SUPPLIER DEVELOPMENT PRACTICES AND OPERATIONAL PERFORMANCE OF SUGAR MANUFACTURING FIRMS IN KISUMU COUNTY, KENYA

BY

WABOMBA BRIDGID NANYAMA

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DECLARATION

I declare this research project is my own original work and does not contain any material previously submitted for a Degree or Diploma in any university. It does not include any material published or written by any other person or group apart from legitimate, where legitimate reference is made as is in accordance with copy right laws and stipulations.

…….. ……..

WABOMBA BRIDGID NANYAMA **DATE**

D61/85615/2016

Declaration by the University Supervisor;

This research project has been submitted with my approval as the university supervisor.

…….. ……..

MR. ONDIEK GERALD OCHIENG **DATE**

Lecturer, Department of Management Science,

School of Business - University of Nairobi.

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To God almighty, thank you for seeing me through the entire course.

DEDICATION

This research work is dedicated to my entire family for their wisdom, courage and passion and support for education. God bless them.

ABSTRACT

This study was conducted in Kisumu County, Kenya to determine Supplier development practices and operational performance of Sugar producing firms. The study had three objectives; to determine the effects of Knowledge transfer and supplier training and highlight how it contributes to the operational performance of Sugar Manufacturing firms in Kisumu County, assess the effect of supplier incentive programs on the operational performance of Sugar Manufacturing firms in Kisumu County and finally to determine the effect of supplier relationship and how it impacts on the performance of Sugar Manufacturing firms in Kisumu County. The study was based on the Theory of Constraints; Transaction cost Economies and Resource Dependence Theories. The researcher employed descriptive cross sectional survey research design. Data was collected using a questionnaire that was administered through "drop and pick" method from all the managers and supervisors of the three sugar manufacturing firms. The three sugar manufacturing firms in Kisumu County namely: Muhoroni, Chemelil and Kibos Sugar Companies formed the population. Primary data sources were used to gather information. Data was analyzed using descriptive statistics to determine the extent of the concept using percentages, means and standard deviations. For easy understanding of data Tables and other graphical presentations as appropriate were used to present the data collected. Inferential statistics helped in making relevant generalizations whereby a correlation and regression was used to determine the relationship between variables. The research found it evident that there is a higher positive and significant relationship between operational performance: Knowledge Transfer and supplier Training represented by R=0.705, Supplier incentive programs R= 0.769 and Supplier Relationship Management R=0.839. The researcher found it evident that there is a significant relationship between supplier development practices and operational performance represented by R^2 =0.717 which translates to 71.7% of the variations in operational performance explained by the independent variables under study. The operational performance of the firm is measured in terms of improving quality of products, timeline in service delivery, reduction of production cost, improving level of efficiency and operational flexibility. The study only focused on the sugar manufacturing firms in Kisumu County .Therefore, the researcher recommends further research on other manufacturing firms not located in Kisumu County. The researcher also recommends that all manufacturing companies and other organizations to embrace supplier development practices so that they can acquire competencies associated with the concept application and wax stronger in a competitive environment.

TABLE OF CONTENTS

LIST OF TABLES

ABBREVIATIONS AND ACRONYMS

CIPS	Chartered Institute of Purchasing and Supply
MUSCO	Muhoroni Sugar Company Limited
ROI	Return on investment
PSA	Product Service Agreement
KSB	Kenya Sugar Board
SCM	Supply Chain Management
TOC	Theory of Constraints
SPSS	Statistical Package for Social Sciences
SRM	Supplier Relationship Management
TCET	Transactional Cost Economics Theory
GDP	Gross Domestic Product
TCD	Tonnes Crushing Daily

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

It is widely known that so as to vie and survive, companies should build up and maintain relationships with competent suppliers in order to achieve the utmost price through such relationships (Carr and Sheltzer, 2012). Knudsen (2003) suggests that good supplier relationship and development programs enable organizations to boost their operational performance. Operational performance starts from purchasing efficiency and effectiveness within the supply chain so as to vary from being reactive to being proactive to understand set performance objectives. Furthermore, with external procurement expenditure accounting for up to sixty or seventy per cent of the budget in several industries (Christopher, 2005), notes that organizations need to work with suppliers and develop them to facilitate and notice substantial value. Supplier's unique competencies may influence the buying entity's innovativeness, performance and skill to supply high quality merchandise (Bessant, 2004). On the opposite facet, inconsistent quantity in a supply chain network may be linked to lack of trust between the buyer and supplier, low supplier's performance and inflexibility to vary, lack of coordination and coaching, poor motivation and fragmentation of data between supplier and buyer (Johnson and Scholes, 2009). The impact of this to any organization is reduced operational performance, high inventory, and reduced capability to fulfill client needs; bated market share, long lead times and decreased profits. Companies develop their suppliers to meet their operational objectives.

The research was underpinned by three main theories namely; Theory of Constraints (TOC) key proposer (Eliyahu M.Goldratt, 1984), Transaction Cost Economies Theory (Williamson 1996) and Resource dependence theory (Pfeffer and salancikin1978). TOC is pegged on the principle that in any complicated system, there is always one facet of that system that limits its ability to actualize its additional goals (Goldratt, 2009). The theory is appropriate during this study because it can assist the sugar producing companies to spot the constraints. The sugar producing corporations face plenty of uncertainties and hence applying this theory can shield them from incurring extra suppliers cost that will be achieved through embracing supplier development practices .Transaction cost economics theory for instance used to assist managers in creating create or obtain choices or justification if it is the right contract. Christopher (2009) states that transaction cost economics theory illustrates how collaborative relationship is very important for business partners. The theory will be appropriate in this study as it will assist the sugar manufacturing companies get the raw materials when and as required to ensure continuity in production and scale back operational costs. RDT it's the study of how external resources of companies have an effect on the performance of the organization. The main contribution of the theory was that it has implications within the buying firm capabilities particularly in building sound relationships with key suppliers as their necessary and dependable partners. The theory has relevancy during this study because it can facilitate the sugar manufacturing companies to expeditiously get together with its direct partners and improve the performance of the companies and save the value of doing business.

The sugar manufacturing firms in Kisumu County engage with suppliers however, the performance of the sugar industries has not been at its best. Supplier development which is a justification that they are not being efficient could be one of the factors contributing to the poor operational performance of the sugar manufacturing firms in Kisumu County. Sugar manufacturing firms in Kisumu County conjointly fully feels the impact of supplier development activities since it will impact directly the operational performance of sugar producing firms within the region. This study is so geared towards filling the knowledge gap by investigating supplier development programs and its effect on operational performance of sugar producing companies in Kisumu County, Kenya.

1.1.1 Supplier Development Practices

According to Chavhan (2012) supplier development practice is any effort by a sourcing company to enhance the provider's performance and/or capabilities to fulfill the sourcing company's short- and/or long term supply needs. Job (2015) argues that supplier development practices consist of supplier training programme, supplier evaluation and assessment, supplier certification/qualification, provision of financial support, supplier audits, and providing incentives and recognition. Wachiuri, Waiganjo & Oballa (2015) subscribe that supplier development techniques involve training of suppliers, rewards, funding and firm involvement. Ochieng (2014) confirms that supplier development techniques involve supplier participation, data exchange and supplier understanding of goals, feedback provision, site visits, supplier recognition, coaching and education. According to the definitions by various scholars there's an agreement that's supplier

development practices ought to cause improvement on the overall performance of the firm.

Firms that need to be competitive should adopt Supplier development practices in order to achieve efficiency of its operations such as quick lead times, management of inventory, relationship and production costs through the supply chain CIPS (2013). Supplier development practices are represented as the most vital effort that a company undertakes to develop suppliers for long run partnership and relationship management and additionally to achieve competitive advantage. Supplier development practices results to a change in the total added value, quality of product or service offered, business processes and performance, improvements in lead times and overall performance of the sourcing firm Modi & Mabert (2007). There are two objectives of supplier development; to stop suppliers from creating immediate changes in their operations and to extend their capabilities for improvement.

1.1.2 Operational Performance

Different organizations develop different metrics for measuring their business performance; Overall organization performance can be measured in terms of financial performance, product performance and operational performance. From the financial perspective; Market share, return on investment, profit margin and inventory turnover rate should be incorporated. Productivity measures includes; Functionality, service, operating expenses, comfort, and ease of use .The operational performance looks at Quality, completion time, product development time utilization of resources, responsiveness to customer demand and operational cost measures (Inayatullah, Narain and Singh, 2012).

