

**LOGISTICS OUTSOURCING AND PERFORMANCE OF SUGAR
MILLERS IN WESTERN KENYA**

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**A RESEARCH PROJECT SUBMITTED IN PARTIAL
FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF
THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION,
SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI.**

NOVEMBER 2016

DECLARATION

This is to confirm that this manuscript is my original work and has never been presented for award of any degree or certificate in any university.

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D61/73188/2012

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DEDICATION

This work is dedicated to the Almighty God who has given me the will power throughout the course. His love, mercy and grace have always been sufficient for me and to my father Jecton Owuor Ogeta and mother Prisca Olum Owuor.

ACKNOWLEDGEMENT

I wish to express my sincere heartfelt gratitude to the University of Nairobi particularly Kisumu campus for giving me the opportunity to pursue this MBA course.

I thank my supervisor Mr. Gerald Ondiek for assisting in making corrections in my research paper.

I extend my gratitude to the entire teaching fraternity of University of Nairobi, my colleagues, the library staff and support staff for their untold support during the whole course.

TABLE OF CONTENTS

DECLARATION.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
ABSTRACT.....	x
ABBREVIATIONS AND ACRONYMS.....	xi
DEFINITIONS	xii
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background of the Study.....	1
1.1.1 Logistics Outsourcing.....	2
1.1.2 Organizational Performance	4
1.1.3 Logistics Outsourcing and Organizational Performance.....	6
1.1.4 Sugar Millers in Western Kenya	7
1.2 Research Problem.....	8
1.3 Objectives of the Study	11
1.4 Value of the Study.....	11
CHAPTER TWO: LITERATURE REVIEW	13
2.1 Introduction	13
2.2 Theories Underpinning the Study	13
2.3 Drivers of Logistics Outsourcing	15
2.4 Firm Performance.....	16
2.5 The Relationship between Logistics Outsourcing and Performance	18

2.6 Conceptual Framework	19
CHAPTER THREE: RESEARCH METHODOLOGY	21
3.1 Introduction	21
3.2 Research Design.....	21
3.3 Research Population.....	22
3.4 Data Collection.....	22
3.5 Data Analysis	23
CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND SUMMARY	25
4.1 Introduction	25
4.2 Demographic Information and Personal Profile.....	25
4.2.1 Respondents Gender	25
4.2.2 Respondents age Bracket.....	26
4.2.3 Level of Education.....	26
4.2.4 Years of Continuous Service	27
4.3 Logistic Outsourcing.....	28
4.4 Logistics Outsourcing Practices	28
4.5 Transportation Services.....	29
4.6 Maintenance and Repairs Services.....	30
4.7 Impact of Outsourcing Practices on Performance of Sugar Millers.....	31
4.8 Challenges faced in Outsourcing Logistics in Sugar Millers.....	35
4.9 Qualitative Suggestions and Responses to Meeting Organizational Goals.....	38
4.10 Pre-Tax Profits	38
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS ..	42
5.1 Introduction	42
5.2 Summary of the Findings	42

5.3 Conclusions and Recommendations.....	43
5.4 Limitations	43
5.5 Suggestions for Further Research	44
REFERENCES.....	45
APPENDICES.....	i
Appendix 1. Research Questionnaires	i
Appendix 2: Data Collection Form	v
Appendix 3: List of Sugar Millers in Western Kenya.....	vi

LIST OF TABLES

Table 4.1: Respondents' age Bracket.....	26
Table 4.2 Level of Education.....	26
Table 4.3 Logistics Outsourcing.....	28
Table 4.4: Transportation Services	29
Table 4.5: Overall Mean and Standard Deviation on Transportation Services	29
Table 4.6: Maintenance and Repair Services.....	30
Table 4.7: Overall Mean and Standard Deviation on Maintenance and Repairs.....	30
Table 4.8: Relationship between Logistics Outsourcing and increased productivity in Sugar Millers.....	32
Table 4.9: Relationship between Logistic Outsourcing and increased profits in Sugar Millers.....	32
Table 4.10: Relationship between Logistic Outsourcing and low cost production in Sugar Millers.....	33
Table 4.11: Relationship between Logistic Outsourcing and Customer Satisfaction of Sugar Millers.....	33
Table 4.12: Relationship between Logistic Outsourcing and Capacity utilization achieved in Sugar Millers.....	34
Table 4.13: Relationship between Logistic Outsourcing and Faster response to customers' demands in Sugar Millers	34
Table 4.14: Qualitative Suggestions and Responses to Meeting Organizational Goals ...	38
Table 4.15: Time Series of Pre-tax Profits.....	39
Table 4.16 Pre-tax profit in Ksh. '000'	41

LIST OF FIGURES

Figure 1: Conceptual Framework.	19
Figure 4.1: Respondents Gender.....	26
Figure 4.2 Logistics Outsourcing Challenge	36
Figure 4.3: Logistics Outsourcing Challenges.....	37
Figure 4.4 Graph of pre-tax profits of Sugar Millers in Western Kenya.....	40

ABSTRACT

In the wake of global economy, market conditions have shifted, business strategies have evolved, new technologies have emerged, customers have become knowledgeable and demand higher quality, low cost and better services. This has borne the problem of profitability and turbulent competitive environment. Organizations must look for opportunities to remain competitive by being proactive, innovative and agile to meet customers' demands and choices. The competition is on the basis of competent capabilities and production strategies which lead to quality, efficiency and flexibility (Momme, 2002). Organizations pursue tailored products and services, flexibility and scale economies by reinventing the wheel of the design and production activities (Suri, 2008). Many establish strategic decisions to focus on their core competencies in order to identify processes that are critical to make outsourcing decisions (Scrobatic et al, 2012). Organizations contract out production of goods and services to the third party service providers as they concentrate on core business activities while non-core activities which are generally expensive are outsourced. The sugar millers outsource logistics to increase their performance level, hence improved their productivities, competitiveness and profitability, minimize costs, increased customer satisfaction. The studies done so far have not been carried on logistics outsourcing with respect to performance of sugar millers in Western Kenya. The objectives of the study was to establish the impact of Logistics outsourcing on performance of sugar millers and also to determine the challenges faced in outsourcing logistics by the sugar millers in Western Kenya. Longitudinal study and census survey were both used to capture relevant information for the study in the nine sugar millers. The study used both primary and secondary data gathered by the researcher through open ended questionnaires and data collection forms respectively. These instruments were administered through drop and pick to the finance managers / accountants or equivalents. The population was 9 sugar millers in Western Kenya and response rate was 88.9%. The data was analyzed using descriptive statistics, with the tools being mean, frequencies, standard deviation, cross tabulation and time series regression analysis by making use of statistical package for social sciences, stata and excel spreadsheet. The study found out that the sugar millers outsourced transportation, maintenance and repairs, cane harvesting, security and legal services. These resulted in customer satisfaction, increased productivity, timely delivery, costs minimization and improved profits.

ABBREVIATIONS AND ACRONYMS

KESMA:	Kenya Sugar Manufacturers Association
RBV: -	Resource Based View
TCA: -	Transactional Cost Analysis
CT:-	Contingency Theory
RDP:-	Resource Dependency Theory
NTP:-	Network Theory Perspective
SPSS:-	Statistical Package For Social Sciences
STATA:-	Statistical Analysis Tool
PESTEL:-	Political Economic Social Technological Economical and Legal. It is an analysis of the organization and its external environment.
ISO:	International Standards Organization

DEFINITIONS

- **Third party logistics;** is the use of a transport company to carry out a variety of transportation and distribution tasks along the supply chain.
- **Outsourcing;** is the process of taking the benefit from using specialized companies to take over part, or, all of our logistics.
- **Service provider;** these are organizations with specialized expertise that provide services to producers, distributors, retailers, and customers in particular activities needed in a more effective and at a better prices in the supply chain.
- **Partnership;** refers to all firms in a supply chain which are involved in a cooperative relationship in a network.
- **Logistics;** is the process of strategically managing the procurement, movement and storage of materials, parts and finished inventory and the related information flows through the organization and its marketing channels in a way that current and future profitability are maximized through cost effective fulfillment of orders.
- **Reverse logistics;** is the movement of products and services up the supply chain in the opposite direction to the normal flow of products and services.`
- **Supply chain;** It encompasses the companies and business activities needed to design, make, deliver, and use a product or service.
- **Customer satisfaction** is what people think of us (organization) in terms of quality of service and value for money. How the customer feels about our product or service.
- **Logistics customer service** are all functions of provision of intangible or where no physical product involved referring specifically to the service parameters of product delivery and concomitant services such as warranty and after sale services.
- **Logistics outsourcing** it is the relationship between a firm and logistics service provider

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

In the wake of global economy, market conditions have shifted, business strategies have evolved, new technologies have emerged, customers have become knowledgeable and demand higher quality, low cost and better services. This has borne the problem of profitability and turbulent competitive environment. Organizations must look for opportunities to remain competitive by being proactive, creative and focused fulfilling end users' needs, wants and choices. The competition is on the basis of competent abilities and strategic processes which result in quality and efficiency (Momme, 2002). Organizations pursue tailored products and services, flexibility and scale economies by reinventing the wheel of their production processes (Suri, 2008). Many embrace critical strategic decisions that focus on their core competencies before choosing outsourcing processes (Scrobatic et al, 2012). Logistics outsourcing is the business arrangement between a firm that outsources and the outsourced service provider. Logistics is an activity takes care of the movement of materials upstream to the organization, through activities within the organization and finally downstream.

