EFFECT OF OUTSOURCING LOGISTICS TO THIRD PARTY PROVIDERS ON PERFORMANCE OF MANUFACTURING FIRMS IN KENYA

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DECLARATION

I declare that this proposal is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

Student Name…….. Reg No……

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And have approved it for examination

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ABSTRACT

Traditionally, large manufacturing organizations found it beneficial to vertically integrate supplier functions and distribution activities to maximize production and logistical control. However, today, many modern companies rely heavily on outsourced services and suppliers that contribute to the production process in one or more ways. Logistics outsourcing aims at meeting core objectives which are at the heart of an organization profitability and success. It follows therefore that Third Party logistics providers are important to these firms. This study was set to identify the effect of outsourcing to Third Party Logistics Providers on Firm Performance by manufacturing firms in Nairobi. It did so by investigating the effect of integrating operations, outsourcing warehousing Operations, outsourcing transport operations and outsourcing inventory operations on the performance of manufacturing firms in Kenya. The study's target population was manufacturing firms in Nairobi and its environs. The study sample was generated using cluster sampling where both manufacturing firms were clustered into groups based on sectors. Generally, the researcher adopted a descriptive research design because it made it possible for the researcher to look into every form of data that is possible and also respondents were able to respond to all forms of data such as personal accounts, case studies or observations. Self-administered questionnaires were used to collect data after which it was analyzed using SPSS (22). The results obtained from this analysis were then used to make valid conclusions and recommendations to all parties involved in manufacturing industries as far as the effectiveness of 3PL Practices is associated with Firm Performance. Based on the results the study, concluded that outsourcing logistics to third party providers has a positive effect on firm performance. This was derived from the fact that all the four components of logistics outsourcing sought by the study had a positive effect on firm performance. They included Integrating operations, Warehousing operations, Transportation operations and Inventory operations. The study therefore concluded that outsourcing these four components increases firm performance. The study recommends manufacturing firms to consider integrating operations with third party logistics companies in order to improve on firm performance. However, it is important to point out that study considered a qualitative measure of firm performance and recommends area of further research in the extent to which each component would affect firm performance.

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DEDICATION

This study is dedicated to my children Grace, George, Edwin, Maria and Linus, you are the reason I wake up each day with a smile on my face. To my grand-children Phoebe, Nyakio, Justin and Pete, to give them hope that it is never too late to do what your heart desires. To my mother for her prayers, love and dedication. Lastly to my companion James for holding my hand every time I have stumbled, giving me a shoulder to lean on and encouraging me to go into the future with hope.

ACCRONYMS AND ABBREVIATIONS

BPO	Business Process Outsourcing
SPSS	Statistical Packages for Social Sciences
3PL	Third Party Logistics
VIF	Variance Inflation Factor

OPERATIONAL DEFINITION OF TERMS

Logistics	the detailed coordination of a complex operation involving many people, facilities or supplies (Selviaridis and Spring, 2007).
Firm Performance	the measure of the actual output of an organization as measured against its goals and objectives (Marasco, 2008).
Third Party Logistics	is defined as independent companies providing single or multiple logistics services to a purchase company (Selviaridis and Spring, 2007).
Integrating operations	the process in which multiple enterprises within a shared market cooperatively plan, implement and manage the flow of goods, services and information from a point of origin to a point of consumption (Hertz, Alfredsson, 2011).
Outsourcing Warehousing Operations	involves the inbound functions of storing and outbound functions of packing and shipping goods, services and information (Hertz, Alfredsson, 2011).
Outsourcing Transportation Operations	are services that make the movement of goods and services from one point to another possible (Hertz, Alfredsson, 2011).

Outsourcing Inventory Operations involves the supervision of non-capitalized assets and stock items acquired by an organization (Hertz, Alfredsson, 2011).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

One of the strategic decisions to be made by many organizations today, and a subject of many a boardroom discussion is the decision to outsource among other things, logistics. What do we outsource and why? Organizations have realized that in order to survive in today's highly competitive environment they must decide which activities to undertake in house and which ones to entrust to other firms in order to get maximum benefits.

Logistics is defined as the detailed coordination of a complex operation involving many people, facilities or supplies (Mangan, and Lalwani, 2016). It is also the process of planning, implementing and controlling procedures for the efficient and effective transportation and storage of goods and services including information from point of origin to the point of consumption. This definition originated in the late 19th century with the army where that had to move troops and equipment. This has since influenced the scope and influence of logistics in subsequent years. In the 1950's and 60's, the military was still the only organization using logistics (Papadopoulou, 2001). However, since then, it has been used beyond the army and it has been recognized as one of the tools for developing competitiveness. In today's process driven organizations, where focus has shifted from functions to process, logistics has become an essential part of the process (Bowersox and Closs, 2000). When a company gains competitive advantage it means that it has the ability to differentiate itself, in the eyes of the customer, as well as lowering its operating costs and hence increase its profitability. Large organizations have used logistics outsourcing as a major strategy aimed at achieving significant cost and differentiation advantages (Jiang and Qureshi, 2006)

Logistics outsourcing aims at meeting core objectives which are at the heart of an organization profitability and success. Chase et al. (2004) defines outsourcing as an act of moving some of a firm's internal activities and decision responsibilities to outside providers. Activities such as order processing, inventory and planning management, warehousing, transportation and freight management, security, packaging and marketing form some of the key functions that both manufacturing organizations are outsourcing in today's competitive environment (Edward Frazelle, 2004). Logistics competency is one of the key tools developed under the global Logistics Performance Index (LPI) by the World Bank to bench mark a continued overall performance and access the quality of an organization's connectivity to the global markets. This is because the world has become a global village whereby, due to liberalization and globalization, both manufacturing organizations are forced to supply products beyond their national boundaries in order to provide a meaningful return on investment to their investors. It is in recognition of this fact that the most successful manufacturing organizations have taken to outsourcing their functional areas to experts who can do the job at a lower cost and hence add value to their operations while leaving them to concentrate on their core functions of production, innovation and research. The focus of competition in organizations has shifted from production to that of effectiveness of the supply chain (Mohanty and Deshmukh, 2006).

Traditionally, manufacturing organizations found it beneficial to vertically integrate supplier functions and distribution activities to maximize production and logistical control. However, today, many modern companies rely heavily on outsourced services and suppliers that contribute to the production process in one or more ways. Magutu, Chirchir and Mulama (2013) point out that distribution logistics plays a large part in the decision making process related to who controls operations and how goods and services are shipped, received and stored after

production. All these decisions have to be based on accurate demand forecasts while the delivery schemes and mode of transport used must be agreed upon by all members of a supply chain. This has become the new norm across the manufacturing industry in an effort to reduce cost and enhance value while distributing and transporting products. Marasco (2008) highlighted the fact that the modern market is highly competitive characterized with a significant increase in customer demand for tailored products and services. This has forced companies to continuously evaluate, reengineer and improve their transport operations. Indeed, these companies have found it beneficial so much so that they have, to a large extent, met customer expectations as far as customer service is concerned. It is prudent for both manufacturing organizations therefore to bridge the gap between transportation and customer service.

1.1.1 Third Party Logistics

Third Party Logistics (3PL) is defined as independent companies providing single or multiple logistics services to a purchase company. While 3PL providers do not hold ownership of the products or services they distribute, they are legally bound and responsible to perform the contracted for logistics activities of the purchasing company as if they were the purchasing company itself (Hertz and Alfredsson, 2003). The relationship between the two parties is long and mutually beneficial to both companies. According to Lynch, (2000), 3PL is defined as the strategic use of third parties to handle activities that were traditionally handled internally. Logistics not only involves warehousing, transportation, inventory, material handling, packing, distribution and security, but it also includes the process of planning and managing the flow of information between the points of production to the point of use or customer end. This therefore means that logistics outsourcing impacts the activities of both manufacturing industries. The concept of logistics outsourcing is largely about inbound logistics. Inbound logistics concentrates

on purchasing materials, parts, finished inventory from suppliers as well as goods and services. The practices involved include transport, information, warehouse, material handling as well as inventory management. Knemeyer and Murphy (2004) also defined 3PLs as a relationship between supplier and a third party which when compared with basic services providers have more customized offerings, encompasses a broad number of service functions and is characterized by a long term and more beneficial relationship. On the other hand, Mortensen and Lemoine (2008) defined third party as simply the use of an outside company to perform all or part of the firm's material management and product distribution.

An annual study on the state of 3PL conducted by John and Capgemini (2016) indicated that organizations and their 3PL providers are moving towards meaningful partnerships as opposed to traditional transactional relationships. This research also concludes that there is a significant improvement in the strategic nature of relationships between organizations and logistic outsourcing companies. Additionally, Abraham and Taylor (2006) also reported a rise in the outsourcing business provision in 13 US industries. All this can be attributed to the fact that these companies face an increase in competition in the emerging global economy.

Hertz and Alfredson (2003) identified various advantages of 3PL services. Outsourcing saves money and time. It allows a firm to relieve its employees the burden of daily logistical tasks allowing them to spend more time focusing on growing the firm. It is also cost efficient, relieving the firm the hustle of establishing warehousing space, technology and transportation for its products. Additionally, outsourcing results to accountability since it involves putting an aspect of the firm's operations into someone else's hands who is responsible for getting the tasks done. It also results to the integration of experts who bring innovative technology that would otherwise be unavailable without outsourcing. It is also important to note that outsourcing logistical

services allows 3PL providers to adjust to the needs of the firm accordingly. They are also capable of providing a vast network of resources as well as established relationships with providers that can offer the most cost-efficient service possible.

1.1.2 Concept of Firm Performance

The performance of a firm is defined as the measure of the actual output of an organization as measured against its goals and objectives. Organizations often have goals and objectives that they intend to achieve at the end of a given period of time. Firm performance provides a measure of what has actually been achieved versus what was intended to be achieved. This concept concerns all stakeholders in the organization. Each department has a role to play as far as the performance of an organization is concerned. Departmental efficiency has therefore become an integral part of firm performance. Effectiveness of 3PL is therefore very critical to an organization's performance. The demand for tailored products and services by customers has forced companies to not only strive to improve their logistic operations but also evaluate and reengineer them to meet all stakeholders' expectations. The advantages associated with 3PL such as delivery time convenience, place convenience and waiting time convenience are noticeable to both manufacturing organizations. Moreover, there is a very close relationship between logistics and customer service dictate that companies handle their logistics function prudently so as to receive its full potential benefits (Marasco, 2008). Resource limitations also hinder many organizations from applying world-class resources to key areas of competition in an effort to improve performance. By selecting specific areas to concentrate these resources, organizations stand to improve firm performance and gain the much needed competitive advantage (Selviaridis and Spring, 2007). This can be achieved by contracting 3PL providers.

Gilley and Rasheed (2000) stated that organizations that contract 3PL providers stand to gain in three different ways. The acquisition of non-strategic services allows the firms to concentrate on the services that actually have a higher strategic value. Additionally, organizations become more flexible since their main concentration is on the core competencies. This improves firm performance. Finally, increasing the outsourcing of non-strategic services improves the quality of products and services produced. This is because the organization is able to significantly reduce production costs thus they can fully concentrate on improving their competitive position. Organizations strive to ensure that they contract 3PL providers who know how to manage outsourced processes. Outsourcing not only results in a shift of profitability but also exacerbates the productivity differential between outsourcing firms and vendors (Selviaridis and Spring, 2007).

Kotabe et al. (1998) identified three types of performance measures as necessary components in any outsourcing performance measurement system: strategic measures; financial measures; and quality measures. Additional dimensions of market performance such as costs savings, cycle time, customer satisfaction, and productivity can also be used to measure the effectiveness of outsourcing practices.