Organizations aim at reducing management costs, order-time, lead-time, improving effectiveness of using raw materials and distribution capability (Heizer *et al*., 2008). Operational performance helps to enhance effectiveness of the production to ensure prime quality product (Kaynak, 2003). Nonetheless, poor operational performance has resulted to organizations loss because of delivery of poor quality work materials, loss of value for money and inflated costs Gichuri, Iravo & Iravo (2015). Low procurement performance conjointly contributes to decrease of profit Juma (2010), in step with (Migai, 2010), main causes of poor operational performance has been joined to incompetent workers, ancient acquisition procedure and hence delays in organization growth which is caused by delay of delivery, increase of defects, delivery of inferiority product or non-delivery in the slightest degree.

1.1.3 Sugar Manufacturing firms in Kisumu County

Kenya Sugar Industry Strategic arrangement 2010 - 2014 outlines four main reasons why sugar corporations were at the start instituted by the Kenyan government. To start out with, the government needed to realize independence in sugar and its by-products like animal feeds, industrial sugar and alcohol. The second reason was the government required to stop rural urban migration by uplifting the socio-economic welfare of the rural population .Thirdly for creation of employment opportunities to the state. Lastly, saving the interchange price by the government through import substitution (KSB, 2013). Consistent with Kenya Sugar Board, the sugar sector in Kenya contributes greatly to economic and social development of the country by revenue generation to the government through taxation. This has resulted to the expansion of Gross Domestic Product (GDP). The sector has additionally resulted in urbanization through the

expansion of towns close to sugar firms (KSB, 2013). Sugar firms in Kisumu County have had some challenges especially the Government owned, as an example, the counties ailing industry is plugged by high cost burdens, late payment to farmers, poorly managed factories using outdated machine Kamau *et, al.,* (2008). This study will dwell on sugar manufacturing companies in Kisumu County. The County has three major sugar manufacturing companies namely: Muhoroni (MUSCO), Chemelil and Kibos Sugar and Allied Companies. The government of Kenya has some shares in Muhoroni and Chemelil Sugar Company whereas Kibos Sugar and Allied companies is privately owned (KSB, 2013). MUSCO is located close to fifty kilometers from Kisumu town in East of Kisumu (www.musco.co.ke). Chemelil Sugar Company is close to fifty kilometers from Kisumu along Awasi road (www.businesslist.co.ke) whereas Kibos Sugar and Allied Companies is found near Kibos G.K prison, off Kibos Road, in Kisumu County and is about nine kilometers from Kisumu town(www.businesslist.co.ke).

1.2 Research Problem

Many studies recognize that supplier development practices contribute to operational performance and effective supplier long run relationship with their key suppliers and to enables the firm to stay competitive (Loppacheng, Cogliano, & Spina, 2011). The principle behind supplier development practices is that its goal is to make sure that their operational performance and objectives are met to support this assertion, Wachiuri, Waiganjo & Oballa (2015) confirms that Supplier development practices have been appreciated by many manufacturing firms to enhance their operational performance.

Supplier development practices ensure sustainable partnership allowing the buying firm to meet the suppliers' needs Li *et al.*, (2007)

Sugar firms are a significant leader and revenue earner in Kenya (KSB, 2013). The sugar producing firms in Kenya face a stiff competition for the cane that's quickly getting depleted (KSB, 2013). Sugar manufacturing companies in Kisumu County especially the Government owned Companies have for an extended time experienced acute shortage of suppliers of cane and services. This has presently resulted in the sugar manufacturing companies to face a significant crisis displayed by high cost of production, capacity underutilization and absence of factory maintenance Kamau *et al.,* (2005). Consistent with Rapando (2011) these issues have led to few out growers willing to work with the company, low tonnage of sugar being crushed, inefficiencies in operations as a results of out grower farmers not willing to engage with the company, supplier objections due to poor service delivery and time wastage and hence low organization execution. In Nyando District, the crop is ranked as the most important cash crop followed by rice. Despite the ranking the subsector faces myriad challenges emanating from low adoption of agricultural technology, high cost of inputs and poor road network in the sugar region Osieko *et al* ., (2013)

Studies have been conducted on the concept of supplier development practices. Wachiuri (2015) in a case study of east Africa breweries limited investigated the effect of supplier development on organizational performance of manufacturing industries in Kenya. Though the study concluded that supplier relationship had a positive impact on the

selected organization, it was general on the context of relationship, the study dwelled on organization performance this study discussed operational performance. (Yegon, Kosgei & Lagat 2015) investigated the impact of supplier development on buyer performance where a survey was carried on sugar producing firms in Western Region of Kenya. The conclusion was that supplier technical support and supplier financial support positively affect buyer performance. However, the study was limited on two variables. Njeru (2013) a case study of Kenya Power sought to investigate factors which influence supplier development in public entities in Kenya. The study concluded that the management of Kenya Power recognized supplier development as a means to improving their efficiency. However, the study was too narrow to only supplier communication as the only tool in supplier development practice. Amutabi (2017) in his survey of supplier relationship management and how it impacts the operational performance of sugar manufacturing firms in Kakamega County, the study concluded Supplier Relationship Management has assisted the sugar manufacturing firms to enhance the operational performance of their organizations; it had a general application on relationships but did not focus on supplier development concepts. The study was done in Kakamega County and this research is done in Kisumu County.

Critical reviews of the above findings proves to the researcher that they have demonstrated meaningful basis for understanding the nature of supplier development, but were not conclusive on the supplier development programs that would be most appropriate to enable operational performance in the sugar sector. This study thus seeks to fill the evident research gap by investigating supplier development practices and operational performance of sugar manufacturing firms in Kisumu County. The following

research questions were answered by the study: Is there any relationship between Supplier development practices and sugar manufacturing firms' operational performance in Kisumu County? What are some of the benefits in terms of operational performance from utilizing Supplier Development practices?

1.3 Research Objective

1.3.1 General Objective

The general objective of this study will be to establish supplier development practices and operational performance of Sugar manufacturing firms in Kisumu County.

1.3.2 Specific objectives

i. To determine the effect of Knowledge transfer and supplier training on the operational performance of Sugar Manufacturing firms in Kisumu County
ii. To assess the effect of supplier incentive programs on the operational performance of Sugar producing firms in Kisumu County
iii. To determine the effect of supplier relationship Management on the operational performance of Sugar producing firms in Kisumu County.

1.4 Value of the Study

This study will be important in the sense that it will put into perspective the precise determinants for supplier development practices in the sugar industry in Kenya. The study will also be valuable to business consultants and entrepreneurship trainers as they will help businesses develop capacities and strategies within the key aspects that sugar manufacturing firms will use for developing suppliers. The research forms a solid ground

on which future research could be built. The study will help sugar companies to appreciate supplier development practices as value added services to their providers. The study positively contributes to the archive of knowledge in the field of manufacturing industry and eventually, the study shall facilitate policy makers like in formulation of supplier development policies in relevance to operational performance in the sector.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter explores selected conceptual and empirical literature on the key study variables about the study topic already in existence with an aim of highlighting the prevailing research gaps. It begins with the theoretical framework; highlighting the theories on the study that have been put forward by various scholars. The chapter specifically examines the literature on the explanation of Supplier Development practices and operational performance. It will conjointly cover supplier development practices and its relationship to the operational performance of the sugar manufacturing companies. This chapter ended by discussing the research gaps that the study intended to fill.

2.2 Theoretical Framework

The research will be underpinned by three main theories namely; Theory of constrains, Transaction Cost Economics Theory and Resource dependence theory.

2.2.1 Theory of Constraints

The Theory was propagated by Eliyahu M. Goldratt in 1984 in the book "The Goal". Based on the notion that a chain has its weakest link and in any complicated system there's always an obstacle that is making it not to realize its goal. For the system to achieve its goal it should appreciate the existence of the constraint and let it be removed from the system to realize substantial improvement (Goldratt, 2009). The theory is appropriate in this study as it will assist the sugar manufacturing companies to spot the constraints such as poor relationship between the sourcing entity and the supplier then

work closely to remove the constraint. The TOC concept has been used to create "starting-point" solutions by developing an integrated system that addresses problems (Goldratt, 2009). In this study the sugar manufacturing companies can establish the various constraints such as unreliable supply, half deliveries, taking long to deliver materials and raw material shortages. In this aspect the sugar manufacturing company will make informed choices. It's probable that a company's constraint lies within the procurement practices that it depends on and also the policies and practices related to supplier development and relationship programs it has with suppliers.

