] indicating evidence that knowledge sharing was a significant predicator of sustainability of sugar companies. This further confirms that knowledge sharing significantly influence sustainability. From the results it was clear that implementation of knowledge sharing explains a considerable amount of the variance in the level of sustainability of sugar companies in Kenya, as revealed by the findings from the sampled sugar companies.

4.5.3 The Influence of Knowledge Application on Sustainability of Sugar Companies in Kenya.

The third objective of the study was to establish influence of knowledge application on sustainability of sugar companies in Kenya. The respondents' views on various knowledge application indicators were summarized in percentage frequencies and were presented in Table 4.8 reveals that knowledge application had a high (average score=3.43 and standard deviation=1.24) influence on sustainability of sugar companies in Kenya, with all the indicators rated high (average mean ranging between 2.91 and 3.84). The findings of the study established that efficient utilization of knowledge resource in developing new products accounted for the highest (mean=3.84, standard deviation=1.29) of influence in contributing to sustainability of an organization, with a majority of 182 (72.8%) of the managerial employees who took part in the survey confirming that their company's growth are largely attributed to its efficient utilization of Knowledge resources in developing new products.

On the same note, nearly seven out of ten 173 (69.2%) of the respondent agreed that their company recognizes employees' level of knowledge application in product innovation during compensation and some 157 (62.8%) of the respondents also confirmed that they apply knowledge in product designs which has resulted to wider market. With new products and innovations industries enjoys direct benefits of direct cost savings, reduction of wastage and increase in sales.

On the same vein, the findings of the study show that many of the managerial employees agree (mean =3.34; standard deviation=1.20) that for the companies to fetch a wider market, they have to use their knowledge to design, re-design and innovate new products. These findings concur with Zack *et al* (2009) who purported that efficient knowledge management (application) is capable of influencing various aspects of organizations financial performance, such as the company's profitability and growth which are prerequisite parameters of economic sustainability.

The findings relates to intellectual capital theory which attributes organizational sustainability to elements in Tan, Plowman and Hancock (2008) value platform model, Figure 1.2; that points out human capital, customer capital and organization

capital as fundamental outcome of Knowledge application and hence, firms superior performance competitiveness and sustainability.

The companies' product innovation (customer capital) that results from Knowledge application therefore justifies the use of Intellectual Capital Theory in the study. This implies that for affirm to perform better it has to engage its knowledge resources in knowledge utilization for creating products and ideas that are able to give it a competitive edge in the market, generate financial benefits with which it can address social responsibility initiatives such as ecosystem integrity.

This finding concurs with Robinson *et al*. (2005) who indicated that efficient application of knowledge gives an organization strategic benefits which necessitates its increased market share. The findings also support Li and Tsai (2009) and Wah (2013). that knowledge application should help a firm to innovate new products which Lew and Sinkorics (2012) further argued gives a firm its competitive advantage.

The finding concurs with West and Noel (2009) who portends that firms' competitive advantage directly depends on their capability to gather and use resources effectively. Similarly, the finding also supports Alauddin and London (2011) who indicated that the sources of a firms competitive advantage resides not in knowledge *per se* but in the application of knowledge itself.

It emerged from the findings of the study that knowledge application has recognizable bearing on ecosystem integrity (mean=3.55; standard deviation=1.10). A significant majority of 175 (70.0%) the managerial employees who were sampled for the study asserted that knowledge application is capable of influencing sustainability by enhancing organizations' ecosystem management, as reflected in their company. This finding supports Dasgupta (2007) who pointed out that organization is dependent on its knowledge resources in protecting its environment which is vital for achievement of its stable economic growth and ecosystem integrity, which eventually leads to sustainability of the organization.

As regards companies' infrastructure, the findings of the study show that knowledge application has led to its development, as affirmed by184 (73.6%) of the respondents who held that development of infrastructure is highly dependent on the application of knowledge and skills necessary to infrastructure development. On the contrary, there was a sharp division of opinions among the sampled employees on whether or not knowledge application has made the company to withstand competition resulting from liberalized market.

Whereas, 93 (37.2%) of the respondents agreed that knowledge application made their company to withstand competition resulting from liberalized market, the other 130 (52.0%) of the respondents disputed the claim. Hence, this finding partly differed with that of Wajaktrakal (2005) which had purported that firms can gain monopolistic advantage and able to withstand competition emerging from liberalization through effective application of its knowledge capabilities.

These findings were supported by the personal interviews of respondents 5, 7 & 10 and who indicated that "the relevance of knowledge acquired from workshops and seminars helped to bridge the skill gaps making firms efficient and productive led to increase in creativity and innovation of cost cutting strategies. As a reflection, the relevance of knowledge is seen in the company's new product innovations and implementations of cost cutting programs such as initiating ethanol, spirit and wines production, establishing water bottling plant and brisket (charcoal making) plant.

The company has embarked on serious diversification due to stock of human capital with relevant knowledge which led to improved financial economies and sustainable growth. The companies work closely with the private investors to exploit the waste-burgess in making brisket with the view to improving environmental control. This has even reduced the publics' overdependence on wood fuel and pollution." The majority of respondents 128(51%) initiated that companies have introduced intellectual actions towards ecosystem integrity.

By implementing in collaboration with privateers, the forward linkage-brisket making plant (makes Charcoal from burgess) to reduce communal overdependence on charcoal from trees, have enhanced environmental management systems (EMS)

by distributing free seedlings and encouraging tree planting and have complied to ISO 9001 the companies have built incinerators to improve environmental (pollution) hygiene'. On the same breath some companies have established waste treatment plant to ensure that waste waters and chemicals from the companies are treated before being released into the rivers to reduce water and environmental pollution to reduce adverse effects on biodiversity.

To establish whether there was any statistical significant influence of knowledge application on sustainability of sugar companies in Kenya, the null hypothesis was tested. This was done by use of Pearson Product Moment Correlation Coefficient analysis, using the scores computed from frequency of responses in Table 4.22.

The finding in Table 4.22 shows ($r=.496$, $n=250$, $p<.05$) indicates that there was statistically significant positive correlation between implementation of knowledge application and sustainability of sugar companies. Implying that increase in implementation of knowledge application results into increase in sustainability of sugar companies and vice-versa. Given that the relationship was statistically significant, the hypothesis that, "there is no statically significant influence of implementation of knowledge application on sustainability of sugar companies" was rejected. It was therefore concluded that implementation of Knowledge application has positive influence on sustainability of sugar companies in Kenya. To further illustrate this relationship, a scatter plot was generated as shown in Figure 4.5.

It shows a supply curve- trend line sloping from left to right upwards scatters appearing to be concentrating along the trend line, meaning that there was some positive correlation between knowledge application and sustainability of sugar companies.