1.1.3 Components of Third Party Logistics

Third Party Logistic service (3PL) providers are involved with specific components that contracting organizations can seek. These components are derived from the activities that organizations want to outsource. Njagi and Ogutu (2014) argues that integrating operations allows customer information to be utilized in demand management. They include integrating operation, warehousing, transportation operations, inventory operations and material handling (Göl, and Çatay, 2007). 3PL providers will often customize these components depending on the

contractor's specific needs and also based on the market conditions for those services. On the other hand, organizations contract 3PL providers because they help develop and implement successful supply chain relationships, enhance collaboration to achieve supply chain objectives and also add value to the goods and services they offer (Christopher, 2016).

The first component of 3PL is integrating operations. It brings about a real time communication effect that makes it easier to manage customer relationships and create room for quick and reliable customer response. It is defined as the process in which multiple enterprises within a shared market cooperatively plan, implement and manage the flow of goods, services and information from a point of origin to a point of consumption. This process can be done electronically or physically and it often results to increased customer-perceived value and optimizes the efficiency of the supply chain thereby creating competitive advantage for all stakeholders involved. Organizations that outsource integration operation services stand to improve the performance of their supply chain management, thus improving the overall performance of the firm (Hertz andAlfredsson, 2003).

The second component of 3PL is warehousing. Warehousing operations involves the inbound functions of storing and outbound functions of packing and shipping goods, services and information (Jonsson, 2008). Efficient warehouse operations can ensure that a company ships and receives vital stock in time for replenishment on store shelves or in manufacturing facilities. Several factors are key to ensuring a successful warehousing operations. For instance, the location for storing these goods and services needs to be the center of storing and distribution. It also includes the identification of the products according to the categories as well as sorting and dispatching to the concerned areas for easy shipment. This is a very critical component that can be outsourced to 3PL providers (Lai, Li, Wang and Zhao, 2008).

Transportation services is also another component of 3PL. Transport is very vital within logistics. These are services that make the movement of goods and services from one point to another possible. A responsive transportation network begins with end-to-end network visibility. Visibility allows the contracting organization to centralize production operations and to lower cost-areas without impacting customer service levels. This is because any uncertainty within the network can be monitored and appropriately managed to keep inventory levels up to date with the demand. The main motivation behind contracting 3PL providers that offer transportation services is therefore to reduce costs, maintain low levels of inventory to increase customer satisfaction levels in the end (Lieb andKendrick, 2002).

Inventory management is also crucial to the success of Logistics in any organization and is thus classified as a component of 3PL. This involves the supervision of non-capitalized assets and stock items acquired by an organization. Through this component, organizations are able to supervise the flow of goods and services from production through to warehousing and finally to the points of sale. Inventory management practices offend leads to maintaining lean inventory. This implies that inventory should not be too much or too little. This component also allows for the organization to review inventory periodically and revise stocking patterns and norms (Mulama, 2012).

Material Handling Management is the fifth component of 3PL. This involved mainly packaging and warehousing. Industries from pharmaceuticals to food manufacturing require controlled-temperature transport to keep their products in top shape (Heragu, andEkren, 2015). On the other hand, constant improvements in forklift, stacker and loader design ensure safer materials handling and better use of warehouse space. This component also leads to great success especially to organizations where all high quality goods and products are made. It also

determines the appearance and looks of the product which ultimately affect customer's tastes and preferences. Some items such as flammable material, chemicals and acids require more care and attention than other items. The characteristics of the material being stored therefore will dictate the care and attention necessary to avoid risks and potential hazards. Contracting these services to 3PL providers will see a significant improvement in productivity and labor costs by automation if the transit time from receiving areas to storage zones is considerable short, or when the product is moved and stored in case-size lots (Heragu, and Ekren, 2015).

1.2 Statement of the Problem

Despite the fact that modern manufacturing firms can internally perform most production and service provision activities, most still choose to outsource these activities to 3PL service providers. This is because of several factors that influence the use of third party. Third Party Logistic providers have a vast network or resources available that provide advantages over in-house supply chains. Additionally, outsourcing logistics saves a wealth of time and money that would otherwise be spent sourcing internally. Choosing to use 3PL providers eliminates the need to invest in warehouse space, technology, transportation and staff to execute the logistics internally. Using 3PL providers also keeps the organization up to date as far as the ongoing trends in the industry is concerned. A 3PL provider is knowledgeable of industry best practices, and stay up to date with the latest developments in technology, manufacturing, and logistics. Finally, organizations choose to use 3PL providers due to their ability to scale space, labor, and transportation according to inventory needs i.e. scalability and flexibility. However, despite all these advantages, the use and effectiveness of 3PL providers is assessed through the impact it has on the overall performance of the organization. Organizations will only choose to adopt a 3PL provider if they provide the necessary components that add value to it. Due to this fact, this study

intends to illustrate how manufacturing organizations can be able to determine the specific components of 3PL in an effort to maximize firm performance.

Various studies have been conducted to establish a link between outsourcing logistics and firm performance. Kogoh, (2015) conducted a study to explore the extent of outsourcing of the logistics function within the manufacturing industry. The research was carried out on the effect of order processing, warehousing, packaging and transport logistics outsourcing on the performance of the logistics in Kenya. On the other hand,Kyusya (2015) conducted a study on the effect of logistics outsourcing on the operational performance of shipping industry in Kenya. The objective of the study was to determine logistics outsourcing effect on operational performance of shipping industries in Kenya. Contracting out provision of logistics services to a firm with competitive advantages in terms of reliability, quality and cost was found be the main driver of outsourcing. It concluded that shipping companies opted to outsource their services due to its advantages and its possible influence on operational performance, as it enables the firms to focus on its core competencies. Magutu, Chirchir and Mulama, (2013) researched the effect of logistic outsourcing practices among large manufacturing firms in Kenya by targeting large scale manufacturing companies that are based in Nairobi. These firms opted to outsource their services due to its advantages and its possible influence on organizational performance, as it enables the firms to focus on its core competencies.

The researcher gathered various areas of further study recommended by the studies above and identify the main gap that this study intends to pursue. This was identified as the effect of outsourcing logistics services to 3PL providers on the general performance of manufacturing firms. Studies such as the ones conducted by Kogoh (2015) have identified the various 3PL services sought by manufacturing firms. On the other hand, Magutu, Chirchir and Mulama

(2013) only studied the effect of outsourcing logistic services on large manufacturing firms. This study therefore aims to clearly establish the effect of outsourcing 3PL service providers on firm performance in all manufacturing firms. In line with that, the study's research objectives are as follows;

1.3 Research Objectives

This study's general objective is to establish the effectiveness of the use of outsourcing logistics to3PL service providers in manufacturing firms in Kenya. The following were the specific objectives;

i. To investigate the effect of integrating operations on firm performance of manufacturing firms in Kenya.
ii. To determine the effect of outsourcing warehousing operations on firm performance of manufacturing firms in Kenya.
iii. To investigate the effect of outsourcing transport operations on the performance of manufacturing firms in Kenya.
iv. To investigate the effect of outsourcing inventory operations on the performance manufacturing firms in Kenya.

1.4 Research Questions

i. How does integrating operations affect firm performance of manufacturing firms in Kenya?
ii. What is the effect of outsourcing warehousing operations on firm performance of manufacturing firms in Kenya?
v. How does outsourcing transport operations affect the performance of manufacturing firms in Kenya?

iii. Does outsourcing inventory operations affect the performance of manufacturing firms in Kenya?

1.5 Significance of the Study

This study will be conducted to elaborate the effectiveness of 3PL in both manufacturing firms in Nairobi, Kenya firms in Nairobi. These include the owners of the firms, customers associated with the respective firms as well as logistic companies associated with the firms.

The current dynamic and competitive manufacturing industry requires its players to fully understand the changes in operation. Contracting 3PL providers brings about numerous advantages to any manufacturing firm. These advantages include having a vast resource network that provides advantages over in-house supply chains as far as cost reduction is concerned. Additionally, outsourcing logistics saves time and money that would otherwise be invested in warehousing, technology or transportation. Logistic outsourcing also provides knowledge of the best industry practices, meaning that the organization will be up to date with the latest technological developments, manufacturing and logistics. It is therefore very important for these firms to understand how they can successfully contract 3PL providers in order to enjoy these advantages. This study intends to provide this information.

Finally, the study will also add up to the vast body of knowledge regarding the implementation of 3PL to manufacturing industry. It is important to note that this study will illustrate the effect of third party logistic practices on firm performance ion manufacturing industries. Results obtained through this study will be used as reference by future studies conducted by academicians.

1.6 Scope of the Study

The study will be set out to investigate the logistic outsourcing practices in manufacturing firms in Nairobi, Kenya. It therefore means that the study will be conducted in Nairobi Country.

1.7 Assumptions

i. Firms are fundamentally heterogeneous in nature and their competitive positioning primarily depends on how effectively they utilize the use of their resources especially when it comes to logistics outsourcing.

ii. Organizations have the capacity and willingness to open up their operations to other outside organizations with the expectation of improving their profit margins.

iii. The outsourcing organization is able to clearly identify the total cost of the outsourcing relationship to the extent that it will be more beneficial in the long run for the manufacturing firm to outsource than to do it internally.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the literature relevant to the topic of study. This includes a theoretical review that gives an insight on the accepted rules, principles and procedures for understanding and explaining key aspects of the topic of study. It will also present an empirical review of previous studies related to the topic as well as the critique of the existing literature. The chapter ends by presenting a conceptual framework that shows the relationship between the variables and an analysis of the operationalization of the variables used in the study, their definition and how they will be measured.

2.2 Theoretical Review

Several social science theories have been developed to provide a rationale for logistics outsourcing as a strategy to improve organizational performance. This includes those theories with a strong connection to logistics principles and practice and their integration with supply chain management. This study will be anchored by the following theories; Resource-Based view theory, Network Theory, Transaction Cost Theory and the Agency Theory.

2.2.1 Resource-Based View Theory

The resource-based theory of the firm views the firm as a bundle of resources (Barney and Clark, 2007). To improve operational performance therefore, the theory asserts that an organization needs to secure an efficient bundle and flow of the right type of resources from its environment. The resource-based approach concentrates on clarifying the circumstances that must exist in

order for resources to give rise to sustained competitive advantage. It also asserts that competitive advantage results from the ownership of inimitable assets, innovations and resource barriers that allow an organization to easily shit market positions. Ownership in this case refers to the “operational control of” as opposed to the “legal title to” resources. These resources are also valuable, rare, unique and difficult to substitute (Barney, 2001).

These resources are key assets as far as the superior internal routines and management activities is concerned including transportation, warehousing, inventory management and related lot quantity issues, order processing, and customer service. It is also important to note that the resource profile of organizations has a tendency to influence the extent to which all or part of the logistics process is outsourced. Bromiley and Rau (2016) pointed out that a resource-based view is particularly appropriate for examining logistics outsourcing because firms essentially use outsourcing as a strategy for gaining access to other firms' valuable resources.

The Resource Based View theory has been used in the strategic literature for the analysis of business performance. The ability to effectively implement a strategy of logistics outsourcing can thus be regarded as an intangible asset, representing a mechanism by which organizations learn and accumulate new skills and capabilities (Mclvor, 2009). For instance, Mwangangi, 2016 pointed out that the RBV theory is appropriate for supply chain and logistics management researches. Some literature used RBV theory to examine the impact of information flow on 3PL providers competitive advantage (Lai et al., 2008) while others examined the effects of logistics capabilities on firm performance (Yang et al., 2009). Accordingly, a resource-based view is particularly appropriate for examining logistics outsourcing because firms essentially use outsourcing as a strategy for gaining access to other firms' valuable resources (Wong and Karia, 2010). It therefore means that the Resource Based View Theory can be used as a theoretical

foundation for this study that seeks to identify the effectiveness of 3PL providers in manufacturing and service industries.

