STRATEGIC INBOUND TRANSPORTATION MANAGEMENT PRACTICES AND PERFORMANCE OF LARGE-SCALE MANUFACTURING FIRMS IN KENYA

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DECLARATION

This research Project is my original work and has not been presented to any other institution of higher learning for award of degree or diploma.

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This research project has been presented for examination with my approval as the university supervisor.

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DEDICATION

This project is dedicated to my parents Jason Misuko and Josephine Misuko, my husband Douglas Marube and my children Brendon and Kyla for their moral support, love and encouragement when I was writing this project.

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ABBREVIATIONS AND ACRONYMS

EDI	Electronic Data Interchange
FHWA	Federal Highway Administration
FMMS	Freight Forwarding Management Systems
FTL	Full Truck Load
KAM	Kenya association of Manufacturers
LTL	Less than Truck Load
PwCIL	Price waters Consultancy International Limited
SCM	Supply Chain Management

ABSTRACT

Streamlining and controlling inbound transportation is a cost cutting measure and maintaining competitiveness in pricing and targeted profitability. Inbound transportation is very essential for business competitiveness and more particularly to the globalised or internationalised businesses. Firms that have adopted strategic inbound transportation practices have succeed while others have failed. The objectives of this study were to determine the strategic inbound transportation practices used by large scale manufacturing firms in Kenya and to establish the relationship between strategic inbound transportation management practices and transportation performance of large scale manufacturing firms. To achieve the objective of this study, the researcher used a descriptive research design. The population for this study involved the sampled 46 manufacturing firms that were concentrated within Nairobi County. The study used both primary and secondary data sources that were collected using semi-structured questionnaires. Data analysis was done using a descriptive statistics and a regression model. The researcher managed to collect 40 questionnaires out of the 46 that were distributed to the respondents. This represents a response rate of 87% which was considered sufficient for making generalization on all the large scale manufacturing firms in Nairobi County. The study concluded that the most widely used strategic inbound transportation practices by large scale manufacturing firms were carriers and forwarders selection management practices and freight consolidation and optimization management practices. Strategic partnership practices, preparation and execution shipment, technology integration management practices and monitoring and evaluation practices were least used by large scale manufacturing firms. The regression results concluded that strategic inbound transportation practices was positively related to transportation performance of large scale manufacturing firms in Nairobi County. Further, the regression model was found to be statistically significant in explaining the relationship between strategic inbound transportation practices and transportation performance of manufacturing firms in Nairobi County. The study recommends that Kenya Association of Manufacturers should set policies that encourage and promote manufacturing firms to effectively adopt and implement strategic inbound practices to achieve reduced transportation costs, reduced defects, improved efficiency and reduced lead time. The limitations of this study are that the researcher faced significant cost and time constraints. The study was limited to a sample of 46 large scale manufacturing firms that are concentrated within Nairobi County. The findings obtained herein might not be conclusive. It would have been appropriate if future researchers consider expanding the scope of this study to include all the large scale manufacturing firms in Kenya. Then, findings obtained can be compared upon which more reliable conclusion can be drawn. The study suggests that a comparative study should be conducted on strategic inbound transportation management practices should be investigated in another sector other than manufacturing sector that are similar in terms of size and areas of intervention, findings can be compared upon which reliable conclusion can be drawn based on concrete facts.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Globalisation is increasingly gaining credence, as aids to trade like transportation through sourcing and distribution have become global. More opportunities for retailers have been expanded in the supply chain and this global sourcing has resultant effect on increasing import volumes significantly (Tiwari and Trivedi, 2012). Globally top retail chains are responsible for imports of over 30 percent by volume for better financial performance and provision of varieties to choose from for the end consumers.

Success in logistics and supply chain management is never conclusive without attribution to the role of transportation. Fundamentally, transportation even though often ignored is clearly competitive edge (Sandberg and Abrahamsson, 2011). There is a significant relationship between the logistics performance measurement and improved organization performance. Logically, the strategic inbound transportation is aimed at lowering costs and service delivery improvements to outbound transportation networks which are visible to the end-customers and directly attributed to revenue gained in an organization. In reality, a complete supply chain strategy should focus inbound transportation of supplies through end products shipped to end consumer (Hamilton, 2015).

Logistics management plays a pivotal role in supporting organizations as they strive to attain more efficient and effective supply chain management systems in order to respond to the needs of customers with the lowest price within the shortest time frame to provide value adding goods and services. Supply chain management incorporates logistics as a key supply chain function. Gwaro (2011) indicates that to succeed in

transportation management firms should integrate their logistics functions with modern technology to enhance integration of logistics functions and activities. This enables the firm to minimize logistics costs and communication costs. Kiraga (2014) concluded that most humanitarian organisations that have succeeded in logistics management used supply chain collaboration in their logistics management to collaborate effectively with their customers, suppliers and transportation providers to increase efficiency, accuracy and on-time deliveries.

1.1.1 Strategic Inbound Transport Management Practices

Inbound transportation refers to the transportation, storage and delivery of goods and raw materials coming from suppliers. Therefore strategic inbound transportation practices are the best practices that are used in transportation to ensure manufacturers' cost optimization. Many buyers get advantage when buying goods Free On Board origin as they are at liberty to determine which carriers will be forwarding the goods and as well as pick-up and delivery (Sambracos and Ramfou, 2013). Strategic Inbound Transportation Practices (SITP) enables the companies to make choices on the freight. Some of these practices include; carrier selection, freight consolidation and optimization, technology integration, strategic partnerships, preparation and executing shipments and monitoring and evaluation.

The principle advantages of inbound freight management include the ability to plan and schedule inbound shipment through directed and traceable carriers, reduced inbound congestion at the ports and docks, having dedicated carriers imply that the costs can be lowered through loyalty schemes, improved ability to monitor inbound freight costs and choices, lower transportation costs through consolidation of shipments and improved handling of problems and maintained data records (Farris II,

2010). A strategic overview of transportation management is conceptually vital in understanding the strategic purchasing and logistical process of the firms.

1.1.2 Transportation Industry in Kenya

Transport is the movement of people, goods and services from one end to another. The transport sector in Kenya encompasses a transport system comprising of road, rail, air and maritime. The sector is crucial in the promotion of socio-economic activities and development since an efficient and effective, transport system is a mainspring for rapid and sustained development in terms of national, regional and international integration, trade facilitation, poverty reduction and improvement of welfare of the citizen. The Ministry has two Departments namely; State Department of Transport and State Department of Infrastructure (Ministry of Transportation and Infrastructure, 2014).

1.1.3 Transportation Performance

The United States' Federal Highway Administration (2015) defines transportation performance management as a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals. Transportation performance management is a continuously and systematically applied process that offers vital information to guide decision making by providing rationale for investment decisions in multiple of markets, improving the communication between those making decisions, stakeholders and travelling public, while ensuring that targets and measures are instituted through cooperative and collaborative partnership and based on validated evidence and objective information (FHWA, 2015).

Decision making regarding the apportioning of resources that are dedicated to transportation and best utility at least cost must have sound and effective performance

measures (Federal Highway Administration (FHWA), 2015). It very necessary to do a cost benefit analysis of the transportation performance required before investing in inbound transportation. FHWA report (2015) presented several reasons why transportation performance is very necessary in strategic inbound transportation. Proper management of transportation performance leads to better decisions, efficiency and effectiveness in allocation of resources; enhanced level of accountability and transparency; and improvement in communication between the decision makers and target clients and by extension the public (Tracey, 2004).

1.1.4 Large Scale Manufacturing Firms in Kenya

The manufacturing sector is a key sector of growth, with its share in gross domestic product having risen to 15.7 per cent in 2014. Kenya attracts a large number of investors who now thrive in many sectors of manufacturing. The manufacturing sector comprises of more than 700 established enterprises and employs over 2,000,000 people. Kenya exports mainly to East Africa and COMESA markets. According to the Economic Recovery Strategy for Employment and Wealth Creation Report, the manufacturing sector is a major source of growth, with still high potential of growth and investment (KAM, 2014).

According to KAM (2014) a large manufacturing is one with more than 100 employees. Currently, the large scale manufacturing subsector's most crucial critical needs are employment creation and value creation including participation in global trade. The Kenya's vision 2030 has highlighted that the entire large-scale manufacturing subsector has potential for growth and international competitiveness (PwCIL, 2012).

Currently there are 627 large scale manufacturing firms in Kenya operating in twelve subsectors ranging from construction, food processing, chemicals, energy, plastics, textiles wood, and pharmaceuticals, metal, leather, automobiles and paper processing firms (KAM, 2014).

1.2 Research Problem

Streamlining and controlling inbound transportation is a cost cutting measure and maintaining competitiveness in pricing and targeted profitability. Inbound transportation is very essential for business competitiveness and more particularly to the globalised or internationalised businesses (Farris II, T. M. (2010). It must however be noted that it is no longer exclusively a source of comparative and competitive advantage at the micro-level. Inbound transportation practices do not enable manufacturing companies to be distinctively standing out from their competitors. Inbound transportation is essential to business competitiveness but is increasing becoming inconsequential to strategic thrust (Aberdeen Group (2010). In its sense, inbound transportation can be best viewed or probably managed as a commodity. Business-process improvement, competitive advantage, optimization, and business success are the essence of business but they are not commodities or tangible.

Large scale manufacturing firms will be the main focus of this study. This is because according to Cozollino (2012) they manufacture, produce and distribute the highest volumes of goods and services compared to medium and small scale firms and hence serves a large market since most consumers highly depend on them for quality goods and services. Strategic inbound transportation practices play an integral role in transportation, storage and delivery of goods and raw materials from the suppliers.

Studies have been done in relation to strategic inbound transportation management practices and transportation performance as follows: Zhou and Cao (2008) studied the relationship between logistics management practices and distribution performance on service delivery reliability. The results revealed that logistics management practices contributed to reduced transportation costs. Green, Whitten, and Imman (2008) investigated the relationship between logistics practices and organizational performance of firms in United States. The findings revealed that there was a positive relationship between logistics practices and organizational performance. Roth, Cattani, and Froehle (2008) studied the logistical determinants and performance results for selected leading global companies found that role of information communication technology (ICT) and logistical management was an important tool for enhancing business sales.

Achola (2012) studied the role of logistics outsourcing in leveraging operational competitiveness among blue chip companies in Kenya. The findings depicted that logistics outsourcing led to minimized costs and this enhanced operational competitiveness. Gwaro (2011) examined the logistics innovations in the road transport sector in Kenya. The results revealed that logistics innovations led to operational efficiency, reduction in costs of operating and improved customer satisfaction by the road transport sector firms in Kenya. Kiraga (2011) did a study on transport management practices and logistics performance of humanitarian organizations in Kenya. The findings concluded that effective management of transport led to improved performance of humanitarian organizations.