Outsourcing is a management tool which moves a firm away from the usual vertical integration, self-sustainable structure, which is outdated in today's competitive, performance oriented field (Corbett 2004). It is a process of taking the benefit from using specialized companies to take over part, or, all of our logistics. Outsourced logistics takes a third party service provider who once contracted take charge of the outsourced function and becomes responsible for the outcomes of the operation. Studies show that Logistics

outsourced includes information management, transportation, maintenance and repair, warehousing, material handling and inventory management, (Forslund, 2012). Logistics outsourcing is a source of business competency that enables them attaining competitive advantage (Muller 1993). Competitive advantage enables them to provide superior customer services by being low cost and able to differentiate in products to enhance customer loyalty and satisfaction. This study is anchored on the theory of Transactional cost analysis, sees firms as entities existing in order to maximize profits through reduced costs of transaction. It determines the effectiveness of financial investment. It defines the exchange prices that evaluates whether the trades were arranged at favorable prices that sets efficient frontier- lower prices for purchases and higher prices for sales. The theory advocates for good partner relationship between organizations and their service providers. The sugar millers (public and private) face key challenges such as lack of enough canes, finances, markets and frequent breakdowns, inability to reduce operational expenses and strategically outsource from suppliers who add value through low prices. According to Hornes (1989), this can be achieved when non- core operations are outsourced from those with know how in the field in order to concentrate on areas blessed with in house capabilities.

1.1.1 Logistics Outsourcing

Logistics is strategically planning, implementing and controlling of physical movement of materials and finished goods from the origin to end user (Kottler 1980). It also means procuring the right item in the right quantity at the right time at the right place for the right price, Scrobatic et al (2012). Logistics management is a process that organizes the cost effective flows of materials, work in process, inventory, manufactured goods and

relevant information from point of information source to end user, in a way that completely satisfies our customers both internal and external (Donald et al 2003). In sugar milling companies the business begins where materials are procured from the suppliers to the milling plant, and from the plant to the customers through distribution channels.

Materials flow from the suppliers to the plant should be efficient and effective in order to realize the objectives, of satisfying customers, Foster and Muller (1990). Transportation involves route planning, mode selection, vehicle scheduling, (Sople, 2011). Outsourcing has become an acceptable trend in business and its approach helps organizations to cope with demand uncertainty by taking advantages of economies of scale of service provider in a myriad of business areas. Corporations have realized that doing everything by themselves does not result in effective and efficient use of scarce resources available to them. It is better to do the right thing right and outsource the non-core functional areas to an expert who can do them at the least cost, Srabotic & Ruzzier, (2012)

Porter (1980), highlighted that business competitive success comes only through cost leadership or by differentiation of products or services. In the value chain activities logistical costs, which are ultimately loaded on to the product and borne by the customer, can be reduced and benefits passed on to the customer through value addition of low prices, high quality and superior services, Wood (1993).

Logistics outsourcing allows an organization to concentrate on its core competencies, save money, increase flexibility and manage effective growth. The non-core functions are sublet out to the experts who can manage them effectively and efficiently. This way the

organization benefits by reducing risks, reduce costs, gain knowledge and use of technological resources of the experts, Greer et al (2009). The net benefit of the outsourced function should outweigh the cost of acquiring the service. Managers need to properly manage and monitor outsourced functions, Johnson et al (2006)

Competitive advantage can be gained by performing strategically important activities or ensuring that these activities are performed more efficiently than competitors. Profitability can be improved by increasing revenue and / or reducing the cost of producing that revenue. Outsourcing is sensitive to the employees as it is accompanied by perception of retrenchment and unemployment. It can lead to loss of certain skills, knowledge, morale and dedication of employees.

Outsourcing in sugar millers therefore can improve customer service, reduce costs, minimize risks, increase competitive advantage and improve on shareholders returns, Sohail & Bhatnagar, (2006). Logistics outsourcing is thus a strategic remedy to improving service quality and reducing costs of core functions as well as non- core processes. Companies can form collaborative relationship with third party service providers for knowledge based systems integration through information technology, as mentioned by Logan, (2000).

1.1.2 Organizational Performance

Performance is the ability to successfully execute and attain the set target standards or how well they do something. Performance is a dependent variable which seeks to produce variations of performance (Luiz et al 2012). Business firms are usually compared in terms

of profits, sales, market shares, productivity, debt ratio and stock process, (Sultun 1997). Performance is the proportion by which a firm uniquely realizes its set mission targets.

Key performance drivers are strategic focus, customer value, leadership, team performance, culture, value ethics, process excellence, talent and knowledge management. Organization must appropriately implement the components of logistics, by having in place strategic performance parameters to assess and evaluate the efficiency and effectiveness of their strategies. To check the gap between real, achieved and proposed goals, thus determine operational efficiency, (Kaplan and Norton, 1993, Kotabe et al 1989, Sahay and Mohan 2006). Embracing well defined performance target such as increased output, increased efficiency, increased effectiveness of the processes or procedure, statistical quality control, customer satisfaction survey, or improve ability to deliver goods and services.

Being agile to respond to market places by modifying internal and external competencies, so as to best position itself in relation to their competitors. Create problem solving teams through mentorship, training, and retaining employees. Have a culture to follow and communicate feedback immediately. Use distinctive competencies to create and exploit linkages in the internal value chain so as to create value for the customer. Encourage the organization's network of suppliers to deliver superior value to the final customer in the chain. This will be the basis for sustainable competitive advantage – the 'holy grail' of business. These millers should practice differentiation and diversification strategy, that is low cost production or focus on quality. According to Jeans, (2008) this is possible when there is departmental support, quality teams, just in time, total cycle time reduction,

performance measurements, training and professional development, service excellence, search for suppliers committed to continuous improvements and suppliers that can deliver key performance indicators such as competitive price, quality and lead times. Thus, leads to end user satisfaction and profitability. The progress towards targets should be monitored continuously, Johnson et al, (2006).

In manufacturing operations, the main service is the output of products and services. The sugar millers' main output; are satisfied customers, reputation, valued products, low operating costs and increased profits. Efficient logistics help to improve the flow of materials, reduces the stock, make attractive products or make them more readily available, increases sales and gives higher market share, low operating costs which in turn leads to breaking even. This study adopts operational performance in terms of costs minimization and efficiency.

1.1.3 Logistics Outsourcing and Organizational Performance

In the increasingly and intensified competition in the world market, firms are proactively outsourcing their non- critical logistics functions to third party service providers. Outsourcing strategy enables them to sublet non-core activities to external service providers which enables them to leverage on their resources, spread risks, reduce investments on expensive functions, reduce costs and gain market access. All these benefits ultimately enhance returns through improved returns on assets and cost minimization. The organizations hence embark on vital functions that ensure their survival and future growth. Most organizations outsource to in order to acquire world class resources that give them an edge over their competitors by minimizing their

operational costs, reducing wastage of resources, and increasing operational efficiency. Apparently Laugenet et al (2005) in his study found out that a correlation exists between outsourcing best practices and high performing firms and depicted that outsourcing logistics services increase a firms' competitiveness. Effective outsourcing practices yield to organizational performance through costs saving, reduce cycle time, increases customer satisfaction and productivity through superior capabilities, Kotabe et al (1998). The benefits that accrue as a result of outsourcing all or part of logistics services to third party service providers through reduced operational costs result in operational and organizational efficiency, Mulama (2012)

1.1.4 Sugar Millers in Western Kenya

Public sugar millers include: Chemelil sugar factory, Muhoroni sugar factory, Mumias sugar company, South Nyanza sugar company, Nzoia sugar factory, while private: West Kenya sugar company, Butali sugar mills, Sukari industries limited, and Kibos sugar and Allied industries limited. The government is the largest shareholder in public millers. These millers own their own nucleus estates and expansive blocks of farms belonging to out growers. The out growers provide nearly 78% of the sugar cane processed by the factories. The nucleus estates are fully financed and managed by individual millers and they act to stabilize cane supply to the millers. The millers have organized themselves under the Kenya Sugar Manufacturers Association (KESMA) to handle harvesting and transportation of cane to the factories, although this has proved to be a burden on their cash flows.

The Kenya Sugar Board and the Sugar Act (2001) regulate the sugar industry. The Act (2001) stipulates that sugar factories should focus on milling and selling of sugar of quality standards while out growers are left with the responsibility of cane development. However, millers have been forced to get involved in cane development to ensure their continued existence in business because of the farmers' inability to handle cane development despite this being a non- core activity but a key determinant of the existence of the companies. The core activities of these sugar millers, is to manufacture sugar. However, they still procure sugar canes, spare parts, security, legal services, labor services so as to be competitive and to provide full logistics needs of the customers in the value chain delivery. Both core and supportive activities should be geared towards operational efficiency, cost minimization, improved profits, and superior products and service delivery. They should cultivate a strong partnership with the suppliers and develop a workable strategic outsourcing with suppliers. Also they should acquire the right expertise for effective and efficient operational performance.

1.2 Research Problem

Manufacturers outsource non- core processes where they do not own internal competencies to reduce initial capital outlay, which in turn sets more of the company's profit into return on asset, Takrifi et al (2007). Logistics outsourcing improves operational performance by increasing flexibility, reduces costs, increases competitive advantage, improves quality and enhances superior products and services at competitive prices, with reduced lead time to beat stiff competition, Qureshi et al (2007). Fierce competition and profitability issues, prompts the millers to be proactive, innovative and

diversify in order to improve quality and cut down operational costs hence gain competitive advantage and avoid elimination from the market (Nyaoga et al, 2012).