2.2.2 Transaction Cost Economies Theory

The theory helps business partners build enlightened choices of whether to outsource or not. The choices are supported by make-or-buy decisions (Christopher, 2009). Fink *et al*., (2006) showed that uncertainties caused by external environment and cost are the first drivers of the theory. This theory stresses that for a company to achieve a high profit margin depends on its skills to link the various activities within the value chain so as to deliver quality services and products that customers are willing and able to afford (Porter, 1985). Sugar firms in Kenya face lot of uncertainties necessitating the requirement of applying this theory to protect them from extra supplier's costs. The sugar manufacturing firms in Kisumu County can utilize this theory as it will aid the businesses to acquire dependable suppliers who will make sure that sugar manufacturing companies in Kisumu County get constant supply of raw materials and services required for production. This will eliminate further costs brought about by shortage of raw materials particularly sugarcane.

2.2.3 Resource Dependence Theory

The theory recognizes the effect of external factors on the companies; it helps to elaborate on how companies reduce interdependencies basing on the uncertainties that surround them. The acquisition of external resources is essential both at the strategic and tactical management of any organization. The main contribution of the theory was that it has implications in the buying firms' particularly in building favorable relationship with their suppliers. According to Hunt and Davis (2008), for superior financial performance organizations need to specifically pursue a comparative advantage in resources that will yield marketplace positions and remain competitive. Organizations lacking in essential resources are always creating ties with those that have abundant resources in order to obtain needed resources. This means that the theory is appropriate for this study in that it will aid sugar manufacturing firms in Kisumu County in obtaining constant supply of raw materials from their loyal suppliers as a result of good supplier-buyer relationship thereby resulting to improved operational performance. This is informed by realization that resources and capabilities are heterogeneously dispersed across different firms; thus the resource endowment differs, necessitating building relationships to access the critical resource (Kim & Choi, 2015).

2.3 Supplier Development practices

Supplier development practices were developed to ensure continuous improvement in the supplier's performance by creating a linkage between a purchaser and the sourcing company to attain a competitive advantage (Wagner, 2011 cited in Wenli *et al*. 2016). The concept of supplier development was first introduced by Leenders (1966) in an

organization to demonstrate the operation of the willpower of manufactures in enhancing the numbers of suppliers for the purpose of improved performance (Khuram *et al.,* 2016).

According to Schwartz and Font (2005) supplier development is any effort by the sourcing firm with its provider to attain both short- and/or long term supply needs by enhancing the capability of supplier. Previous studies on supplier development practices have linked it to organization performance in terms of; cost reduction, faster order fulfillment, customer satisfaction and quick delivery (Khuram, Ilkka, Elina & Shpend, 2016). Various studies have also examined the various elements of Supplier development practices like financial support, technical support and supplier performance management. This study will thus concentrate only on knowledge transfer and supplier training, incentive programs, supplier relationship management as practices of supplier development. There are two objectives of supplier development; to prevent suppliers from making immediate changes in their operations and to increase their capabilities for improvement.

2.3.1 Knowledge Transfer and Supplier Training

Knowledge is transferred across the boundaries of the organization through the daily cores, the knowledge is also transferred across the organization to ensure improvements between the buyer and suppliers firm. Through trainings, implied knowledge is transferred to enhance the competency of the supplier Modi & Mabert (2007). The buyer and supplier performance is improved through training and education which further enhance their relationship (Ragatz *et al*., (1997). The training were categorized into two namely; periodic and ad hoc trainings. For deeper understanding Periodic trainings are

the most suitable where a deeper understanding is required to have a comprehensive understanding of customer's processes and the areas to be improved on whereas ad hoc trainings are ideal for new product development and to build long term relationships (Ragatz *et al*., 1997).

Moreover, Ambrose *et al*., (2008) noted that supplier development could be short term or long-term in terms of investment and identifying specific groups of the suppliers to train, by offering the right training would result to improved performance of the supplier. This is done by the sourcing firm sending his team to train suppliers. Carrying out the right training could improve the supplier's performance, which would also encourage buyer supported training. Kadir *et al.,* (2011) through a case study in Malaysian automotive business where they wanted to establish the type of supplier development program and what could hinder the achievement of its objectives it was concluded that supplier development programs are influenced by suppliers interest and the environment where the training is being carried. Therefore, understanding the environment where buyer support training is carried could assist to identify the key areas that suppliers find important to develop their capabilities

2.3.2 Supplier Incentive Programs

(Monczka *et al*., 1993, Krause and Ellram, 1997) shared that an increase in business volume, priority for future business and recognition for good performance in the form of awards are some of the indicators for improved performance. The role of the buying firm is to provide incentives to motivate suppliers to ensure increased volume of business and to be considered for future business (Krause *et al*., 2000). Therefore, these suppliers are more likely to continue being in business operations, open up more branches and provide

greater commitment in joint knowledge transfer (Modi and Mabert, 2007). Humphrey *et al*., (2011), note that through rewards for supplier's who attain improvement it is a stimulating tool that indicates buyer's recognition to the supplier and provides incentive for future achievement. Furthermore, joint action between the buyer and supplier on vital issues allow development and growth in performance of both parties. Moreover, incentive programs in form of financial support to the supplier are critical in determining the supplier's ability to remain financially solvent (Wagner, 2006).

2.3.3 Supplier Relationship Management

According to Lambert (2006) supplier relationship management is an inclusive approach that defines how a company relates with its suppliers. A company will forge close relationships with a subset of its suppliers, and manage arm-length relationships with them. Product and Service Agreements (PSA) will determine the level of relationship with different suppliers through negotiations. For segments of less critical suppliers, the PSA is not negotiable. SRM is about defining and managing these PSAs with a desired outcome of a win-win. Studies that have been in the fields of marketing, supply chain management and international management all highlight the need of such relationships terming it as economics boosters (Nagurney, 2010). Veludo & Macbeth (2006) also notes that SRM is a way of bettering the firm's success and performance.

To determine which suppliers are suitable for developing, a number of methodologies such as portfolio analysis could be used to give consideration on whom to develop. CIPS (2015) suggests that a reasonable way to begin would be to identify those products, goods

and services which are procured from critical and strategic suppliers and to decide how these should be improved.

2.4 Operational Performance

Operational performance is focused on improving efficiency and effective systems which are reliable and can ensure excellent which exceed customer expectations. To get such sustainable operational results, operations strategy is developed which supports the organization in ensuring the key operational aspects of the firm are met (Wiley, 2010).

Performance of an organization enables it to know its weaknesses and strengths hence come up with corrective measures. Performance can be measured in financial or an operational point of view. operational execution of an organization incorporate productivity in the authoritative procedures measured in terms of the cost of exchanges, quality, cost of the merchandise and services and time. Other operational indicators of performance are openness and transparency of the procurement system in terms of fairness of participants as well as ability to access and utilize new technologies and capability to react fast to variations in schedules Inayatullah, Narain & Singh (2012);

Regular measurements of operational performance and programs are important from a manager's perspective especially in the manufacturing systems (Cai *et al*, 2008) this is because he or she is looking to measure progress towards managing for results; which is a customer oriented progress that focuses on maximizing benefits, and minimizing the negative consequences in a company. The overall organizational performance is accumulation of independent functional performance metrics. That is, for market share to grow product quality must be improved; for customer satisfaction to be achieved, quality must be improved and lead times reduced. For financial growth to be realized, product

cost must be lowered since the final product price is dictated by the market forces. This study will adopt operational performance indicators in terms of Quality products, timeline in service delivery, cost reduction, Level of efficiency and operational flexibility

2.4.1 Quality Products

Ambe & Badenhorst-Weiss (2012a) remarked that in the general public, Supply Chain Management in organizations is employed as an instrument to enhance quality service delivery to citizens. This implies that organizations with correct Supplier Development practices are better placed to deliver quality products and services to its stakeholders. Supplier quality requirements ought to cover four broad areas: quality measurement, management, facilities, safety and training. There is a strong positive association between quality and profitability. Investment in high quality in terms of raw materials and skilled labour for instance will yield a higher return on investment (ROI) for any given market share. Fewer defects or field failures lead to lower manufacturing and repair costs; as long as these gains exceed any increase in expenditures by the firm on defect prevention, profitability will improve. Consequently, enhancement in performance, features, or other dimensions of quality lead to increased sales and larger market shares CIPS (2015).

2.4.2 Timeline in Service Delivery

Service delivery is an encompassing activity geared towards promoting the overall welfare of the community. Lead time refers to the amount of time that elapses between when a process starts and when it is completed (Rajaniemi, 2012). In SCM, lead time refers to the amount of time that passes between a buyer placing an order and the supplier receiving the goods. One way that an organization can use to enhance its gains is by

reducing inventory lead time. The buying firm and the suppliers should work together, with seamless information flow and smooth material handoffs ensuring that another group should not be the cause of a late delivery and lose credibility. To manage relationships effectively firms have reduced their supply base so that they can concentrate on strategic suppliers. Mason (2009) indicates that sourcing companies are developing a mutually beneficial relationship with key suppliers and viewing suppliers as virtual extensions of their firm.