This study therefore seeks to establish the relationship between strategic inbound transportation practices used by large scale manufacturing firms in Kenya by answering the following questions: what are the strategic inbound transportation

practices commonly used by large scale manufacturing firms in Kenya? What is the relationship between strategic inbound transportation management practices and transportation performance of large scale manufacturing firms?

1.3 Research Objectives

The objectives of the study are:

i. To determine the strategic inbound transportation practices used by large scale manufacturing firms in Kenya.
ii. To establish the relationship between strategic inbound transportation management practices and transportation performance of large scale manufacturing firms.

1.4 Value of the Study

In theory, policy and practice, the study will help understand the contradictions surrounding the support for manufacturing positioning to invest in supply chain configurations that facilitate improved service delivery and better performance. The contextualized Kenyan Model will improve transportation performance management. This will improve business firms' make better decisions; efficient allocation of resources; increased accountability and transparency; and facilitate enhanced communication with decision-makers and the public.

Policy influence for regulatory reforms for inbound freight requires consolidated evidence. This study serves to improve the threshold of evidence for implementing and initiating integrated approach to purchasing and transportation functions that provide opportunity for improved outcomes of new transportation environment. The study envisages reviewing simulation models of inbound freight analysis and recommend the cost effective and timeliness for business and service delivery.

Those in practice and academia have theorized and implemented the concept of supply chain management (SCM); as part of logistics, equating it to logistics, or as integrating into business operation. This study proposes to relate the strategic inbound transportation practices and transportation performance of high value manufacturing firms. The conceptual and regression models based on strategic inbound transportation practices will provide guidance for future logistics decision-making and research.

CHAPTER TWO LITERATURE REVIEW

2.1 Introduction

This chapter explores relevant literature on strategic inbound transport management practices and transportation performance. Below is the discussion:

2.2 Theoretical Framework

This section discusses the theories that support this study. These theories are knowledge-based view and resource-based view as follows:

2.2.1 Knowledge-Based View

Knowledge-based view considers intangible resources of organizations as well. The theory looks at various dimensions to the development of this view namely: organizational learning, organizational capabilities and competencies. This theory promotes sharing of knowledge for purposes of improving efficiency and value creation. Arntzen and Trafton (2005) emphasize creation of value that can only be achieved through internal and external organizational supply chain collaboration (Anand and Ward, 2004).

Hong and Liu (2004) applied the knowledge-based view to the information process and knowledge development in organizational supply chain performance. They could describe the substantial variance in cycle time of organizational supply chain performance using knowledge-based view. This shows the relevance of sharing of knowledge in achieving supply chain performance in an organization.

The relevance of this theory with regard to the objective of this study is that it demonstrates the use of strategic inbound transportation management practices as a

resource that leads the organization to reduction of transport and communication costs and thus contributes to supply chain performance (Atkinson, 2001).

2.2.2 Resource-Based View

Resource-based view is an organizational theory mostly concerned with the economic aspect of operations of organizations. The theory provides more understanding of the value of systems in the organization as it puts more emphasis on the significance of knowledge as a factor of production. Lavassani (2009) identified two main schools of thought in the development of resource-based view. These schools are namely: the modern school of thought and the classical school of thought. The classical school of thought describes that to achieve competitive advantage against its rival's organizations must develop core competence by making maximum use of their available resources. The critiques of this theory argue that the organizations may utilize their core competence and fail to achieve competitive advantage over their rivals. More attention has been paid to the application of resource Based view in the organizational supply chain management during the past decade:

Morash and Lynch (2002) used resource based theory in the study of global supply chain capability and performance. Seuring and Beske (2009) studied the application of resource-based view in the impact of information technology on organizational supply chain capabilities and performance. Gold, Seuring, and Beske (2009) further reviewed the application of resource-based view to inter-organizational relations of businesses. These studies found that organizational resources was an important competitive towards achieving a competitive advantage. The critics of this theory have argued that there are no specific strategies for acquiring resources that are

essential for growth and achieving competitive advantage by the organization and that this view is limited to tangible resources.

The relevance of this theory is that strategic inbound transportation management practices are intangible resources that firms might utilize as part of the organizational capabilities to gain a competitive advantage by integrating strategic inbound management practices to suite customer needs.

2.3 Strategic Inbound Transport Management Practices

Strategic inbound transportation practices are the best practices that are used in transportation to ensure that manufacturers optimize cost (Mansidao and Coelho, 2014). These are those methods or techniques found to be the most effective and practical means in achieving transportation objectives such as low costs, timely delivery of transportation related information to the rest of the enterprise and to customers, increase transportation velocity while making optimum use of the firm's resources (Stock and Lambert, 2001). A well-run inbound transportation program can reduce costs, improve service, minimize delays, reduce confusion, and raise performance. It can drive efficiencies across the entire supply chain (Russell and Taylor, 2003).

2.3.1 Carriers/Forwarders Selection

In logistics management, the key decision is on selecting the best carrier to use in terms of the number of carriers you hire to move your freight, reducing and consolidating the number of carriers or selecting a dedicated freight forwarder that will benefit overall transport logistics (Docherty, Giuliano and Houston, 2008). Using fewer dedicated key carriers enables you to: reduce the complexity of administration requirements, establish relationships and liaisons with supply partners, negotiate more

favourable freight tariffs based on higher volumes for lower prices, transform your carrier/ forwarder into a key partner, create a vested interest for the carrier and forwarder to retain your business, improve service levels and lower your overall transportation costs (Aberdeen Group, 2015).

Mode choice and carrier selection are part of the decision-making process in transportation that includes identifying relevant transportation performance variables, selecting mode of transport and carrier, negotiating rates and service levels, and evaluating carrier performance (Monczka, 2005). It follows that the process of selecting an appropriate transport carrier is important to the firm's success (Anand and Ward, 2004). Make sure you set the terms for your transportation investment. In order to maximize efficiencies in terms of cost and timeliness, a firm should consider the most effective modes, efficient use of equipment, routing, packaging and containerization methods. (Cozzolino, 2012).

Economies of scope are readily apparent relative to the use of transportation equipment after it is emptied and has been addressed in a general context in container-on-barge operations (Choong, 2002), in inter-modal railroad-truck transportation (Evers, 1994) and in retail logistics (Dutton, 2003; Byrne, 2004). Select security-conscious carriers, shipping via secure ports, meeting packaging security requirements, and providing background information on key personnel (Rinehart, 2004). According to Coyle (2006) there is a need for logistic managers to consider environmental impact when selecting carrier mode.

2.3.2 Freight Consolidations and Optimization

For many small to medium sized businesses moving freight, shipment volumes are not always sufficient to purchase freight in Full Truck Load (FTL) or Full Container

Load (FCL) quantities. In terms of freight tariffs, smaller shipments tend to cost more and economies are realized through higher volume. It is therefore vital to consider the options for shipment consolidation. Always, its advisable to consolidate smaller shipments headed the same way and pool small parcels into zones and ship in bulk. Less than Truck Load (LTL) and Less than Container Load (LCL) shipments can be pooled through inbound or outbound consolidation hubs or combined into multi-stop truckload shipments. The savings to be realized through freight consolidations are considerable (Gammelgaard and Larson, 2001).

For airfreight, the use of unit load devices assists in loading planning and safety consideration during the entire flight. Several authors consider packaging to be one of the most important activities in supply chain and distribution networks (Jahre and Hatteland, 2004). It is the packaging that enables a product to be unitised, protected and transported securely. Consequently, the packaging's shape, volume and weight, which may differ to that of the product inside, have a significant impact on logistics activities and consider a consolidated container load.

2.3.3 Technology Integration

The emergence of new electronic technologies and web-based information exchange has resulted in the newly coined phrase E-Logistics to describe the application of this technology for transportation and trade logistics or any software which enhances the commercial trading process (Chopra and Meindl, 2004). The term therefore applies to several technologies which are available to companies conducting especially international transactions. When negotiating with service suppliers for freight and customs, be sure to ask about their capabilities with the following E-Logistics options for example Electronic Data Interchange (EDI) which involves the transmission of

customs and trade information between Canada Customs and between various stakeholders along the supply chain. This system helps large-scale manufacturing firms to link all aspects of the chain, enabling them to transmit messages not only to carriers, but to their customs broker and freight forwarder, suppliers and clients (Bolton and Wei, 2003). Freight Forwarding Management Systems (FFMS) is also important generally used by the Freight Forwarder to best handle complicated international shipments web-based tracking and tracing of your shipments. Bills of Lading, Certificates of Origin, fax or email docs to third parties, maintain carrier rate schedules, maintain quotations history and interface with their accounting package (Gustaffson, Jonson, Smith and Sparks, 2006).

Transportation Management System (TMS) is implemented by shippers or large distributors to handle shipments in high volumes for domestic and trans-border traffic. The TMS provides multi-carrier rates, transit times, and rate shopping comparisons. To help monitor, implement and assess an overall transportation strategy TMS can decide on preferred carriers, based on shipment specifications and destination, calculate freight charges such systems potentially lower transportation costs by as much as 10 to 15 per cent of annual freight budgets (Gustaffson, Jonson, Smith and Sparks, 2006).

2.3.4 Strategic Partnerships

Docherty, Giuliano and Houston (2008) argue that freight Forwarders and carriers are critical supply chain partners. A firm should establish a partnering approach with these suppliers by considering their service potential. By creating a strategic partnership, you can work towards your goals as a team. By transforming your forwarder or key carriers into crucial links within a firm's supply chain, the partner

can work together towards reducing administrative obstacles, establishing excellent lines of communication, sharing technologies such as web-based tracking and tracing and ultimately, of course, lowering costs.

When a firm is strategic in their approach to these relationships, they can exploit myriad opportunities for improvement and enhancement of their overall transportation program. A firm should transform their carrier/ forwarder into a key partner, create a vested interest for the carrier and forwarder to retain their business improve service levels and lower their overall transportation costs (Aberdeen Group, 2015).

2.3.5 Preparing and Executing Shipments

According to Mansidao and Coelho (2014) getting the right shipment on the right carrier's truck or vessel at the right time takes flawless planning. To be successful, a strategic transportation plan must be in place to guarantee lower costs and higher customer service levels for example for companies that use electronic data interface (EDI) and other communications to tender shipments, set and confirm pick up appointments and submit shipping documentation to their carriers. Shipping lines have online platforms where shippers can make bookings and process shipping instructions. Vessel schedules are available online and shippers choose suitable vessels depending on their loading requirements.

Preparation adjusts the order to meet internal company requirements and integrate the order into logistics systems's planning. Routing is done which includes order confirmation and generation of internal job orders. In shipment a firm should select optimal means of transportation and routing Mansidao and Coelho (2014)

2.3.6 Monitoring and Evaluation

Large scale manufacturers have come to develop specialized systems on the side for tracking and tracing, or fleet management, which they have opened up for use by other organizations. For these firms to ensure cost optimization it's their obligations to closely follow up on their cargo to improve on real time (Fugate, Mentzer and Stank, 2010). Key benefits include improved efficiency and reduced spending by the shipping department as they spend less time tracking and chasing proof of delivery information from carriers. Proactive notifications are provided by leading carriers routinely during delivery or pickup.