The core business of millers is to manufacture sugar, however, they have to outsource materials for production, repair and maintain the machines, transporting manufactured products to end users. All these activities are non-core which can be outsourced so that they are left to handle their core activities (manufacturing). This study wishes to establish the impact of logistics outsourcing practices on operational performance in terms of increased profits, customer satisfaction, efficiency and costs minimization by sugar millers in Western Kenya.

The sugar millers in Western Kenya face challenges such as lack of enough canes, finances, markets and breakdowns, with most of them under receivership, others face imminent collapse due to constrained cash flow, huge debt burden owed to the farmers and suppliers and the inability to sustain their operations at low cost. A good number of researchers have done studies on outsourcing, for instance Marshall, Melvor and Laming (2007) researched on the experience of the three Telecommunication companies which outsourced non-core processes, Logistics, testing, calibration, etc. In all cases, outsourcing was embraced as a major strategy for achieving required flexibility which helped to place the companies in a better position to react rapidly to market changes.

Analysis of networking logistics conducted by Gadde and Hulthem, (2009) depicted outsourcing of logistics as having effects on many activities and hence brings some new approaches to resource management and alliances between supply chain members. Sohal et al, (2002) and Bhatnager, (1999) did their study in the Australian and Singaporean

context. Both reported that most users of third party logistics services were satisfied and convinced to continue using logistics outsourcing services in future.

Kamuri, (2010) researched on challenges thwarting the implementation of logistics outsourcing strategy in Kenyatta Hospital and it reveals that for an organization to realize competitive advantage from logistics outsourcing, it must develop a cordial relationship with all the suppliers of goods and services thus facilitate efficient and effective delivery of services.

Ondigo, (2013), undertook a study on outsourcing and performance at Chemellil sugar company limited and established that most important reasons for outsourcing was concentration on core activities; reduction of costs of operations in terms of labor and overtime payments, efficiency and quality improvement, timely service delivery and improved overall performance.

Although some related studies have been done on the subject, the researcher could not get studies done cross cutting the nine sugar millers in Western Kenya, both public and private, that shows how logistics outsourcing and financial performance of millers utilizing it are related. Again, the researcher did not find a research conducted and analyzed to show the effects of outsourcing logistics and organizational performance of sugar millers that looks at their profits trends. This research used time series regression analysis which the existing researches have not used. Gaps still exist and more information is still needed to understand how logistics outsourcing impact on the operational and financial performance within the sugar millers in Western Kenya. The study aims at filling the existing space. The study seeks to establish the impact of

logistics outsourcing among sugar millers found in Western Kenya and the challenges faced. It will give answers to these research questions: What is the impact of logistics outsourcing on performance of sugar millers? What are the challenges faced in outsourcing logistics by sugar millers in Western Kenya?

1.3 Objectives of the Study

- i. To establish the impact of logistics outsourcing on performance of sugar millers in Western Kenya.
- ii. To determine the challenges faced in outsourcing logistics by sugar millers in Western Kenya.

1.4 Value of the Study

The study revelations will be useful source of knowledge to various institutions especially academicians and scholars who will find the study results useful as a source of reference and also to see the worthiness of studying other areas that have not been outsourced or could be outsourced so as to broaden the field of knowledge on outsourcing.

The Third party service providers may also find the material useful in assessing the competitive advantages and a chance to explore new business opportunities. The companies that wish to undertake logistics outsourcing can assess and compare how they stand to gain or lose if they outsource their logistics. It will inform the organizations what they should do better in order to have outsourcing working for them. Also, it is expected that they will go a notch higher to analyze whether outsourcing is cost effective for a given organization.

The government being at the center of policy making and governance directives may use the study results in making such policies and governance. Practitioners in the industries, education and agricultural sectors may also find the study results useful as a tool for decision making in their management practice and policy formulation

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The researcher looks into theories underpinning this study, the general view on logistics outsourcing, logistics outsourcing and performance, drivers of logistics outsourcing, firm performance and conceptual framework.

2.2 Theories Underpinning the Study

Many theories have been advanced to explain the subject of outsourcing. Various authors have used a lot of theories to explain the outsourcing phenomenon, Snydaer et al (2009). This study will be underpinned on the following theories which are; resource dependency theory, (RDT), transactional cost analysis (TCA), resource based view (RBV), network theory perspective, (NTP), contingency theory (CT).

The resource dependency theory (RDT), it is founded on the principle of open systems theory which postulates that even although all organization have their own resources, this is not adequate to meet their production demands, therefore they have to rely on outside sources to support their operations and aspirations hence outsource their logistics (Gullati & Sytch, 2007).

Transactional cost analysis (TCA), it states that firms are economic actors using the most efficient models for transactions (Williamson 1981) and it analyzes outsourcing decisions concerning operational performance. This theory posits that the organizations strive to maximize profits by reducing transaction costs. The theory determines the effectiveness of financial performance investment. It defines the trade prices and determines whether transactions were arranged at favorable prices and sets efficient frontier – low prices for

purchases and high prices for sales. The theory justifies formation of alliances for organizations and their service providers. Transactional costs can be transferred through outsourcing. If a firm opts to outsource it will increase its transactional costs and most likely lose its economies of scale (Grover, 1996) because the increased size of the firm will require increased internal coordination.

The resource based view (RBV) it postulates the firm as having a bundle of resources (Penrose 1957). In practice, an organization must have efficient and right resources which flow from its environment to it for its survival and improvement of operational performance. Both the outsourcer and service provider must desist from wandering from their core competencies in directions that derail their focus to create value (Prahalad & Hamel 1990). The theory hints that resources are the determinants of firm performances and that resources must be rare, valuable, difficult to imitate and non- sustainable by other rare resources to create a competitive advantage (Preim & Butler, 2001). Accordingly, RBV helps to look at logistics outsourcing options because firms basically use outsourcing as a strategy access other firms' valuable resources. According to RBV outsourcing is a strategic decision which can be used to fill gaps in the firms' resources and capabilities (Malhotra and Grover, 1998).

Contingency theory, this is a rational and open system model that analyzes the organizational structures and its environment (Scolt, 1992). The environment in which an organization operates determines the way it organizes itself. By conducting PESTEL analysis helps to analyze the contingencies in the environment. The environment has uncertainties and opportunities which the organization must counter in order to remain

afloat and operative. The organization should seek a fit between the resources of the firm and the competitive environment by acquiring resources to fix the gap either through outsourcing. The environmental uncertainty or dynamism leads to an increase in outsourcing (Donaldson, 2001).

Network theory perspective stresses on the net value as opposed to least cost. This is the driving force for its adoption, Larsen 2000. The contractual agreement rests upon the firms' ability to manage these contractual relationships. Network focuses on the formation of relationships, organizational structure and alliances (Ellram & Cooper, 1990). Network perspective agrees that firms without enough in house logistics capabilities can cooperate with third party providers that have complementary skills that these firms can use to deliver benefits. Network theory attempts to create an opportunity – independent theory of the firm while broadening the focus on cost cutting to incorporate the management of multiple firm resource base (Madhok, 1997).

2.3 Drivers of Logistics Outsourcing

In the wake of global economy, companies are changing their business strategies that empower them to cut costs and differentiate in value delivery system. They have to be flexible in their operations. Since customers are becoming more knowledgeable and are demanding higher quality, low cost and better services. This makes competition to get fiercer, prompting every organization to look at every opportunity to remain competitive, Kakabadse and Kakabadse (2010).

In the face of challenges such as increasing costs of production, customer service levels not met, stiff competition from cheap imported sugar, scarce sugar cane, high debts owed

to farmers, the corporate management of the sugar millers should hollow out to outsource non-core business processes. This will enhance their operational efficiency hence become effective.

The millers should enhance provision of superior customer care services by being low cost leaders and differentiating their products and services thus increasing customer satisfaction and loyalty to the organization. The corporate management should understand clearly the business language and how successful business should be leveraged by fiscal discipline, innovativeness, patriotism and not through corruption, mismanagement and un-competitiveness. Being visionary requires that they understand the dynamics of economics and the psychology of their customers and how these factors interact to ensure profitability while keeping their eyes out for opportunities such as off shoring cheap manufacturing strategies. And as was pointed out by Stock and Lambert, (2011), outsourcing enhances globalization of business, improves productivity, reduces operational costs, improves customer services, and leads to downsizing, mergers and acquisitions and use of Third party logistics providers. The corporate should seriously bench mark and replicate what the leading edge firms are doing.

2.4 Firm Performance

Performance is the ability to successfully execute and attain the set target standards or how well they do something. The organizations should fast track their progress against targeted goals, identify opportunities for improvement, and compare performance against both internal and external standards. Organization should have in place strategic

performance metrics to checks on the operational efficiency, effectiveness and identify the gap or deviations from the targets set, Salay and Mohan, (2006).

Organizations should always conduct a cost benefit analysis, and harness the benefits of letting other firms to manage their portfolio while they are left to focus on their strength and future strategies of improving their efficiency and ultimately improving customer services through reduced lead times, provision of superior products and services that will motivate their customer to remain loyal and pay premium prices, hence increase returns and gain competitive advantages as noted by Stock and Lambert, (2009).

By and large, for sustainability of good performance throughout the organization, the organization should embark on capacity building whereby the employee are trained, corporate culture enhanced and attitudes geared toward self- improvement. The workers should be on continuous learning mode in order to cope with rapid technological change. The workers need to be mentored and tutored to be able to have problem solving teams, and communication enabled for quick access to feedback.