Further, to estimate the level of influence of implementation of knowledge application on sustainability, a coefficient of determination was calculated by use of regression analysis as shown in Table 4.23. The model shows that implementation of knowledge application accounted for 24.6% ($R^2 =.246$) of the variation in levels of sustainability of sugar companies in Kenya.

However, to determine whether knowledge application was a significant predictor of sustainability of sugar companies, Analysis of Variance (ANOVA) was computed as Table 4.23 from which it was evident that knowledge application was a significant predicator of sustainability of sugar companies [F (1, 248) = 80.761, p < .05)].

This further indicates that knowledge application significantly influence sustainability. From the results it was clear that implementation of knowledge application accounts for a substantial amount of the variance in the level of sustainability of sugar companies in Kenya. It is therefore imperative to summarize that knowledge application is key in sustainability of Sugar companies in Kenya.

4.5.4 The Influence of Knowledge Conversion on Sustainability of Sugar Companies in Kenya.

The fourth objective of the study was to establish influence of knowledge conversion on sustainability of sugar companies in Kenya. The views of the respondents on its influence on sustainability of sugar companies in Table 4.10 which evidently show that knowledge conversion had a high average score=3.24, standard deviation=1.21) influence on sustainability of sugar companies in Kenya, with all the indicators rated above average influence (average mean ranging between 2.89 and 3.81).

The findings of the study show that a significant majority 181 (72.4%) of the respondents held that knowledge conversion by socialization of the companies staff led to product designs and quality improvement. This reflected the highest (mean=3.81, standard deviation=1.17) influence in contributing to sustainability of sugar companies, with a majority of the managerial employees who took part in the survey confirming that their company's growth are largely attributed to its efficient Knowledge conversion. Similarly, nearly three quarters180 (72.0%) of the managerial employees agreed that internalization of knowledge has led to re-alignment of concept and experience that has improved their company's innovation.

In addition, 174 (69.6%) of the respondents confirmed that knowledge conversion by integration of gathered skills and experiences by staff has led to the company's

improved creativity and innovativeness, which by extension has translated to sustainability of sugar companies.

This finding isn't in agreement with Esterhuizen, Schutte, and Du Toit, (2011) who held that innovation is driven by knowledge conversion since it results from integration of tacit and explicit. He further pointed out that innovation can influence a firm's competitive advantage.

Similarly, Seidler-de Alwis, and Hartmann (2008) observed that tacit knowledge is the bottom line in innovation and capable of positively influencing a firms improved performance through collaborative sharing of experiences by its staff in and outside wither firms to enhance knowledge diffusion. On the same vein, the findings of the study show that many 153 (61.2%) of the respondents agreements that their companies have generally improved on response to social responsibilities due to knowledge conversion by socialization, as indicated by a mean influence rate of 3.11 with a standard deviation of 1.28.

This finding concurs with Nonaka & Krogh (2009) who had pointed out that knowledge conversion is basic to an organization since it's capable of helping it to provide solutions to its problems as the employees socialize, externalize, internalize and integrate knowledge. It is common knowledge that organizations problems are problems of performance, growth and sustainability, implying that knowledge conversion may provide a firms performance and sustainability problems by influencing the company's profitability and growth, which are prerequisite conditions for sustainability of a firm. This implies that for affirm to perform better it has to convert its knowledge in the creation of products and ideas that are able to give it a competitive edge in the market, generate financial benefits with which it can address social responsibility initiatives such as ecosystem integrity.

In support to the findings of sscholars such as Choi & Lee (2002) and Sabherwal & Sabherwal (2005) who had acknowledged that knowledge conversion has fundamental bearing on organization performance, the findings of this study has established that Knowledge conversion has made most of the companies to record marked growth and development. For example, nearly three out of five 147 (58.8%)

of the managerial employees who were sampled for the study asserted that their organizations have registered remarkable growth and development, which they attributed to implementation of knowledge conversion.

This finding also concurs with Montoya-Weiss (2006) who had confirmed the consensus that understanding conversion model may help organizations to provide solutions to their problems and perform their tasks and actions correctly. On the same note, Gasik (2011), Yusoff and Dandi (2010) also posited in a similar fashion that knowledge conversion can build the capacity of an organization to implement newly acquired skills and experiences to improve its performances and undertakings in innovation.

On the flip flop, the managerial employees were sharply divided in opinion on knowledge conversion by externalization. For instance, although 120 (48.0%) of the managerial employees who took part in the survey held a strong opinion that knowledge conversion by externalization has led to their companies' ecosystem control, another sizeable proportion 110(44.0%) strongly rejected the assertion that knowledge conversion by externalization has led to their companies' ecosystem control. This finding partly agrees to the views held by Cairó Battistutti and Bork (2017) on externalization that it is an aspect of knowledge conversion that help an organization in setting its rules and policies for attaining its goals.

These scholars were of the opinion that it is through externalization that an organization authenticates the processes of articulating tacit into explicit knowledge, through documentation of reports that becomes reference in implementation of new concepts in innovation. To establish whether there was any statistical significant influence of knowledge conversion on sustainability of sugar companies in Kenya, the null hypothesis was tested. This was done by use of a Pearson Product Moment Correlation Coefficient analysis, using the scores computed from frequency of responses in table 4.23.

The finding in this table shows that there was statistically significant, moderately positive correlation ($r=.537$, $n=250$, $p<.05$) between implementation of knowledge conversion and sustainability of sugar companies, with increase in implementation of

knowledge conversion occasioning an increase in sustainability of sugar companies may result and vice-versa.

Given that the relationship was statistically significant, the hypothesis that, “there is no statically significant influence of implementation of knowledge conversion on sustainability of sugar companies” was rejected. It was therefore concluded that implementation of knowledge conversion as an aspect of KMPs’ has positive influence on sustainability of sugar companies in Kenya. To further illustrate this relationship, a scatter plot was generated as shown in Figure 4.5 which reveals that there was some positive correlation between knowledge conversion and sustainability of sugar companies. The pattern of dots slopes from lower left to upper right, suggesting that there is a positive correlation between the two variables.

The slope of trend line reveals that there is correlation between the two variables as the scatters appear to concentrate along the trend line, meaning that the relationship was not by chance. However, to estimate the level of influence of implementation of knowledge conversion on sustainability of sugar industry, a coefficient of determination was calculated by use of regression analysis as shown in Table 4.25.

From Table it is evident that implementation of knowledge conversion explained for 28.9% (R^2 =.289) of the variation in levels of sustainability of sugar companies in Kenya. However, to determine whether knowledge conversion was a significant predictor of sustainability of sugar companies, ANOVA was computed as shown in Table 4.23 showing [$F (1, 248) = 100.706, p < .05$)] which confirms more vividly that knowledge conversion was a significant predicator of sustainability of sugar companies.

This further indicates that knowledge conversion significantly influence sustainability. From the results it was clear that implementation of knowledge application accounts for a considerable amount of the variance in the level of sustainability of sugar companies in Kenya.