2.4 Transportation Performance Measurement

Performance measurement is very important as a strategic tool and also provides means to achieve the objectives required, fulfilling a firm's mission or strategy statement. Many firms have been observed to evaluate performance, primarily on the basis of cost and efficiency. Besides the financial measures, we now have the non-financial measures which include time, quality and flexibility. Time element has strategic importance in business and hence time has to be used as a strategic metric in performance measurement (Stack, 1990). Measuring, controlling and compressing time shall improve quality, reduce costs, improve responsiveness to customer orders, enhance delivery, increase productivity, increase market share and increase profits. Logistics Managers have to agree on the metrics to be used in evaluating performance with their transportation providers. Scheduling and attendance at review meetings should involve all levels in the organization.

Analysis of relationship between logistics performance and organizational performance established that logistics performance is not only multidimensional but is

also a function of various resources facilitating logistics based on outlined objectives and targeted outcomes against competing businesses (Fugate, Mentzer and Stank, 2010). Proper management of transportation performance leads to better decisions, efficiency and effectiveness in allocation of resources; enhanced level of accountability and transparency; and improvement in communication between the decision makers and target clients and by extension the public (Tracey, 2004).

2.5 SITP Management and Transportation Performance

Stank and Keller (2000) explains that the contribution of transportation management for manufacturing firms is highly significant as it reduces cost of transportation and enhances the level of delivery reliability through strategic collaboration of all value chain actors, modes and service providers (Placeholder1). Standard practice is that companies usually make choices to either manage international transportation, or domestic transportation, or both, to monitor the lifecycle and engage with partners throughout the transportation period. This goes through a rigorous process of bidding to complete on platform, awarding of contract, monitoring of execution and implementation changes made relying on the information gathered from analysed transportation data (Placeholder2). In transportation management, the value chain comprises the shippers, suppliers, and logistics service providers (Sandberg and Abrahamsson, 2011).

Most companies manage their entire lifecycle of transportation sourcing through planning, tendering, payments, audit, monitoring and evaluation and contract management. Resolution of discrepancies through a collaborative dispute workflow with transportation actors is a key component of the freight payment function (Placeholder3). These components of transportation management are geared towards

improving transportation reliability and customer service delivery at least cost (Bowersox and Closs, 2002).

According to Robinson (2005) a good and solid inbound programme allows one to: better understand the true cost of goods and transportation rates; have a review of vendor and supplier business processes; mapping of own internal buyer or purchasing processes; monitoring vendor shipments for verification that orders are on schedule during shipping; consolidation of shipments and optimization of loads and modes; gaining visibility to inbound orders transit or at destination points using a single data repository; reporting on compliance levels of vendors and supply chain performance; making changes to terms of sales and study freight allowances being offered.

There are challenges facing inbound transportation which include: factors affecting transportation costs like carrier acceptance rates, market volatility, order patterns, and quantities. To cushion the suppliers from the unknown costs, there is a margin of error that is usually delivered with price of inbound product thereby making it nearly impossible to understand how transportation is managed or difficulties in true costing per unit (Robinson, 2005). Lack of optimization is another gap where suppliers at times just want to get product shipped not for client's benefits to get it out of their way. This can be corrected through optimization of orders and consolidation of loads so that weights on trucks are maximized before being sent. It should be noted that highlighted challenges can be minimized through optimization, planning, automation, and collaboration that facilitates control of transportation costs, embracing Omni-channel, being compliant and adherent to set standards and multi-enterprise requirements; and utilization of data to improve operations (Green, Whitten and Imman, 2008).

Achola (2012) studied the role of logistics outsourcing in leveraging operational competitiveness among blue chip companies in Kenya. The findings depicted that logistics outsourcing led to minimized costs and this enhanced operational competitiveness. Gwaro (2011) examined the logistics innovations in the road transport sector in Kenya and he revealed that logistics innovations led to operational efficiency, reduction in costs of operating and improved customer satisfaction by the road transport sector firms in Kenya. Kiraga (2011) also did a study on transport management practices and logistics performance of humanitarian organizations in Kenya. The findings concluded that effective management of transport led to improved performance of humanitarian organizations.

Applying the right processes and being in possession of visibility, manufacturing companies regardless of size can improve their inbound segment of supply chain. Where an inbounds transportation is effectively planned, it is expected that resultant outcomes will be reduced costs, improved service quality, minimization of delays, reduced confusion and enhanced performance. There are several opportunities in inbound transportation practices that allow for one to go beyond basics: compliance; audit processes; reporting strategies and metrics; economic order quantities; and inventory strategies (Logility Voyager Solutions, 2015).

2.7 Summary of Literature Review

The literature review indicates that supply chain management plays a key role in organizations. Its success can be achieved through adoption and constant review of best practices in the industry by all supply chain partners. The main goal of a supply chain is to deliver the right supplies in the right quantities to the right locations at the

right time (Beamon & Balcik, 2008) and the strategic goal in logistics is to reduce costs, improve efficiency and increase customer value and satisfaction.

2.8 Conceptual Framework

This section provides the conceptual framework on the relationship between strategic inbound transportation management practices and transportation performance. It is hypothesized that strategic inbound transportation management practices leads to transportation performance as depicted in Figure 2.1

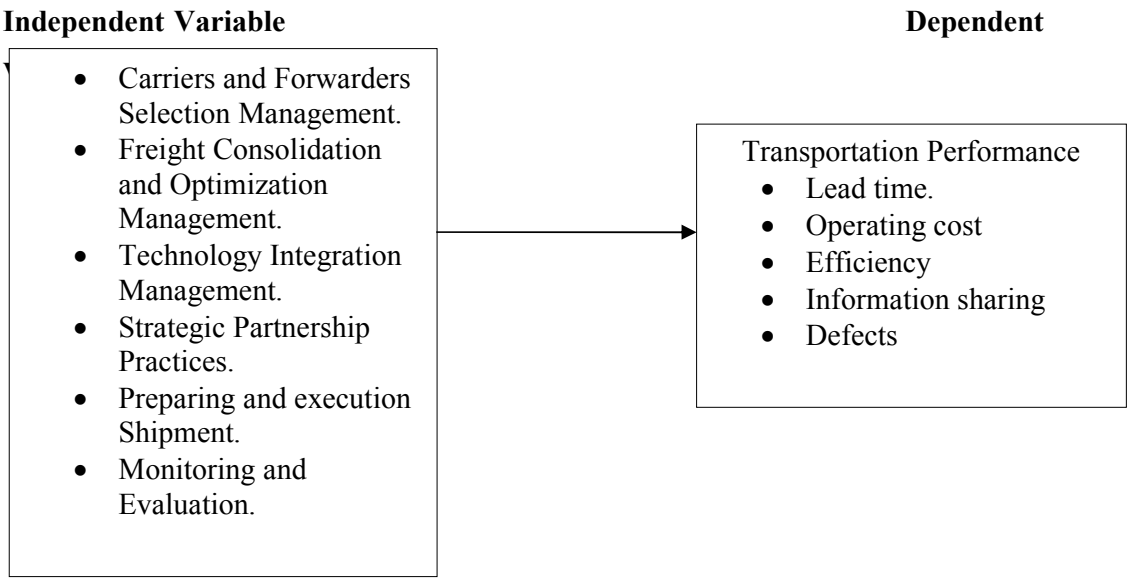


Figure 2.1: Conceptual Framework

Source: Researcher (2015)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology and areas to be covered including research design, target population, data collection instruments and data analysis techniques.

3.2 Research Design

This study used a descriptive research design. According to Kothari (2004) a descriptive survey is concerned with describing a population with respect to important variables with the major emphasis being establishing the relationship between the variables. The advantage of descriptive research design is that it is suitable when the population is large. A descriptive survey was used in explaining the relationship between strategic inbound transportation management practices and transportation performance of large scale manufacturing firms in Kenya.

3.3 Population

The population of the study included all large scale manufacturing firms in Kenya. According to the Kenya Association of Manufacturers (2014), there are 675 large scale manufacturing firms in Nairobi of which 455 were directly involved with inbound transportation. The study considered Nairobi because this is where most of the large scale manufacturing firms in all the sectors were concentrated and thus providing a population where a proportionate sample could be derived.

3.4 Sample Design

The sample size of this study included 46 respondents. This was arrived at through a formula developed by Kelley and Maxwell (2003) as shown below: 0.101=sample size multiplied by total population (0.101*455) =46. This formula was derived from a

series of samples assuming non-zero probability and is appropriate when the population is large. The study used a stratified sampling approach to determine the sample of the study provided in Appendix II of this study because the population of large manufacturing firms is heterogeneous. Stratified random sampling ensured that each manufacturing firm was represented in the sample for fair comparison and generalization of the findings. Table 3.1 shows how the sample size was arrived at.

Table 3.1 Sample Size

Sector	**No. of Firms**	**%**	**Respondent**
Building, mining & construction	6	1.31	1
Chemical& Allied sector	62	13.63	6
Energy, electrical & electronics	42	9.23	4
Food & beverages	100	21.98	10
Leather & footwear	8	1.75	1
Metal & Allied sector	38	8.35	4
Motor vehicle & Accessories	17	3.74	2
Paper & Board sector	48	10.55	5
Pharmaceutical & medical equipment	20	4.4	2
Plastics & rubber	54	11.87	5
Textile & Apparels	38	8.35	4
Timber, wood & furniture	22	4.84	2
Total	**455**	**100**	**46**

Source: Researcher, (2015)

3.4 Data Collection

For this study, primary data was collected by use of a structured questionnaire (See Appendix II). The questionnaires were in the form of Likert scale where respondents were required to indicate their views on a scale of 1 to 5. The questionnaire had three sections: Section A sought data on the general profile of the organization and the respondents, section B sought data to address the first objective of this study by

collecting data on the strategic inbound transportation practices commonly used by large scale manufacturing firms in Kenya. Section C addressed the second objective of the study which was to establish the relationship between strategic inbound transportation management practices and transportation performance of large scale manufacturing firms. Primary data was collected from the heads of logistics and supply chain or the equivalents. This is because they were considered to understand the strategic inbound transportation management practices and how it contributes to transportation performance of large scale manufacturing firms in Kenya. The questionnaires were administered by a "drop and pick" later method.