According to Sarpin and Weideman, (2009) that firms should have technological tools, for high performance work system. A proper metrics should enable managers to gauge how the business is doing in terms of products and services conformity to customer requirements (the mission). The management philosophy should emphasize the importance of customer focus and satisfaction in the business. This is so because unsatisfied will be disloyal and look for other suppliers that will meet their needs. Dismal performance is a leading indicator of future decline in performance even though the current financial picture may look good. Customers' satisfaction metrics should be in

place to analyze them in terms of kinds and processes for which we are providing a product or service to those groups. Finally, managers should provide timely data on financial matters and to do whatever is necessary to provide it, Johnson & Zineldin, (2003). There should be a centralized and automated corporate database for processing financial data. This should include traditional financial data, risk assessment, preventive measures and cost benefit data analysis, in this category, Reagan & Chaunxu, (2002).

Performance measures are based on data, and usually show whether objectives are achieved and if progress is being made towards attaining set goals. Performance measure is a quantifiable expression of the amount of costs, or results of activities that indicate how much, how well and at what level products or services are provided to customer at a given time. Financial and non -financial measures can be used to firms' performance. Pre -tax profits and turn over measure financial performance while non- financial measures are customer satisfaction, retention and loyalty and lead time, Venkatran et al (1987). Customer satisfaction- surrogate measures are used to measure customer satisfaction by number of complaints received, notional scales are used by asking managers and customers to rate some factors on a scale one to five – giving numerical values to essentially non quantifiable factors.

2.5 The Relationship between Logistics Outsourcing and Performance

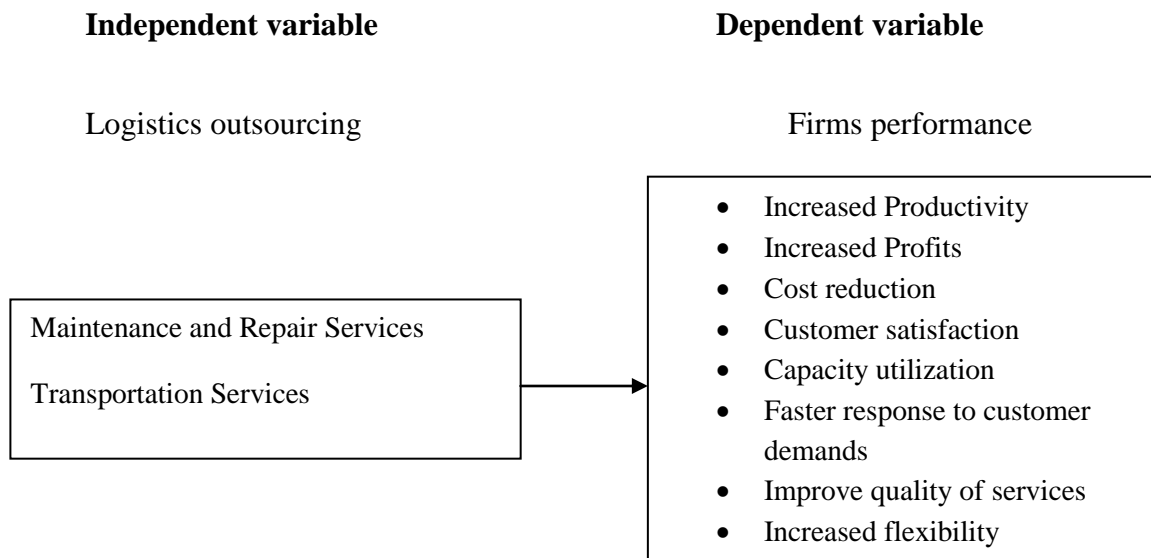
According to Raazzaque and Sheng (1998) their study explored this in customer satisfaction. They defined outsourcing as contractual relationship that hinges on the supplier meeting the buyers' specific performance goals. Melewar et al (2011) stressed

that goals and criteria must be met to achieve customer satisfaction for long term relationship.

2.6 Conceptual Framework

The conceptual framework assumed that performance of sugar millers depends on outsourcing of logistics services. Logistics outsourcing activities are the independent variable and organizational performance as dependent variable. The outsourced activities are transportation and maintenance and repair services. The diagram showing the relationship between independent variable (logistics outsourcing) and dependent variable (Firm performance).

Figure 1: Conceptual Framework.



Source Researcher 2016

Transportation services

Transportation is the physical link which connects firm's customers, raw materials, suppliers, manufacturing plants, retail stores and members of the distribution channel in a

logistical supply chain. Transport services removes distance barrier and creates place and time utility. Fleet tracking tools increase vehicle visibility and vehicle scheduling. Managing transport diligently creates critical competitive advantages in supply chain which starts with the movement of raw materials from the source to the end users of the products. If the inbound flow from the suppliers is erratic, then firms' internal operations will not be able to sustain their production strategies and keep high level safety stock. Similarly, if the flow of finished goods to the customers is undependable, the customer will be dissatisfied. Transporters should minimize transportation cost through cross docking while meeting demand for products and services, (www.grin.com/en/e-book/284724)

Maintenance and Repair Services

Maintenance and repair service is the care and replacement of plant, machines, or equipment. Machines are inspected and vulnerable parts are replaced after certain period of use. Replacing roller shells, shafts, crashing machines that are worn out or are likely to wear, the equipment is restored to give continuing, satisfactory performance. Preventive maintenance helps to reduce chronic breakdowns hence the capacity is optimally utilized to get the desired throughput. Better utilization of capacity and capital allocation reduces costs of logistics outsourcing. Consistency in the amount of resources used enhances total productivity which relates to throughput of supply chain and eliminates under- utilization of capacity, Chopra, (1998), en.wikipedia.org/wiki/maintenance (2016).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section details the sequential steps the researcher adopts in studying the problem with certain objectives in view. It discusses the research design used, describes the area of study, target population sample size, and sampling techniques. In addition research instrument, data collection techniques and data analysis will be explored in detail with ethical considerations upheld.

3.2 Research Design

The objective of this research is to establish the linkage between outsourced logistics and performance of sugar millers in Western Kenya. In this research the researcher will use perceptual performance measure to relate financial and operational performance.

The research design in this study is a two pronged, that will utilize both cross sectional descriptive survey and longitudinal study. The survey involves collecting data in one shot and it will gather information from the sugar millers operating in Western Kenya. According to Emory, (1995) a survey is feasible when the population is small with fewer variables hence the researcher will be able to cover all the elements of the population. Therefore the survey is considered to be more efficient and economical. Longitudinal study collects data over time series. It will look at the financial performance five years before and after adoption of outsourcing logistics. Both designs are ideal because the main aim is to investigate the variables linkage and depict how the factors influence matters under investigation to determine the impact of logistics outsourcing in sugar millers in Western Kenya.

3.3 Research Population

Population refers to an entire group of individuals, events or objects having common characteristics that can be observed and measured (Yin, 2003). The unit of analysis were the sugar millers (Chemellil, Mohoroni, Kibos, Mumias, South Nyanza, Nzoia, Butali, West Kenya and Sukari Sugar). The study targets 9 finance officers or equivalents as respondents to provide relevant information. Longitudinal study and census survey were used to capture the relevant information. Judgement sampling was used to select the 9 respondents who provided relevant information. Judgement sampling is the use of respondents that have the required information with respect to the objectives of the study (Mugenda and Mugenda, 2003).

3.4 Data Collection

The study collected both primary and secondary data using open ended questionnaires and data collection forms respectively. These instruments were administered to the finance managers / accountants by the researcher to capture the relevant information from Kibos, Muhoroni, Chemelil, Butali, South Nyanza, Nzoia, Sukari Sugar, West Kenya, Mumias. The questionnaire was in the form of Likert scale where respondents are required to indicate their perceptions on scale of 1 to 3 or 1 to 5, (Kathori, 2004). According to Saunders & Lewis, (2003) primary data are those which are gathered anew and for the first time, and thus happen to be original in character hence relevant for correlation research design. Osoo and Onen, (2005) noted that the instrument enhances the collection of primary data that has high level of originality. This was administered through drop and pick survey paper based questions. Completely filled forms and questionnaires were picked by the researcher after one week. Secondary data were

obtained from financial statement records from each firm. All these were captured in data collection forms within the period from 2006 to 2015 in the form of annual pre- tax profits. The questionnaire was divided into five (5) sections. Section 1, contains information on general data that include title of the respondents, gender, age, level of education, department, position in department, years worked. Section 2, contains information on Logistics outsourcing. Third section sought information on transportation services, maintenance and repair services. The fourth section dealt with the challenges faced by outsourcing logistics. Section 5, Sought information on impact of outsourced logistics on organizational performance and what should be done to improve logistics outsourcing in order to meet organizational goals. Data collection forms were used to seek information on pre- tax profits. This was to assess the performance of the organization for over ten years whether outsourcing logistics has had improvement on the pre- tax profits.

3.5 Data Analysis

Analysis is a practical and intellectual process that explains a particular type of intensive work done on data collected from fieldwork. The research was both qualitative and quantitative in nature. After the data was collected, the researcher used descriptive statistics and content analysis. Descriptive statistics is the use of words and numerals to describe characteristics of social phenomenal and establishing relationships and reporting in words and numerals in comprehensible terms. Cross tabulation was used to show the characteristics and inter relationships between independent variables and dependent variables. It was further summarized and analyzed by cross tabulation, mean, standard deviations, pie charts, time series regression and graphical presentation.