4.5.5 The influence of Government policy moderation on the relationship between KMPs' and Sustainability of Sugar Companies in Kenya.

This objective of the study was to establish the intervening effect of government policies on the influence of implementation KMPs' on sustainability of sugar companies in Kenya. The opinions of the managers were sought on the intervening role of the government policy in influencing implementation of KMPs' on sustainability.

Their views were computerized in percentage frequencies as in Table 4.27 which revealed that government policies such liberalized sugar import trade and price control, among other intervening variables had mediating effect on the influence of implementation of KMPs' on sustainability of sugar companies in Kenya. For instance, it was established that a significant majority of the respondents held the assertion that involvement of government in sugar industry mediates the influence of implementation of KMPs' on sustainability. This was showed by most 190 (76.0%) of the respondents who argued that politicizing the sugar industry in Kenya has negatively affected the influence of knowledge application in sustaining the developments of their company.

On the same note, acquisition and sharing of knowledge which are key tenets of implementation of KMPs' that have negatively been affected by political involvement in the industry, which intuitively confounds the influence of KMPs' in sustaining the developments of sugar companies. This point was advanced by the majority 200 (80.0%) of the employees who were involved in the study.

Similarly, the findings of the study show that liberalization of the sugar industry has to a great extent negatively weakened the positive effect of knowledge acquisition, knowledge sharing and knowledge application in influencing implementation of KMPs in promoting sustainability of sugar companies in Kenya, as confirmed by 189 (75.6%) of the study participants.

This finding concurs with Bonnitcha (2019) who blamed liberalization policy for causing mortality of steel companies in U.S.A and justifies Zambian Sugar Report (2009) that when the government permits liberalization they should provide heavy subsidies to sustain industries. It means the company's application efforts remain ineffective in a country that permits liberalization of trade. The findings also support Iringo (2005) who indicated that Kenyan involvement in economic integration led to removal of trade barriers as it subscribed to PTA and COMESA, permitted liberalization in trade and industry and in particular for importation of 200,000 metric tonnes. However as a result of these trade policy packs, the country realized high influx of cheap sugar imports by sugar cartel operators beyond its subscription from non-COMESA states.

This weakened Kenyan Sugar economy in terms of its growth and sustainability, in spite of the effort made by sugar company management to implement Knowledge Management Practices. These findings were supported by the results of the qualitative data from interviews with respondents indicating that 'Liberalization trade policy on sugar has led to illegal importation of cheap sugar from non-COMESA states such as India, Brazil, Mauritius, Sudan, Zambia and South Africa,' causing unbiased competition and reducing the local industries market share.

They purported that enormous effect of liberalization has been occasioned with weak regulatory policy framework that creates opportunity to sugar cartels under the guise of private millers to indulge in illegal sugar imports and repackaging in their own names at low costs.'

These findings are in line with Mulwa, Emrouznejad and Murithi (2009) that purports the cause of poor performance, dwindling growth and mortality of sugar companies is the signing of economic integration pack with COMESA states that liberalized the sugar market. This led to emergence of Cartels of sugar operators. The implication of these findings is that the government should subsidize the local industries to salvage them from eventual collapse and eminent mortality.

This finding however Njoroge (2018) disagrees with who argued that liberalization is beneficial since it opens doors for investment opportunities and foster political understanding between countries. In the same light, it means that even though liberalization leads to poor cash flow it propels managerial staff to implement policies through knowledge sharing. To this extent, it imply that liberation of the sugar market does not weaken the output of knowledge sharing in influencing sustainability companies which however disagrees with Katunyi Anti Corruption Report (2010) who had held that allowing free market in the sugar industry and political agitation are to blame for the woes in the state of sugar industry.

In regard to price control, the findings of the study reveal that a significant majority,179 (71.2%), of the respondents held the general belief that lack of price control on local sugar has considerably mediated between implementation of knowledge application and organizational sustainability. Because sugar prices are not controlled, the local sugar becomes expensive in the same market dominated by cheap sugar from non- COMESA states. Even though knowledge application in new product design and innovations should fetch market to the companies, besides cheap foreign sugar the Kenyan sugar cannot fetch market value due to cost implications.

Due to disparity in comparative cost of producing sugar in Kenya with non-COMESA states there is no level ground for determining prices and therefore price mechanism cannot be used as a basis for predicting growth and sustainability. Because of cheap sugar which floods domestic market, the market share for local sugar has been narrowed causing stock piles in the company's warehouses and low cash flow to the companies.

This finding is in concurrence with the descriptive data from the surveyed respondents who indicated that controlled prices of sugar in Kenya have made domestic sugar more expensive due to high comparative cost of production. This statement implies that lack of price control in sugar industry is to blame for the woes in the industry in Kenya. The implication of this finding is that despite efficient (KMPs') especially knowledge application, disparity in comparative cost of sugar

production between Kenya and non COMESA states cannot permit favorable competition in the domestic market.

This finding is confirmed by Market for Swazi Sugar report (2001) which had affirmed that the cost of sugar production in Kenya is $US 420 per metric tonne; Sudan $ US 230 per metric tonne while in Swaziland it is $ US 169 per metric tonne, that the non-COMESA states have a lower comparative costs in sugar production compared to Kenyan making local sugar more expensive.

In a nutshell, this study confirms that political involvement, price control policy and market liberation have mixed mediation effect on the influence of implementation of KMPs' and sustainability of sugar companies in Kenya. This means that as much as KMPs' are capable of influencing organizational sustainability of sugar industry, they however, suffer mediating effect of government policies.

To establish the effect of intervening variable (Government Policies) on the influence of implementation of KMPs' on sustainability of sugar companies the null hypothesis was tested using both zero order correlation and regression analysis which were computed in Table 4.29.

The study confirmed the occurrence of mediation by (i) correlating KMPs' with sustainability; (ii) correlating KMPs' with government policy and (iii) correlating government policy with sustainability holding *ceteris peribus* any direct effect of KMPs' on sustainability. When the effect of government policy on sustainability is removed and KMPs' is no longer correlated with sustainability, then it is complete mediation. However, when the correlation between KMPs' and sustainability is reduced then it is partial mediation.

4.5.6 Level of Sustainability of Sugar Companies in Kenya

The study investigated the level of sustainability in sugar industries in Kenya since it was the dependent variable. From the findings in Table 4.11 it is evident that the sugar companies in Kenya with mean=3.37 and standard deviation=0.83 have moderate sustainable growth. Some of the managerial staff whose views were taken

rated indicators of sustainability between 2.87 to 3.92. It emerged that nearly two thirds 160 (64.0%) of the respondents accepted that there has been improved growth of their company over the years, which they argue was reflected in their company's ability to assist the community through social responsibility program in maintaining and improving their natural resources.