3.5 Data Analysis

The data collected was sorted, cleaned and coded before analysis. To achieve the first objective of the study which is to determine the strategic inbound transportation practices commonly used by large scale manufacturing firms in Kenya. The study used descriptive statistics which include: mean and standard deviation. To achieve the second objective of the study which was to establish the relationship between strategic inbound transportation management practices and transportation performance of large scale manufacturing firms in Kenya. The study used a regression model to see if there exists any relationship between the variables. The regression model consisted of six variables; the independent variables which are strategic inbound transportation management practices and the dependent variable is transportation performance of large scale manufacturing firms in Kenya. Below is the regression model that the researcher adopted for data analysis.

$$Y=a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + e$$

Where:

Y is transportation performance

a is the Y intercept when x is zero

b1, b2, b3, b4,b5and b6 are regression coefficients for the independent variables X1, X2, X3, X4, X5, X6

X1= Carrier management practices

*X*2= Freight consolidation and optimization practices

X3= Technology integration management practices

X4= Strategic partnership practices

X5= Preparing and executing shipments practices

X6 = Monitoring and evaluation

ε = error term

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

The study chapter provides a summary of the data analysis, results of the study and the interpretation of the results of the study. The results are presented on strategic inbound transportation practices and transportation performance of large scale manufacturing firms in Nairobi County. The specific objectives are as follows: To determine the strategic inbound transportation practices used by large scale manufacturing firms in Nairobi County and to establish the relationship between strategic inbound transportation management practices and transportation performance of large scale manufacturing firms in Nairobi County.

4.2 Response Rate

The researcher managed to collect 40 questionnaires out of the 46 that were distributed to the respondents. This represents a response rate of 87 percent which was considered sufficient for making generalization on all the large scale manufacturing firms in Nairobi County. This response rate is well above the 50 percentage which was recommended by Mugenda and Mugenda (1999).

4.3 Descriptive Information

This section covers the general information of the respondents and the organization. This was intended to find out whether the respondents were qualified to give accurate and reliable information as per the study objectives which were to determine the strategic inbound transportation practices used by large scale manufacturing firms in Nairobi County and to establish the relationship between strategic inbound transportation management practices and transportation performance of large scale

manufacturing firms. This demographic information about the organization was considered useful in determining whether these firms were in existence when these practices were first introduced.

4.3.1 Duration of Operation

The researcher sought to determine the duration in which large scale manufacturing firms had been in operation. The respondents indicated that at least 80% of large scale manufacturing firms had been in operation for a period exceeding ten years while 20% of the respondents indicated that most manufacturing firms had been in operation for less than ten years. This is an indication that most large scale manufacturing firms had been in operation for a period exceeding ten years.

4.3.2 Position of the Respondents

This was to determine if the positions of the respondents were relevant to enable them to give accurate and reliable information on strategic inbound practices and performance of large scale manufacturing firms in Nairobi County. Below are the results of the findings in Figure 4.1

Figure 4.1 Positions of the Respondents

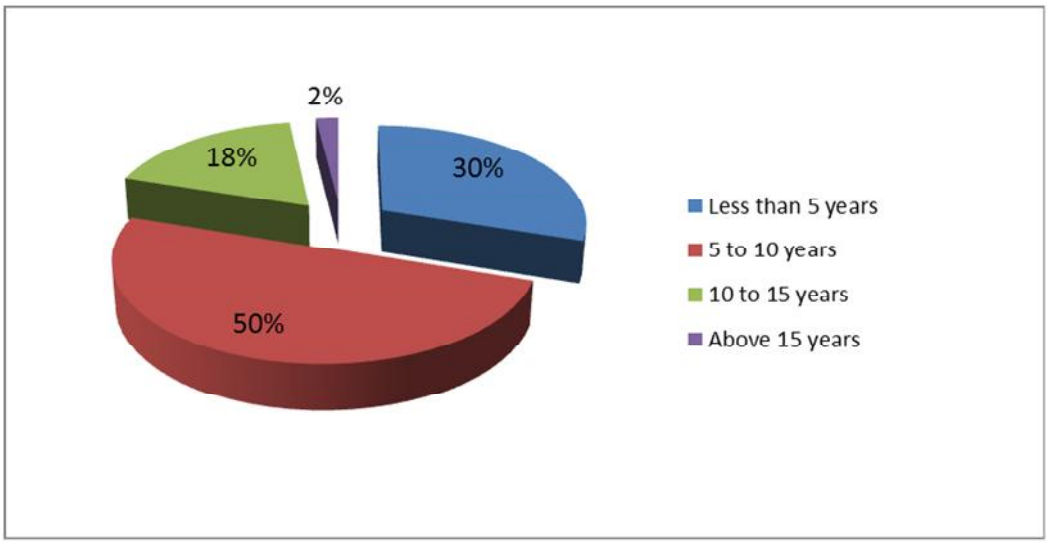
Source: Primary Data, 2015

From Figure 4.1, it was revealed that 50% of the respondents were logistics managers. There was a tie of 25% of the respondents who were assistant logistics managers and logistics officers. The findings conclude that majority of the respondents were logistics managers who were considered to be more experienced on strategic inbound transportation management practices and how these practices relate to transportation performance.

4.3.3 Length of Service in the Current Position

The researcher sought to determine the length of service of the respondents in their current position to find out if they had a relevant experience in their work as shown in the Figure 4.2

Figure 4.2 Length of Service in the Current Position



Source: Primary Data, 2015

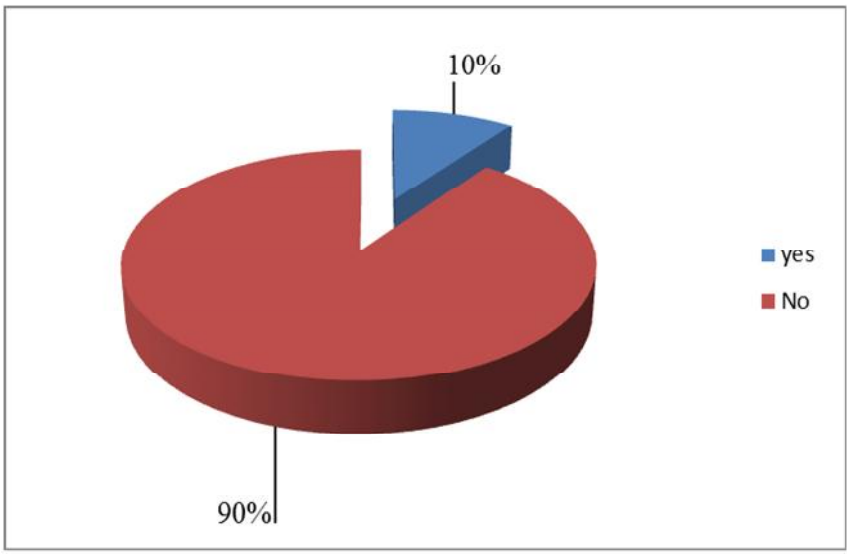
From Figure 4.2, 50% of the respondents indicated that they had served between 5-10 years, 30% of the respondents had served for less than five years while 18% of the respondents had served between 10-15 years. Only 2% of the respondents indicated that they had served for a period exceeding fifteen years. These findings are a clear

indication that most respondents had a relevant experience in their positions to give accurate and reliable information.

4.3.4 Operation in Other Countries

The researcher sought to determine whether manufacturing firms operated in other countries outside Kenya. Below are the results in Figure 4.3

Figure 4.3 Operation in Other Countries



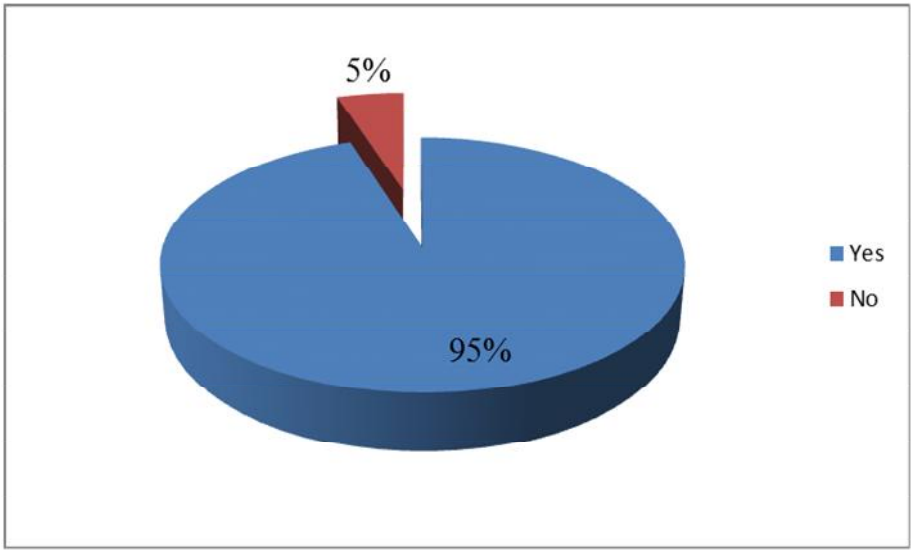
Source: Primary Data, 2015

From Figure 4.3, 90% of the respondents indicated that manufacturing firms did not operate outside the country most of their core businesses were based in Kenya. Only 10% of the respondents indicated that large scale manufacturing firms operated outside the country. This implies that most manufacturing firms operated in Kenya.

4.3.5 Firm View on Transportation

This was to determine the large scale manufacturing firm's view on transportation and to find out the significance of its role to these firms. Below are the results of the findings in Figure 4.4

Figure 4.4 Firm View on Transportation



Source: Primary Data, 2015

From the results in Figure 4.4, 95% of the respondents indicated that transportation played an important role although it is was very expensive. Proper management of transportation was seen as very important in minimizing costs and enhancing performance of large scale manufacturing firms. Only 5% of the respondents thought that transportation was too expensive and thus not an important asset to manufacturing firms.

4.4 Strategic Inbound Transportation Practices

Strategic inbound transportation practices that were identified as being used by large scale manufacturing firms in Nairobi County are discussed in this study. They are: Carriers forwarders selection management, freight consolidation and optimization management, technology integration management, strategic partnership practices, preparing and execution shipment and monitoring and evaluation.

4.4.1 Carriers and Forwarders Selection Management

Carriers and forwarders selection management is one of the strategic inbound transportation practices used by large-scale manufacturing firms in Kenya.

The respondents were requested to indicate to what extent they agreed with the statement in relation to carriers and forwarders selection management practices used by large-scale manufacturing firms and they responded to various aspects under the variable on a five-point Likert scale (1=very small extent, 2= small extent, 3= moderate extent, 4= Large extent, 5= to a very large extent). The research findings are in the Table 4.1 showing the resultant means and standard deviations of the variables.