This process was aided using statistical package for social sciences (SPSS) version 21, Statistical Analysis Tool (stata) version 12 and excel spread sheet for easy interpretation. The report would be produced and forwarded to the nine milling firms and other stakeholders and institutions in the sugar industry only on request. The analysis was expected to yield useful information that would be used to make recommendations on the effects of embracing logistics outsourcing and divesture from non- core activities.

The linear regression model was used to analyze the relationship between outsourcing and the performance of sugar industries in Western Kenya.

$$Y_1 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

$$Y_2 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

$$Y_3 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

$$Y_4 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

$$Y_5 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

$$Y_6 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Where: Y= Performance which will be the mean of sugar industries in Western Kenya indicators; Y_1 - Increased productivity.

Y_2 - Increased profit.

Y_3 - Low cost of production.

Y_4 - Customer satisfaction.

Y_5 - Capacity utilization is achieved.

Y_6 . Faster response to customer demand and X_1 -transportation services, X_2 - maintenance services and X_3 -repair services

e =Error term, β_i (i=0, 1, 2, 3) are Regression coefficients

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND SUMMARY

4.1 Introduction

The aim of this research was to establish the impact of logistics outsourcing practices and performance of sugar millers of which five were public and four from private sugar companies in Western Kenya region. This section presents the analysis of the data, findings and summary of the same. The findings are presented in percentages and frequency distributions, mean, standard deviations and graphical presentations. A total of 9 questionnaires were issued out and 8 were returned. This represented a response rate of 88.9%. This response rate was a good representative and conformed to Mugenda and Mugenda (2003) recommendation that a response rate of (50 %) is adequate for analysis and reporting, a rate of 60 percent is good and a response rate of 70 percent and above is excellent.

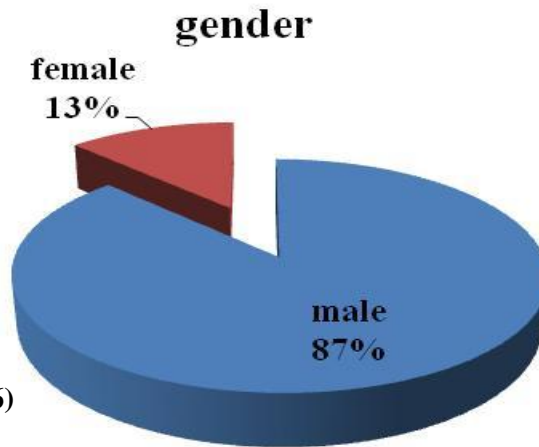
4.2 Demographic Information and Personal Profile

The demographic information considered in this study included gender of the respondent, age bracket, level of education, years of continuous service in the position of finance manager or accountant with the firm in western Kenya .The research was done at Mumias, West Kenya, Sukari Kenya, Nzoia, Muhoroni, Chemelil, Kibos, South Nyanza and Butali.

4.2.1 Respondents Gender

The respondent gender, Majority 7(87.5%) were male and one female which represented 1(12.5%) of the total number of respondents.

Figure 4.1: Respondents Gender



Source: Research Data(2016)

4.2.2 Respondents age Bracket

Table 4.1: Respondents' age Bracket

Age bracket	Frequency	Percentage (%)
31-40	3	37.5
41-50	1	12.5
51-60	4	50
Total	8	100

Source: Research Data (2016)

The respondents were required to indicate their age brackets, education level and years of continuous service in the position as finance manager or accountant in the firm, majority of respondents at 50%(4) were at age bracket 51-60 years, 37.5%(3) between 31 to 40yrs with only one at 41 to 50 yrs.

4.2.3 Level of Education

Table 4.2 Level of Education

Level of Education	Frequency	Percentage %
First degree	5	62.5
Masters	3	37.5

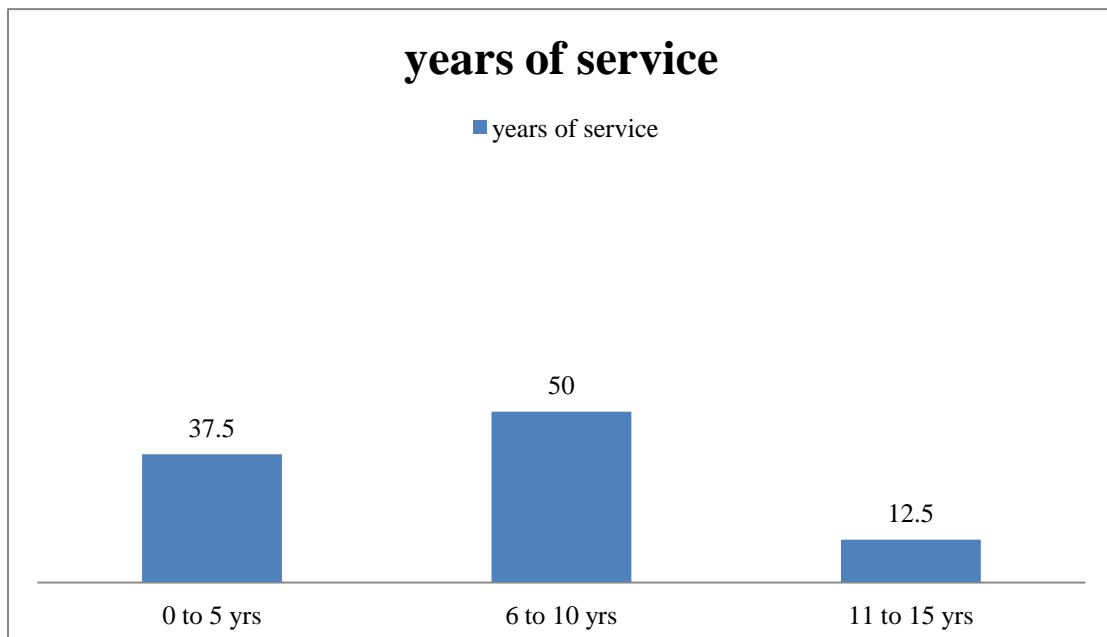
Source Research data (2016)

A large proportion of respondents had attained first degree at 62.5 %(5) and 37.5 %(3) attaining masters level of education.

4.2.4 Years of Continuous Service

The respondents were required to indicate their years of continuous service in the position as finance manager or accountant in the firm, their respective position showed that 50% had worked for a period 6 to 10yrs, 37.5%(3) between 0-5yrs with only 12.5%(1) found to have worked for 11 to 15 yrs. Out of 8 respondents 6 were financial managers with only 2 accountants

Figure 4.2: Respondents' years Worked in the Department of Finance/Account



Source: Research Data (2016).

4.3 Logistic Outsourcing

When asked whether their department/firms involve third party service providers 100 percent said yes with the following results obtained to show they outsourced.

Table 4.3 Logistics Outsourcing

Services outsourced	Frequency	Percentage (%)
Legal services	8	100
Transportation	6	75
Security	7	87.5
Harvesting of canes	7	87.5
Maintenance & repairs	5	62.5

Source Research Data (2016)

4.4 Logistics Outsourcing Practices

The study aimed at establishing the impact of logistic outsourcing management practices in sugar millers in terms of meeting performance targets of sugar industries in western Kenya. The respondents indicated the extent of adoption of various practices in their companies, these practices included transportation service under which they were asked if vehicle scheduling had improved, route optimization achieved and whether fleet tracking increased vehicle visibility, on maintenance and repair services they were asked if breakdowns were fixed immediately, whether spare parts were readily available and if capacity utilization was fully achieved. A Likert scale was used to rate the extent of adoption of the indicators whereby 1 point was accorded to ‘not at all, 2 points to ‘moderate extent’, 3 points to ‘large extent’. The result was as shown in the tables 4.7 and 4.8 below.

4.5 Transportation Services

Table 4.4: Transportation Services

Indicator	Response	Percentage (%)
Vehicle scheduling has improved	Not at all	0
	Moderate extent	25
	Large extent	75
Route optimization achieved	Not at all	12.5
	Moderate extent	37.5
	Large extent	50
Fleet tracking increased vehicle visibility	Not at all	0
	Moderate extent	12.5
	Large extent	87.5

Source: Research Data (2016)

Table 4.5: Overall Mean and Standard Deviation on Transportation Services.

Indicator	Mean	Standard deviation
Vehicle scheduling has improved	2.7778	0.44096
Route optimization achieved	2.4444	0.72648
Fleet tracking increased vehicle visibility	2.8889	0.3333
Overall	2.7037	0.5002

Source: research data (2016)

The extent various practices had influenced the improvement of transportation systems of sugar industries in Western Kenya scored above average with vehicle scheduling having a mean of 2.778 out of the possible mean of 3.000, route optimization was achieved with a mean of 2.444 and fleet tracking showed increase of 2.8889. The results from tables; 4.3 and 4.5 showed that the respondents rated highest- Fleet tracking increased vehicle visibility (87.5%) as a logistic operation practice practiced most by the sugar company in western Kenya. This was followed by availability of spare parts at 75%, both being in

agreement that breakdowns were fixed relatively faster and capacity was utilized at (62.5%) and lastly Route optimization achieved at 50%.