This finding of the study concurs with Dasgupta (2007) who had argued that sustainability is all about guaranteeing quality life through social progress while meeting people's needs, protecting environment, ensuring prudent use of natural resources and maintaining stable economic growth and empowerment. Similarly, 150 (60.0%) of respondents affirmed that their company had registered expansion of product market in the recent years. In addition to expansion of product markets, the findings of the study established that there had been product diversification in the sugar companies signifying growth of the companies, as indicated by 158 (63.2%) of the employees who took part in the survey.

Only 40 (16.0%) of the respondent did not believe that their company had registered any significant improvement. However, it was established that many of the sugar companies had made efforts to withstand competition resulting from liberalized market**.** This was confirmed by 150 (60.0%) of the managerial employees who believed that many of the sugar companies have tried to counter the effects of liberation of the sugar market. These findings are supported by Lu, Wang, Tung & Lin (2010) who believe that firms facing stiff competition ought to increase their value creation processes to attain competitive advantage.

On the contrary, some respondents believed that their company had not acquired adequate level of sustainability. For example, whereas majority of the respondents believed their company enjoyed product diversification which signified growth of the company, 70 (28.0%) of respondent disputed the assertion that their company enjoy product diversification.

On the same note, 69 (26.4%) of the respondents said their company had not made enough efforts to withstand competition occasioned by the liberalization in the sugar

industry. In fact, 68 (27.2%) respondents alluded that their company had not registered any expansion of product market in the recent years.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusion and recommendations based on the findings of the study as follows. The study involved 250 managers from all the operational state owned sugar companies in Kenya. The study considered KMPs' such as Knowledge acquisition, sharing, application and conversion of which it realizes that knowledge application with β= .0363 (36.34%); p=.000 has highest contribution to sustainability of sugar companies in Kenya, followed by Knowledge acquisition with β= 0324 (32.4%), with Knowledge sharing with β= .027 (27 %) contributing least ton sustainability. The study also found that government policies have negative moderating influence on relationship between KMPs' and sustainability as its β= .416 was less than KMPs' r= .0568 using a zero-order correlation.

5.1.1 Summaries of the study

5.1.2 Demographic information

The study established that sugar companies in Kenya have high profiled managerial staff with good competence profile –academic, technical and experiential qualifications, responsible and committed despite poor gender representations and was capable of steering the companies to its ultimate growth and sustainability. However, the companies suffer from poor gender representation in management as females accounted for only 20% of the managers.

5.1.3 Knowledge Acquisition on Sustainability of Sugar Companies in Kenya

The study established that Knowledge acquisition r=.233, p=000 at 95% confidence interval influence sustainability and ANOVA table showing [F(1,248)=14.213, p<.05)] confirms it is a strong of predictor of sustainability of sugar companies in Kenya and capable of influencing the companies sustainability.

5.1.4 Knowledge Sharing on Sustainability of Sugar Companies in Kenya

The study established that the implementation of Knowledge Sharing on practices scoring r=.292, p=.000 at 95% confidence interval indicates a positive correlation and ANOVA table showing [F(1,248)=23.055, p<.05)] confirms it is a weak predictor of sustainability. Implying that increased Knowledge sharing activities influence companies' performance and sustainability though to a minimal extent**.**

5.1.5 Knowledge application on Sustainability of Sugar Companies in Kenya.

The study establish that Knowledge application rated high in terms of its contribution to sustainability registered r=.542, p=.000 at 95% confidence interval indicates a positive correlation and ANOVA table showing [F(1,248)=103.423, p<.05)] thus confirms that it had influence and thus a strong predictor of sustainability of sugar companies in Kenya. This implies that Knowledge application in product innovation and development is capable of improving the firms' performance, growth and sustainability. The study also found out that efficient knowledge utilization have led the companies into diversifying their activities which improves their profitability and ecosystem management.

5.1.6 Knowledge Conversion on Sustainability of Sugar Companies in Kenya

The findings reveal that Knowledge conversion had statistical significant, however it is moderately positive correlation (r=.505, n=250, p<.05) implying that increase in implementation of knowledge conversion programs leads to corresponding increase in sustainability. This assertion is further confirmed by scatter plot showing scatters appearing to concentrate along the trend line disputing hypothesis that it has no statistical significant influence to sustainability since its showing positive relationship. And in a regression analysis table 4.20, Knowledge conversion is capable of influencing sustainability by 26.6% (R2 = .256) as ANOVA also shows [(1, 248)=85.112,p< .05) confirming it significantly influence sustainability.

5.1.7 Moderation of government policy on the relationship between KMPs' and sustainability of Sugar Companies in Kenya

In examining mediating influence of government policies on the relationship between KMPs' and sustainability of sugar companies in Kenya, the study established that government policy registered β = .416 at <.05 confidence interval in the multiple regression is less than the zero-order correlation r =.568 of KMPs' and sustainability reflects partial negative mediating influence on the relationship between KMPs' and sustainability and militates against positive benefits of prudent KMPs' that focuses at improved performance and sustainability growth of the companies in Kenya.

5.2 Conclusions of the study

The main conclusion of the study was that KMPs' influence a firm's competitive performance and sustainability. Nonetheless, the practices must be supported with favorable government policy framework. Further, KMPs' variables singly and jointly influenced sustainability of sugar companies in Kenya, but of the Knowledge management based practices, Knowledge sharing contributed high percentage 30.9 % followed by knowledge conversion 29.9% of variability to sustainability. As a result, the study rejected the null hypothesis (H_o) of independent variables. On the same breadth, the study concluded that there was no significant moderating influence of government policy on the relationship between KMPs' and sustainability. This was because there was no sufficient evidence to reject the null hypothesis of the moderating variable implying that government policy had weaker contributing influence on the relationship between KMPs' and sustainability. The following were therefore specific conclusions;-

5.2.1 Knowledge acquisition on Sustainability of sugar companies in Kenya

From the forgoing findings, because knowledge acquisition has been confirmed to be having positive influence on sustainability ranking second in Table 4.23 by scoring β= .294 in Standardized Coefficients, it can be concluded that the sugar companies should seek government support in liberalizing partnership programs to enable them

continue with their training and benchmarking programs that enhances their personnel knowledge acquisition.

5.2.2 Knowledge Sharing on Sustainability of sugar companies in Kenya

This study found out that knowledge sharing registers least positive significant contribution as seen in Table4.23 by scoring β= .039 in Standardized Coefficients, is capable of inducing sustainability of sugar companies in Kenya but the practices have been ineffective due employees fears of loss of superiority and power, this study thus concludes that the sugar companies should encourage knowledge sharing culture and seek financial support to improve on their knowledge sharing strategies.