2.4.3 Cost Reduction

A study conducted by Khuram, Ilkka, Elina & Shpend (2016) determined that supplier development leads to an increase in organization performance in terms of cost reduction, customer satisfaction and faster delivery of products. Prevention or reduction of wastage during production should be well managed rather than managing it after it has been generated with the aim of efficiently utilizing resources by examining how business is conducted, how materials are used and what products are purchased. Source reduction can be achieved through applying measures such as: develop reusable instead of disposable materials, eliminating certain items, repair and maintenance of equipment, using durable products, and using recycled products (Cohen, 2005)

2.4.4 Level of Efficiency

Organizations read their performance in terms of 'effectiveness' in the achievement of its vision, mission, goals and objectives while others view their performance in terms of 'efficiency' in deployment of the organizational resources, that is, human, monetary and physical resources MacPherson *et al.,* (2004). In order for any organization to be viable

and competitive, it needs to use its resources optimally thus avoiding wastage. Effective Supply chain management is key to efficient resource utilization and customer satisfaction in manufacturing sectors. Efficient supply chain performance is essential for assuring access to quality supplies, and thus for positive production outcomes CIPS (2015)

2.4.5 Operational Flexibility

The ability of an entity to cope with uncertainty in its operational environment and ability to change which includes the capacity to produce a wider range of goods and services, respond to any seasonal demand factors, meet shorter lead times, and cope with customer's specification changes during the process (Hill, 2005).

For organizations to maximize competitive advantage, the organizations must have a comprehensive visibility into supply chain performance as well as the flexibility to respond rapidly to disruption and risks (Samson & Singh, 2008). Organizations that are termed as flexible are measured on the extent to which it can adjust on (what it does, how it does and when it does) and to respond to customer's needs, the speed with which an organization can provide new products or service development because the environment is constantly changing (Tidd and Bessant, 2009).

2.5 Relationship between Supplier Development practices and Operational performance

Supplier development practices mainly focus on the effects that affect the product aspects as well as the supplier's capabilities. The product aspect involves improvement in quality, design, reliability, safety and conformance as well as total ownership cost of the product.

In supplier capacity aspects, supplier development practices basically works to improve and enhance supplier's performance related with; increased production capacity, shorter product development cycle, productivity, research and development, improved and reliable processes, shorter delivery lead times, flexibility and overall organizational visibility Wagner & Krause (2009). Modi & Mabert (2007) explains that an organization which embraces supplier development practices has an improved supply chain performance.

2.6 Summary of Knowledge Gaps

Wachiuri (2015) concluded that supplier relationship had a positive impact on the selected organization, it was general on the context of relationship, the study dwelled on organization performance this study discussed operational performance. Yegon, Lagat & Kosgei, (2015) investigated the relationship of supplier development and buyer performance. The conclusion was that provision of technical support and financial support positively affect sourcing firm performance. The study was limited on two variables. Njeru (2013) concluded that the management of Kenya Power recognized supplier development as a means to improving their efficiency. However, the study was too narrow to only supplier communication as the only tool in supplier development practice. Amutabi (2017) concluded that supplier relationship management had a positive impact on the operational performance of sugar manufacturing firms in Kakamega County. The study was done in Kakamega County and this study is conducted in Kisumu County. The study though pointed out that indeed supplier relationship improved organizational performance, it had a general application on relationships but did not focus on supplier development concepts. More research on other supplier development methods

would be necessary to establish how such practices would influence firm's performance. The current study thus aims at filling this literature gap by investigating supplier development practices and operational performance of sugar manufacturing firms in Kisumu County, Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology applied to facilitate execution of the study to analyze supplier development practices and operational performance of sugar manufacturing firms in Kisumu County. This study took research design, population, data collection and data analysis.

3.2 Research Design

The researcher involved a descriptive cross sectional survey research design to achieve the study objectives. Kothari & Garg (2014) established that descriptive design is a fact finding or an inquiry of different kinds whereby a researcher has no control of the variables under the study and can only report what is happening or what has happened.. Descriptive cross sectional research design was used to gather data in the three firms.

3.3 Population

Kothari & Garg (2014) shared that a population generally is made of a large collection of objects or individuals that are the main focus of a scientific study. The target population of this study was three Sugar Manufacturing firms in Kisumu County, namely: Muhoroni Sugar Company, Chemelil Sugar Company and Kibos Sugar Company as shown in table 3.1.

Table 3.1: **Target Population**

Company	Target Group	Target Population	Population proportion
Muhoroni Sugar Company	Managers and Supervisors of Departments	44	43.1%
Chemelil Sugar Company	Managers and Supervisors of Departments	40	39.2%
Kibos Sugar Company	Managers and Supervisors of Departments	18	17.7%
Total		**102**	**100.0%**

Source: Human Resource Departments, Muhoroni, Chemelil Sugar Company and Kibos Company (2018)

3.4 Sample and Sampling Technique

Sampling is a process of obtaining sample units and sampling frame, setting sampling procedures and determining the sample size for the study (Saunders *et al*., 2009). A sampling technique is a specific process by which the entities of the sample have been selected Otengo (2017).

The researcher used proportionate stratified random sampling technique to identify the sample. Mugenda and Mugenda (2003), defined stratified random sampling as a method of sampling that involves the division of a population into smaller groups known as strata. For our study, the three sugar Manufacturing firms in Kisumu County, namely: Muhoroni Sugar Company, Chemelil Sugar Company and Kibos Sugar Company formed

the strata. The sample was selected using the following formulae used by Mugenda and Mugenda (2003):

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

N= the population;

n = sample size; and

e = Tolerance level of confidence or probability level of α=0.05

Given the population N= 895, then the sample size *n* is given as:

$$n = \frac{102}{1+(102 \times 0.05^2)} = 81.274900398 \approx 82 \text{ respondents}$$

A proportion of the sample size was computed and this proportion was used to determine the number of respondents in each stratum to be examined. The proportion will be calculated as follows:

$$Proportion = \frac{Sample\ size}{Population\ size} = \frac{82}{102} = 0.8039$$

Table 3.2 Population and sample distribution

Company	Target Population	proportion	Sample size
Muhoroni Sugar Company	44	0.8039	35
Chemelili Sugar Company	40	0.8039	32
Kibos Sugar Company	18	0.8039	15
Total	**102**		**82**

3.4 Data Collection

The study used primary data sources. The primary data was collected by use of semi structured questionnaires which were filled by the managers and supervisors from the various firms and collected later by the researcher. The Main participants were managers and supervisors from procurement, Warehousing, production, Finance, Agriculture, Sales and Marketing, Legal, Corporate affairs, Quality Assurance, Transportation, Audit, Agronomy, Risk and Compliance, Administration, Information Technology and factory from the three sugar manufacturing firms. The rationale being that the respondents were conversant with the concept of supplier development practices and operational performance of the firm. Data was captured using a likert scale .The respondents expressed their views on a scale of 1 -5.Where: [1] – Very great extent, [2] – Great extent, [3] – Moderate extent, [4] – little extent and [5] – Very little extent.

3.5 Data Analysis

After the data has been collected, it was coded using the Statistical package for social Sciences (SPSS) for syntheses and analyses. Descriptive and inferential statistics were used in this study. Descriptive statistics refers to simple statistical methods, which do not falsify or support a relationship but help in the description of the data .The descriptive statistics enabled the researcher to organize data in an effective and meaningful way. Averages, means and standard deviations were generated by use descriptive statistics. This was done by tallying up responses, computing percentages of variations in response as well as describing and interpreting the data in line with the study objectives and assumptions.

Inferential statistics involved making generations, predictions or conclusions about characteristics of a sample to a population. Inferential statistics was used to establish whether a relationship exists in the larger population from which the sample was drawn from. Pearson moment correlation was used to examine the relationship between the study variables that were set out in the study objectives and linear regression model was used to determine the causal and effect between the dependent and the independent variables. The study adopted multiple regression model in the form of:

$$\mathbf{P = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e.}$$

Where:

P = Performance; α = the P Intercept when X is zero;

$\boldsymbol{\beta_1}$, $\boldsymbol{\beta_2}$, and $\boldsymbol{\beta 3}$, are regression weights attached to the variable constants. respectively;

$\mathbf{X_1}$ = Knowledge transfer and supplier training;

$\mathbf{X_2}$ = Supplier incentive programs

$\mathbf{X_3}$ = Supplier relationship management.

e = **e**rror term

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents data analysis, presentation, interpretation and discussion of the study findings.