4.6 Maintenance and Repairs Services

Table 4.6: Maintenance and Repair Services

Indicator	Response	Percentage (%)
Breakdown are fixed immediately	Not at all	12.5
	Moderate extent	25
	Large extent	62.5
Spare parts are readily available	Not at all	12.5
	Moderate extent	12.5
	Large extent	75
Capacity utilization is achieved(no idle resources)	Not at all	0
	Moderate extent	37.5
	Large extent	62.5

Source: research data (2016)

Table 4.7: Overall Mean and Standard Deviation on Maintenance and Repairs

Indicator	Mean	Standard deviation
Breakdown are fixed immediately	2.5556	0.7264
Spare parts are readily available	2.7778	0.5409
Capacity utilization is achieved(no idle resources)	2.667	0.5000
Overall	2.6668	0.5891

Source: research data (2016)

The summary showed that maintenance and repairs had improved due to the fact that breakdown were almost fixed immediately at a mean of 2.556, spare parts were readily available at a mean of 2.778, majority said that capacity utilization were achieved at a mean of 2.667 out of maximum mean of 3.00 therefore no resources were idle as shown in table 4.5

4.7 Impact of Outsourcing Practices on Performance of Sugar Millers

The respondents were to indicate the impact of outsourcing practices on performance aspects in a five point Likert scale. The range was 'very low extent (1)' to 'very large extent' (5). The scores of very low extent and low extent have been taken to represent a variable which had a mean score of 0 to 2.4 on the continuous Likert scale; ($0 \leq S.E. < 2.4$). The scores of 'moderate' have been taken to represent a variable with a mean score of 2.5 to 3.4 on the continuous Likert scale: ($2.5 \leq M.E. < 3.4$) and the score of both large extent and very large extent have been taken to represent a variable which had a mean score of 3.5 to 5.0 on a continuous Likert scale; ($3.5 \leq L.E. < 5.0$). to establish the extent to which operational performance of firms had been experienced as a result of adopting the logistics outsourcing practices in the sugar industry in Kenya, standard deviation of >1 shows a significant difference on the impact of the variable among respondents. The respondents were requested to indicate whether the performance indicators presented to them in form of a questionnaire has been experienced in their respective sugar industries. The indicators included; low cost of production, increased market share, increased profit, improved risk management, customer satisfaction, ISO certification, compliance with set objectives, improved service reliability & flexibility, high quality products and services and increased productivity. Table 4.5 shows an analysis of the indicators of operational performance by the respondents. Tables below were used to show the magnitude and direction of relationship between the variables which comprised of the coefficients of various independent variables (outsourcing practices) and dependent variable (performance).

Table 4.8: Relationship between Logistics Outsourcing and increased productivity in Sugar Millers

Increased productivity	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.600	1.004		2.590	.049
Transportation services	-.700	.585	-.514	-1.197	.285
Maintenance services	-.300	.585	-.514	-1.197	.285
Repairs services	1.000	.600	.734	1.667	.156

Source Research Data (2016)

From the data in table 4.8 the estimated regression model was: $Y_1=2.6-0.7X_1-0.3X_2+X_3$, from the estimated regression model holding transportation, maintenance and repairs services, a unit increase in the level of outsourcing practices will lead to an increase in productivity by a mean of 2.6 comparing this value on the likert scale used ($2.5 \leq M.E. < 3.4$) shows that outsourcing practices to a moderate extent influenced productivity of sugar millers by a mean of 2.6, when these practices were adopted to a greater scale productivity would increase to large extent.

Table 4.9: Relationship between Logistic Outsourcing and increased profits in Sugar Millers

Increased profit	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	3.0	1.459		1.782	.135
Transportation	.300	.850	.169	.353	.738
Maintenance and repairs	-.700	.850	-.395	-.824	.448
Repairs services	.420	.872	.000	.000	1.000

Source Research Data (2016)

From the data in table 4.9 the estimated regression model was: $Y_2=3.0+0.3X_1-0.7X_2+0.42X_3$, the model indicate that a unit increase of the transportation, maintenance and repairs services variable would lead to increased profit with a minimum mean of 3.0 which on the likert scale: ($2.5 \leq M.E. < 3.4$) shows it would impact to a moderate extent

the profits realized , adoption of transportation, maintenance and repairs services to a large extent will increase profits to a greater extent based on the model obtained.

Table 4.10: Relationship between Logistic Outsourcing and low cost production in Sugar Millers

Low cost of production	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Constant	2.3	.901		-1.443	.209
Transportation	1.350	.525	.687	2.572	.050
Maintenance and repairs	-.850	.525	.433	1.619	.166
Repairs services	.500	.539	.255	.928	.396

Source Research Data (2016)

table 4.10 shows that the estimated regression model was: $Y_3=2.3+ 1.35X_1-0.85X_2+0.5X_3$ outsourcing transportation, maintenance and repairs services increased by a unit, minimum mean of low cost of production will be 3.3 comparing this value to the likert scale used shows this outsourced practices to a moderate extent result into low cost of production improving performance of sugar millers therefore adopting these practices to a greater scale will then have a large impact on production cost.

Table 4.11: Relationship between Logistic Outsourcing and Customer Satisfaction of Sugar Millers

Customer satisfaction	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.5	1.459		1.782	.135
Transportation	-.500	.850	-.395	-.824	.448
Maintenance and repairs	.300	.850	.169	.353	.738
Repairs services	0.32	.872	.000	.000	1.000

Source Research Data (2016)

From the data in table 4.11 the estimated regression model was: $Y_4=2.5 - 0.5X_1+0.3X_2+0.32X_3$.this model shows that keeping transportation, maintenance, repairs services variable to single unit, mean of customer satisfaction will be 2.62 on the likert

scale used: ($2.5 \leq M.E. < 3.4$) this shows that customers' satisfaction to a moderate extent is impacted by outsourcing transportation, maintenance and repairs services when adopted in large scale customers' satisfaction will improve to a very large extent.

Table 4.12: Relationship between Logistic Outsourcing and Capacity utilization achieved in Sugar Millers

Capacity utilization is achieved	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.2	.820		1.464	.203
Transportation	.600	.477	.529	1.257	.264
Maintenance	.600	.477	.529	1.257	.264
Repairs services	0.35	.490	.000	.000	1.000

Source Research Data (2016)

From the data in table 4.12 the estimated regression model was:

$Y_5 = 2.2 + 0.6X_1 + 0.6X_2 + 0.35X_3$.when transportation ,maintenance and repairs variable is fixed to a single unit, mean of capacity utilization being achieved as a gauge of performance of sugar millers will be 3.75 this show that when this practices are adopted by a single unit it impacted to a very large extent capacity utilization therefore no resources are idle.

Table 4.13: Relationship between Logistic Outsourcing and Faster response to customers' demands in Sugar Millers

Faster response to customer demand	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.700	1.682		1.249	.267
Transport	-.450	.980	-.238	-.459	.665
Maintenance and repairs	.050	.980	.026	.051	.961
Repairs services	.500	1.005	.265	.498	.640

Source Research Data (2016)

From the data in table 4.13 the estimated regression model was: $Y_6=2.7 - 0.45X_1+0.05X_2+0.5X_3$ from the estimated model holding transportation, maintenance and repairs services constant by a unit, minimum mean of response rate to customer demand will be 2.8 comparing this value to likert scale used ($2.5 \leq M.E. < 3.4$) shows that this to moderate extent improved response rate to customer demand when outsourcing services is adopted to greater extent the response to customer demand will be much faster.

The summary of estimated regression models used above to examine performance of sugar millers based on transportation, maintenance, repairs services were as follows;

$$Y_1=2.6 - 0.7X_1- 0.3X_2+X_3$$

$$Y_2=2.5+0.3X_1-0.7X_2+0.42X_3$$

$$Y_3=2.3+ 1.35X_1-0.85X_2+0.5X_3$$

$$Y_4=2.5 - 0.5X_1+0.3X_2+0.32X_3$$

$$Y_5=2.2 + 0.6X_1+0.6X_2+0.35X_3$$

$$Y_6=2.7 - 0.45X_1+0.05X_2+0.5X_3$$

Where: Y= Performance which will be the mean of sugar industries in Western Kenya.

Indicated as; Y_1 - Increased productivity.

Y_2 - Increased profit.

Y_3 - Low cost of production.

Y_4 - Customer satisfaction.

Y_5 - Capacity utilization is achieved.