5.2.3 Knowledge application on Sustainability of Sugar Companies in Kenya

Based on the findings of the study since knowledge application has been confirmed to be having greatest positive statistical contribution and thus influence on sustainability ranking first in Table 4.23 by scoring β= .559 in Standardized coefficients. The companies should therefore step-up knowledge utilization in innovation, products diversifications to greatly influence their performance, growth and sustainability in Kenya. The governments should also intervene in subsidizing the management of sugar companies to enable them improves on their knowledge utilization strategies. And that financial constraint suffocating the companies should be eased by the governments to permit effective knowledge application by the companies to ensure sustainability.

5.2.4 Knowledge Conversion and organizational sustainability in Kenya

Knowledge conversion has significant influence to sustainability and the companies needs to improve on their knowledge conversion strategies aimed at developing new products to achieve triple bottom line (TBL)-economic, social and ecological benefits that would fast track the sugar companies to growth and sustainability**.**

5.2.5 Government policy moderation on the relationship between KMPs' and sustainability of Sugar Companies in Kenya

The study upheld that Government policies had partial moderating influence on the relationship between KMPs' and sustainability. That the government should review its policies on liberalization and pricing to allow the companies to benefit from their knowledge management practices.

5.3 Recommendations

Based on the forgoing conclusions, the study made these commendations on its findings to various stakeholders in the sugar industry either directly or indirectly. First, the study recommended to management of sugar companies that for the companies to achieve sustainable growth, they should adopt and sustain KMPs' and review their compensation and career development programs to spur sugar companies to sustainable growth. These will inspire employees into innovation teamwork, competence building and in creation of environment of safety and health which are bottom line of sustainability. In addition, management of sugar companies should focus their knowledge-based practices on innovation and product diversification to achieve market capital which anchors sustainability. The study also recommended to the government to develop a favorable policy document to support implementation of KMPs' by restricting liberalization to disallow sugar imports and have strict control of sugar prices. In addition, the study recommends that the government should provide financial incentives (provide subsidies and write off loans) to sugar companies and renew international partnership and benchmark programs amongst sugar companies to inspire workforce into knowledge transfer. These recommendations support theory and practice hence will be useful to policy makers, management of sugar companies.

The following recommendations were therefore made as per study objectives;

5.3.1 To the Management of Sugar Companies in Kenya

a. Influence of Knowledge acquisition on sustainability of sugar companies

The companies to introduce attractive monetary and non-monetary motivational incentives such as foreign holidays, provision of scholarships (off the-job trainings) to key operative and managerial staff to guarantee retention, and inspire KMPs' focused at improving market capital in the interest of society and guarantees organizational sustainability. The companies should locate more funds for more regular staff trainings, workshops and benchmarks to enhance knowledge acquisition. In addition, the companies should also ensure that acquired knowledge from training is shared conversed (re-aligned) to the company goals.

b. Influence of Knowledge sharing on sustainability of sugar companies

Sugar companies should implement strategic KMPs' that permit knowledge sharing such as encouraging group discovery and innovation by building of collaborative culture of group-based compensation schemes and provide to its workforce equal opportunities in career development to inspire them into knowledge sharing and innovation which are bottom line of sustainability. In addition, the sugar companies should develop unique reward schemes that motivate employees towards effective knowledge sharing.

c. Influence of Knowledge Application on sustainability of sugar companies

The companies should encourage their employees to direct their knowledge into innovation and products diversifications towards the realization of market capital (larger market share), growth and sustainability in Kenya.

d. Influence of Knowledge Conversion on sustainability of sugar companies

The Companies should encourage benchmarking to expose their personnel into vast knowledge conversion experiences as this provide unlimited source of knowledge that enhances creativity and innovativeness. Finally, the Management should offer competitive compensation incentives in order to retain employees' and sustain high

level of motivation in knowledge conversion for fast growth and sustainability of the companies.

5.3.2 To the Governments on

a. Influence of Knowledge Acquisition on Sustainability of Sugar Companies

The government should review policies to authorize sugar companies' resumption of partnership and exchange programs with the world's leading sugar producing countries so as to inspire (enhance) knowledge acquisition. In addition, they should source knowledge experts from leading sugar producing countries to aid local sugar companies.

b. Influence of Knowledge Sharing on Sustainability of Sugar Companies

The government should create culture of knowledge sharing amongst the sugar companies by encouraging inter-company benchmarking locally and with other companies abroad. These were only possible when policy document to the effect was developed.

c. Influence of Knowledge Application on Sustainability of Sugar Companies

The government removes bureaucratic bottlenecks in sanctioning the companies' diversification programs to motivate institutional creativity into innovation.

d. Influence of Knowledge Conversion on Sustainability of Sugar Companies

The government should subsidize the operations of sugar companies and in procurement of modern processing technologies to enhance their knowledge conversion programs focused at product development.

e. Government policy moderation and its influence on the relationship between KMPs' and sustainability of Sugar Companies

To improve on their undesirable government policy contribution on the relationship between KMPs' and sustainability of sugar companies in Kenya, the following recommendations were advanced; that the governments should control liberalization of trade in sugar by enforcing strict price control regime to allow local sugar companies to thrive on their knowledge practices in the country. The government should also protect local sugar companies by extending COMESA safeguards and re-negotiating its preferential market quota allocation to create local market for local sugar product hence motivate local companies into KMPs' for innovation and diversification. Finally, the governments should review policy to make it possible for sugar companies to resource Knowledge Managers from world's leading sugar producing countries to nurture local talents in efficient KMPs'.

5.3.3 For Further Research.

This study recommends further research on in company based factors that influence the relationship between Knowledge sharing and sustainability of sugar companies in Kenya. Since the study had revealed partial moderation of government policy on the relationship between KMPs' implementations and sustainability, it was prudent to suggest further research on influence of KMPs' with intermediation of government policies on sustainability of both private and state owned sugar companies in Kenya using a larger sample. Finally this study recommend considerate research on mediating influence of market conditions on the relationship between KMPs' and sustainability of both private and state owned sugar companies in Kenya.

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APPENDICES

Appendix I: Research Instruments

(For Senior & Middle level Managers)

Dear sir/madam,

Kindly note that you have been selected to participate in the survey to help solicit data for compiling a Ph.D thesis report on *"Influence Of Knowledge Management Practices On Sustainability Of Sugar Companies in Kenya*" and that the information you provide will be kept in confidence and only used for the intended academic purpose. Your honest opinion is a virtue and will be of great value to the study.

Thanks.

Yours Faithfully,

Alex A.Akoko.