4.2. Return Rate

The questionnaires were administered to 82 Managers and Supervisors of Departments in three Sugar Manufacturing firms in Kisumu County, namely: Muhoroni Sugar Company, Chemelil Sugar Company and Kibos Sugar Company. In return 76 questionnaires were filled and returned giving an effective response rate of 92.68%. This shows that the respondents registered a response return rate of 92.68% which confirms the assertion by Kothari (2008) that a response rate above 75.0% is sufficient for generalization of outcome of the target population.

4.3. General Information

The researcher captured demographic data of the companies which included firm ownership, year of establishment, and turnover in production, capacity utilization and financial operation. The results were presented under the following themes;

4.1.1 Firm Ownership

Information about the ownership is shown in Table 4.1

Table 4.1: Firm Ownership

Firm	Ownership
Muhoroni Sugar Company	Government/ State owned
Chemelil Sugar Company	Government/ State owned
Kibos Sugar Company	Privately owned

Author, (2018)

Table 4.1 shows that, Muhoroni Sugar Company and Chemelil Sugar Company, were government owned, while Kibos Sugar Company is a privately owned Sugar Manufacturing firm.

4.1.2 Year of Establishment

Information about the year of establishment was as shown in table 4.2.

Table 4.2: Year of Establishment

Firm	Year of Establishment
Muhoroni Sugar Company	1964
Chemelil Sugar Company	1965
Kibos Sugar Company	2007

Author, (2018)

Findings of table 4.2 indicates that Chemelil Sugar Company was established 30 years ago, Muhoroni Sugar Company has been in existence for 31 years while Kibos Sugar Company has been in existence for the last 10 years

4.2.3 Turn Over in Production

The study sought to determine the turnover in production per day for the three sugar manufacturing firms in Kisumu County and the results were as shown in table 4.3.

Table 4.3: Turn Over in Production

Firm	Required Turn Over in Production per day
Muhoroni Sugar Company	2200 Tonnes Crushing Daily
Chemelil Sugar Company	3000 Tonnes Crushing Daily
Kibos Sugar Company	3500 Tonnes Crushing Daily

Author, (2018)

From the findings in table 4.3, Muhoroni Sugar Company has a capacity to crush 2200 Tonnes Crushing Daily, Chemelil Sugar Company 3000 TCD and Kibos Sugar Company has a crushing capacity of 3500 TCD per day.

4.2.4 Capacity Utilization

The study sought to determine capacity utilization for the three companies and the findings were as shown in table 4.4.

Table 4.4: Capacity Utilization

Firm	Capacity Utilization
Muhoroni Sugar Company	Partially Utilized at 70%
Chemelil Sugar Company	Partially Utilized at 70%
Kibos Sugar Company	Fully utilized at 100%

Author, (2018)

From the findings in table 4.4, Muhoroni Sugar Company and Chemelil Sugar Company, which are the government owned sugar manufacturing firms, are partially utilized at about 70% whereas Kibos Sugar Company which is privately owned sugar manufacturing firm is fully utilized at 100%.

4.4 Effect of Knowledge transfer and supplier training and the Operational Performance.

The first objective of the study was to determine the effects of Knowledge transfer and supplier training on the operational performance of Sugar Manufacturing firms in Kisumu County. Descriptive characteristics for the effect of Knowledge transfer and supplier training on the operational performance of Sugar Manufacturing firms in Kisumu County were as detailed in sub-section 4.4.1 below.

4.4.1 Descriptive statistics for the effect of Knowledge transfer and supplier training and the Operational performance.

Table 4.6 presents the respondents' views on the effect of Knowledge transfer and supplier training on the operational performance of Sugar Manufacturing Firms in Kisumu County. The items were measured on a 5-point Likert scale.

Table 4.6: Descriptive statistics for the effect of Knowledge transfer and supplier training and Operational performance.

		Very great extent	Great extent	moderate extent	Little extent	Very little extent	**Mean**	**SD**
The sugar company organises seminars for their suppliers which has improved product quality	Count	12	18	31	15	0	2.64	.976
	%	15.8%	23.7%	40.8%	19.7%	0.0%		
The company offers legal advice services to the suppliers which has improved timeliness in service delivery	Count	8	18	17	19	14	3.17	1.279
	%	10.5%	23.7%	22.4%	25.0%	18.4%		
There is joint training and discussions between the company and suppliers that has led to reduction in operational cost	Count	4	15	32	18	7	3.12	1.006
	%	5.3%	19.7%	42.1%	23.7%	9.2%		
The company allows face to face and personal communication with its key suppliers and service providers which has improved our level of efficiency	Count	8	20	31	15	0	2.72	.914
	%	10.8%	27.0%	41.9%	20.3%	0.0%		

The company issues certificates to the supplier after the training indicating the areas covered hence improved our operational flexibility	Count	2	14	23	25	4	3.22	.944
	%	2.9%	20.6%	33.8%	36.8%	5.9%		

	N	Minimum	Maximum	Mean	Std. Deviation
Average response on effect of Knowledge transfer and supplier training on the operational performance	76	1.40	4.40	2.9610	.75252

Author, (2018)

Results above shows that 40.8% claim that their respective sugar companies were organizing seminars for their supplier's which has led to improved product quality to a moderate extent. This was supported by a mean response of 2.64 (52.8%). In terms of legal advice, majority of the respondents, 25% agreed that their respective sugar companies were offering legal advice services to the suppliers which have resulted to timeliness in service delivery at a little extent. This was supported by a mean response of 3.17. Majority of the respondents, 42.1% claim that the extent at which there is joint training and discussions between the company and suppliers that has led to reduction in operational cost is moderate; This was supported by a mean response of 3.12 (62.4%); an indication that the sugar companies were not effective in joint training and discussions between the companies and their respective suppliers. 41.9% agree to a moderate extent that the company allows face to face and personal communication with its key suppliers and service providers which has improved their level of efficiency to a moderate extent. This was achieved through an average mean of 2.72 (54.4%) as shown in table 4.6 above.

This is an indication that as much as the sugar firms have been engaging their suppliers, the face to face communication with suppliers has not been effective to their satisfactory. 36.6% speed that issuance of certificates after the training in various areas trained has improved operational flexibility to a little extent. This is supported by an average mean of 3.22. On average, the overall mean response of 2.9610 (54%) as shown in table 4.6 indicates that the effect of Knowledge transfer and supplier training on the Sugar producing companies in Kisumu County was at a moderate extent. This implies that the firms have not been much effective in equipping their respective suppliers with knowledge and necessary skills that are acquired through training which can help them realize maximum operational performance.

4.4.2 Correlation between Knowledge transfer and supplier training and Operational performance.

Pearson Moment Correlation coefficient was used to determine the strength and direction of the relationship between Knowledge transfer and supplier training and the operational performance of Sugar Manufacturing firms in Kisumu County. The results were as shown below.

Table 4.7: Correlation between Knowledge transfer and supplier training and Operational performance.

		Operational Performance
Knowledge transfer and supplier training	Pearson Correlation	.705**
	Sig. (2-tailed)	.000
	N	76

Author, (2018)

It's evident from the findings of table 4.7 that Knowledge transfer and supplier training had a significant strong positive relationship with the operational performance for the Sugar Manufacturing firms in Kisumu County (R = 0.705, p = 0.000). Lyndsay (2009) indicated that a coefficient between +1.0 and +0.5 or -1.0 and -0.5 indicates a strong relationship. We can therefore conclude that Knowledge transfer and supplier training had a significant strong positive relationship with the operational performance of Sugar Manufacturing firms in Kisumu County. The research findings in this study are therefore in tandem with the earlier findings by Job (2015), Lukhoba and Muturi (2015)

4.4.3 Regression Analysis

The study adopted Simple Linear Regression model to determine the effects of Knowledge transfer and supplier training on the operational performance of Sugar Manufacturing firms in Kisumu County.