2.2.2 General Systems and Networks theory

The systems theory focuses on the interdependence of relationships within an organization. Using the system's perspective, organizations are able to organize complex operations, many of which are based on the central theme that businesses are systems comprising processes. According to Bolumole, Frankel and Naslund (2007), it is necessary to view and analyze different parts of complex operations as a whole. The theory also proposes that a system is characterized by the interactions of its components and that the nonlinearity of those interactions is key to its success. This systems theory concept is used to explain how materials-flow, related activities, and information within and outside firms are so complex that they can be considered only in the context of their interaction (McCarthy, Silvestre and Kietzmann, 2013). This school of thought regards outsourcing in structural terms with a view that the performance of organizations is no longer wholly dependent on what they do internally, but is largely affected by the collective performance of firms connected through business processes and relationships (Mahnke, Overby, and Vang 2005).

The Network Theory on the other hand asserts that forms of collaboration are based on the key concepts of economic motivations, power, and trust (McCarthy, Silvestre and Kietzmann, 2013). It acknowledges that firms sometimes are dependent on resources controlled by other organizations, meaning that in order for them to access these resources, they will have to interact with those organizations by forming relationships, and, subsequently, networks across the value pipeline. This implies that different organizational boundaries overlap in the process of bringing finished products to the end consumer (Bolumole, Frankel and Naslund, 2007). Investing in

medium/long-term relationships with such organizations therefore becomes inevitable making it possible for the individual firm to gain access to the resources through mutual interaction. Additionally, the firm seeks the efficiency of the entire network through reciprocating and influencing interactions with other firms in the environment within which it operates (Lin, Cook and Burt, 2001). This continued interaction is an important factor in the development of new resources and skills, requiring a change in focus away from how the firm allocates its internal resources to how it relates with other players within its network sphere (Mahnke, Overby, and Vang 2008).

Logistics outsourcing marries the General Systems and Network theory idea that the performance of a system is dependent upon the collaborative performance of individual firms in the system. This implies that logistics outsourcing is viewed as a strategy of using third parties to enable the logistics integration and interdependence of cross-functional and cross-organizational business processes (McCarthy, Silvestre and Kietzmann, 2013). Several other studies such as Chanzu, (2014) while studying outsourcing practices among private manufacturing companies in Nairobi also drew this conclusion. Moreover, Mulama (2012) based his study on logistics of outsourcing practices and performance of large manufacturing companies in Nairobi on this theory. The study also drew the same conclusion. It therefore means that the General Systems and Network theory can be used as a theoretical foundation for this study that seeks to identify the effectiveness of 3PL providers in manufacturing and service industries.

2.2.3 Transaction Cost Theory

Transaction costs can be defined as the human and physical costs incurred in the process of completing an exchange of goods and services between parties. The transaction cost theory tries to explain the reason why companies opt to source out activities to the external environment as

opposed to performing these activities in-house. According to Mclvor, (2009), every company will expand as long as the company's activities can be performed cheaper within the company, than by e.g. outsourcing the activities to external providers in the market. Williamson (2008) on the other hand pointed out that a transaction cost occurs when a good or a service is transferred across a technologically separable interface. Therefore, transaction costs arise every time a product or service is being transferred from one stage to another, where new sets of technological capabilities are needed to make the product or service.

There are several factors that contribute to these costs. These include opportunistic behaviour, the search for the 'true' price and 'true' quality of goods and services available in the market, bounded rationality, environmental uncertainty as well as the company's assets. These factors have the potential to increase the external transaction costs associated with the production of goods and services making it rather expensive for an organization to control them. This therefore means that if companies see the environmental uncertainty as high, they might choose to not outsource or exchange resources with the environment (McCarthy and Anagnostou, 2004).

Previous logistic researches linked to this theory include Aertsen (2002) while studying physical distribution decisions, Skjoett-Larsen (2000) in the study of third-party logistics, Steensma and Corley (2002) with regard to technology sourcing and Mikkola and Skjoett-Larsen (2003) in their study on supplier involvement and new product development. It therefore means that the transaction Cost theory can be used as a theoretical foundation for this study that seeks to identify the effectiveness of 3PL providers in manufacturing and service industries.

2.2.4 Agency Theory

This theory suggests that there exists a relationship between company executives (agent) and shareholders (principal) of a business. This relationship arises from the fact that these two groups of individuals have similar concerns and goals for the business in question. As such, problems are likely to erupt when these goals are not aligned. According to this theory, under conditions of incomplete information and uncertainty, two agency problems arise. These are adverse selection and moral hazard. Adverse selection refers to the problem that the principal cannot determine if the agent accurately represents his ability to do the work for which he is being paid. On the other hand, moral hazard refers to the problem that the principal cannot be sure if the agent has put forth maximum effort (Mitnick, 2013).

The Agency theory addresses problems such as those that arise because the principle is anaware of the actions of the agent or is sometimes prohibited from accessing such information. For instance, while the company executive may want to expand the business, this may not be shared by the shareholders because it will mean that the company has to sacrifice short term profitability instead, which does not ogre well them. The application of agency theory provides a justification for the establishment of alliances between organizations and their service providers. Mulama, (2012) asserts that the application of agency theory provides a justification for the establishment of alliances between organizations and their service providers. This is very important as far as the establishment of a long term relationship is concerned.

This theory can thus be linked to all the objectives sought out by this study. The success of integrating operations and outsourcing warehousing, transportation and inventory operations largely depends on the alliances created between the contractor and the 3PL provider. The contractor in this case can be described as the principle and the 3pl provider be the agent. Having

aligned goals is key to having a fruitful relationship between these two while not having similar goals will definitely affect this relationship. As a result, this study will borrow a lot on Agency theory as it explains some of the core factors that need to be considered in such a relationship.

2.3 Empirical Review

The use of 3PL providers has drawn the interest from several researchers both locally and internationally, from which interesting insights relating to its effectiveness in various sectors has been established. This section will present some of these insights.

2.3.1 Outsourcing Integrating Operations and Firm Performance

Integrating operations is also crucial to the success of Logistics in any organization. It is defined as the process in which multiple enterprises within a shared market cooperatively plan, implement and manage the flow of goods, services and information from a point of origin to a point of consumption (Heizer and Barry, 2013). Organizations rely heavily on efficient supply chains to provide a high level of customer service, while meeting sales and profit targets. Information technologies, including enterprise resource planning systems, are at the core of integrated operations. There are several advantages associated with integrating operations. With integrated logistics, companies are better positioned to predict demand and act accordingly. Today's increasingly global supply chain needs to be able to spin on a dime and accommodate shorter product life cycles, emerging markets and fluctuating economies. Integrated operations also improve flexibility, eliminate waste and achieve higher profit margins which translate to higher firm performance (Heizer and Barry, 2013). The Resource Based Theory can be used to illustrate how efficient integration of operations can lead to positive firm performance. When resources are allocated such that non-core functions are outsourced while core function of a manufacturing or service firm are given more attention, then firm performance will increase.

Additionally, the General Systems theory is also largely applicable here because integrating operations allows the firms to operate as one making them more efficient.

Several studies have been put forth to explain how integrating operations serves to improve firm Performance. For instance, Njagi and Ogutu (2014) investigated the role of Internal Supply Chain Integration on the Supply Chain Performance of state corporations in Kenya by establishing how the integration of internal operations, customers and suppliers into the supply chain affect Supply Chain Performance. The study employed a descriptive study design. Internal integration, customer and supplier integration boosted the performance of supply chain through cost reduction, short lead times and improved quality. The study used structured questionnaires to obtain responses from managers employed to take part in the study. Data collected was analyzed using descriptive and correlation analysis. Results indicated that most state corporations were indeed integrated. This was evidenced by the fact that most of them shared the same vision, interact with each other during meetings and are able to access each other's ideas, information and resources. As far as external integration is concerned, study results revealed that the corporations integrated suppliers through interactions via the internet such as placing orders through the internet. The study also pointed out that customer information is utilized in demand management ball state corporations. This brought about a real time communication effect that made it easier to manage customer relationships and create room for quick and reliable customer response. However, the study suggested a further study to be conducted on different sectors other than state corporations for purposes of making comparisons with the results the study found. Thus this study intends to identify how integrating operations affects firm performance in manufacturing and service industries. On the other hand, Gichuhi (2013) conducted a study to establish the relationship between internal business integration and Supply Chain Performance

among commercial banks in Kenya. The study was first set to establish commercial banks that have integrated their business functions before identifying the relationship between the integrated business functions and Supply Chain Performance. The design employed was a cross sectional survey of all commercial banks in Kenya. Data was collected using questionnaires, after which percentages and frequencies as well as regression analysis was used to analyze it. Results indicate that most commercial banks in Kenya have integrated their business functions. This study also suggested that further studies be carried out on how integrating operations affects firm performance in other sectors.

HO_1: Outsourcing integrating operation does not have a significant effect on firm performance

2.3.2 Outsourcing Warehousing Operations and Firm Performance

Warehousing operations involves the inbound functions of storing and outbound functions of packing and shipping goods, services and information. A warehouse provides a central location for receiving, storing and distributing products (Farahani, Rezapour and Kardar, 2011). As each inbound shipment arrives, responsibility for the goods transfers to warehouse personnel, products are identified, sorted and dispatched to their temporary storage location. Efficient warehouse operations can ensure that a company ships and receives vital stock in time for replenishment on store shelves or in manufacturing facilities. The objective of a logistics system is to reduce cycle times and overall inventories, lower costs and most importantly, improve customer service. Warehousing increases the utility value of goods by providing a means to have the right products available at the right place in the right time. Warehouses also provide economies of scale through efficient operations, storage capacity and a central location. Economic benefits are realized, for example, through consolidation and accumulation operations. Consolidation operations cut outbound delivery costs for both the business and its customers (Farahani, Rezapour and Kardar,

2011). The Transaction Cost theory is closely linked to warehousing operations since one of the main advantages of outsourcing these operations is to reduce costs associated with it. The Resource Based Theory can also be linked to outsourcing warehousing operations because a firm need to have the right resources for the right purpose thereby helping it to create a competitive advantage.

Kogoh, (2015) conducted a study to explore the extent of outsourcing of the logistics function within the logistics industry. The research included a study of the effect of order processing, warehousing, packaging and transport logistics outsourcing on the performance of the logistics in Kenya. The population of the study is all the logistic companies in Kenya. Data was collected by means of in-depth questionnaires with senior management staff representing the players in logistics industry (Kogoh, (2015)The findings of the research demonstrated order processing, warehousing and transport logistics outsourcing were found to have a statistically positive effect on the performance of the logistics industry in Kenya (Kogoh, (2015).

HO_2: Outsourcing warehousing operations does not have a significant effect on firm performance.

2.3.3 Outsourcing Transportation Operations and Firm Performance

Transport is very vital within logistics. These are services that make the movement of goods and services from one point to another possible (Farahani, Rezapour and Kardar, 2011). There are many benefits of outsourcing transportation services that manufacturers, distribution companies, and anyone who ships freight realize. They go often way beyond just the cost of shipping freight. They increase customer service, improve warehouse efficiency, allow room for new delivery capabilities, reduce inventory and finally improve cash flow (Farahani, Rezapour and Kardar,

2011). These operations can be linked to the transaction cost theory, so much so that the overall cost of transporting goods and services from the production point to the customer's end is reduced significantly. The General System Theory can also be linked to this variable since it focuses on the interdependence of relationships within an organization. Once goods and services are successfully transported, then other departments within the organization can work their respective parts from there.

A study set to investigate the effects of outsourcing logistics activities of Ethiopian Airlines on its logistics performance was conducted by Melkam (2016). The study sought to understand the rationale behind Ethiopian Airlines outsourcing of its logistics activities and its impact on supply chain performance. Data was gathered from the respondents by using questionnaires and interviews. Frequency, percentages and mean were used to analyze data collected through questionnaire while the data obtained through interview was analyzed qualitatively. Through the analysis of data, the study discovered that Ethiopian Airlines outsources its logistics activities due to the need to access outside expertise, efficient utilization of company's asset and saving in capital investment. The study further revealed that the main challenge faced by Ethiopian Airlines is inefficient management of outsourced freight forwarding activities. The major performance metrics Ethiopian Airline uses to value the freight forwarding service providers is based on time delivery of their shipments, responsiveness and flexibility to the needs of Ethiopian Airline by the service providers and overall quality respectively (Melkam, 2016). The gap identified by this study from this review is that it did not illustrate how individual components of third party outsourcing affected the performance of Ethiopian Airlines. This study intends to identify and illustrate this.