Q.1: DEMOGRAPHIC DATA

Put a tick ( ) against your most appropriate choice

(a). Gender: Male ( ) Female: ( )

(b). Age : 24yrs – 34 yrs ( ) 35yrs -45yrs ( ) 46yrs – 56yrs ( ) Above 65 yrs ( )

(c). Working experience in the industry: 0- 5 yrs ( ) 6- 11yrs ( ) 12-17 yrs Above 17 yrs ( )

(d). Marital status: Married ( ) Single ( ) Divorced ( )

(e). Qualification Status: Certificate ( ) Diploma ( ) Degree ( ) Masters ( ) PhD ( )

INSTRUCTION: Kindly answers the following questions by putting a tick (√) in appropriate column of your choice in a 5-Likert ranking scale provided. Also note **that KMP refers to Knowledge Management Practices.**

KEY: **SA** – Strongly Agree **A** – Agree **D** – Disagree **N**- Neutral

SD – Strongly Disagree

Section A: Sustainability of Sugar Companies in Kenya

code	**Item statement**	**Linkert Scale**				
		S	**A**	**N**	**D**	**SD**
		5	**4**	**3**	**2**	**1**
A1	There has been improved growth of this company over the years as reflected in its ability					
S2	Our company has registered expansion of product market in the recent years.					
S3	This company has made tremendous infrastructure development					
S4	There has been product diversification signifying growth of this company					
S5	The company has made efforts to withstand competition resulting from liberalized market					

Section B: Knowledge acquisition on Sustainability of Sugar Companies in Kenya

Code	Item Statement	Likert Scale Ranking				
		SA	A	D	N	SD
		5	4	3	2	1
Kac1	Our staff participation at international sugar conferences have influenced our participation on social responsibilities to society					
Kac2	Knowledge acquisition(through training) has improved growth of this company					
Kac3	Benchmarking is an external sources of knowledge that has lead to this companies infrastructure development					
Kac4	Performance appraisals, level of knowledge (education, skills and experience) are used in this company as a basis in determining promotion and compensation.					
Kac5	Acquired Knowledge has made the company to respond positively to global issues such as pollution control.					
Kac6	Growth of this company may be attributed to knowledge acquired from various trainings.					

Section C: Knowledge Sharing and Sustainability of sugar companies in Kenya

Code	Item statement	Likert Ranking Scale				
		SA	A	D	N	SD
		5	4	3	2	1
Ks1	The companies open day's education has made it good public relations with consequent expansion of product market					
Ks2	Benchmarking of operative employees with foreign firms have stocked our staff with experiential knowledge resulting into companies growth					
Ks3	The company's performance (appraisals) management systems have resulted into great deal of innovation					
Ks4	Knowledge sharing through induction of new staff effectively reduces their social mobility (turnover)					
Ks5	Knowledge sharing has led to product diversification thus growth of this company					
Ks6	Sharing knowledge with foreign based firms, our company has managed to enhance environmental control.					
Ks7	Sharing its knowledge with immediate social environment, our company manages to fulfill its social responsibility obligations					
Ks8	Benchmarking with foreign firms has brought cultural re- orientation that has led to institutional development of this company.					

Section D: Knowledge Application and sustainability of sugar companies In Kenya

Code	Item statement	Likert Ranking Scale				
		SA	A	D	N	SD
		5	4	3	2	1
Kap1	This company's growth may be attributed to its efficient utilization of Knowledge resources in developing new products.					
Kap2	The company recognizes employees' level of knowledge application in product innovation in compensation.					
Kap3	We have applied knowledge in product designs and this has resulted to wider market					
Kap4	Knowledge application has led to this company's' infrastructure development					
Kap5	Employees' retention results from their right deployment for appropriate application of knowledge in the company					
Kap6	The company has achieved its ecosystem integrity due to its efficient Knowledge application					
Kap7	Knowledge application has made the company to withstand competition resulting from liberalized market.					

Section E: Knowledge Conversion and Sustainability of Sugar Companies

Code	Item Statement	Likert Ranking Scale				
		SA	A	D	N	SD
		5	4	3	2	1
KCV1	Knowledge conversion by socialization of the company's staff has led to product designs and quality improvements.					
KCV2	Knowledge conversion by Socialization has led to improved company response to its social responsibilities.					
KCV3	The level of internalization of knowledge has led to efficient retention of the company's market share.					
KCV4	Internalization of knowledge has led to re-alignment of concept and experiences that improves company's innovation.					
KCV5	Knowledge conversion by externalization has led to the company's ecosystem control.					
KCV6	Knowledge conversion has led to company's growth and development					
KCV7	Knowledge conversion by integration of gathered skills and experiences by staff has led to the company's' improved creativity and innovativeness.					

Section F: Government Policies and Sustainability of Sugar Companies in Kenya.

Code	Item Statement	Likert Ranking Scale				
		SA	A	D	N	SD
		5	4	3	2	1
Gp1	Politicizing the sugar industry in Kenya has negatively affected the influence of knowledge application in sustaining the developments of this company.					
Gp2	Politicizing the sugar industry in Kenya has negatively affected the influence of knowledge sharing in sustaining the developments of this company.					
Gp3	Politicizing the sugar industry in Kenya has negatively affected the influence of knowledge acquisition in sustaining the developments of this company.					
Gp4	Liberalization of trade policy has weakened the effect of knowledge application in influencing the sustainability of this sugar company.					
Gp5	Liberalization of trade policy has weakened the effect of knowledge sharing in influencing the sustainability of this sugar company.					
Pg6	Liberalization of trade policy has weakened the effect of knowledge acquisition in influencing the sustainability of this sugar company.					
Gp7	Lack of price control on local sugar is to blame for low effect knowledge application in influencing sustaining of this sugar company					
Gp8	Lack of price control on local sugar is to blame for low effect knowledge acquisition in influencing sustainability of this sugar company					
Gp9	Lack of price control on local sugar is to blame for low effect knowledge sharing in influencing sustaining of this sugar company					

SECTION G: Sustainability of Sugar Companies in Kenya

		Linkert Ranking Scale				
Code	**Item statement**	**SA**	**A**	**N**	**D**	**SD**
		5	**4**	**3**	**2**	**1**
S1	That high profitability and low indebtedness explains sustainability					
S2	Our company has registered expansion of product market in the recent years.					
S3	This company has extended social benefit to community through social responsibility programs.					
S4	There has been product diversification signifying growth of this company.					
S5	Ecological measurement involves protection of environment to create employee health and safety work climate.					

Appendix II: Interview Guide

(For Human resource manager and Administration manager)

Q1.In which ways have this company suffered from; a) Liberalization Policy b) Price control Policy and c)Politics.

Q2. For purposes of sustaining this company's growth, in which areas would you require government intervention/ assistance?

Q3.What (2) growth programs have this company embarked on over the last 5years as a result of its knowledge resources?

Q4. What contributions have this company made towards management of ecosystem in society due to its stock of knowledge resources?

Q5.In your opinions, what two (2) reasons/factors have slowed this company's growth.

Q6.Comment on the relevance of knowledge acquired by the staff from trainings, w/shops and seminars in the country and outside the country

Q7. Give 2 activities which would explain the company's intellectual actions towards ecosystem integrity

Q8.In your opinion, give two (2) reasons that have slowed this company's growth to sustainability.