Table 4.8: Simple linear regression between Knowledge transfer and supplier training and operational performance.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.705[a]	.497	.490	.58399

a. Predictors: (Constant), Knowledge transfer and supplier training

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	24.958	1	24.958	73.181	.000[b]
	Residual	25.237	74	.341		
	Total	50.195	75			

a. Dependent Variable: Operational Performance

b. Predictors: (Constant), Knowledge transfer and supplier training

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		β	Std. Error	Beta	t	Sig.
1	(Constant)	.436	.274		1.594	.115
	Knowledge transfer and supplier training	.767	.090	.705	8.555	.000

a. Dependent Variable: Operational Performance

From the ANOVA results above, it is evident that the Simple Linear Regression model well fitted the dataset [F (1, 74) = 73.181, P = 0.000< 0.05]. Note that the model

(Knowledge transfer and supplier training) explained 49% of the variation in the operational performance of Sugar Manufacturing firms in Kisumu County (Adjusted R Square = 0.490). The results of coefficients in Table 4.8 show that Knowledge transfer and supplier training had a statistically significant contribution in the prediction of the operational performance of Sugar Manufacturing firms in Kisumu County, ($\beta = 0.767$, $t = 8.555$, $p=0.000<0.05$); thus we reject the null hypothesis and conclude that Knowledge transfer and supplier training has a significant influence on operational performance of Sugar Manufacturing firms in Kisumu County. Knowledge transfer and supplier training had a positive standardized beta coefficient = 0.705 in the coefficients results of table 4.8; an indication that a unit change in the Knowledge transfer and supplier training is likely to result to an improvement in the operational performance of Sugar Manufacturing firms in Kisumu County by 70.5%. The Simple Linear Regression model to predict operational performance of Sugar Manufacturing firms in Kisumu County using Knowledge transfer and supplier training was as follows:

Operational Performance = 0.436 + 0.767 Knowledge and Supplier Training

4.5 Effect of Supplier Incentive Programs and the Operational Performance.

The second objective of the study was to assess the effect of supplier incentive programs on the operational performance of Sugar Manufacturing firms in Kisumu County. Descriptive characteristics for supplier incentive programs by Sugar Manufacturing firms in Kisumu County were detailed in sub-section 4.5.1 below.

4.5.1 Descriptive statistics for the effect of supplier incentive programs and the Operational performance

Table 4.9 presents the respondents' views on the effect of supplier incentive programs on the operational performance of sugar Manufacturing Firms in Kisumu County. The items were measured on a 5-point Likert scale.

Table 4.9: Descriptive Statistics for the effect of supplier incentive programs and the Operational performance.

		Very great extent	Great extent	moderate extent	Little extent	Very little extent	**Mean**	**SD**
The organisation financially empowers their suppliers through direct investment and hence improved product quality	Count	10	17	26	15	8	**2.92**	**1.175**
	%	13.2%	22.4%	34.2%	19.7%	10.5%		
The company offers support to their suppliers inform of farm inputs, fertilizers and farm machineries which has improved our level of efficiency	Count	11	40	23	2	0	**2.21**	**.718**
	%	14.5%	52.6%	30.3%	2.6%	0.0%		
The sugar company issues awards to the suppliers for good performance which has improved our timeline in service delivery	Count	12	13	21	16	9	**2.96**	**1.270**
	%	16.9%	18.3%	29.6%	22.5%	12.7%		
The company helps suppliers to	Count	4	10	48	10	4	**3.00**	**.833**

develop their production capacities hence reduction in cost	%	5.3%	13.2%	63.2%	13.2%	5.3%		
Provision of Suppliers incentive programs has improved our operational flexibility	Count	13	15	20	25	3	**2.87**	**1.170**
	%	17.1%	19.7%	26.3%	32.9%	3.9%		

	N	Minimum	Maximum	Mean	Std. Deviation
Average response on Operational Performance	76	1.20	4.00	2.7059	.81809

The findings above show that 34.2% agree that the organisation financially empowers their suppliers, through direct investment to get quality products. The average response mean was 2.92 (58.4%); indicating that the firms. financially empowers their suppliers through direct investment at a moderate extent. In terms of offering support inform of farm inputs, fertilizers and farm machineries to the suppliers it has improved their level of efficiency at a moderate extent of 30.3%. This was supported by an average response of 2.21 (44.2%). Majority of the respondents, 29.6% claim that their respective sugar manufacturing firms awards the suppliers for good performance which has improved their timeline in service delivery at a moderate extent. This is supported by an average response of 2.96 (59.2%); an indication that majority of the firms were not satisfactory in awarding suppliers for their good performance. In terms of assisting suppliers develop their production capacities in order to ensure reduction in cost, majority of the respondents, 63.2% claim that this is done neither at a large nor little extent, but at moderate extent. This is supported by the average response of 3 (60%). This suggests that the three Sugar Manufacturing firms in Kisumu County were not much effective in

supporting suppliers to develop their production capacities. Majority of the respondents, 32.9% claim that through the provision of incentive programs the operational flexibility of the companies has improved to a little extent. This indicates that these respective Sugar manufacturing firms in Kisumu County were likely not to have been effective in offering incentive programs to support suppliers. On average, the overall mean response 2.7059 (54%) as shown in table 4.9 indicates that the sugar manufacturing firms were initiating supplier incentive programs to improve the operational performance at a moderate extent. This implies that a good proportion of the suppliers were not satisfied with the Supplier incentive programs initiated by the Sugar Manufacturing firms in Kisumu County. This is in agreement with Wasilwa (2008), Osieko (2013) who cited that lack of support to the farmer's leads to poor quality Sugar Cane supplied to the firm and hence affecting the operational performance.

4.5.2 Correlation between Supplier Incentive Programs and operational performance.

Pearson Moment Correlation coefficient was used to determine the strength and direction of the relationship between Supplier Incentive Programs and operational performance of Sugar Manufacturing firms in Kisumu County. The findings were as shown in table 4.10.

Table 4.10: Correlation between Supplier Incentive Programs and operational performance.

		Operational Performance
Supplier Incentive Programs	Pearson Correlation	.769**
	Sig. (2-tailed)	.000
	N	76

It's evident from the findings of table 4.10 that Supplier Incentive Programs had a statistically significant strong positive relationship with the operational performance of Sugar Manufacturing firms in Kisumu County (R = 0.769, p = 0.000). Lyndsay (2009) indicated that a coefficient between +1.0 and +0.5 or -1.0 and -0.5 indicates a strong relationship. We can therefore conclude that Supplier Incentive Programs had a significant strong positive relationship with the operational performance of Sugar Manufacturing firms in Kisumu County. The study findings are in agreement with past researchers who found out that Supplier Development inform of incentive programs such as technical and financial support is positively and significantly related to organization performance Wachiuri, Waiganjo and Oballah (2015), Yegon, Kosgei and Lagat (2015)

4.5.3 Regression Analysis

Simple Linear Regression model was used to determine the effects of Supplier Incentive Programs with the operational performance of Sugar Manufacturing firms in Kisumu County.

Table 4.11: Simple linear regression between Supplier Incentive Programs and operational performance.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.769[a]	.592	.586	.52636

a. Predictors: (Constant), Supplier Incentive Programs

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	29.693	1	29.693	107.175	.000[b]
	Residual	20.502	74	.277		
	Total	50.195	75			

a. Dependent Variable: Operational Performance

b. Predictors: (Constant), Supplier Incentive Programs

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		β	Std. Error	Beta	T	Sig.
1	(Constant)	.445	.227		1.962	.054
	Supplier Incentive Programs	.811	.078	.769	10.353	.000

a. Dependent Variable: Operational Performance

From the ANOVA results as shown in table 4.11, it is evident that the Simple Linear Regression model well fitted the dataset [F (1, 74) = 107.175, P = 0.000< 0.05]. Note that

the model (Supplier Incentive Programs) explained 58.6% of the variation in the operational performance of Sugar Manufacturing firms in Kisumu County (Adjusted R Square = 0.586). The results of coefficients in Table 4.11 show that Supplier Incentive Programs had a statistically significant contribution in the prediction of the operational performance of Sugar Manufacturing firms in Kisumu County, ($\beta = 0.811$, $t = 10.353$, $p=0.000<0.05$); thus we conclude that Supplier Incentive Programs has a significant influence on operational performance of Sugar Manufacturing firms in Kisumu County. Supplier Incentive Programs had a positive standardized beta coefficient = 0.769 in the coefficients results of table 4.11; an indication that a Unit change in the Supplier Incentive Programs is likely to result to an improvement in the operational performance of Sugar Manufacturing firms in Kisumu County by 76.9%. The Simple Linear Regression model to predict operational performance of Sugar Manufacturing firms in Kisumu County given Supplier Incentive Programs was as follows:

Operational Performance = 0.445 + 0.811 Supplier Incentive Programs

4.6 Effect of Supplier Relationship Management and Operational Performance.

The third objective of the study was to determine the effect of supplier relationship and operational performance of Sugar Manufacturing firms in Kisumu County. Descriptive characteristics for supplier relationship management among Sugar Manufacturing firms in Kisumu County were as detailed in sub-section 4.6.1 below.