$H0_3$: Outsourcing transportation services does not have an effect on firm performance

2.3.4 Outsourcing Inventory Operations and Firm Performance

Inventory management involves the supervision of non-capitalized assets and stock items acquired by an organization (Heizer and Barry, 2013). Any company that maintains inventory for sale or as part of a raw material supply must have defined inventory control policies. Numerous financial and service related advantages exist for the company that manages to effectively control its inventory; these include leaner operations and reduced operational expenses. For instance, an increase in customer service levels results from having a highly defined and working inventory control policy. Moreover, well-defined inventory control policies can reduce the labor costs associated with managing the inventory. Also, lower inventory cost is a definite advantage for the company that effectively controls its inventory. All these can be achieved successfully through outsourcing inventory management from 3PL providers (Heizer and Barry, 2013). The theory of Transaction Cost can easily be linked to outsourcing inventory operations. This is because other than increasing customer service levels and allowing for leaner operation, outsourcing these operations reduces operational expenses significantly.

There are studies that have investigated how organizations that outsource inventory management services perform. While conducting a study on The Impact of Inventory Management Practices on Financial Performance of Sugar Manufacturing Firms in Kenya, Lwiki, Ojera, Mugend, and Wachira, (2013) identified that Manufacturing firms apply various techniques in the management of their inventories. The practices adopted have a significant impact on returns, profitability and volume of sales. The study analyzed the extent to which lean inventory system, strategic supplier partnership and technology are being applied in these firms. The primary data was collected using structured and semi- structured questionnaires administered to key informants in the organizations. Descriptive statistics was used to test the impact of inventory management

practices and Correlation analysis was used to determine the nature and magnitude of the relationship among inventory management variables. The results indicate that there exists a positive correlation between inventory management and Return on Sales. This implies that inventory management has a positive effect on form performance. From the findings obtained from this study, the researcher expects the relationship between inventory management and firm performance to be a positive one.

Mogere, (2016) also researched on Service outsourcing and supply chain performance of Cement Companies. The study's focus was mainly on inventory management that cement companies' contract to 3PL providers. The study highlighted that globalization has been the main reason of outsourcing citing the fact that the need for more competent and experienced people has forced companies to outsource for inventory management services. The study notes that this has allowed cement manufacturing firms to reduce costs that are related with building internal competencies, increased quality, and improved response to the changing marketing demands, ability to concentrate on their core functions and the effectiveness and efficiency in the supply chains. Cement manufacturing firms also outsource other non-core functions such as security, laundry, cleaning, catering, transport and logistics, information technology and customer care services. By adopting a descriptive and cross sectional research design, the study established that cement manufacturing firms outsourced services in order to reduce their operating costs, concentrate on their main functions, increase quality and to improve response to the changing market demands. It is important to note that the study established that these functions were served even better by contracting competent and expert 3PLproviders who in the long run contributed positively to the performance of these firms.

$H0_4$: Outsourcing inventory operations does not have a significant effect on firm performance

2.4 Knowledge Gap

A review of various studies above shows that manufacturing firms seek to outsource their logistic services to 3PL providers for various reasons. Various studies have been conducted to establish the effect outsourcing would have on firm performance. For instance, Kogoh, (2015) conducted a study to explore the extent of outsourcing of the logistics function within the logistics industry. The research included a study of the effect of order processing, warehousing, packaging and transport logistics outsourcing on the performance of the logistics in Kenya. The findings of the research led to the conclusion that the industry players outsourced order processing, warehousing, packaging and transport logistics. It is important to note that the study did not research on the effect of outsourcing on firm performance, rather the extent.

Magutu, Chirchir and Mulama, (2013) researched the effect of logistic outsourcing practices among large manufacturing firms in Kenya by targeting large scale manufacturing companies that are based in Nairobi.The study concluded that the firms were outsourcing transportation management, warehouse management and material handling management. These firms opted to outsource their services due to its advantages and its possible influence on organizational performance, as it enables the firms to focus on its core competencies. On the other hand, Kyusya (2015) conducted a study on the effect of logistics outsourcing on the operational performance of shipping industry in Kenya. The objective of the study was to determine logistics outsourcing effect on operational performance of shipping industries in Kenya. Contracting out provision of logistics services to a firm with competitive advantages in terms of reliability, quality and cost was found be the main driver of outsourcing.

From the knowledge gathered, the researcher identified that the effect of outsourcing logistics services to 3PL providers on the general performance of all manufacturing firms has not been

pursued fully. Studies such as the ones conducted by Kogoh (2015) only identified the extent to which various 3PL services were sought by manufacturing firms. On the other hand, Magutu, Chirchir and Mulama (2013) only studied the effect of outsourcing logistic services on large manufacturing firms. Njagi and Ogutu (2014) as well as Meklam (2016) only identified specific components of 3PL service providers such as internal operations, outsourcing warehousing, transportation and inventory services.

2.5 Conceptual Framework

From the theoretical and empirical review above, it is clear as outlined by various studies that many manufacturing companies are contracting3PLs providers for their non-strategic activities. This is due to the various benefits that accrue as a result of outsourcing. The other driver of outsourcing practices was revealed to be competitive advantages associated with contracting services. These advantages include reliability, quality improvement and cost reduction. It is important to note that many studies have extensively covered the effect of outsourcing logistics on manufacturing firms. However, this study intends to investigate a comparative analysis of how effective 3PL providers are to individual industries as far as the manufacturing of products is concerned. The following conceptual framework will therefore be adopted. It represents the relationship between the variables involved in the study.

Independent Variable **Dependent Variable**

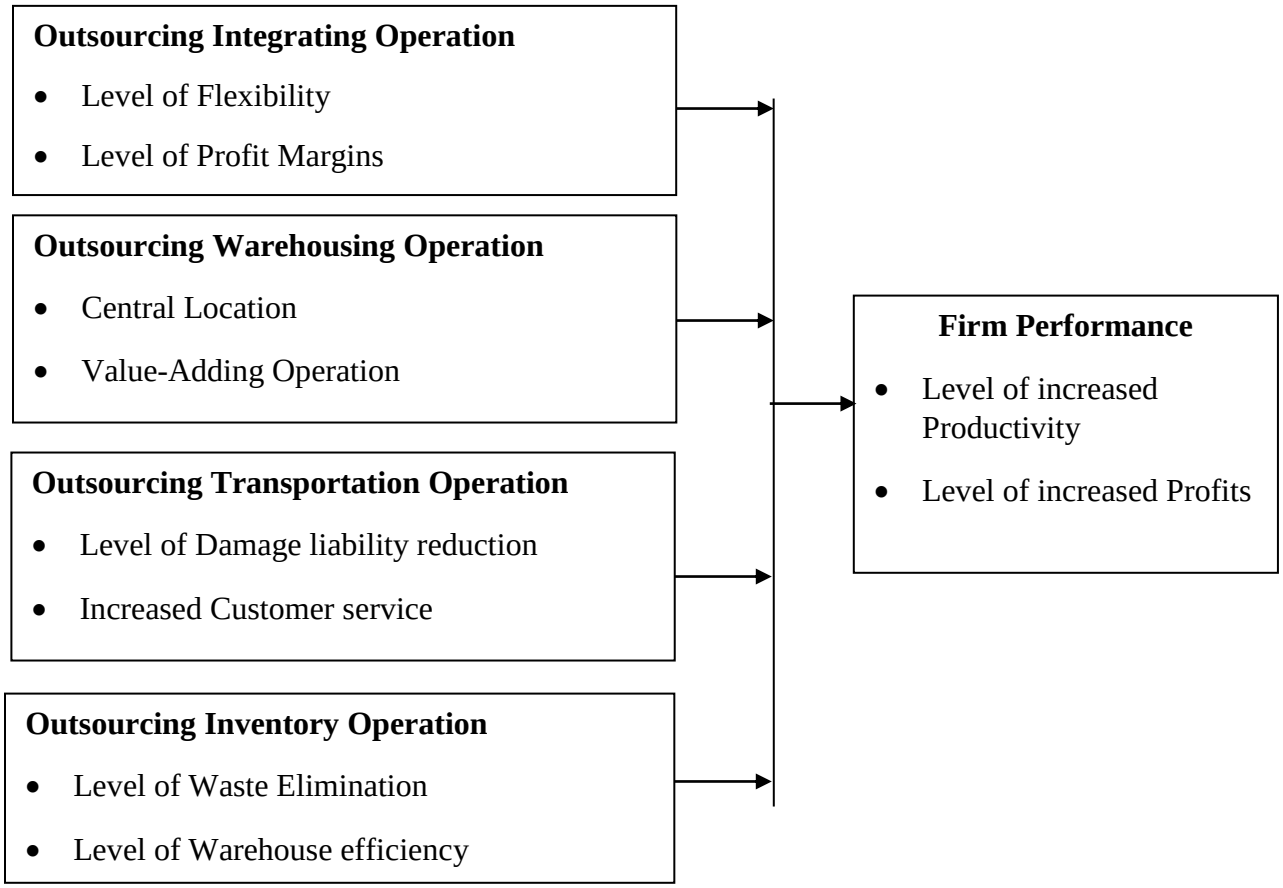

Figure 2. 1 Conceptual Framework

2.5 Operationalization of the Variables

Table 2. 1 Operationalization of the variables

Type of Variable	Variable	Indicator	Level of Measurement	Data collection Method
Dependent	Firm Performance	• Increased Productivity • Increased Profits • Increase in Number of Employees • Growth in Market Share • Cost Reduction • Customer Satisfaction	Ordinal	Structured Questionnaire
Independent	Integrating Operation	• Flexibility • Profit Margins	Ordinal	Structured Questionnaire
Independent	Outsourcing Warehouse Operations	• Central Location • Value-Adding Operation	Ordinal	Structured Questionnaire
Independent	Outsourcing Transport Operations	• Damage and liability reduction • Increased Customer service	Ordinal	Structured Questionnaire
Independent	Outsourcing Inventory Operations	• Waste Elimination • Warehouse efficiency	Ordinal	Structured Questionnaire

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presented the research methodology that was adopted by the study. This included the research design, target population, sampling and sampling procedure, research instrument, validity and reliability of the instrument and finally the data collection procedures, processing and analysis.

3.2 Research Design

The research design that this study adopted was descriptive in nature and focused on the effectiveness of outsourcing logistics in manufacturing firms. Cohen, Manion and Morrison (2013) asserted that comparing things is essential to basic scientific and philosophic inquiry, which has been done for a long time. It is often conducted with a view to discovering something about all of the things being compared. Furthermore, it is an economical and efficient kind of research as it allows a researcher to tackle the existence of differences to be analyzed (Lewis, 2004).

Since a descriptive research may be characterized as simply the attempt to determine, describe or identify what is (Lewis, 2004), makes it possible for the researcher to look into every form of data that is possible. When using descriptive research people are able to accumulate findings from all forms of data such as personal accounts, case studies or observations. This therefore makes it possible to collect data that has a numerical as well as a personal observational element involved.

3.3 Target Population

The target population for this study was all the manufacturing firms that are based in Nairobi and its environs. Manufacturing companies were selected from the list of manufacturing firms available on the Kenya Association of Manufacturers list of members which reports that there is a total of 725 manufacturing companies in Kenya, of which 319 are based in Nairobi and its environs (KAM, 2017). The specific individuals that were targeted in the manufacturing companies include procurement officers, logistics and operations managers, and fleet management officers and any other relevant individuals in the supply chain will also be included.

3.4 Sample Size and Sampling Procedure

As highlighted by Cooper and Schinder, (2014), representation is key to achieving the right results. In order to come up with a sample population that took part in the study, the study first considered the two measures that affect the accuracy of the data. These are the margin of error and the confidence interval. The margin of error is the positive or negative deviation that is allowed for the results of a sample. According to the formula developed by (Krejcie and Morgan, 2016) at least 20% of the targeted population was important for the study. According to (Mugenda and Mugenda, 2012) at least 10% of the target population was important for the study. The people targeted to respond to the questionnaires were Logistics Officers, Fleet Management Managers and Procurement officers.