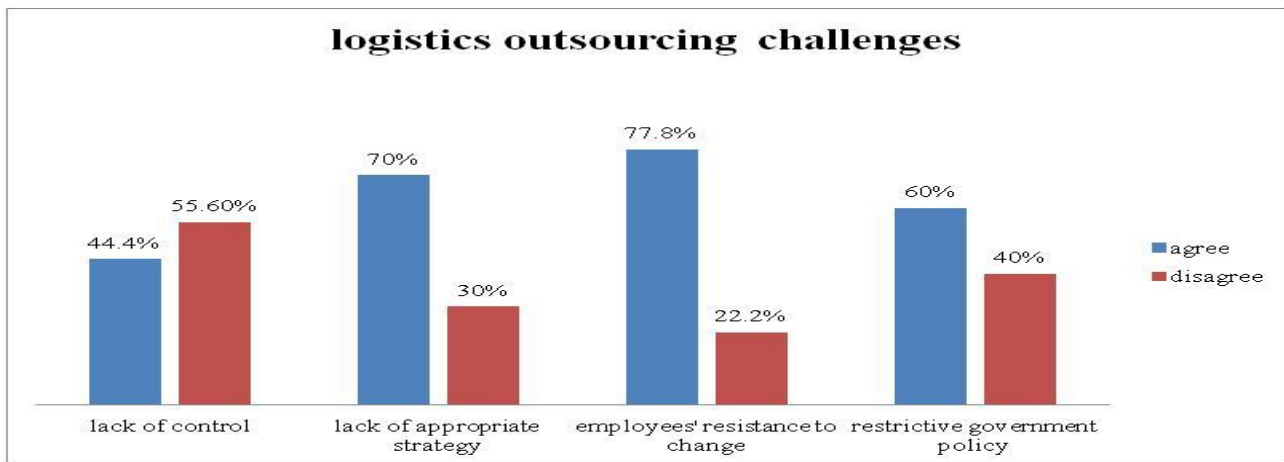
Y_6 . Faster response to customer demand and X_1 -transportation services, X_2 - maintenance services and X_3 -repair services,

4.8 Challenges faced in Outsourcing Logistics in Sugar Millers

The study also sought to establish the challenges faced in outsourcing logistics in sugar industry in western Kenya. The respondents were required to indicate the extent to which the various challenges were being experienced within their industry as a result of logistics

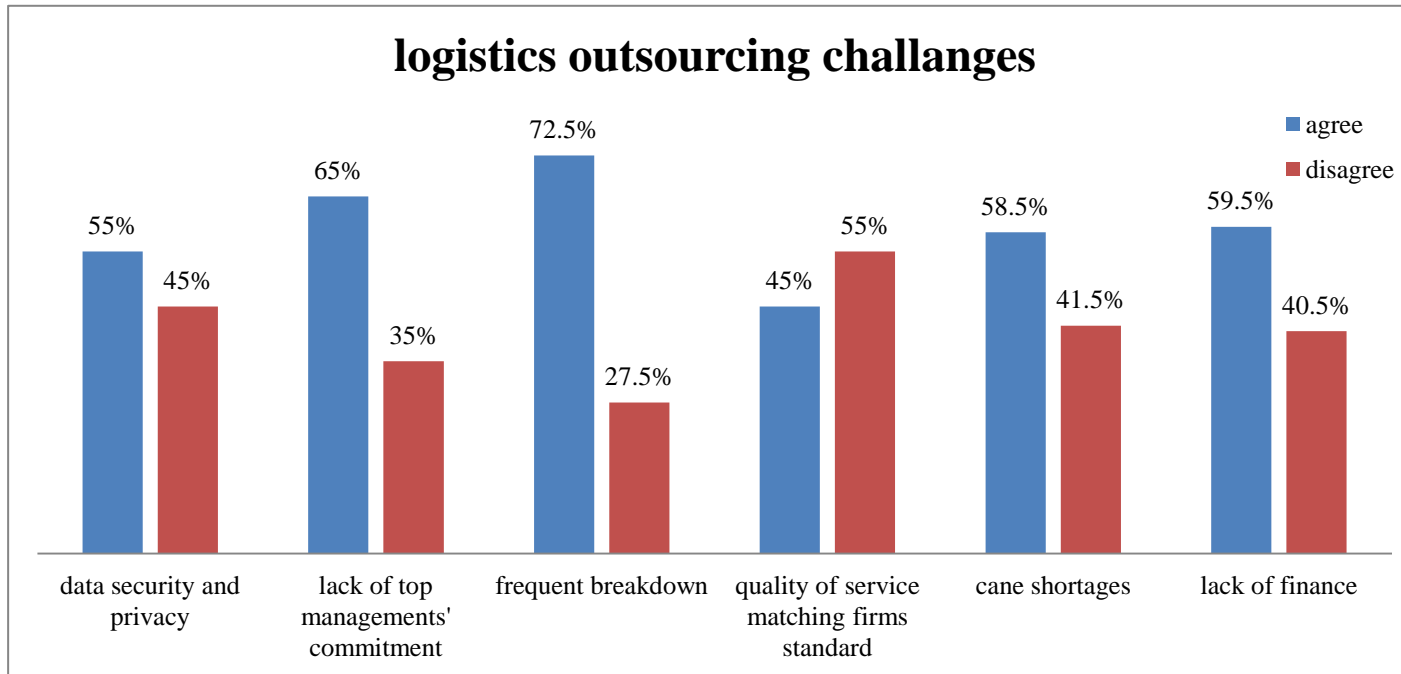
outsourcing. The challenge included Loss of control, Lack of appropriate strategy, Employees' resistance to change, Lack of top management commitment, restricted government policy, Loss of data security and privacy, frequent breakdowns, quality of service not matched with firm standard, cane shortages and lack of finance. The respondents were to either AGREE whether any indicated challenge affects logistic outsourcing or NOT AGREE. The results were analyzed and summarized in the bar graphs below.

Figure 4.2 Logistics Outsourcing Challenge



Source Research data (2016)

Figure 4.3: Logistics Outsourcing Challenges



Source Research data (2016)

From figure 4.4, data security was a challenge to some of these sugar millers at 55% indicating that private information of the millers were leaked easily, management of these firms showed lack of commitment to outsourcing practices was suggested at 65%, when asked if they were experiencing frequent breakdown, 72.5% said yes though they were being repaired faster by engineers on duty. 55% disagreed that quality of services did not match firms' standards. The respondent also indicated that cane shortages was also a major challenge at 58.5% leading to some sugar millers to produce less output as was required. Lack of finances was also an issue at 59.5% making these sugar millers not to be able to outsource these services properly.

4.9 Qualitative Suggestions and Responses to Meeting Organizational Goals

When the respondents were asked what should be done to improve logistics outsourcing in order to meet the organization goal, out of 25 suggestions, majority (21) 87.5% said that customer supplier partnership should be established, 48%(12) proposed that time efficiency is a major factor in improving outsourcing to achieve performance targets with forty percent saying that strategic outsourcing planning is needed, employees' involvement and commitment of top management was also a key suggestion on achieving performance targets at 24% and 20% respectively.

Table 4.14: Qualitative Suggestions and Responses to Meeting Organizational Goals

Responses	Count (%)
Customer supplier partnership	87.5(21)
Time efficiency	48(12)
Strategic outsourcing planning	40(10)
Employee involvement to avoid resistance	24(6)
Top management commitment	20(5)
Total	25
Suggestions	

Source research data (2016)

4.10 Pre-Tax Profits

To determine impact of logistics outsourcing and turnover of sugar millers in Western Kenya, the respondents were requested to give the pre-tax profits backdated to the last ten years. Mean and standard deviation were calculated to determine change.

Time series analysis on pre-tax profits

The summary established the relationship between time series corrogram of pre-tax profits as was determined using 9 lags to establish correlation of pre-tax profits from 2015 to 2006. At lag 1 there was a strong immediate correlation between pre-tax profits of 2015 and 2014. This means that logistic outsourcing practices adopted between this period in the sugar millers in Western Kenya caused an immediate increase in pre-tax profits.

Autocorrelation coefficient (AC) shows that the correlation between the current value of pretax profits and its value i.e. three 3 years ago is 0.8145. Partial Autocorrelation coefficient (PAC) shows that the correlation between the current value of pretax profits and its value three 3years ago was 0.1095 without the effect of the two previous lags. AC which showed a slow decay in the trend, suggesting non- stationarity indicated that pre-tax profits have tremendously increased as depicted by the upward trend in the value of AC. the table 4.15 shows the same.

Table 4.15: Time Series of Pre-tax Profits

LAG	AC	PAC	Q	Prob>Q	Year
1	0.9641	0.9650	182.2	0.0000	2015
2	0.8921	-0.6305	339.02	0.0000	2014
3	0.8145	0.1095	467.21	0.0000	2013
4	0.7184	0.0424	569.99	0.0000	2012
5	0.6473	0.0836	653.86	0.0000	2011
6	0.5892	-0.0989	723.72	0.0000	2010
7	0.5356	-0.0384	781.77	0.0000	2009
8	0.4827	0.0744	829.17	0.0000	2008
9	0.4385	0.1879	868.5	0.0000	2007

Source; Research Data (2016)

The graph of pre-tax profits in billion Kenya shillings was measured against the years from 2006 to 2015 and drawn to determine the upward trend in increase in profits due to outsourcing of transportation services and maintenance & repairs by sugar millers in Western Kenya.