Table 4.1 Findings of carriers and forwarders selection management as a practice in large-scale manufacturing firms

	N	Mean	Standard deviation
The firm is able to consider transit time when selecting carriers.	40	4.650	.533
The firm is able to set their terms of transport to control cost.	40	4.475	.905
The firm considers environmental impact of transport providers when selecting carriers.	40	4.450	.814
The firm is able to make key decisions when selecting carriers that will benefit overall transportation process.	40	4.425	.594
The firm uses secure ports when shipping.	40	4.125	.516
The firm considers measures for evaluating transportation performance when selecting carriers.	40	4.050	.904
The firm determines the parameter for safety transportation	40	4.000	.906
The firm is able to negotiate more favourable freight tariffs based on higher volume for lower prices.	40	3.900	.900
The firm uses inter-modal railroad truck.	40	3.325	1.309
The firm ensures that they meet their packaging security requirements.	40	3.200	1.244
The firm considers security conscious carriers in selection.	40	3.175	1.394
The firm is able to create a vested interest for the carrier and forwarder to retain their business.	40	3.125	1.159
Overall scores	**40**	**3.908**	**.9315**

Source: Primary Data, 2015

From Table 4.1, majority of the respondents agreed to a very large extent that carriers and forwarders selection management practices were used by large-scale manufacturing firms and that these firms consider transit time when selecting carriers as they set their terms of transport to control cost. The firms also consider environmental impact of transport providers when selecting carriers with a mean score (4.5≤mean≥3.0). To a large extent, the respondents agreed that manufacturing firms are able make key decisions when selecting carriers that will benefit overall transportation process while using secure ports when shipping. Manufacturing firms also consider measures for evaluating transportation performance when selecting carriers and determine the parameter for safety transportation to a large extent while negotiating more favourable freight tariffs based on high volume for lower prices. The respondents agreed to a moderate extent that firms use inter-modal rail road truck, the manufacturing firms met packaging requirements, the firms were security conscious and they created a vested interest in carrier and forwarder.

This was an indication that large-scale manufacturing firms used carriers and forwarders selection management practices to a great extent with an overall mean of 3.908.

These findings are consistent with Samaras (2000) who identified carriers and selection management as one of the strategic inbound transportation practices. This implied that large scale manufacturing firms were careful when selecting carriers and forwarders.

4.4.2 Freight Consolidation and Optimization Management

Freight consolidation and optimization management is one of the strategic inbound transportation practices used by large-scale manufacturing firms in Kenya.

The respondents were requested to indicate to what extent they agreed with the statement in relation to freight consolidation and optimization management practices used by large-scale manufacturing firms and they responded to various aspects under the variable on a five-point Likert scale (1=very small extent, 2= small extent, 3= moderate extent, 4= Large extent, 5= to a very large extent). The research findings are in Table 4.2 showing the resultant means and standard deviations of the variables.

Table 4.2 Freight Consolidation and Optimization Management

	N	Mean	Std. Deviation	Variance
The firm considers the capacity of transport providers to maximize economies of scale.	40	3.850	.949	.900
The firm observes compliance to load regulations (axle load limit)	40	3.575	1.009	1.020
The firm considers freight consolidation to reduce cost.	40	3.400	.900	.810
The firm considers truck scheduling and route optimization to manage cost.	40	3.325	1.269	1.610
The firm uses unit load devices in airfreight for flight safety.	40	3.325	1.095	1.199
The firm pools small parcels and those headed same direction into zones and ship in bulky.	40	3.025	.832	.692
Overall scores		**3.417**	**1.009**	

Source: Primary Data, 2015

From Table 4.2, majority of the respondents agreed to a large extent that freight consolidation and optimization management practices were used by large-scale manufacturing firms. The respondents agreed to a moderate extent that manufacturing firms considered the capacity of transport providers to maximize economies of scale, the firms complied to load regulations axle load limit as they used freight consolidation to reduce cost, that manufacturing firms consider truck scheduling and route optimization to manage cost, the firms use unit load devices in airfreight for

flight safety as well as pooling small parcels and those headed same direction into zones and ship in bulky at a mean of (3.5≤ mean≥3.0).

This was an indication that large-scale manufacturing firms utilized freight consolidation and optimization management practices to a moderate extent with an overall mean of 3.417

These findings are consistent with Sambracos and Ramfou (2013) who indicated that freight consolidation and optimization management was an essential strategic inbound transportation practice. This indicated that large-scale manufacturing firms used freight consolidation and optimization management practice.

4.4.3 Technology Integration Management

Technology integration management is a strategic inbound transportation practice used by large-scale manufacturing firms in Kenya.

The respondents were requested to indicate to what extent they agreed with the statement in relation to technology integration management practices used by large-scale manufacturing firms and they responded to various aspects under the variable on a five-point Likert scale (1=very small extent, 2= small extent, 3= moderate extent, 4= Large extent, 5= to a very large extent). The research findings are in the Table 4.3 showing the resultant means and standard deviations of the variables.

Table 4.3 Technology Integration Management

	N	Mean	Std. Deviation	Variance
The firm has formally improved on productivity, flexibility of operations	40	3.701	.853	.728
The firm uses web-based tracking and tracing of its shipments.	40	3.125	.647	.420
The firm uses information technology to improve logistical efficiency, effectiveness and flexibility.	40	3.101	.441	.195
The firm develops adequate methodologies in order to adopt new technologies	40	2.975	.577	.333
The firm integrates logistics functions with e-logistics	40	2.800	.939	.882
The firm is able to replace orders fast	40	2.725	.816	.666
The organization is able to reduce costs through e-logistics.	40	2.650	.802	.644
Average scores	**40**	**3.011**	**.725**	

Source: Primary Data, 2015

From Table 4.3, the respondents agreed to a large extent that manufacturing firms had formally improved on productivity and flexibility of operations with a mean of ($3.7 \leq$ mean ≥ 2.5). To a moderate extent, respondents agreed that technology integration management practices were undertaken by large-scale manufacturing firms, these firms used web-based tracking and tracing of shipments while using information technology to improve logistical efficiency, effectiveness and flexibility, firms developed adequate methodologies in order to adopt new technologies and integrated their logistics functions, the firms were able to replace orders fast and were able to reduce cost through e-logistics .

This was an indication that large-scale manufacturing firms implemented Technology integration management practices to a moderate extent with an overall mean of 3.011.

These findings are in line with Lavassani and Movahedi, Kumar (2009) who argued that technology integration management practices was instrumental in achieving integration in strategic inbound transportation management.

4.4.4 Strategic Partnership Practices

Strategic partnership practice is a strategic inbound transportation practice used by large-scale manufacturing firms in Kenya.

The respondents were asked to indicate to what extent they agreed with the statement in relation to strategic partnership practices used by large-scale manufacturing firms and they responded to various aspects under the variable on a five-point Likert scale (1=very small extent, 2= small extent, 3= moderate extent, 4= Large extent, 5= to a very large extent). The research findings are as in Table 4.4 showing the resultant means and standard deviations of the variables.

Table 4.4 Strategic Partnership Practices

	N	Mean	Std. Deviation	Variance
The firm is able to reduce its administrative obstacles through partnership.	40	3.575	1.152	1.328
The firms integrate its suppliers in decision making.	40	3.175	.874	.763
The firm is able to minimize its cost through partnering with other service providers.	40	3.175	.781	.610
The firm implements strategies that optimize distribution of goods.	40	3.025	.800	.640
The firm is able to identify better opportunities	40	2.650	1.001	1.003
The firm can share new technologies and improve on the same through partnership.	40	2.675	.9167	.840
Average scores		**3.046**	**.9208**	

Source: Primary Data, 2015

To a moderate extent ($3.5 \leq$ mean ≥ 2.5) strategic partnership practices were undertaken by large-scale manufacturing firms. The respondents agreed to a moderate extent that manufacturing firms reduced their admnistrative obstacles through partnership as well as integrate their suppliers in decsion making, manufacturing firms minimize cost through partnership with service providers, they implement strategies

that optimize distribution of goods, they identified better opportunities and also shared new technologies through partnership

This was an indication that large-scale manufacturing firms implemented strategic partnership practices to a moderate extent with an overall mean of 3.046

These findings are in line with Bowersox et al. (2000) who puts forth that strategic partnership practices was one of the strategic inbound transportation practices. This was an indication that large-scale manufacturing firms used strategic partnership practices to achieve collaboration and enhance transportation performance.

4.4.5 Preparing and Execution Shipment

Preparing and execution shipment is a strategic inbound transportation practice used by large-scale manufacturing firms in Kenya.

The respondents were asked to indicate to what extent they agreed with the statement in relation to preparing and execution shipment practices used by large-scale manufacturing firms and they responded to various aspects under the variable on a five-point Likert scale (1=very small extent, 2= small extent, 3= moderate extent, 4= Large extent, 5= to a very large extent). The research findings are presented in the Table 4.5 showing the resultant means and standard deviations of the variables.

Table 4.5 Preparing and Execution Shipment

	N	Mean	Std. Deviation	Variance
The firm uses EDI to tender for shipment.	40	3.150	.863	.746
The firm has a devised system manage fleet and reduce cost.	40	3.050	.959	.921
The firm uses rail for cargo consolidation for improved efficiency.	40	3.025	.974	.948
The firm sets and confirms pickup appointments in line to save cost and time.	40	2.850	.893	.797
Overall scores		**3.019**	**.922**	

Source: Primary Data, 2015

From Table 4.5, respondents agreed to a moderate extent ($3.5 \geq$ mean ≥ 2.5) that preparing and execution shipment practices were undertaken by large-scale manufacturing firms and that manufacturing firms used EDI to tender for shipment, the manufacturing firms had a devised system to manage fleet, they used rail for cargo consolidation for enhanced efficiency as well as setting and confirming pickpup appointmente that were in line to save costs .

This was an indication that large-scale manufacturing firms implemented preparing and execution shipment practices to a moderate extent with an overall mean of 3.019

These findings are consistent with Logility Voyager Solutions (2015) who pointed out that preparation and execution shipment was one of the strategic inbound transportation practices. This implied that large scale manufacturing firms did proper planning in managing their transportation.

4.4.6 Monitoring and Evaluation

Monitoring and evaluation is a strategic inbound transportation practice used by large-scale manufacturing firms in Kenya.

The respondents were requested to indicate to what extent they agreed with the statement in relation to monitoring and execution practices used by large-scale manufacturing firms and they responded to various aspects under the variable on a five-point Likert scale (1=very small extent, 2= small extent, 3= moderate extent, 4= Large extent, 5= to a very large extent). The research findings are presented in the Table 4.6 showing the resultant means and standard deviations of the variables.

Table 4.6 Monitoring and Evaluation

	N	Mean	Std. Deviation	Variance
1. The firm has trained logistics and supply chain personnel to support in monitoring and evaluation.	40	3.025	.832	.692
2.The firm conducts regular audits of transport and management systems	40	2.925	.694	.481
3. The firm closely monitors their cargo to improve on real time and manage cost	40	2.925	.859	.738
4. The firm routinely receives notifications by leading carriers during delivery and pick up	40	2.850	.579	.336
Overall scores		**2.931**	**.741**	

Source: Primary Data, 2015

To a moderate extent ($3.5 \geq$ mean ≥ 2.5) monitoring and evaluation practices were implemented by large-scale manufacturing firms. The respondents agreed to a moderate extent that manufacturing firms had trained logistics and supply chain personnel to support in monitoring and evaluation, the firms conducted regular audits of transportation management systems while monitoring cargo to improve on real

time processing and cost reduction and routinely received notifications by leading carriers during delivery.