Having determined the sampling frame, the study adopted a cluster sampling technique. The manufacturing firms were first categorized into two stages namely: cluster sampling and simple random sampling. The different sectors under which the manufacturing firms fall made up the clusters. Clusters are geographic concentrations of interconnected companies or institutions that manufacture products or deliver services to a particular field or industry. Clusters typically

include companies in the same industry or technology area that share infrastructure, suppliers and distribution networks (Michael Potter, 2011). 20% of firms from each cluster were then picked using simple random sampling. These firms were then pooled to form the sample size for the study. The sectors include building, mining and construction; chemical and allied; energy, and electrical; food and beverages; leather and footwear; motor vehicles assemblies and accessories; paper and board; pharmaceutical and medical equipment; textile and apparel; timber, wood and furniture and fresh produce.

Table 3.1 cluster sampling

Industry	**Sector/cluster**	**Total number in sector/Cluster**	**Sample**
Manufacturing	Building, mining and construction	13	3
	Chemical and allied	36	7
	Energy, electrical and electronics	26	5
	Food and beverage	61	12
	Leather and footwear	1	1
	Metal and allied	38	8
	Motor vehicle assemblers and accessories	22	4
	Paper and Board	36	7
	Pharmaceutical and medical equipment	10	2
	Plastics and rubber	40	8
	Textiles and apparel	14	3
	Timber, wood and furniture	16	3
	Fresh produce	6	1
TOTAL		**319**	**64**

Percentage from each sector/cluster selected is 20%.

3.5 Instrumentation and Data Collection

The research instrument that was adopted by the study was the questionnaire (Appendix II). Questionnaires are a suitable instrument because they give the researcher a larger scope under which to conduct the research. It is also preferable to use them because they allow respondents to give more candid and objective responses to research questions (Munn and Drever, 2014).

The questionnaire that was adopted by this study consisted of both structured and unstructured questions. Highly structured questions were useful since they reduced variability in meanings possessed by questions. They also offered ways of ensuring comparability of the responses given by respondents. It consisted of three section; Section A was used to collect demographic information, Section B to collect data on the independent variables and Section C to collect data on the dependent variable.

The questionnaires were designed to collect quantitative information for purposes of better understanding. As such, the study employed the use of Likert Scaled questions or statements so as to obtain the most complete and accurate information possible. This also ensured that respondents fully understood the questions and were not likely to refuse to answer (Allen and Seaman, 2007).

On the other hand, the process of data collection included the distribution and collection of self-administered questionnaires. First, the researcher sought permission from the respective manufacturing firms. Once this permission was given, the researcher went on to inform all those individuals who were selected in the sample that they would be taking part in a research. The purpose of the study as well as the objectives were also communicated to the respondents selected in the sample. The next step involved distributing questionnaires to the sample selected to take part in the study. Respondents were then given time to fill and submit the questionnaires back for analysis. This took approximately 2 weeks. After this process, the data collected was ready for analysis. This therefore means that the study used the drop-and-collect-later method.

3.6 Validity and Reliability

Validity of the research instrument is concerned with establishing whether the instrument used measures all the variables it is supposed to measure (Golafshani, 2010). In this case, the questionnaire was vetted to make sure that its content measures all the variables involved in the study. As a process, validation involves collecting and analyzing data to assess the accuracy of an instrument. In order to assess the validity of the questionnaire, the researcher used pilot testing where 10% of the total number of questionnaires issued were used. These questionnaires were then be analyzed using Pilot testing of Questionnaires

Reliability on the other hand refers to consistency. It determines whether the instrument consistently measures what it is intended to measure (Golafshani, 2010). Therefore, in order to test the reliability of the questionnaire, the study employed the test-retest reliability test, where the consistency of the questionnaire was evaluated over time. The researcher administered questionnaires to two groups; one contained individuals who took part in the study, while another had individuals who were not selected into the sample size. The study then used Cronbach's alpha (Using SPSS version 22) to test for internal consistency. This revealed whether the content of the questionnaires is reliable (Bernard, 2012).

3.7 Data Processing and Analysis

This procedure began after all the questionnaires have been submitted back for analysis. The data collected was analyzed using descriptive statistics and multiple regression analysis. Descriptive statistics which includes means, frequencies, standard deviation and percentages was used to describe the demographic information of the respondents. A multiple regression equation was used to explain the effect of 3PL Components on firm performance. The analytical model that was adopted by the study was as follows;

$Y= \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$

Where Y= Firm Performance

X_1= Outsourcing Integrating Operations

X_2= Outsourcing Warehousing Operations

X_3= Outsourcing Transportation Operations

X_4= Outsourcing Inventory Operations

β_0–Constant (firm performance when all other variables are held constant)

β_1 - coefficient for Outsourcing Integrating Operations

β_2 - coefficient for Outsourcing Warehousing Operations

β_3 - coefficient for Outsourcing Transportation Operations

β_4 - coefficient for Outsourcing Inventory Operations

ε- Error term

The study used Statistical Packages for Social Sciences (SPSS) version 22 to analyze data.

3.8 Diagnostic Tests

Diagnostic tests are tests conducted to assess the validity of a regression model. These test procedures are necessary so as to detect violations of the linear model's assumptions, gauge the severity of the violations and take appropriate remedial action.

3.8.1 Test- Retest

Ramsey Regression Equation Specification Error Test is a test that tests whether non-linear combinations of the fitted values explain the response variable (Cohen, West and Aiken, 2013). A RESET test will test if this model satisfies multiple linear regression, such that no non-linear functions of the independent variables should be significant when added to the equation. The test is an F-Test whose null hypothesis will be that the regression model is statistically significant as opposed to the alternative hypothesis. Results from this test will be used to check for any omitted variables or irrelevant variables.

3.8.2 The Breusch-Pagan Heteroscedasticity Test

Heteroscedasticity is an important assumption in regression that allows a researcher to use the equation generated. The Breusch-Pagan Test for heteroscedasticity will be used to check that there is a constant variance by testing the variances and standard deviations of the model (Cohen, West and Aiken, 2013). The test statistic approximately follows a chi-square distribution. The null hypothesis for this test is that the error variances are all equal. A small chi-square value along with an associated small p-value will indicate that the null hypothesis is true, which means that the variances are all equal.

3.8.3 Variance Inflation Factors (VIF)

A variance inflation factor (VIF) will be used by the researcher to detect multicollinearity in regression analysis. Multicollinearity is when there's correlation between the independent variables in a model. Its presence can adversely affect the regression results of the study. The VIF will be used to estimate how much the variance of the study's regression coefficient is inflated due to multicollinearity in the model. A rule of thumb for interpreting the variance inflation factor: 1 = not correlated. Between 1 and 5 = moderately correlated. Greater than 5 = highly correlated (Cohen, Cohen, West and Aiken, 2013).

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the analysis, presentation and interpretation of the data collected from the questionnaires. The data collected from questionnaires was analyzed with the help of SPSS version 22. Descriptive statistics such as frequency distribution and percentages were used to analyze general information collected from the respondents. Means was used to analyze the components of logistics outsourcing and regression analysis was then used to explain the effect of outsourcing logistics to third party providers on performance of manufacturing firms in Kenya. The findings are presented in form of tables and graphs.

4.2 Reliability Test Results

In order to test for reliability, this study used test-retest reliability test, where two groups containing individuals who will take part in the study, while another with individuals not selected into the sample size was used. From the analysis of the two sets of questionnaires, it was revealed that the questionnaires were consistent, since both groups answered the questions with the same level of understanding of the scale used. Cronbach's reliability test was then used to determine if the Likert scale used was reliable. The alpha value given is between 0 and 1. When the value is below .05, then the scale is not reliable. A figure between 0.5 and 0.6 implies that the scale is questionable. Then a number between 0.6 and 0.7 indicates that a good scale was used. Finally, any figure above 0.8 is considered reliable. Results are as indicated in Table 4.1

Reliability Statistics	
Cronbach's Alpha	N of Items
0.958	40

Table 4. 1 Reliability Test

A Cronbach's alpha value of 0.958 indicates a high overall reliability coefficient for the set of variables included in the study.

4.3 Response Rate

A total of 60 questionnaires were administered to respondents selected from various sectors of the manufacturing companies around Nairobi. The study managed to receive a total of 60 duly filled questionnaires which constituted a response rate of 93.75%. According to De Vaus, (2013) a response rate of 80% and above obtained from the sample size is considered adequate and can therefore be used to make conclusions about the entire population from which the sample was obtained. This implies that response rate for this study was adequate to enable the researcher make conclusions.

4.3 Demographic Information

The respondents were asked to provide general information in regard to gender, age bracket, highest level of education, job position held and the duration in that position in terms of years. The researcher also inquired on the extent to which the chosen manufacturing organizations had implemented logistic outsourcing practices in their supply chain operations. The analysis of this information is presented in this section.

4.3.1 Gender and Age of Respondents

The study sought to identify the gender of the respondents that took part in the research. The study reported that 53.3% (32) of the respondents were female while 46.7% (28) were male. The significance of this is that gender parity was achieved during the study and therefore responses obtained were from both male and female respondents. The respondents were also requested to

indicate the age brackets they fitted into. Their responses were obtained and analyzed as represented in figure 4.1.

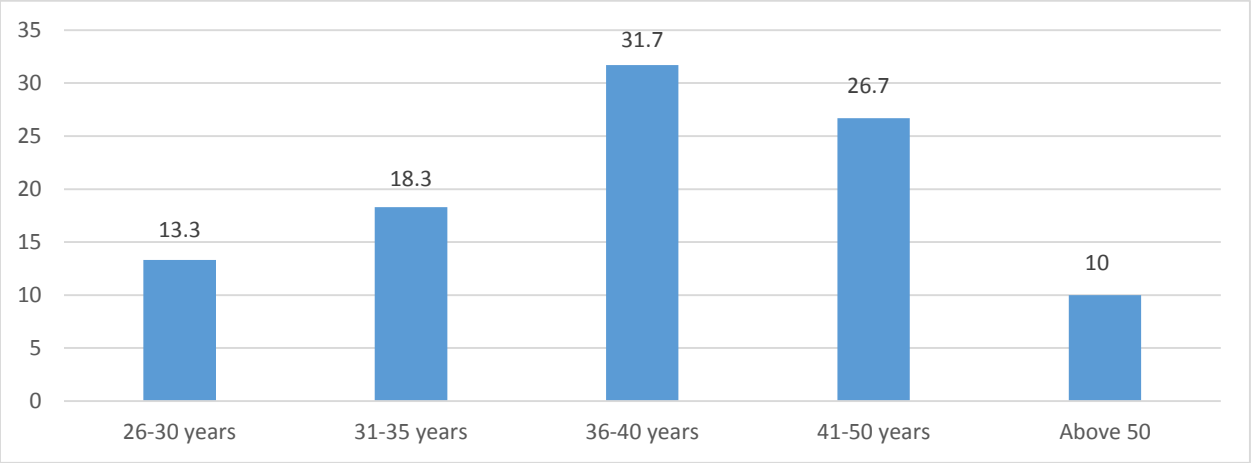

Figure 4. 1 Age Bracket of the Respondents

The study found out that majority of the respondents was between the age of 36 and 40 years. This was represented by 31.7%. 26.7% of them were between 41-50 years, 18.3% were between 31-35 years, 13.3% were between 21-30 years while only 10% were above 50 years. The implication of this is that majority of the respondents were eligible to take part in a research.

4.3.2 Level of Education

The study also sought to identify the level of education possessed by each respondent that took part in the study. It was revealed that 58.3% of the respondents had attained post-graduate level while 41.7% had attained undergraduate level of education. The significance of this is that the respondents included in the study were knowledgeable enough to understand the questions being posed to them in the questionnaire.