Figure 4.4 Graph of pre-tax profits of Sugar Millers in Western Kenya

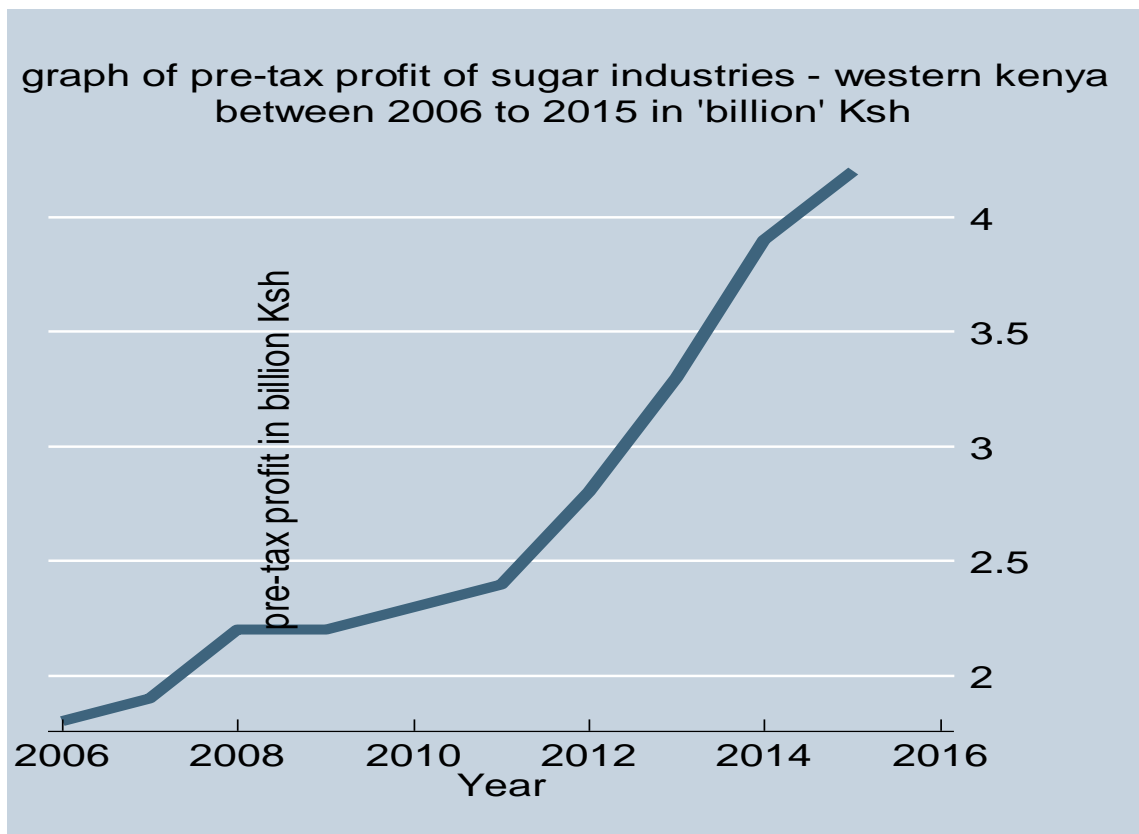


Table 4.16 Pre-tax profit in Ksh. '000'

Name_of_company	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Mumias	1764029	2219889	1193661	1589204	2179874	1909894	2235999	3405046	3183591	6307257
South Nyanza sugar	1356200	1387546	5634900	3678900	3678900	3903687	2548900	2795000	5678900	5890568
West Kenya	2689005	2787656	2353490	2789009	459000	3436780	1950400	3905005	4327899	3946890
Nzoia	1250670	1789768	258970	158900	2378006	2789000	3054000	4900053	4537880	4980532
Chemelil	1378650	3879070	342900	2356730	3467000	2456789	2900500	2350489	3034538	3904590
Muhoroni	1345700	190786	1256500	2789560	564320	3457000	5890050	3505000	342897	5090005
Kibos	2672380	2150901	5689005	3590002	6759005	2678005	2890050	3504579	567890	2568904
Sukari industry	123217	2150901	1187537	1690500	189045	1859005	1900320	1789000	4578384	2675900
Mean pretax profit	1572481	2105143	2239620	2330351	2459394	2811270	2921277	3269272	3281497	4420581

Source; Research Data (2016)

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This is the last chapter of this study report and it focuses on the summary of the findings, conclusions and recommendations, limitations and suggestions for further research.

5.2 Summary of the Findings

Response rate stood at 88.9% with male gender 87.5% being more than the female gender 12.5%. The study found out that majority of the outsourced logistics included cane harvesting (87.5%), legal services (100%), security (87.5%), maintenance and repairs (62.5%) and transportation (75%). The study further showed that transportation services as one of the outsourced logistics, vehicle scheduling has improved by (75%), route optimization achieved at (50%), fleet tracking increased vehicle visibility by 87.5%. While on maintenance and repairs; breakdowns are fixed immediately (62.5%), spare parts are readily available at (75%) and capacity utilization (no idle resources) (62.5%)

Outsourcing logistics practices being adopted by the sugar millers are transportation services, maintenance and repairs services impacted positively on organizational performance by reducing the cost of production with a mean of 3.3, increased profits by 3.0, improved customer satisfaction by mean of 2.62, capacity utilization achieved at a mean of 3.75 out of 5.00, response rate to customer demand had improved by a mean of 2.8, analysis also showed that there was increased productivity by mean of 2.6 . This confirms that organizations should concentrate on their core capabilities and hollow out to third party service providers for non -core activities.

5.3 Conclusions and Recommendations

Outsourcing of logistics services by the sugar millers enabled them to be agile and responsive to market demands, as it strengthened and reinforced their financial base through competitive advantage. The study results have revealed that the overall performance of sugar millers is above the average given that it scored a mean of 2.685 based on increased productivity, increased profit, low cost of production, customer satisfaction, capacity utilization achieved and faster response to customer demand. The overall standard deviation of 0.5446 showed that the level of performance on the practices adopted was at a great extent. The study revealed that logistics outsourcing had impact on the performance of sugar millers as portrayed by regression models obtained. The study also showed that millers majorly outsource transportation services, cane harvesting, legal services, security services, maintenance and repair services. Outsourcing of these services influenced operational performance and ultimately enhanced organizational focus on core activities and objectives. The time series analysis on pre-tax profits starting from 2006 to 2015 indicated an upward trend in profits as shown in table 4.15 and therefore it is recommended that sugar millers embrace customer supplier relationship, strategic outsourcing planning, flexibility on services to be outsourced, involving employees to avoid resistance and engaging top management commitment to improve their competitive advantage so that they can continue improving their performance.

5.4 Limitations

From the study it was discovered that sugar millers lacked appropriate strategies and are unable to handle employee resistance to change, loss of data security and privacy, cane

shortages and lack of finances to pay out growers and workers on time. The researcher faced challenges in some of the companies in sourcing the information due to their restrictive policies, some could not reveal their pre- tax profits and others unwillingness to cooperate. Else, time squeeze and these companies are far apart hence reaching them was costly for the researcher.

5.5 Suggestions for Further Research

Apparently little research has been conducted on Logistics Outsourcing in Sugar Millers in both private and public alike in the whole country. It is therefore needful for the same to be done for all and reliable comparison and conclusion be drawn. Again a study should be done in other sectors and results be used for comparison so as to know by what extent is operational performance influenced by the outsourced logistics.

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APPENDICES

Appendix 1. Research Questionnaires

Survey questionnaire

The following questionnaire will be conducted with the intention to gain information from management / departmental heads of the sugar millers in Western Kenya on the impact of logistics outsourcing on the firm's performance.

The data collected shall be used for academic purposes only and will be treated with confidence.

Your participation in facilitating the study is highly appreciated.

Section 1: Background information

1. Title of correspondent.....

2. Gender

Male [] Female []

3. Age (years)

20- 30 () 31-40 () 41- 50 () 51- 60 () above 60 ()

4. Level of education

Certificate () Diploma () First degree () masters () PhD ()

5. Name of department

Finance manager ()

Accountant ()

6. What is your current position in the department?

Manager () Assistant manager () accountant/ finance officer ()

7. How many years have you worked in the department?

0-5 () 6-10 () 11-15 () over 15 ()

Section 2: Logistics outsourcing

Does your department/firm involve third party service provider. Yes () No ()

If yes, what services do you outsource?

i.....

ii.

iii.

iv.

Using the scale of 1-3 where 1= not at all, 2=moderate extent, 3=large extent, Please kindly respond to the following statements that describe the logistic outsourcing management practices in your firm in terms of meeting performance targets

Transportation services	1	2	3
Vehicle scheduling has improved			
Route optimization achieved			
Fleet tracking increased vehicle visibility			
Maintenance and repair services			
Breakdowns are fixed immediately			
Spare parts are readily available			
Capacity utilization is achieved (No idle resources)			

Section 4: Logistics outsourcing challenges

Below is the list of logistics outsourcing challenges that your firm may be facing. Please indicate the level of agreement or disagreement using the following key.

1=agree 2=not sure 3=disagree

Challenges	1	2	3
Loss of control			
Lack of appropriate strategy			
Employees' resistance to change			
Restrictive Government policy			
Loss of data security and privacy			
Lack of top managements' commitment			
Frequent breakdowns			
Quality of service not matched with firms' standards			
Cane shortages			
Lack of finances			

Section 5: impact of logistics outsourcing on organizational performance.

Please indicate extent to which the following outcomes describe the impact of logistics outsourcing in your organization performance five years before and after.

16. Has outsourced logistics improved performance in your organization?

YES () NO ()

Use the key to tick as appropriate where:

1=very low extent 2=low extent 3=Moderate extent 4=large extent 5=Very large extent

Expected outcomes	1	2	3	4	5
Low cost production					
Increased market share					
Increased profits					
Improved risk management					
Customer satisfaction					
ISO Certification					
Compliance with the set objectives					
Improved service reliability and flexibility					
High quality products and services					
Increased productivity					

17. What do you think should be done to improve Logistics outsourcing in order to meet organizational goals?

- 1.....
- 2.....
- 3.....
- 4.....
- 5

Thank you for your time and cooperation

Appendix 2: Data Collection Form

Name of the company.....

Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Pre-tax Profit										

Thank you.

Appendix 3: List of Sugar Millers in Western Kenya

PUBLIC

1. Chemelil Sugar Factory
2. Muhoroni Sugar Factory
3. Mumias Sugar company
4. Nzoia Sugar Factory
5. South Nyanza Sugar company

PRIVATE

6. West Kenya Sugar company
7. Butali Sugar mills
8. Sukari Industries limited
9. Kibos Sugar and Allied Industries limited