4.6.1 Descriptive statistics for the effect of supplier relationship management and operational performance.

Table 4.11 presents the respondents' views on the supplier relationship management among Sugar Manufacturing Firms in Kisumu County. The items were measured on a 5-point Likert scale.

Table 4.11: Descriptive Statistics for the effect of Supplier Relationship Management and operational performance.

Statement		Very great extent	Great extent	moderate extent	Little extent	Very little extent	Mean	SD
Suppliers have been involved in preparations of specifications and product development which has improved product quality	Count	2	12	32	27	3	**1.78**	**.858**
	%	2.6%	15.8%	42.1%	35.5%	3.9%		
There is joint planning and meetings between the company and suppliers which has improved the timeline in service delivery	Count	2	17	30	25	2	**1.89**	**.873**
	%	2.6%	22.4%	39.5%	32.9%	2.6%		
The company embraces group approach to ensure long time supplier relationship management which has resulted to reduction in cost in key areas	Count	6	21	22	24	3	**2.04**	**1.038**
	%	7.9%	27.6%	28.9%	31.6%	3.9%		
The company treats suppliers as part of	Count	13	11	26	16	3	**2.22**	**1.136**

the company which has improved the level of efficiency	%	18.8%	15.9%	37.7%	23.2%	4.3%		
The company involves suppliers in supply chain decisions and issues which has improved operational flexibility	Count	14	2	18	32	10	**1.71**	**0.654**
	%	18.4%	2.6%	23.7%	42.1%	13.2%		

	N	Minimum	Maximum	Mean	Std. Deviation
Average response on effect of Supplier development Operational Performance	76	1.25	4.40	1.9283	.80682

The findings of table 4.11 show that majority of the respondents, 42.1% claim that the extent to which Suppliers have been involved in preparations of specifications and product development and hence improvement on the product quality is at a moderate extent. 35.5% claim that it has been done on a little extent. The average response was 1.78 (35.6%); indicating that the sugar manufacturing firms have not been effectively involving suppliers in preparations of specifications and product development. In terms of offering joint planning, majority of the respondents, 39.5% claim that the extent at which sugar firms have had joint planning and meetings with the suppliers to meet timeline in service delivery is at a moderate extent and 32.9% suggest that this had been done at a little extent. This was supported by an average response of 1.89 (37.8%); an indication that the firms were not holding joint planning and meetings with the suppliers. Majority of the respondents, 31.6% claim that the extent, to which the sugar firm's embraces group approach to ensure long time supplier relationship management and

reduction in costs, is at a little extent. This is supported by an average response of 2.04 (40.04%); an indication that majority of the firms were not embracing group approach to ensure long time supplier relationship management. Majority of the respondents, 37.7% claim that the extent, to which the company treats suppliers as part of the company to improve on the level of efficiency is at a moderate extent. This is supported by the average response of 2.22 (44.4%). This suggests that the Sugar Manufacturing firms in Kisumu County had not been treating suppliers as part of the company. Majority of the respondents, 42.1% claim that sugar firms have been involving suppliers in supply chain decisions and issues to improve on operational flexibility at a little extent. This is supported by the average response of 1.71 (34.2%). This indicates that these respective Sugar manufacturing firms in Kisumu County were likely not to have been effective in involving suppliers in supply chain decisions and issues. On average, the overall mean response of 1.9283 (38.57%) as shown in table 4.11 indicates that the sugar manufacturing firms were ineffective in terms of managing supplier relationship and hence leading to poor operational performance.

4.6.2 Correlation between supplier relationship management and operational performance.

Pearson Moment Correlation coefficient was used to examine the relationship between supplier relationship management and operational performance of Sugar Manufacturing firms in Kisumu County. The findings were as shown below

Table 4.12: Correlation between supplier relationship management and operational performance.

		Operational Performance
Supplier Relationship	Pearson Correlation	.839**
Management	Sig. (2-tailed)	.000
	N	76

It's evident from the findings of table 4.12 that supplier relationship management had a statistically significant strong positive relationship with the operational performance of Sugar Manufacturing firms in Kisumu County (R = 0.839, p = 0.000). Lyndsay (2009) indicated that a coefficient between +1.0 and +0.5 or -1.0 and -0.5 indicates a strong relationship. We can therefore conclude that supplier relationship management had a significantly strong positive relationship with the operational performance of Sugar producing firms in Kisumu County. The study results are in agreement with past research findings which found out that Supplier Relationship Management results in improved firm performance (Arsan, 2011; Wenli *et al*., 2012; Khuram, Ilkka, Elina & Shpend, 2016; Weitz, 1992; KiIpatrick and Ron, 2000; Choi, 2004; Baily *et al.*, 2008 Kamau, 2013.

4.6.3 Regression Analysis

The study adopted Simple Linear Regression model to examine the effects of supplier relationship management on the operational performance of Sugar Manufacturing firms in Kisumu County.

Table 4.13: Simple linear regression between supplier relationship management and operational performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.839[a]	.703	.699	.44867

a. Predictors: (Constant), Supplier relationship management

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.298	1	35.298	175.342	.000[b]
	Residual	14.897	74	.201		
	Total	50.195	75			

a. Dependent Variable: Operational Performance

b. Predictors: (Constant), Supplier relationship management

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.094	.204		.461	.646
	Supplier Relationship Management	.850	.064	.839	13.242	.000

a. Dependent Variable: Operational Performance

From the ANOVA results shown above, it is evident that the Simple Linear Regression model well fitted the dataset [F (1, 74) = 175.342, P = 0.000< 0.05]. Note that the model

(Supplier relationship management) explained 69.9% of the variation in the operational performance of Sugar Manufacturing firms in Kisumu County (Adjusted R Square = 0.699). The results of coefficients in Table 4.13 show that Supplier relationship management had a statistically significant contribution in the prediction of the operational performance of Sugar Manufacturing firms in Kisumu County, (B = 0.850, *t* = 13.242, *p=0.000<0.05*); thus we reject the null hypothesis and conclude that Supplier relationship management has a significant influence on operational performance of Sugar Manufacturing firms in Kisumu County. Supplier relationship management had a positive standardized beta coefficient = 0.839 in the coefficients results of table 4.13; an indication that a Unit change in the Supplier relationship management is likely to result to an improvement in the s operational performance of Sugar Manufacturing firms in Kisumu County by 76.9%. The Simple Linear Regression model to predict operational performance of Sugar Manufacturing firms in Kisumu County given Supplier relationship management was as follows:

Operational Performance = 0.094 + 0.850 Supplier Relationship Management

The findings concur with that of (KiIpatrick and Ron, 2000; Choi, 2004; Baily *et al.,* 2008).

4.8 Multiple Linear Regression Analysis

The study utilized multiple linear regression model to determine the unique contribution of each of the Supplier Development Practice (Knowledge Transfer and Supplier Training, Supplier Incentive Programs and Supplier Relationship Management) in

explaining the variation in the operational output of Sugar Manufacturing firms in Kisumu County. Below are the findings.

Table 4.14: Multiple linear regression between Supplier Development and operational performance.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.853[a]	.728	.717	.43523

a. Predictors: (Constant), Knowledge Transfer and Supplier Training, Supplier Incentive Programs and Supplier Relationship Management

b. Dependent Variable: Operational Performance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.556	3	12.185	64.327	.000[b]
	Residual	13.639	72	.189		
	Total	50.195	75			

a. Dependent Variable: Operational Performance

b. Predictors: (Constant), Knowledge Transfer and Supplier Training, Supplier Incentive Programs and Supplier Relationship Management

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

1	(Constant)	.042	.210		.201	.841
	Knowledge Transfer and Supplier Training	.217.	.131	.208	1.894	0.44
	Supplier Incentive Programs	.297	.116	.282	2.567	.012
	Supplier Relationship Management	.711	.134	.701	5.306	.000

a. Dependent Variable: Operational Performance

From the ANOVA results above, the regression model statistically significantly predicted the outcome variable as indicated by F (4, 72) = 64.327, p-value = 0.000 < 0.05; thus the model was a good fit for data use for the study. From the model summary results, the model (Knowledge Transfer and Supplier Training, Supplier Incentive Programs and Supplier Relationship Management) explained 71.7% of the total variation in the performance of operational performance of Sugar Manufacturing firms in Kisumu County as indicated by the Adjusted R Square = 0.717. To determine the best predictor for the operational performance of Sugar Manufacturing firms in Kisumu County, among the three Supplier Development Practices, Standardized Beta Coefficients were used; this was because these Standardized Beta Coefficient values have been converted to the same scale across all the three predictor variables for easy comparison.