4.3.3 Job Position Held

In this section, the respondents were requested to indicate their job designations. The results of the study area as shown in Table 4.2

Level of education	Frequency	Percent
Procurement Officer	25	41.7
Logistics Officer	11	18.3
Fleet Management Manager	11	18.3
Director	10	16.7
Sales Officer	3	5.0
Total	**60**	**100.0**

Table 4. 2Position Held

Majority of the respondents were procurement officers (41.7%), followed by logistics officers and fleet management officers, both at 18.3%, then directors were 16.7% while only 5% of them were Sales officers. From the analysis above, it was revealed that all the respondents included in the study interacted with the procurement department and therefore had the knowledge necessary to answer the questions presented to them in the questionnaires. This allowed the researcher to collect relevant information related to the topic of study.

4.3.4 Work Experience

The study further sought to know the duration of time the respondents had been holding their job positions. The study findings are as shown in Figure 4.2

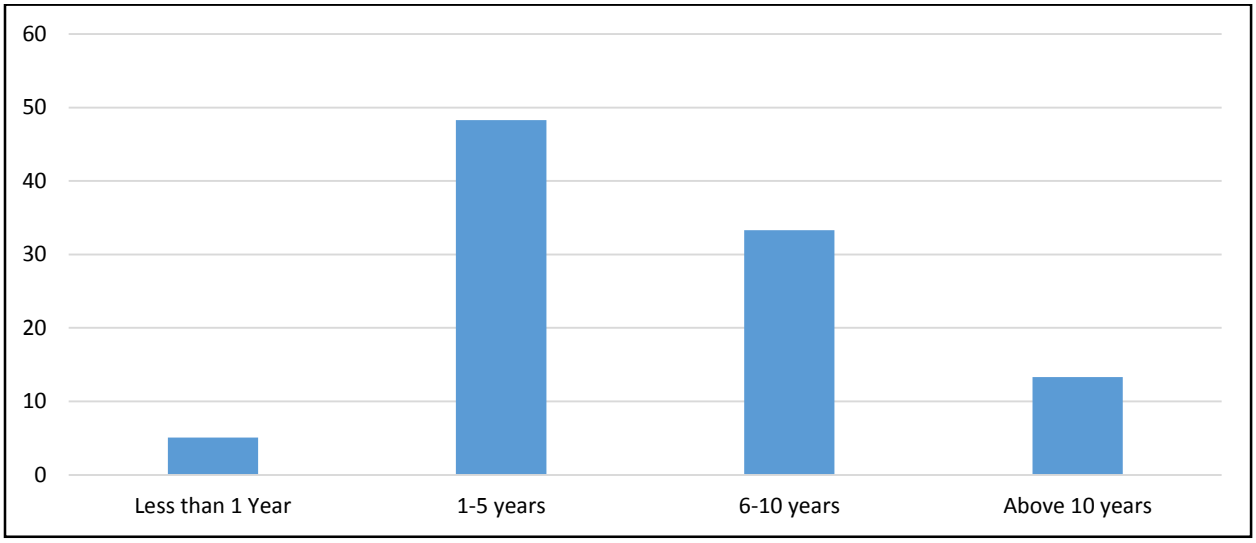

Figure 4. 2Working Experience

The study found that majority of the respondents had worked in their designated job positions for more than 1 year. Specifically, 48.3% had worked between 1 and 5 years, 33.3% between 6 and 10 years and 13.3% above 10 years. Only 5.1% had worked for less than 1 year. The significance of this is that the respondents have been in their designated jobs long enough to understand various issues outlined in the topic of study, and as such, are in the best position to take part in the study. It further strengthens the claim that the respondents chosen were the best to take part in the study based on the level of experience their experience indicates they have.

4.3.5 Level of Implementation of Logistic Outsourcing Components

The study inquired on the extent to which the manufacturing companies included in the study implemented the various components of logistics outsourcing in their supply chain operations. Table 4.5 indicates the mean obtained as indicated by the results. Based on the Likert scale used, this means were interpreted as follows: 1-1.49= Very Low extent; 1.5-2.49= Low Extent; 2.5-3.49= Moderate Extent; 3.5-4.49= Large Extent; 4.5-5=Very Large Extent

Logistics Outsourcing Component	**Mean**
Outsourcing Transportation Operations	3.20
Outsourcing Warehousing Operations	3.13
Integrating Operations	2.20
Outsourcing Inventory Operations	2.03

Table 4. 3Level of Implementation of Outsourcing Logistic Components

From the mean score results therefore, a mean score of 3.20 and 3.13 implies that manufacturing companies outsource transportation and warehousing operations at a moderate extent. On the other hand, a mean score of 2.20 and 2.03 indicates that respondents believe that manufacturing companies integrate operations and outsource inventory operations to a low extent respectively. Generally, however, these results indicate that the most outsourced component is transportation, followed by warehousing, then integrating operations and finally inventory operations.

4.4 Descriptive Statistics Results

The main objectives of this study were to investigate the effect of Integrating Operation, Outsourcing Warehousing Operation, Outsourcing Transport Operations and Outsourcing Inventory Operations on the performance manufacturing firms in Kenya. Mean scores were used to analyze the responses as indicated by the respondents who took part in the study. Similarly, a Likert scale was used, thus the following will be the interpretation key; 1-1.49= Strongly Agree; 1.5-2.49= Agree; 2.5-3.49= Neutral; 3.5-4.49= Disagree; 4.5-5=Strongly Disagree.

4.4.1 Effect of Integrating Operation on Firm Performance

Table 4.4 presents that respondent's feedback on the effect of Integrating Operations on firm performance of manufacturing firms as indicated by the respondents on each question

Question	**Strongly Agree**		**Agree**		**Neutral**		**Disagree**		**Strongly Disagree**		**Mean**
	f	**%**	**f**	**%**	f	%	f	%	f	%	
Integrating operations increases firm revenue	12	20	34	56.7	11	18.3	1	5.0	0	0	2.08
Integrating operations is the best way to ensure that the supply chain is sustainable and successful in the long term.	12	20	26	43.3	16	26.7	6	10	0	0	2.27
Integrating operations maintains a sustainable supply chain	6	10	34	56.7	17	28.3	3	5.0	0	0	2.28
Integrating operations allows the firm to Stay on top of demand	11	18.3	25	41.7	21	35.0	0	0	3	5.0	2.32
Integrating operations eliminates waste	4	6.7	32	53.3	22	36.7	2	3.3	0	0	2.37
Integrating operations results in higher profit margins	9	15.0	18	30.0	30	50.0	3	5.0	0	0	2.45
Integrating operations brings about flexibility.	0	0	34	56.7	23	38.3	3	5.0	0	0	2.48
Average											**2.32**

Table 4. 4Effect of Integrating Operation on Firm Performance

Based on the interpretation scale used by this study, an average mean score of 2.32 implies that majority of the respondents agree that integrating operations affects firm performance as far as improving firm revenue, supply chain sustainability, increasing demand, eliminating waste, ensuring higher profit margins and increasing flexibility is concerned.

4.4.2 Effect of Outsourcing Warehousing Operations on Firm Performance

Additionally, Table 4.5 presents the findings as reported by the respondents regarding the effect of outsourcing warehousing Operations on firm performance.

Questions	**Strongly Agree**		**Agree**		**Neutral**		**Disagree**		**Strongly Disagree**		**Mean**
	f	%	f	%	f	%	**f**	**%**	**f**	**%**	
Outsourcing warehousing enables the firm to concentrate on developing the business.	13	21.7	34	56.7	10	16.7	3	5.0	0	0	2.05
Outsourcing warehousing allows access to information on inventory	12	20	30	50	15	25	3	5	0	0	2.15
Hiring a 3PL warehousing outsourcer has Reduced capital investment	5	8.3	39	65.0	16	26.7	0	0	0	0	2.18
Outsourcing 3PL warehousing Results to reduced warehouse health & safety compliance issues	4	6.7	43	71.7	10	16.7	3	5.0	0	0	2.20
Outsourcing 3PL warehousing providers provide the firm with the Ideal distribution location	8	13.3	24	40.0	25	41.7	3	5.0	0	0	2.28
Expertise and knowledge of the industry from 3PL providers is useful.	1	11.7	30	50.0	20	33.3	3	5.0	0	0	2.32
Outsourcing warehousing allows access to information on deliveries.	4	6.7	35	58.3	18	30	3	5	0	0	2.33
Outsourcing 3PL warehousing Leads to Less damages to commodities due to proper storage	8	13.3	24	40.0	25	41.7	3	5.0	0	0	2.38
Average											2.24

Table 4. 5Effect of Outsourcing Warehousing Operations on Firm Performance

Similarly, based on the mean score scale, an average mean score of 2.24 implies that majority of the respondents agree that outsourcing warehousing operations affects firm performance. This is with regard to its effect on developing the business, allowing access to information on inventory, reducing capital investment as well as reducing warehousing health and safety issues. Moreover, outsourcing warehouses helps tin providing the firm with the idea location for business operations, increasing knowledge and expertise, allowing access to information on deliveries and also reducing damages to commodities as a result of proper storage.

4.4.3 Effect of Outsourcing Transport Operations on Firm Performance

The study also investigated the effect of the effect of outsourcing transport operations on the performance. Table 4.6 presents the results obtained.

Questions	**Strongly Agree**		**Agree**		**Neutral**		**Disagree**		**Strongly Disagree**		**Mean**
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	
How important is transportation to the logistics quality of your firm	15	25.0	35	60.0	3	5.0	6	10.0	0	0	2.00
Outsourcing transportation make sure transportation operations never fall victim to the constantly changing supply chain environment.	8	13.3	33	58.3	17	28.3	0	0	0	0	2.15
3PLs leverage industry relationships and shipment volumes to get lower prices.	8	13.3	21	55.0	19	31.7	0	0	0	0	2.18
Outsourcing transportation increases operational control	15	25.0	32	35.0	21	35.0	3	5.0	0	0	2.20
Outsourcing transportation protects the organization from penalties and fines.	5	8.3	34	53.3	17	28.3	6	10.0	0	0	2.40
Transport Management Software technology provides the custom data the company desires.	2	3.3	36	56.7	21	35.0	3	5.0	0	0	2.42
Outsourcing transfers the risks of transportation operations to the logistics provider	2	2.3	35	60.0	16	26.7	6	10.0	0	0	2.43
Average											**2.25**

Table 4. 6Effect of Outsourcing Transport Operations on Firm Performance

Results indicate an average mean score of 2.25, which based on the key scale, indicates that the respondents also agree that outsourcing transportation activities affects firm performance. This is

because they agreed that transportation is important to their respective manufacturing firms mainly because it makes sure transportation operations never fall victim to the constantly changing supply chain environment, leverages industry relationships and shipment volumes to get lower prices, increases operational control, protects the organization from penalties and fines, provides the custom data the company desires and transfers the risks of transportation operations to the logistics provider.

4.4.4 Effect of Outsourcing Inventory Operations on Firm Performance

Finally, the study sought to find out the effect of outsourcing inventory operations on firm performance. Table 4.7 presents the results.

Questions	**Strongly Agree**		**Agree**		**Neutral**		**Disagree**		**Strongly Disagree**		**Mean**
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	
Inventory Management providers often offer discounts on freight rate, which ultimately saves the firm money.	8	13.3%	34	56.7%	15	25.0%	3	5.0%	0	0%	2.22
Placing inventory in warehouses closer to customers can reduce delivery distances and costs.	10	16.7%	31	51.7%	13	21.7%	3	5.0%	3	5.0%	2.30
Outsourcing Inventory Operations leads to proper space utilization	7	11.7%	30	50.0%	20	33.3%	3	5.0%	0	0%	2.32
Allows for minimization of inventory levels	7	11.7%	28	46.7%	22	36.7%	3	5.0%	0	0%	2.35
Outsourcing also eliminates the hassle of managing employees.	2	3.3%	37	61.7%	18	30.0%	0	0%	3	5.0%	2.42
Time Intensive Shipping Activities are a Thing of the Past	0	0%	38	63.3%	19	31.7%	3	5.0%	0	0%	2.42
Outsourced inventory management keeps track of the organization inventory	5	8.3%	25	41.7%	27	45.0%	0	0%	3	5.0%	2.52
Average											**2.36**

Table 4. 7Effect of Outsourcing Inventory Operations on Firm Performance

From the analysis, a mean score of 2.36 implies that a majority of the respondents agree that outsourcing Inventory operations also affects firm performance. This is because they agreed that it offers discounts on freight rate, which ultimately saves the firm money. Additionally, they agreed that reduces delivery distances and costs, leads to proper space utilization, allows for minimization of inventory levels, eliminates the hassle of managing employees and keeps track of the organization inventory.