This meant that large-scale manufacturing firms used monitoring and evaluation practices to a moderate extent with an overall mean of 2.931.

These findings are in line with Zhou and Min (2008) who pointed out that monitoring and evaluation were important consideration in execution of strategic inbound transportation practices. This was an indication that manufacturing firms did monitoring and evaluation while implementing strategic inbound transportation practices.

4.5 Strategic Inbound Transportation Management Practices and Transportation Performance of Large Scale Manufacturing Firms

The study sought to establish the relationship between strategic inbound transportation management practices and transportation performance of large scale manufacturing firms. Below are the results of the findings in Table 4.7

4.5.1 Model Summary

The model summary illustrates the variation in the value of the dependent variable which is explained by the regression model. The results are provided in the Table 4.7

Table 4.7 Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.762[a]	.580	.290	1.08502

Source: Research findings

From Table 4.7, R^2 which is coefficient of determination is 58%, it explains the variation in the transportation performance of large scale manufacturing firms is

explained by the predictors in the model. However 41.5% variation in transportation performance of large scale manufacturing firms is due to other factors not in the regression model. From this test result, the model is a good model and can be used for estimation purposes.

4.5.2 Analysis of Variance

The study conducted analysis of variance to determine the relationship between strategic inbound transport management practices and transportation performance. The results are provided in the Table 4.8

Table 4.8: Analysis of Variance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.027	6	.671	17.658	.000[b]
	Residual	1.239	33	.038		
	Total	5.266	39			

a. Dependent Variable: Transportation cost

(i) F-test

The numerator whose degrees of freedom (df) =6 and denominator df =33 and critical F-value is 2.021. The above findings show computed F-value is 17.658 From these findings; the regression model is significant since the computed F-value exceeds the critical value that is 17.658 > 2.021.

(ii) P-value

Further, the regression model is statistically significant since .000<5% this means that the model is statistically significant. These findings are consistent with a study by Kiraga (2011) who concluded that there was statistically

significant relationship between effective management of transport and improved performance of humanitarian organizations.

4.5.3 Model Coefficients

The study carried out a test of the coefficients to define the direction of the relationship between strategic inbound transportation management practices and transportation performance of large scale manufacturing firms in Nairobi County. The results are provided in the Table 4.9

Table 4.9: Model Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.058	.169		.340	.736
	Carriers and Forwarders Selection Management	.008	.024	.061	1.953	.000
	Freight Consolidation and Optimization Management.	-.018	.016	-.205	-2.134	.000
	Technology Integration Management	.019	.018	.198	1.580	.001
	Strategic Partnership Practices.	.013	.013	.177	.968	.340
	Preparing and Execution Shipment	-.003	.019	-.032	-.158	.475
	Monitoring and Evaluation	-.012	.019	-.118	-.607	.348

a. Dependent Variable: Transportation cost

The model was subjected to statistical significant tests to establish the reliability or adequacy of the model for estimation purposes.

$Y=.058+.008X_1-.018X_2+.019X_3+.013X_4-.003X_5-.012X_6$

A regression model was obtained from the above equation as follows:

The above analysis was conducted at 5% significance level. The criteria for comparing whether the predictor variables were significant in the model was done by comparing the corresponding probability value obtained; $\alpha=0.05$. If the probability value was less than α, then the predictor variable was significant. The regression results observe that forwarders selection management, freight consolidation and

optimization management and technology integration management are statistically significant since their probability values obtained from the regression model above are below 0.05 (5%)., P=0.000, P=0.000 and p=0.001 respectively. On the other hand, carriers and strategic partnership practices, preparing and execution management and monitoring and evaluation are statistically insignificant since their p-values are more than 5%, p=.340, p=.475 and p=.348 respectively.

4.6 Discussion of Findings

The study findings conclude that most of the respondents were qualified to give accurate and reliable on strategic inbound transportation practices and performance of manufacturing firms. Large scale manufacturing firms had been in operation for a considerable period of time which implied that they had adopted strategic inbound transportation practices for long.

The findings conclude that the most popular strategic inbound transportation practices were carriers and forwarders selection management practices and freight consolidation and optimization management practices which were implemented to a large extent. The average scores are as follows: mean 3.908 and 3.417 respectively. The standard deviation is as follows: .9315 and 1.009 respectively. The least popular strategic inbound transportation practices used by large scale manufacturing firms are as follows: strategic partnership practices, preparation and execution shipment, technology integration management practices and monitoring and evaluation practices. The average mean scores are as follows: 3.046, 3.019, 3.011 and 2.931 respectively. The standard deviations are as follows: .921, .922, .725 and .741 respectively.

The regression results concluded that the model was statistically significant in explaining the relationship between strategic inbound management practices and transportation performance of large scale manufacturing firms in Nairobi County. The regression results observe that forwarders selection management, freight consolidation and optimization management and technology integration management are statistically significant since their probability values obtained from the regression model above are below 0.05 (5%)., P=0.000, P=0.000 and p=0.001 respectively. Carriers and strategic partnership practices, preparing and execution management and monitoring and evaluation are statistically insignificant since their p-values are more than 5%, p=.340, p=.475 and p=.348 respectively.

The study findings are important since they may help firms involved in inbound transportations to analyze their strengths and weaknesses in transportation and apply the right processes to improve performance in their inbound segment of supply chain. With effectively planned inbound transportation practices, the resultant outcomes will help firms in overcoming challenges faced in transportation management and enhance performance.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter consists of the major findings, conclusion, recommendations, limitations and suggestions for further research. The study was guided by following objectives: to determine the strategic inbound transportation practices used by large scale manufacturing firms in Nairobi County and to establish the relationship between strategic inbound transportation management practices and transportation performance of large scale manufacturing firms.

5.2 Summary of Findings

The study findings conclude that most of the respondents were qualified to give accurate and reliable on strategic inbound transportation practices and performance of manufacturing firms. Large scale manufacturing firms had been in operation for a considerable period of time which implied that they had adopted strategic inbound transportation practices for long.

The findings conclude that the most popular strategic inbound transportation practices were carriers and forwarders selection management practices and freight consolidation and optimization management practices which were implemented to a large extent. The average scores are as follows: mean 3.908 and 3.417 respectively. The standard deviation is as follows: .9315 and 1.009 respectively. The least popular strategic inbound transportation practices used by large scale manufacturing firms are as follows: strategic partnership practices, preparation and execution shipment, technology integration management practices and monitoring and evaluation practices. The average mean scores are as follows: 3.046, 3.019, 3.011 and 2.931

respectively. The standard deviations are as follows: .921, .922, .725 and .741 respectively.

Strategic inbound transportation practices were found to contribute to transportation performance. Large scale most manufacturing firms that used strategic inbounds transportation practices indicated that they were able to realize reduced lead time, integrate their supply chain functions and save on holding costs among others. These findings are in line with a study by Achola (2012) who investigated the role of logistics outsourcing in leveraging operational competitiveness among blue chip companies in Kenya. The findings depicted that logistics outsourcing led to minimized costs and this enhanced operational competitiveness. Further, Gwaro (2011) examined logistics innovations in the road transport sector in Kenya. The results revealed that logistics innovations led to operational efficiency, reduction in costs of operating and improved customer satisfaction by the road transport sector firms in Kenya.

The regression results found that the coefficient of determination is 58%; it explains the variation in the transportation performance of large scale manufacturing firms which is explained by the predictors in the model. Analysis of variance concluded that the regression model was statistically significant in explaining the relationship between strategic inbound transportation practices and transportation performance since .000<5%. Further, the regression results observe that forwarders selection management, freight consolidation and optimization management and technology integration management are statistically significant since their probability values obtained from the regression model above are below 0.05 (5%)., P=0.000, P=0.000 and p=0.001 respectively. On the other hand, carriers and strategic partnership practices, preparing and execution management and monitoring and evaluation are

statistically insignificant since their p-values are more than 5%, p=.340, p=.475 and p=.348 respectively.

5.3 Conclusion

The study concludes that the most widely used strategic inbound transportation practices by large scale manufacturing firms were carriers and forwarders selection management practices and freight consolidation and optimization management practices. Strategic partnership practices, preparation and execution shipment, technology integration management practices and monitoring and evaluation practices were least used by large scale manufacturing firms.

In line with the second objective of the study, the regression results concluded that strategic inbound transportation practices was positively related to transportation performance of Large scale manufacturing firms in Nairobi County. Further, the regression model was found to be statistically significant in explaining the relationship between strategic inbound transportation practices and transportation performance of manufacturing firms in Nairobi County. Large scale manufacturing firms that used strategic inbound transportation practices achieved reduced operational costs, reduced defects and minimized lead time which contributed to transportation performance.

5.4 Limitations of the Study

One of the limitations of this study is that the researcher faced significant cost and time constraints. The study was limited to a sample of 46 large scale manufacturing firms that are concentrated within Nairobi County. The findings obtained herein might not be conclusive. It would have been appropriate if future researchers consider expanding the scope of this study to include all the large scale manufacturing firms in

Kenya. Then, findings can be compared upon which more reliable conclusion can be drawn.

Most large scale manufacturing firms work under strict confidentiality to prevent authorized access to information. Most of the respondents agreed to give information on condition that the information would not be divulged to a third party. Some of the respondents completely refused to provide any information since they thought the process was non-paying and a waste of time.

The study utilized a likert-scale which limits the thoughts and the perceptions of the respondents. This might affect the accuracy and reliability of information and hence interfere with the findings and the conclusion drawn. Future researchers should consider combining both open-ended and closed-ended questions in order to obtain first-hand information that is more accurate.

The study used a cross-sectional research design to establish the relationship between strategic inbound transportation management practices and transportation performance. This research design does not consider the 'cause and effect' between variables. It is advisable for future researchers to consider investigating similar variables using a longitudinal research design in order to establish whether these findings will hold.

Finally, it was not easy for the researcher to balance school, family and employment. Given the strict deadline by the University of Nairobi on defense and research project submission, the researcher had to work through the night to learn and perfect her skills on research in order to submit the research project on time.

5.5 Recommendations

Kenya Association of Manufacturers should set policies that encourage and promote manufacturing firms to effectively adopt and implement strategic inbound practices to achieve reduced transportation costs, reduced defects, improved efficiency and reduced lead time. This will lead to improved transport management and hence contribute to organizational performance.

The empirical findings in this study have concluded that strategic inbound transportation practices play an essential role in contributing towards achieving transportation performance. These findings might be used to guide firms especially the top management on the need to implement strategic inbound transportation management practices in order to reap the benefits of improved transport.

Generally, the findings have concluded that strategic inbound transportation management practices are used to a moderate extent by most large scale manufacturing firms in Nairobi County. The study therefore recommends that large scale manufacturing firms should continue adopting and implementing strategic inbound management practices to effectively improve on their transportation management and achieve superior performance.