Q9).If you believe that this company's growth is sustainable within the context of its current performance, then give two (2)reasons to support.

Q10. What (2) contributions have the company made to society due to its knowledge resources?

Q11. If you had benchmarked with other foreign sugar companies, outline two social responsibilities the company would involved in the interest of society.

Q13. Following your Knowledge sharing w/shops in foreign sugar producing countries, give 2 reasons for their sustainability.

Appendix III: Measurement of Internal Consistency and Reliability

(a) KMPs' Implementation Challenges

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.794	.735	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
E1	6.1928	42.944	-.166	.090	.827
E2	10.2892	30.752	.630	.480	.747
E3	10.0301	29.654	.608	.384	.750
E4	10.5964	35.151	.400	.359	.788
E5	9.6928	29.850	.498	.381	.778
E6	10.1747	28.691	.702	.560	.730
E7	9.8554	27.846	.742	.602	.721

(b):Knowledge Application

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.778	.719	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Kp1	5.9337	42.268	-.155	.084	.810
Kp2	10.0301	30.829	.584	.389	.734
Kp3	9.7711	28.493	.653	.452	.716
Kp4	10.3373	34.370	.416	.356	.766
Kp5	9.4337	30.053	.453	.355	.766
Kp6	9.9157	28.308	.692	.533	.708
Kp7	9.8554	27.846	.632	.448	.721

(c): Knowledge Sharing

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.811	.766	8

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Ks1	6.5802	53.810	-.167	.093	.836
Ks2	10.7407	42.156	.529	.340	.789
Ks3	10.4753	38.959	.623	.427	.774
Ks4	10.9938	43.745	.488	.499	.795
Ks5	10.1543	40.852	.435	.379	.807
Ks6	10.6235	38.398	.687	.516	.764
Ks7	10.5370	37.058	.662	.493	.767
Ks8	10.5679	38.632	.693	.572	.763

(d). Knowledge Acquisition

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.721	.643	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Kac1	4.9096	28.301	-.151	.076	.765
Kac2	9.0060	19.012	.577	.383	.643
Kac3	8.7470	17.596	.606	.382	.629
Kac4	9.3133	22.144	.378	.346	.703
Kac5	8.4096	18.158	.453	.355	.691
Kac6	8.8916	17.297	.662	.498	.610

(e): Government Policy

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.755	.744	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Gp1	29.232	36.821	.167	.594	.765
Gp2	29.348	33.569	.410	.407	.736
Gp3	29.360	34.135	.287	.415	.754
Gp4	28.748	29.587	.599	.674	.703
Gp5	28.892	26.233	.825	.748	.656
Gp6	28.872	30.000	.542	.679	.713
Gp7	29.540	32.964	.398	.435	.738
Gp8	29.504	33.793	.333	.531	.747
Gp9	30.216	32.491	.325	.266	.753

(f): Sustainability of Sugar Companies

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.730	.643	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Sust1	5.2289	29.268	-.179	.089	.776
Sust2	9.3253	19.130	.636	.478	.640
Sust3	9.0663	18.305	.605	.377	.646
Sust4	9.6325	23.519	.321	.226	.729
Sust5	8.7289	18.478	.484	.361	.693

Appendix IV: Letter of Introduction by the University

JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY
KISII CBD CAMPUS
P.O. BO
P.O BOX 268 (40200). Tel. 020-05831129, +254 0722795482. Fax no. 05831129.
Email- kisiicbd@jkuat.ac.ke, website: http://www.jkuat.ac.ke

JKU/10/01/031 DATE: 01/11/2015

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

REF: INTRODUCTORY LETTER FOR MR. ALEX ABONYO AKOKO
REG. HD412-C006-0461/2012.

The above mentioned is our student pursuing a Doctor of Philosophy Degree in Human Resource Management. He has completed his coursework and has been cleared to go to the field. We request you to allow him collect data in your organization.

Any assistance accorded to him will be highly appreciated. In case of any querry feel free to get in touch with JKUAT- Kisii CBD Campus.

Thank you.

Yours faithfully, 30 OCT 2015

DR. WALLACE ATAMBO-Ph.D
COORDINATOR POSTGRADUATE STUDIES (JKUAT-KISII CBD CAMPUS).

Appendix V: Letter of Application Seeking Clearance from the Company to Conduct Research

ALEX ABONYO AKOKO

P.O BOX 22-40300

0702712012 Email: alex.akoko@yahoo.com

HOMA BAY

Dated: 18th Feb, 2016

The Human Resource Development Manager,

Mumias Sugar Company Ltd

P.O - Private bag

MUMIAS

Dear sir/ Madam,

RE: CLEARANCE TO CONDUCT RESEARCH

The above subject refers.

May I humbly request to be given clearance to conduct a research entitled ***'Influence of Knowledge Management Practices On Sustainability of Sugar Companies in Kenya'*** within this institution. The research is purely for academic purpose and is a partial fulfillment of the requirement for my award of Degree of Ph.D of JKUAT – Kenya.

Please note that the information sought for will be treated as confidential.

Thanks for the assistance accorded.

Yours faithfully,

Alex A. Akoko

HD412-C006-0461/12

Appendix VI: Company Authorization Letters

MUHORONI
SUGAR COMPANY LTD
(IN RECEIVERSHIP)

Registered Office
Muhoroni Sugar Factory
Kericho-Kisumu Road
P. O. Box 2 MUHORONI (KENYA)
Tel GSM: 0734151474; 0728609809;
(+254)0202333559; 0202415099
Fax: (+254)0202333570
e-mail: info@musco.co.ke

Our Ref: HRM/10/2016

Date: 30 March 2016

Dear

RE:

Refe
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Than

RAC
HUM

CHEMELIL SUGAR COMPANY LIMITED

P. O. Box 177, MUHORONI - 40107, KENYA or
P. O. Box 1649, KISUMU - 40100, Kenya
Phone: 020 2031883/4/5/7
GSM Lines: 0722 209798, 0710 706383, 0735 234 73
Chemelil Academy Line: 020 2031881
Fax: 020 2031886
Email: md@chemsugar.co.ke
csc@chemsugar.co.ke
Website: www.chemsugar.co.ke

Our Ref: CSCL/HRD/TR/RC/88

February 29, 2016

Mr. Alex Abonyo Akoko
P.O. Box 268 - 40200
KISII

Dear Sir,

RE: REQUEST TO CONDUCT ACADEMIC RESEARCH

Refer to your letter dated 18th February 2016 on the above subject.

This is to inform you that your request to carry out research within the company on the topic **"Influence of knowledge Management Practices and Sustainability of Sugar Companies in Kenya"** has been granted.

You will be expected to surrender a copy of your final research to training Office for records.

Wishing you success in your research.