4.5 Regression Analysis results

The study conducted a multiple regression analysis to determine the relationship between the independent and the dependent variables. In this case, the dependent variable was firm performance while the independent variables were Integrating Operations, Outsourcing Warehousing Operations, Outsourcing Transportation Operations and Outsourcing Inventory Operations. The findings are summarized in tables 4.8 4.9 and 4.10.

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	1.897	.224		5.571	.000
	Integrating Operations	1.264	.208	.308	6.077	.000
	Outsourcing Warehousing Operations	.517	.207	.587	2.498	.015
	Outsourcing Transportation Operations	.921	.269	1.060	3.424	.001
	Outsourcing Transport Operations	1.275	.201	.353	6.343	.000
a. Dependent Variable: Firm Performance						
Critical T=1.67109						

Table 4. 8 Coefficient Table

From the coefficient Table 4.8, the following regression equation was obtained.

$$Y = 1.897+1.264\ X_1+ 0.517\ X_2 + 0.921\ X_3+ 1.275\ X_4.$$

Where Y= Firm Performance

X_1= Integrating Operations

X_2= Outsourcing Warehousing Operations

X_3= Outsourcing Transportation Operations

X_4= Outsourcing Inventory Operations

Based on the coefficients obtained above, the following implication is derived:

β_1 - coefficient for Outsourcing Integrating Operations = 1.264 implies that holding warehousing, transportation and inventory operations constant, a unit increase in integrating operations will increase firm performance by 1.264 units.

β_2 - coefficient for Outsourcing Warehousing Operations = 0.517 implies that holding integrating operations, transportation and inventory operations constant, a unit increase in outsourcing warehousing operations will increase firm performance by 0.517 units.

β_3 - coefficient for Outsourcing Transportation Operations = 0.921 implies that holding integrating operations, warehousing and inventory operations constant, a unit increase in outsourcing transportation operations will increase firm performance by 0.921 units.

β_4 - coefficient for Outsourcing Inventory Operations = 1.275 implies that holding integrating operations, warehousing and transportation operations constant, a unit increase in outsourcing inventory operations will increase firm performance by 1.275 units.

β_0 –Constant =1.897 implies that holding all other factors constant, firm performance will be at 1.897.

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.628[a]	.394	.350	.39005

a. Predictors: (Constant), Outsourcing Transport Operations, Integrating Operations, Outsourcing Warehousing Operations, Outsourcing Transportation Operations

Table 4. 9 Model Summary

The model summary Table 4.9 indicates an R-Square of 0.394. This implies that 39.4% of the independent variable, which were Outsourcing Transport Operations, Integrating Operations, Outsourcing Warehousing Operations, Outsourcing Transportation Operations explained the independent variable, which was firm performance. This also means that the remaining 60.6% is explained by other factors that affect firm performance.

Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	5.440	4	1.360	8.939	.000[b]
	Residual	8.368	55	.152		
	Total	13.808	59			
a. Dependent Variable: Firm Performance						
b. Predictors: (Constant), Outsourcing Transport Operations, Integrating Operations, Outsourcing Warehousing Operations, Outsourcing Transportation Operations						
Critical F= 2.53969						

Table 4. 10 ANOVA Test Results

Finally, the ANOVA Table 4.10represents RESET test that was used to check for any omitted variables or irrelevant variables. This test indicates an F calculated value of 8.939 which is less than Critical value = 2.53969. The significance of this is that the regression equation generated by the study predicts the dependent variable significantly well. Or is a good fit for the data as indicated by $p=0.00<0.05$. This implies that none of the variables used by the study are irrelevant.

The Breusch-Pagan Test for heteroscedasticity was also used to check that there is a constant variance in the fitted variables. Table 4.11 indicates these results.

	LM	Sig
BP	1.9686	.575

Table 4. 11 Breusch-Pagan test statistics and sig-values

Null hypothesis: heteroscedasticity not present

Alternative Hypothesis: heteroscedasticity is present

Rejection criteria: If sig-value less than 0.05, reject the null hypothesis

Conclusion: Significant value greater than 0.05 hence fail to reject null hypothesis. This implies that heteroscedasticity is not present.

Finally, VIF tests were conducted to estimate how much the variance of the study's regression coefficient is inflated due to multicollinearity in the model. A VIF value of 5.0 and above indicates high levels of collinearity. As observed in Table 4.11, VIF values for the variables is low, thus it was concluded that there were relatively low levels of multicollinearity.

Collinearity Statistics	
Tolerance	VIF
0.187	3.125
0.199	2.125
0.115	4.126
0.165	1.215

Table 4. 12 VIF test results

4.6 Hypothesis Testing

This section presents the results of the hypothesis testing that was carried out by the study.

4.6.1 Outsourcing Integrating Operation does not have a significant effect on firm performance

Null hypothesis: Outsourcing Integrating Operation does not have a significant effect on firm performance

Alternative Hypothesis: Outsourcing Integrating Operation has a significant effect on firm performance

Alpha level: 0.05

Test Statistic t= 6.077

Critical Test Statistic $t_{(59, 0.05)} = 1.67109$

Since Test statistic t= 6.077 > Critical statistic =1.67109, then reject the null hypothesis. ($p=0.000 < 0.05$). This implies that Outsourcing Integrating Operation has a significant effect on firm performance.

4.6.2 Outsourcing Warehousing Operations does not have a significant effect on firm performance

Null hypothesis: Outsourcing Warehousing Operations does not have a significant effect on firm performance

Alternative Hypothesis: Outsourcing Warehousing Operations has a significant effect on firm performance

Alpha level: 0.05

Test Statistic t= 2.498

Critical Statistic $t_{(59, 0.05)}$ = 1.67109

Since Test statistic t= 2.498>Critical statistic =2.498 then reject the null hypothesis. (p=0.015< 0.05). This implies that Outsourcing Warehousing Operations has a significant effect on firm performance

4.6.3 Outsourcing Transportation Operations does not have a significant effect on firm performance

Null hypothesis: Outsourcing Transportation Operations does not have a significant effect on firm performance

Alternative Hypothesis: Outsourcing Transportation Operations has a significant effect on firm performance

Alpha level: 0.05

Test Statistic t= 3.424

Critical Statistic $t_{(59, 0.05)}$ = 1.67109

Since Test statistic t= 3.424 >Critical statistic =1.67109, then reject the null hypothesis. (p=0.001< 0.05). This implies that Outsourcing Transportation Operations has a significant effect on firm performance

4.6.4 Outsourcing Inventory Operations does not have a significant effect on firm performance

Null hypothesis: Outsourcing Inventory Operations does not have a significant effect on firm performance

Alternative Hypothesis: Outsourcing Inventory Operations has a significant effect on firm performance

Alpha level: 0.05

Test Statistic t= 6.343

Critical Statistic $t_{(59, 0.05)} = 1.67109$

Since Test statistic t= 6.343, Critical statistic =1.67109, then reject the null hypothesis. ($p=0.000< 0.05$). This implies that Outsourcing Inventory Operations has a significant effect on firm performance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study, conclusions, recommendations, limitations of the study and suggestions for further study.

5.2 Summary of Findings

This study was set to identify the effect of outsourcing Logistics Practices to 3PLs on Firm Performance of Manufacturing firms in Nairobi. In order to achieve this, the study investigated the effect of outsourcing four main components of logistics outsourcing namely Integrating Operations, Warehousing Operations, Transport Operations and Inventory Operations on performance of manufacturing firms in Kenya. The study targeted manufacturing firms in Nairobi and its environs, with the sample size being generated using cluster sampling by clustering manufacturing firms according to sectors. A descriptive research design was adopted because it made it possible for the respondents to accumulate findings from all forms of inquiry such as personal accounts, case studies or observations. Data collected was then analyzed using descriptive and regression analysis with the help of SPSS version 22. This section presents the results based on every objective set for the study.

5.2.1 Effect of Integrating Operation on Firm Performance

The study investigated the effect of Integrating Operations on Firm Performance. From the responses, it was emerged that respondents agreed that indeed firm performance is affected when a manufacturing company integrates its operations. This was indicated by an average mean score

of 2.32, which implies that majority of the respondents agree with various questions posed before them. This is as far as the effect integrating operation has on improving firm revenue, supply chain sustainability, increasing demand, eliminating waste, ensuring higher profit margins and increasing flexibility is concerned. On the other hand, regression analysis results indicated that an increase in Integrating Operations increases Firm Performance significantly. Furthermore, hypothesis testing results confirm this by indicating that outsourcing Integrating Operations has a significant effect on Firm Performance of manufacturing firms in Nairobi and its environs.

These results are also comparable to what other studies have found. For instance, while investigating the role of internal supply chain integration on the supply chain performance of corporations in Kenya, Njagi and Ogutu (2014) found that most state corporations integrated the operations of their supply chains. By so doing, these organizations managed to create better relationships with suppliers and also were in a better position to manage their customer relationships. In the long run, this improved their financial performance. This is also the case as far as the findings from this study suggest. Gichuhi's (2013) study on the relationship between internal business integration and Supply Chain Performance among commercial banks in Kenya also revealed that integrating operations improves financial performance.

5.2.2 Effect of Outsourcing Warehousing Operations on Firm Performance

The study also established the effect of outsourcing Warehousing Operations on Firm Performance. Based on descriptive statistics, an average mean score of 2.24 implies that majority of the respondents agree that outsourcing Warehousing Operations affects firm performance. This is with regard to its effect on developing the business, allowing access to information on inventory held, reducing capital investment as well as improving warehousing health and safety issues. Moreover, outsourcing warehousing helps in providing the firm with the ideal location for

business operations, increasing knowledge and expertise, allowing access to information on deliveries and also reducing damage to commodities as a result of proper storage.

Regression results also give a statistically significant coefficient for Outsourcing Warehousing Operations, which implies that an increase in outsourcing warehousing operations will increase firm performance holding integrating operations, transportation and inventory operations constant. Finally, hypothesis testing confirms this claim by indicating that indeed, Outsourcing Warehousing Operations has a significant effect on Firm Performance.

Other studies have also revealed the same finding reported by this study. For example, Kogoh (2015) highlighted that outsourcing warehousing operations is a key logistic function that can be used by an organization to improve supply chain performance. The findings of this research demonstrated order processing, warehousing and transport logistics outsourcing were found to have a statistically positive effect on the performance of the logistics industry in Kenya. Additionally, as indicated by Farahani, Rezapour and Kardar, (2011), outsourcing warehousing operations provides economies of scale through efficient operations, storage capacity and central locality, which in turn improve firm performance in the long run. As such, the findings reported by this study are backed up by these two studies.

5.2.3 Effect of Outsourcing Transport Operations on Firm Performance

As far as the effect of Outsourcing Transport Operations on Firm Performance is concerned, this study found out that indeed firm performance is affected when a company outsources its transport operations. This claim is backed by the respondents who took part in the study as they agreed to various questions posed to them about the advantages of outsourcing transport operations to their manufacturing companies. Descriptive analysis results indicated an average mean score of 2.25, which indicates that the respondents agree that outsourcing transportation

activities affects firm performance. This is because they agreed to questions that needed them to respond to how transportation is important to their respective manufacturing firms mainly because it makes sure transportation operations never fall victim to the constantly changing supply chain environment, how it leverages industry relationships and shipment volumes to get lower prices, how it increases operational control, how it protects the organization from penalties and fines, how it provides the custom data the company desires and how it transfers the risks of transportation operations to the logistics provider. Coefficient for Outsourcing Transportation Operations obtained from regression analysis result also indicated that holding integrating operations, warehousing and inventory operations constant, an increase in outsourcing transportation operations will increase firm performance. Hypothesis testing further strengthens this position by indicating that Outsourcing Transportation Operations has a significant effect on firm performance.