On comparing the standardised Beta coefficients as detailed in the coefficients results of Table 4.16, the study revealed that Supplier Relationship Management had the highest coefficient, Beta = 0.701, p-value = 0.000, followed by Supplier Incentive Programs with Beta Coefficient, B= 0.282, p-value= 0.012 and lastly Knowledge and Supplier Training with a

Beta = 0.208, p-value= 0.044; this indicated that Supplier Relationship Management made the strongest unique contribution in explaining the operational performance of Sugar Manufacturing firms in Kisumu County, followed by Supplier Incentive Programs then lastly Knowledge Transfer and Supplier Training had the second largest Coefficient, Beta = 0.287.

A Regression equation that was used to estimate the operational performance of Sugar Manufacturing firms in Kisumu County given the three Supplier Development Practices was stated as follows:

$$\mathbf{P} = 0.042 + 0.217\,\mathbf{X_1} + 0.297\,\mathbf{X_2} + 0.711\,\mathbf{X3}$$

Where;

$\mathbf{P}$	=	Operational Performance
$\mathbf{X_1}$	=	Knowledge and Supplier Training
$\mathbf{X_2}$	=	Supplier Incentive Programs
$\mathbf{X_3}$	=	Supplier Relationship Management

Therefore, we concluded at 5% level of significance that the Supplier Development Practices (Knowledge transfer and Supplier Training, Supplier Incentive Programs and Supplier Relationship Management) significantly explained 71.7% of the variation in the operational performance of Sugar Manufacturing firms in Kisumu County. Among the three predictor variables, Supplier Relationship Management was found to be the best predictor of the operational performance of Sugar Manufacturing firms in Kisumu

County, followed by Supplier Incentive Programs and lastly Knowledge Transfer and Supplier Training.

From the study findings the researcher indeed concludes that there is a significant relationship between Supplier Development practices with the operational performance of sugar manufacturing firms in Kisumu County. This study corroborates the work of Wachiuri et al., (2015); Yegon et al (2015) ; Ochieng (2014) ; Job (2015), Lukhoba and Muturi (2015) who found out that Supplier Development practices had a strong relationship with the operational performance of the firm.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter presents the summary of the findings, conclusion and recommendations on the Supplier Development Practices and Operational Performance of Sugar Manufacturing Firms in Kisumu County. The study had three objectives; to determine the effects of Knowledge transfer and supplier training on the operational performance of Sugar Manufacturing firms in Kisumu County, to assess the effect of supplier incentive programs and operational performance of Sugar Manufacturing firms in Kisumu County and determine the effect of supplier relationship management and operational performance of Sugar Manufacturing firms in Kisumu County. A suggestion for further research with regard to the concept of supplier development practices was discussed.

5.2 Summary of the Findings

According to the data provided in chapter four, there is sufficient evidence for the study to conclude that Sugar manufacturing companies in Kisumu County have been embracing supplier development practices to a moderate extent. The regression analysis done also indicates that there is a strong correlation between supplier development practices and operational performance of Sugar manufacturing firms involved in the research. From the data collected it is evident that knowledge transfer and Supplier training, supplier incentive programs and Supplier Relationship Management have a positive and significant correlation to operational performance. Knowledge transfer and Supplier training build and enhance the performance level of both buyer and supplier by allowing

suppliers to have deeper understanding of the processes. Supplier Incentive programs encourages suppliers to boost on their performance in terms of increased business volume and making consideration for future business. Supplier Relationship Management improves the firm performance by developing closer relationship with a subset of suppliers and manages the relationship to the end.

5.3 Conclusion

The study concludes that the sugar manufacturing firms in Kisumu County have been embracing Supplier Development Practices in terms of knowledge transfer and supplier training, supplier incentive programs and Supplier Relationship Management. The practices have assisted the sugar manufacturing firms to enhance the operational performance of their organizations. The regression analysis conducted that indicated there is a strong correlation between Supplier development practices and improved operational performance.

5.4 Recommendations

The study has confirmed that Supplier Development is very significant in enhancing the operational performance of sugar manufacturing firms in Kisumu County. All sugar manufacturing firms and other organizations are advised to embrace this concept so that they can be able to reap the benefits of developing Supplier. By developing their suppliers the operational performance of the company will improve in terms of Quality products, timeline in service delivery, level of efficiency, reduction in cost and improved operational flexibility. The sugar manufacturing firms are also advised to adopt the

practices that are currently adopted at a very small extent to enable the firm to improve their operational performance.

5.5 Limitations of the Study

A limitation is an aspect of research that may influence the results but over which the researcher has no control Mugenda and Mugenda (2003). It was an enormous challenge for the researcher to convince the respondents to participate in the study. Sugar manufacturing companies are very competitive whereby they try to undo each other in terms of key competencies for their survival. Most of the respondents were reluctant to participate in the Questionnaire citing concern that the information could reach their competitors hence lose their competencies. Some respondents were not willing to cooperate in giving required information needed by the researcher due to fear of victimization. The respondents provided the required information after being assured of information confidentiality as the data being collected should not be divulged to any other party other than for research purpose only.

5.6 Suggestions for Further Research

This study was confined to the supplier development practices and the performance of Sugar producing companies in Kisumu County. It would be of interest for future researchers to establish how the supplier development concept has been applied in other parts of Kenya. Similar research is recommended to establish how supplier development practices have been adopted in the service industry to link with the findings in the manufacturing industry that the researcher has dwelled on.

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APPENDICES

Appendix 1: Letter of introduction

Dear respondents

Iam a student at the University of Nairobi - Kisumu Campus .Iam studying a master of Business Administration Degree (Procurement and Supply Chain Management Option)

Iam conducting a research study on the effects of supplier development on the operational performance of Sugar Manufacturing firms in Kisumu County, Kenya. I have selected you as my study respondent. I kindly seek for your cooperation .All the information received will be treated confidentially and will be used for the purpose of this research only.

Thank you for your Audience and Cooperation

Yours Faithfully,

BRIDGID WABOMBA

Appendix ii: Questionnaire

Instructions

All the information received will be treated confidentially and will only be used for academic purposes.

Part I

I. The name of the Company ……

ii. Ownership……. ……

iii. Year of Establishment ……

iv. Turnover in production ……

v. Capacity utilization ……..

PART II: SUPPLIER DEVELOPMENT PRACTICES AND OPERATIONAL PERFOMANCE OF SUGAR MANUFACTURING FIRMS IN KISUMU COUNTY

(tick appropriately-once per row)

Below are the supplier development practices that your company practices. What is the extent that your company has put in place these practices to achieve operational performance, Follow the guideline below: [1] Very Great Extent [2] Great Extent [3] Moderate Extent [4] Little Extent [5] Very Little Extent

KNOWLEDGE TRANSFER AND SUPPLIER TRAINING		**1**	**2**	**3**	**4**	**5**
1.	The sugar company organises seminars for their suppliers which has improved product quality.					
2.	The company offers legal advice services to the					

	suppliers which has improved timeliness in service delivery					
3.	There is joint training and discussions between the company and suppliers that has led to reduction in operational cost					
4.	The company allows face to face and personal communication with its key suppliers and service providers which has improved our level of efficiency					
5	The company issues certificates to the supplier after the training indicating the areas covered hence improved our operational flexibility					
SUPPLIER INCENTIVE PROGRAM		**1**	**2**	**3**	**4**	**5**
1.	The organisation financially empowers their suppliers through direct investment and hence improved product quality					
2	The company offers support to their suppliers inform of farm inputs, fertilizers and farm machineries which has improved our level of efficiency					
3	The company embraces group approach to ensure long time supplier relationship management which has resulted to reduction in cost in key areas					
4.	The company helps suppliers to develop their					

	production capacities hence reduction in cost					
5.	Provision of Suppliers incentive programs has improved our operational flexibility					
SUPPLIER RELATIONSHIP MANAGEMENT		**1**	**2**	**3**	**4**	**5**
1.	Suppliers have been involved in preparations of specifications and product development which has improved product quality					
2.	There is joint planning and meetings between the company and suppliers which has improved the timeline in service delivery					
3.	The company embraces group approach to ensure long time supplier relationship management which has resulted to reduction in cost in key areas					
4.	The company treats suppliers as part of the company which has improved the level of efficiency					
5.	The company involves suppliers in supply chain decisions and issues which has improved operational flexibility					

Any other? Please indicate