5.6 Suggestions for Further Research

A comparative study should be conducted on strategic inbound transportation management practices investigated in another sector other than manufacturing sector that are similar in terms of size and areas of intervention, findings can be compared upon which reliable conclusion can be drawn based on concrete facts.

The study findings have concluded that carriers and forwarders selection management practices was the most popularly used strategic inbound transportation management

practice. The study therefore recommends that future researchers should investigate the factors influencing the adoption of carriers and forwarders selection management practices among large scale manufacturing firms in Nairobi County and its contribution to transportation performance.

Future researchers should investigate strategic outbound transport management practices and how these practices contribute to transportation performance. This will enable comparison and insight some of the best outbound practices that support strategic inbound practices to realize improved transportation that is efficient and effective.

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APPENDICES

APPENDIX I: RESEARCH QUESTIONNAIRE

Introduction

This questionnaire has been designed for the sole purpose of collecting data on the effect of strategic inbound transportation management practices and transportation performance of large scale manufacturing firms. The data collected will be treated with a very high degree of confidentiality and it is meant for academic purpose only.

Section A: General Information

1. Duration that the organization has been in operation……..

2. What is your position in this organization?

a) Logistics manager [ ]

b) Assistant logistics manager [ ]

c) Logistics officer [ ]

d) Other (specify)…….

3. How long have you been in this position?

a) Less than 5 years [ ]

b) 5 to 10 years [ ]

c) 10 to 15 years [ ]

d) Above 15 years [ ]

4. Do you operate in other countries outside Kenya? Yes [ ] No [ ].

If yes, please list the countries that you operate in.

SECTION B: Strategic Inbound Transportation Practices Used By Large Scale Manufacturing Firms in Kenya.

5. The firm view transportation as one of the most expensive and most important asset that requires proper management which should be tailored to minimize cost and maximize profit.

Yes [ ] No [ ]

6. Please indicate the extent to which you agree with the following statements on the strategic inbound transportation practices commonly used by large scale manufacturing firms in Kenya. The scale below will be applicable: 1=very small extent, 2= small extent, 3= moderate extent, 4= Large extent, 5= to a very large extent.

No Statement	**1**	**2**	**3**	**4**	**5**
Carriers and Forwarders Selection Management					
1. The firm is able to make key decisions when selecting carriers that will benefit overall transportation process.					
2. The firm determines the parameter for safety transportation					
3. The firm is able to consider transit time when selecting carriers.					
4. The firm is able to set their terms of transport to control cost.					
5. The firm considers measures for evaluating transportation performance when selecting carriers.					
6. The firm considers environmental impact of transport providers when selecting carriers.					
7. The firm is able to negotiate more favourable freight tariffs based on higher volume for lower prices.					
8. The firm is able to create a vested interest for the carrier and forwarder to retain their business.					
9. The firm considers security conscious carriers in selection.					
10. The firm uses inter-modal railroad truck.					
11. The firm ensures that they meet their packaging security requirements.					
12. The firm uses secure ports when shipping.					
Freight Consolidation and Optimization Management.					
1. The firm observes compliance to load regulations (axle load limit)					
2. The firm considers the capacity of transport providers to maximize economies of scale.					
3. The firm considers freight consolidation to reduce cost.					
4. The firm uses cross docking platforms for cargo consolidation.					

No Statement	1	2	3	4	5
5. The firm considers truck scheduling and route optimization to manage cost.					
6. The firm uses unit load devices in airfreight for flight safety.					
7. The firm pools small parcels and those headed same direction into zones and ship in bulky.					
Technology Integration Management					
1. The firm uses information technology to improve logistical efficiency, effectiveness and flexibility.					
2. The firm has formally improved on productivity, flexibility of operations					
3. The organization is able to reduce costs through e-logistics.					
4. The firm develops adequate methodologies in order to adopt new technologies					
5. The firm is able to replace orders fast					
6. The firm integrates logistics functions with e-logistics					
7. The firm uses web-based tracking and tracing of its shipments.					
Strategic Partnership Practices.					
1. The firm implements strategies that optimize distribution of goods.					
2. The firm is able to reduce its administrative obstacles through partnership.					
3. The firms integrates its suppliers in decision making.					
4. The firm is able to minimize its cost through partnering with other service providers.					
5. The firm is able is able to identify better opportunities					
6. The firm can share new technologies and improve on the same through partnership.					
Preparing and Execution Shipment					
1. The firm uses EDI to tender for shipment.					
2. The firm sets and confirm pickup appointments in line to save cost and time.					
3. The firm has a devised system manage fleet and reduce cost.					
4. The firm uses rail for cargo consolidation for improved efficiency.					
Monitoring and Evaluation					
1. The firm has trained logistics and supply chain personnel to support in monitoring and evaluation.					
2.The firm conducts regular audits of transport and management systems					
3. The firm closely monitors their cargo to improve on real time and manage cost					
4. The firm routinely receives notifications by leading carriers during delivery and pick up					

7. Kindly provide approximate figures on the variables listed in the table below for the period from 2010-2014.

Transportation performance indicators	Unit of measure	2010	2011	2012	2013	2014
Total transport cost	Kshs.					
Transportation penalties	Kshs.					
Transportation lead time	Days					

8. How would you rate your firm's overall transportation performance?

a) Extremely poor [ ]

b) Below average [ ]

c) Average [ ]

d) Above average [ ]

e) Excellent [ ]

9. Please mention challenges if any that are faced in implementing strategic inbound transportation management practices in large manufacturing firms in Kenya.....

.....

.....

.....

.....

Thank you for your cooperation

APPENDIX II: LARGE SCALE MANUFACTURING FIRMS IN NAIROBI, KENYA

Below is a list of large scale manufacturing firms clustered based on their functions

Sector: Building, Construction and Mining (6)	
Central Glass Industries Ltd	Kenya Builders & Concrete Ltd
Karsan Murji & Company Limited	Manson Hart Kenya Ltd
Kenbro Industries Ltd	Mombasa Cement Ltd
Sector: Food, Beverages and Tobacco (6)	
Central Glass Industries Ltd	Kenya Builders & Concrete Ltd
Karsan Murji & Company Limited	Manson Hart Kenya Ltd
Kenbro Industries Ltd	Mombasa Cement Ltd
Sector: Food, Beverages and Tobacco (100)	
Africa Spirits Ltd Highlands	Mineral Water Co. Ltd
Agriner Agricultural Development Limited	Homeoil
Belfast Millers Ltd Insta	Products (EPZ) Ltd
Bidco Oil Refineries Ltd	Jambo Biscuits (K) Ltd
Bio Foods Products Limited	Jetlak Foods Ltd
Breakfast Cereal Company(K) Ltd	Karirana Estate Ltd
British American Tobacco Kenya Ltd	Kenafric Industries Limited
Broadway Bakery Ltd	Kenblest Limited
C. Czarnikow Sugar (EA) Ltd	Kenya Breweries Ltd
Cadbury Kenya Ltd Kenya	Nut Company Ltd
Centrofood Industries Ltd	Kenya Sweets Ltd
Coca cola East Africa Ltd	Nestle Kenya Ltd
Confec Industries (E.A) Ltd	Nicola Farms Ltd
Corn Products Kenya Ltd	Palmhouse Dairies Ltd
Crown Foods Ltd	Patco Industries Limited
Cut Tobacco (K) Ltd	Pearl Industries Ltd
Deepa Industries Ltd	Pembe Flour Mills Ltd
Del Monte Kenya Ltd	Premier Flour Mills Ltd

East African Breweries Ltd	Premier Food Industries Limited
East African Sea Food Ltd	Proctor & Allan (E.A.) Ltd
Eastern Produce Kenya Ltd	Promasidor (Kenya) Ltd
Farmers Choice Ltd	Trufoods Ltd
Frigoken Ltd	UDV Kenya Ltd
Giloil Company Limited	Unga Group Ltd
Glacier Products Ltd	Usafi Services Ltd
Global Allied Industries Ltd	Uzuri foods Ltd
Global Beverages Ltd	ValuePak Foods Ltd
Global Fresh Ltd W.E.	Tilley (Muthaiga) Ltd
Gonas Best Ltd	Kevian Kenya Ltd
Hail & Cotton Distillers Ltd	Koba Waters Ltd
Al-Mahra Industries Ltd	Kwality Candies & Sweets Ltd
Alliance One Tobacco Kenya Ltd	Lari Dairies Alliance Ltd
Alpha Fine Foods Ltd	London Distillers (K) Ltd
Alpine Coolers Ltd	Mafuko Industries Ltd
Annum Trading Company Limited	Manji Food Industries Ltd 61
Aquamist Ltd	Melvin Marsh International
Brookside Dairy Ltd	Kenya Tea Development Agency
Candy Kenya Ltd	Mini Bakeries (Nbi) Ltd
Capwelll Industries Ltd	Miritini Kenya Ltd
Carlton Products (EA) Ltd	Mount Kenya Bottlers Ltd
Chirag Kenya Limited	Nairobi Bottlers Ltd
E & A Industries Ltd	Nairobi Flour Mills Ltd
Kakuzi Ltd	NAS Airport Services Ltd
Erdemann Co. (K) Ltd	Rafiki Millers Ltd
Excel Chemical Ltd	Razco Ltd
Kenya Wine Agency Limited	Re-Suns Spices Limited
Highlands Canner Ltd	Smash Industries Ltd
Super Bakery Ltd	Softa Bottling Co. Ltd
Sunny Processor Ltd	Spice World Ltd
Spin Knit Dairy Ltd	Wrigley Company (E.A.) Ltd

Sector: Chemical and Allied (62)	
Anffi Kenya Ltd	Crown Berger Kenya Ltd
Basco Product (K) Ltd	Crown Gases Ltd
Bayer East Africa Ltd	Decase Chemical (Ltd)
Continental Products Ltd	Deluxe Inks Ltd
Cooper K- Brands Ltd	Desbro Kenya Limited
Cooper Kenya Limited	E. Africa Heavy Chemicals (1999) Ltd
Beiersdorf East Africa Ltd	Elex Products Ltd
Blue Ring Products Ltd	European Perfumes & Cosmetics Ltd
BOC Kenya Limited	Galaxy Paints & Coating Co. Ltd
Buyline Industries Limited	Grand Paints Ltd
Carbacid (CO2) Limited	Henkel Kenya Ltd
Chemicals & Solvents E.A. Ltd	Imaging Solutions (K) Ltd
Chemicals and Solvents E.A. Ltd	Interconsumer Products Ltd
Coates Brothers (E.A.) Limited	Odex Chemicals Ltd
Coil Products (K) Limited	Osho Chemicals Industries Ltd
Colgate Palmolive (E.A) Ltd	PolyChem East Africa Ltd
Johnson Diversity East Africa Limited	Procter & Gamble East Africa Ltd
Kel Chemicals Limited	PZ Cussons Ltd
Kemia International Ltd	Rayal Trading Co. Ltd
Ken Nat Ink & Chemical Ltd	Reckitt Benckiser (E.A) Ltd
Magadi Soda Company Ltd	Revolution Stores Co. Ltd
Maroo Polymers Ltd	Soilex Chemical Ltd
Match Masters Ltd	Strategic Industries Limited
United Chemical Industries Ltd	Supa Brite Ltd
Oasis Ltd	Unilever Kenya Ltd
Rumorth EA Ltd	Murphy Chemical E.A Ltd
Rumorth East Africa Ltd	Syngenta East Africa Ltd 62
Sadolin Paints (E.A.) Ltd	Synresins Ltd
Sara Lee Kenya Limited	Tri-Clover Industries (K) Ltd
Saroc Ltd	Twiga Chemical Industries Limited
Super Foam Ltd	Vitafoam Products Limited