These findings are also backed up by studies conducted by Melkam (2016) who while studying the effect of outsourcing logistics activities of Ethiopian Airlines on its logistics performance indicated that Ethiopian highlands outsource their logistics activities and as a result, get to enjoy the services of expert personnel resulting to the efficient usage of the company's assets. Based on this study's findings, such advantages can be replicated to manufacturing industries who outsource their transportation operations.

5.2.4Effect of Outsourcing Inventory Operations on Firm Performance

Finally, the last objective sought by the study was to identify the effect of Outsourcing Operations on Firm Performance. From the analysis, a mean score of 2.36 implies that a majority of the respondents agreed that outsourcing Inventory operations also affects firm performance. This is because they agreed that it offers discounts on freight rate, which ultimately saves the

firm money. Additionally, they agreed that it reduced delivery distances and costs, leads to proper space utilization, allows for minimization of inventory levels, eliminates the hassle of managing employees and keeps track of the organization inventory. Regression analysis results on the other hand indicated a statistically significant coefficient for Outsourcing Inventory Operations which indicates that holding integrating operations, warehousing and transportation operations constant, an increase in outsourcing inventory operations will increase Firm Performance. Hypothesis testing results further confirm this by indicating that Outsourcing Inventory Operations has a significant effect on firm performance.

Other studies have also indicated the same findings, as illustrated by Lwiki, Ojera, Mugend, and Wachira, (2013). Through their study on The Impact of Inventory Management Practices on Financial Performance of Sugar Manufacturing Firms in Kenya, they identified that many manufacturing companies apply various techniques in the management of their inventories. By so doing, these firms have managed to enjoy specific advantages such as improvements on profitability, returns and volume of sales. All these translate into an improvement in form performance.

5.3 Conclusion

Based on the summary of the results, this study therefore made four key conclusions. First, the study concludes that outsourcing logistics from Third Party Companies has a positive effect on firm performance. As indicated by the results, all the four components of logistics outsourcing sought by this study have a positive effect on firm performance. These include Integrating Operations, Warehousing Operations, Transportation Operations and Inventory operations. As such, this study concludes that outsourcing these four components will serve to increase firm performance.

It is important to note that the conclusion made by this study is unique from what other studies have made. Unlike most researches such as those done by Kogoh (2013) and Meklam (2016) who studied outsourcing logistics as a whole as well as, Lwiki, Ojera, Mugend, and Wachira, (2013) who studied inventory management, this study captured various components of outsourcing logistics including integration, transportation, warehousing as well as inventory operations. As such, the study is more relevant to a wider scope of manufacturing firms looking to identify the effect these logistic components would have on their firm performance. This will also help them decide on the component they would be more likely to use.

5.4 Recommendations.

Based on the conclusion, this study therefore makes the following recommendations;

Manufacturing firms should integrate their Operations with third party logistics companies. This is because by doing so, they will be able to improve firm revenue, boost their supply chain sustainability and increase the demand of their products while at the same time eliminating waste in their operations which in turn leads to higher profit margins and increase in flexibility of their operations.

Secondly, the study also recommends manufacturing firms to outsource warehousing operations. This is because doing so would develop the business, allow access to information on inventory, reduce capital investment as well as ensure that warehousing health and safety issues are handled on time if not reduced to none. Moreover, outsourcing warehousing helps in providing the firm with the ideal location for business operations, increasing knowledge and expertise, allowing access to information on deliveries and also reducing damages to commodities as a result of proper storage.

Thirdly, the study recommends manufacturing companies to also outsource Transportation services from Third Party logistics providers. This is because 3PLs providers offer the company the comfort that transportation operations never fall victim to the constantly changing supply chain environment, leverage industrial relationships and shipment volumes to get lower prices and increase operational control. These companies will also be able to protect the organization from penalties and fines, provide custom data the company desires and transfer the risks of transportation operations to themselves, or away from the contracting company.

Finally, the study also recommends manufacturing companies to outsource to 3PLs providers their Inventory Operations. This is because it offers them discounts on freight rate, which ultimately saves the firm money. Additionally, it reduces delivery distances and costs, leads to proper space utilization, allows for minimization of inventory levels, eliminates the hassle of managing employees and keeps track of the organization inventory.

5.5 Limitations of the Study

This section presents the limitations of the study as identified by the researcher. First, it is important to point out that this study considered a qualitative measure of firm performance, where respondents were asked to fill in questionnaires. Some respondents were reluctant to answer them, citing confidentiality of company information. However, the researcher handled this limitation by making it clear to them that this research was mainly for academic purposes, and that the information required to be filled would not compromise their organizations in any way.

Further, the respondents had busy working schedules in their organizations which threatened to derail the process of data collection. The researcher tackled this limitation by emphasizing to the respondents that the data was needed urgently in order to meet the academic deadlines. Finally,

the accuracy of the data collected was mainly dependent on what was provided by the respondents from the manufacturing firms. As such, there was need for the respondents to answer the questions honestly and accurately. The researcher therefore handled this limitation from answering the respondents' queries on the questions that the respondents didn't understand.

5.6 Area for Further Research

It is important to point out that this study considered a qualitative measure of firm performance, where respondents were asked to answer questions regarding its relationship with outsourcing logistics. However, there are other ways of measuring firm performance, such as the use of the company's finances such as ROA and ROE. This study therefore recommends undertaking a study that will investigate the effect of outsourcing logistics to third party providers on financial performance of these manufacturing companies.

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APPENDICES

Appendix I: Introduction Letter

Address

Dear Respondent,

My name is Anastacia Wandiri Njagi, a student at KCA University, carrying out a study on the effectiveness of third party logistics practices on the firm performance of manufacturing firms in Nairobi and its environs. This is in partial fulfillment of the Requirement for the Award of a Masters' Degree in master of business administration in procurement and supplies management.

The attached questionnaire contains three sections, 'A', 'B' and 'C'. Section 'A' contains questions about yourself while Section 'B' has statements with regard to views you may have in regard to 3PL providers contracted by your company. Section C has statements that relate to the firm performance of your company. There are no right or wrong answers. Please answer all questions.

Please note that this is strictly an academic exercise towards the attainment of the above mentioned purpose. You are hereby assured that the information will be treated with the strictest confidence.

All questionnaires are to be collected within (2) weeks of receipt thereof.

Your co-operation will be highly appreciated.

Regards

……..

Appendix II: Questionnaire

SECTION A: DEMOGRAPHIC INFORMATION

Please tick as appropriate in the boxes using a tick (√) or cross mark (x).

1. Gender

Male	[ ]	Female	[ ]

2. Age Bracket in years

20-25	[ ]	26-30	[ ]
31-35	[ ]	36-40	[ ]
41 -50	[ ]	51 and Above	[ ]

3. Highest level of education

a) Undergraduate Level [ ] b) Post-Graduate Level [ ]

c) Post Graduate Level [ ] d) Any other (Specify) ……

4. Name of the Company…….

5. What position do you hold in this organization?

a) Logistics Officer

b) Fleet Management Manager

c) Procurement officer

d) Other……

6. How long have you been in this position?

a)	Less than 1 year	[ ]	b)	1 - 5 years	[ ]
c)	6 – 10 years	[ ]	d)	above 10 years	[ ]

7. Kindly indicate the extent to which the following components of outsourcing logistics are implemented in your manufacturing firm. Indicate based on the scale below;

1-Very Low Extent, 2-low extent, 3-moderate extent, 4-large extent, 5-very large extent

Component	**1**	**2**	**3**	**4**	**5**
Integrating operation					
Outsourcing Warehousing Operations					
Outsourcing Transportation Operations					
Outsourcing Inventory Operations					

SECTION B: OUTSOURCING LOGISTICS IN MANUFACTURING FIRMS

1. **To investigate the effect of integrating operations on firm performance of manufacturing firms in Kenya**

On a scale of 1-5, respond to the following

1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree

Questions	**1**	**2**	**3**	**4**	**5**
Integrating operations allows the firm to Stay on top of demand					
Integrating operations brings about flexibility.					
Integrating operations eliminates waste					
Integrating operations maintains a sustainable supply chain					
Integrating operations is the best way to ensure that the supply chain is sustainable and successful in the long term.					
Integrating operations increases firm revenue					
Integrating operations results in higher profit margins					

Any Other…….

2. **To determine the effect of outsourcing warehousing Operations on firm performance of manufacturing firms in Kenya**

On a scale of 1-5, respond to the following questions

1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree

Questions	**1**	**2**	**3**	**4**	**5**
Outsourcing warehousing enables the firm to concentrate on developing the business.					
Expertise and knowledge of the industry from 3PL providers is useful.					
Outsourcing warehousing allows access to information on inventory					
Outsourcing warehousing allows access to information on deliveries.					
Outsourcing 3PL warehousing Results to reduced warehouse health-safety compliance issues					
Outsourcing 3PL warehousing providers provide the firm with the Ideal distribution location					
Hiring a 3PL warehousing outsourcer has Reduced capital investment					
Outsourcing 3PL warehousing Leads to Less damages to commodities due to proper storage					

Any Other…….

3. **To investigate the effect of outsourcing transport operations to 3PL providers on the performance of manufacturing firms in Kenya.**

On a scale of 1-5, respond to the following questions.

1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree

Questions	**1**	**2**	**3**	**4**	**5**
How important is transportation to the logistics quality of your firm					
3PLs leverage industry relationships and shipment volumes to get lower prices.					
Outsourcing transfers the risks of transportation operations to the logistics provider					
Outsourcing transportation protects the organization from penalties.					
Transport Management Software technology provides the custom data you desire.					
Outsourcing transportation increases operational control					
Outsourcing transportation make sure transportation operations never fall victim to the constantly changing supply chain environment.					

Any Other…….

4. **To investigate the effect of outsourcing inventory operations on the performance of manufacturing firms in Kenya.**

On a scale of 1-5, respond to the following questions.

1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree

Questions	**1**	**2**	**3**	**4**	**5**
Placing inventory in warehouses closer to customers can reduce delivery distances and costs.					
Allows for minimization of inventory levels					
Outsourcing also eliminates the hassle of managing employees.					
Outsourced inventory management keeps track of the organization inventory					
Outsourcing Inventory Operations leads to proper space utilization					
Inventory Management providers often offer discounts on freight rate, which ultimately saves the firm money.					
Time Intensive Shipping Activities are a Thing of the Past					

Any Other…….

SECTION C: FIRM PERFROMANCE

9. The following are statements on firm performance of your manufacturing firm as far as outsourcing logistics is concerned. Kindly indicate your level of agreement with them according to the following scale:1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree

Statement	**1**	**2**	**3**	**4**	**5**
Outsourcing practices leads to organizational effectiveness					
Outsourcing practices results to increased productivity					
The organization profits increased as a result of outsourcing practices					
Outsourcing practices results to continuous improvement					
Outsourcing of non-core functions such as administration helps to put the focus back on the core functions of the business.					
By increasing productivity and efficiency, the firm becomes more successful.					
By increasing productivity and efficiency, the firm becomes better-prepared.					
By increasing productivity and efficiency, the firm has a streamlined cash flow.					

Outsourcing frees up organizations from investments in technology that make up the bulk of a back end process' capital expenditure.					
Outsourcing frees up organizations from investments in infrastructure that make up the bulk of a back end process' capital expenditure.					
Outsourcing frees up organizations from investments in people that make up the bulk of a back end process' capital expenditure.					

Any Other…….

Thank you