Yours faithfully,
For: **CHEMELIL SUGAR COMPANY LIMITED**

J. KIPKERING
HEAD OF HUMAN RESOURCE

(ALL CORRESPONDENCE TO BE ADDRESSED TO THE MANAGING DIRECTOR)

KENYA VISION 2030

nzoia sugar
Company Ltd
Sweetening Kenya
since 1976
P.O Box 285, 50200, BUNGOMA
Tel: 055 – 30580, Fax: 055 – 30001
Cell: 0727477777/0733830500
E-mail: md@nzoiasugar.com

OUR REF: NSC/HRD/TR/33/2016

18th March, 2016

Jomo Kenyatta University of Agriculture & Technology
P.O Box 62000-00200
NAIROBI

Dear Sir,

RE: RESEARCH STUDY FOR: MR. ALEX A. AKOKO REG NO. HD 412-C006- 0461/12

This is to confirm to you that the above named pursuing a PhD in Human Resource Management; undertook a research study titled ***"Influence of knowledge Management practices on sustainability of Sugar Companies in Kenya"*** in our organization and the information provided is to be used for academic purposes only.

Kind regards.

Yours faithfully,
For and on behalf;
NZOIA SUGAR COMPANY LTD.

P.M. WEKESA
FOR MANAGING DIRECTOR

SONYSUGAR
Simply The Sweetest

South Nyanza Sugar Company Limited

P. O. Box 107, Code 40405, Sare – Awendo (Kenya)
Wireless Telephone Nos: 020-8029200/1/2/3
Mobile Nos: 0722-205345, 205346, 205347
0733 333348, 333349, 333350
Fax Nos.: 020-802504, 0722-542422
E-Mail: administrator@sonysugar.co.ke
Website:www.sonysugar.co.ke

Ref: SNSC/HR/HRD/110/2016

Thursday, April 7, 2016

Mr. Alex Abonyo Akoko
Jomo Kenyatta University,
P. O. Box, 268
Kisii – Kenya.

Dear Madam,

RE: PERMISSION TO UNDERTAKE RESEARCH PROJECT

Reference is made to your letter dated November 01, 2015 regarding the above subject matter.
We are pleased to inform you that Management has approved your request to carry out research study on **"Influence of knowledge Management Practices and Sustainability. A case study of Sony Sugar".**

Please note that you will be required to provide a copy of the research work to the undersigned upon completion of the study.

Further note that the research you are to conduct is for academic purpose only.

Arrange therefore to report to undersigned for guidance on the same.

Thank you

Yours faithfully,
For: South Nyanza Sugar Company Limited

Ms. Rachel A. Okuom
Human Resource Dev. Manager

MUMIAS SUGAR
COMPANY LIMITED

MUMIAS SUGAR COMPANY LIMITED

Head Office
P.O: Private Bag Mumias, Kenya
Tel: + 254 711 094 000, + 254 734 600 334/5
email: ms.@mumias-sugar.com
website: www.mumias-sugar.com

Nairobi Office
P.O: 57092 City Square 00200 Nairobi, Kenya
Tel: + 254 720 140 080, +254 733 600 296
email: msc@mumias-sugar.com
website: www.mumias-sugar.com

PER/E/12B

17th March, 2016

TO WHOM IT MAY CONCERN

RE: RESEARCH

ALEX ABONYO AKKO - ADM. NO.HD231 – REG.HD412-C006-0461/2012 ID NO.6523645 a student at the Jomo Kenyatta University of Agriculture and Technology, Kisii Campus, pursuing a Doctor of Philosophy degree course collected information for his research topic entitled "**Influence of knowledge Management Practices and Sustainability of sugar companies in Kenya'** from 15th March to 17th March, 2016 at Mumias Sugar Company Ltd.

Yours faithfully,
For: **MUMIAS SUGAR COMPANY LIMITED**

John A. Shiundu
LEARNING & DEVELOPMENT MANAGER (AG.)

Appendix VII: List of publications

1. Akoko A. A., Atambo W.N., Okibo W.B. (2019). *The Influence of Knowledge Application on Sustainability of Sugar Companies in Kenya.* IOSR Journal of business management IOSR- JBM e-ISSN: 2278-487X,P-ISSN:2319-7668, volume 21. Issue 1 ver I (Jan 2019), pp. 36-55.
2. Akoko A. A., Atambo W.N., Okibo W.B.(2019). *The Influence of Knowledge Sharing on Sustainability of Sugar Companies in Kenya*. International Journal of Commerce, IT & management. Volume no.9(20198), Issue no. 02 February 2019,ISSN 2231- 5756

Appendix VIII: Research Activity Schedule

(Proportion of Original Work Plan already completed)

Research activities	DEC 2014	JAN 2015	FEB 2015	MAR 2015	APR 2015	MAY 2015	SEP 2015	NOV 2015	DEC 2015	MA 2016	APR 2016	MAY 2016
Submission of thesis report for approval/ Graduation												
Defense of Thesis Report and Publication												
Data Collection, Analysis and Interpretation											xxx	
Pilot study (re designing questionnaires)									xx	xx		
Seminar Presentations								xx				
Defending Research Proposal						xx	xx					
					xx							
Corrections/Consultations with supervisors												
Developing Data collection Instruments					xxx							
Developing Research Proposal			xx	xx								

Research duration (months)

Proportion of original work plan already completed

Research activities													
Submission of thesis report for approval/ Graduation													
Defence of Thesis Report and Publication													
Data Collection, Analysis and Interpretation									xx	xx	xx	xx	xx
Pilot study (re designing questionnaires)								xx x	xx				
Seminar Presentations							xx x						
Defending Research Proposal					xx x	Xx x							
				xxx									
Corrections/Consultations with supervisors													
Developing Data collection Instruments			xxx										
Developing Research Proposal	xx x	xx x											
	DEC	JAN	FEB	MAR	APR	MAY	SEP	OCT	NOV	DEC	JAN	FEB	MARCH
	2014	2015	2015	2015	2015	2015	2015	2015	2015	2015	2016	2016	2016

Research duration (month)

Appendix IX: Research Permit from NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349,2213571,2219420
Fax: 254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No **NACOSTI/P/18/11678/25340**

Date **17th October, 2018**

Alex Abonyo Akoko

THIS IS TO CERTIFY THAT:
MR. ALEX ABONYO AKOKO
of JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY, 4-40404 RONGO,has been permitted to conduct research in *Kisumu County*

on the topic: *INFLUENCE OF KNOWLEDGE MANAGEMENT PRACTICES ON SUSTAINABILITY OF SUGAR COMPANIES IN KENYA*

for the period ending:
12th October,2019

Permit No : NACOSTI/P/18/20045/25811
Date Of Issue : 17th October,2018
Fee Recieved :Ksh 2000

.....
Applicant's Signature

.....
Director General
National Commission for Science, Technology & Innovation

Copy to:

The County Commissioner
Kisumu County.

The County Director of Education
Kisumu County.