Sector: Energy, Electrical and Electronics (42)	
A.I Records (Kenya) Ltd	East African Cables Ltd
Amedo Centre Kenya Ltd	Eveready East Africa Limited
Assa Abloy East Africa Ltd	Frigorex East Africa Ltd
Aucma Digital Technology Africa Ltd	Holman Brothers (E.A.) Ltd
Avery (East Africa) Ltd	IberaAfrica Power (EA) Ltd
Baumann Engineering Limited	International Energy Technik Ltd
Centurion Systems Limited	Kenwest Cables Ltd
Digitech East Africa Limited	Kenwestfal Works Ltd
Manufacturers & Suppliers (K) Ltd	Kenya Power & Lighting Co. Ltd
Marshall Fowler (Engineers) Ltd	Kenya Scale Co. Ltd/ Avery
Mecer East Africa Ltd	Kenya Ltd
Metlex Industries Ltd	Kenya Shell Ltd
Metsec Ltd	Libya Oil Kenya Limited
Modulec Engineering Systems Ltd	Power Technics Ltd
Mustek East Africa Sanyo	Reliable Electricals Engineers Ltd
Nationwide Electrical Industries	Armo (Kenya) Ltd
Nationwide Electrical Industries Ltd	Socabelec East Africa
Optimum Lubricants Ltd	Sollatek Electronics (Kenya) Limited
PCTL Automation Ltd	Specialised Power Systems Ltd
Pentagon Agencies Tea	Synergy-Pro
Power Engineering International Ltd	Vac Machinery Limited
Sector: Plastics and Rubber (54)	
Betatrad (K) Ltd	ACME Containers Ltd
Blowplast Ltd	Afro Plastics (K) Ltd
Bobmil Industries Ltd	Alankar Industries Ltd
Complast Industries Limited	Dune Packaging Ltd
Kenpoly Manufacturers Ltd	Elgitread (Kenya) Ltd
Kentainers Ltd	Elgon Kenya Ltd
King Plastic Industries Ltd	Eslon Plastics of Kenya Ltd
Kingway Tyres & Automart Ltd	Five Star Industries Ltd
L.G. Harris & Co. Ltd	General Plastics Limited

Laneeb Plastics Industries Ltd	Haco Industries Kenya Ltd
Metro Plastics Kenya Limited	Hi-Plast Ltd
Ombi Rubber Rollers Ltd	Jamlam Industries Ltd
Packaging Industries Ltd	Kamba Manufacturing (1986) Ltd
Plastics & Rubber Industries Ltd	Keci Rubber Industries
Polyblend Limited	Nairobi Plastics Industries
Polyflex Industries Ltd	Nav Plastics Limited
Polythene Industries Ltd	Ombi Rubber
Premier Industries Ltd	Packaging Masters Limited
Prestige Packaging Ltd	Plastic Electricons
Prosel Ltd	Raffia Bags (K) Ltd
Qplast Industries	Rubber Products Ltd
Sumaria Industries Ltd	Safepak Limited
Super Manufacturers Ltd	Sameer Africa Ltd
Techpak Industries Ltd	Sanpac Africa Ltd
Treadsetters Tyres Ltd	Silpack Industries Limited
Uni-Plastcis Ltd	Solvochem East Africa Ltd
Wonderpac Industries Ltd	Springbox Kenya Ltd
Sector: Textile and Apparels (38)	
Africa Apparels EPZ Ltd	MRC Nairobi (EPZ) Ltd
Fulchand Manek & Bros Ltd	Ngecha Industries Ltd
Image Apparels Ltd	Premier Knitwear Ltd
Alltex EPZ Ltd	Protex Kenya (EPZ) Ltd
Alpha Knits Limited	Riziki Manufacturers Ltd
Apex Appaels (EPZ) Ltd	Rolex Garments EPZ Ltd
Baraka Apparels (EPZ) Ltd	Silver Star Manufacturers Ltd
Bhupco Textile Mills Limited	Spinners & Spinners Ltd
Blue Plus Limited	Storm Apparel Manufacturers Co. Ltd
Bogani Industries Ltd	Straightline Enterprises Ltd
Brother Shirts Factory Ltd	Sunflag Textile & Knitwear Mills Ltd
Embalishments Ltd	Tarpo Industries Limited
J.A.R Kenya (EPZ) Ltd	Teita Estate Ltd

Kenya Trading EPZ Ltd	Thika Cloth Mills Ltd
Kikoy Co. Ltd	United Aryan (EPZ) Ltd
Le-Stud Limited	Upan Wasana (EPZ) Ltd
Metro Impex Ltd	Vaja Manufacturers Limited
Midco Textiles (EA) Ltd	Yoohan Kenya EPZ Company Ltd
Mirage Fashionwear EPZ Ltd	YU-UN Kenya EPZ Company Ltd
Sector: Timber, Wood Products and Furniture (22)	
Economic Housing Group Ltd	Rosewood Office Systems Ltd
Eldema (Kenya) Limited	Shah Timber Mart Ltd
Fine Wood Works Ltd	Shamco Industries Ltd
Furniture International Limited	Slumberland Kenya Limited
Hwan Sung Industries (K) Ltd	Timsales Ltd
Kenya Wood Ltd	Wood Makers Kenya Ltd
Newline Ltd	Woodtex Kenya Ltd
PG Bison Ltd	United Bags Manufacturers Ltd
Transpaper Kenya Ltd	Statpack Industries Ltd
Twiga Stationers & Printers Ltd	Taws Limited 64
Uchumi Quick Suppliers Ltd	Tetra Pak Ltd
Sector: Pharmaceutical and Medical Equipment (20)	
Alpha Medical Manufacturers Ltd	Dawa Limited
Beta Healthcare International Limited	Elys Chemical Industries
Biodeal Laboratories Ltd	Gesto Pharmaceutical Ltd
Bulks Medical Ltd	Glaxo Smithkline Kenya Ltd
Cosmos Limited	KAM Industries Ltd
Laboratory & Allied Limited	KAM Pharmacy Limited
Manhar Brothers (K) Ltd	Pharmaceutical Manufacturing Co.
Madivet Products Ltd	Regals Pharmaceuticals
Novelty Manufacturing Ltd	Universal Corporation Limited
Oss. Chemie (K) Pharm	Access Africa Ltd
Sector: Metal and Allied (38)	
Allied Metal Services Ltd	Booth Extrusions Limited
Alloy Street Castings Ltd	City Engineering Works Ltd

Apex Street Ltd	Rolling Mill Division Crystal Industries Ltd
ASL Ltd	Davis & Shirtliff Ltd
ASP Company Ltd	Devki Steel Mills Ltd
East Africa Foundry Works (K) Ltd	East Africa Spectre Limited
Elite Tools Ltd	Kens Metal Industries Ltd
Friendship Container Manufacturers	Khetshi Dharamshi & Co. Ltd
General Aluminum Fabricators Ltd	Nampak Kenya Ltd
Gopitech (Kenya) Ltd	Napro Industries Limited
Heavy Engineering Ltd	Specialized Engineer Co. (EA) Ltd
Insteel Limited Steel	Structures Limited
Metal Crown Limited	Steelmakers Ltd
Morris & Co. Limited	Steelwool (Africa) Ltd
Nails & Steel Products Ltd	Tononoka Steel Ltd
Orbit Engineering Ltd	Welding Alloys Ltd
Rolmil Kenya Ltd	Wire Products Limited
Sandvik Kenya Ltd	Viking Industries Ltd
Sheffield Steel Systems Ltd	Warren Enterprises Ltd
Sector: Leather Products and Footwear (8)	
Alpharama Ltd	CP Shoes
Bata Shoe Co. (K) Ltd	Dogbones Ltd
New Market Leather Factory Ltd	East Africa Tanners (K) Ltd
C & P Shoe Industries Ltd	Leather Industries of Kenya Limited
Sector: Motor Vehicle Assembly and Accessories (17)	
Auto Ancillaries Ltd Kenya	Vehicle Manufacturers Limited
Varsani Brakelining Ltd	Labh Singh Harnam Singh Ltd
Bhachu Industries Ltd	Mann Manufacturing Co. Ltd
Chui Auto Spring Industries Ltd	Megh Cushion industries Ltd
Toyota East Africa Ltd Mutsimoto	Motor Company Ltd
Unifilters Kenya Ltd	Pipe Manufacturers Ltd
General Motor East Africa Limited	Sohansons Ltd
Impala Glass Industries Ltd	Theevan Enterprises Ltd

Kenya Grange	Vehicle Industries Ltd
Sector: Paper and Paperboard (48)	
Ajit Clothing Factory Ltd	Conventual Franciscan Friers-Kolbe Press
Associated Papers & Stationery Ltd	Creative Print House
Autolitho Ltd	D.L. Patel Press (Kenya) Limited
Bag and Envelope Converters Ltd	Dodhia Packaging Limited
Bags & Balers Manufacturers (K) Ltd	East Africa Packaging Industries Ltd
Brand Printers	Elite Offset Ltd
Business Forms & Systems Ltd	Ellams Products Ltd
Carton Manufacturers Ltd	English Press Limited
Cempack Ltd	General Printers Limited
Chandaria Industries Limited	Graphics & Allied Ltd
Colour Labels Ltd	Guaca Stationers Ltd
Colour Packaging Ltd	Icons Printers Ltd
Colour Print Ltd	Interlabels Africa Ltd
Kenya Stationers Ltd	Jomo Kenyatta Foundation
Kim-Fay East Africa Ltd	Kartasi Industries Ltd
Paper Converters (Kenya) Ltd	Kenafric Diaries Manufacturers Ltd
Paper House of Kenya Ltd	Kitabu Industries Ltd
Paperbags Limited	Kul Graphics Ltd
Primex Printers Ltd	Label Converters
Print Exchange Ltd	Modern Lithographic (K) Ltd
Printpak Multi Packaging Ltd	Pan African Paper Mills (EA) Limited
Printwell Industries Ltd	Ramco Printing Works Ltd
Prudential Printers Ltd	Regal Press Kenya Ltd
Punchlines Ltd	SIG Combibloc Obeikan Kenya

Source: Kenya Association of Manufacturers (KAM) Directory. June, 2014