BEST-VALUE PROCUREMENT STRATEGIES AND SUPPLY CHAIN PERFORMANCE OF LARGE-SCALE MANUFACTURING FIRMS IN KENYA

BY

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DECLARATION

I declare that this research project is my original work and has never been submitted to any other University for assessment or award of a degree.

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This project has been submitted with my authority as the University Supervisor.

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DEDICATION

The thesis is dedicated to Mr. Richard AgureNgige. Your passion for education and insistence on hard work will never be obliterated. I will never forget the motivational talks on humility, persistence and passion we had before you breathed your last. Rest in Peace Dad.

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LIST OF ABBREVIATIONS AND ACRONYMS

ABC	Activity Based Costing
ANOVA	Analysis of Variance
BSC	Balanced Scorecard
BVP	Best Value Procurement
CIPS	Chartered Institute of Purchasing and Supplies
CM	Category Management
EVA	Economic Value Added
ISO	International Organization Standards
IT	Information Technology
KAM	Kenya Association of Manufacturers
KNBS	Kenya National Bureau of Standards
LCA	Life Cycle Analysis
MCA	Multi-criteria Analysis
MNC	Multinational Corporations
PBSRG	PerformanceBased Studies Research Group
PIPS	Performance Information Procurement System
RMP	Risk Management Plan

SC	Supply Chain
SCM	Supply Chain Management
SCOR	Supply Chain Operation Reference
SME	Small and Medium Enterprises
SPSS	Software Package for Social Science
SRM	Supplier Relationship Management
US	United States
WRR	Weekly Risk Report

ABSTRACT

The study sought to determine the influence of best-value procurement strategies on the supply chain performance of large-scale manufacturing firms in Kenya. The study used descriptive survey method research design to collect and analyze the data; the data was collected using questionnaires. The study population was 499 large-scale manufacturing firms in Kenya of which a sample of 125 firms was selected using Stratified random sampling method. Analysis and coding of data was done through SPSS. Descriptive statistics and regression analysis was used in the analysis and the data was summarized by use of tables and regression model. The study established that to a great extent most of the large-scale manufacturing firms in Kenya use Strategic e-procurement, Strategic supplier relationship management, Best-value spend and category management strategy, Weighted average supplier scoring strategy and Collaborative best-value sourcing strategy in an effort to improve their procurement processes. The study also established that best-value procurement strategies have great influence on the supply chain performance of large-scale manufacturing firms in Kenya. The study indicates that seventy seven point nine percent (77.9%) of the variation in supply chain performance were explainable by the five best-value procurement strategies. Therefore the study recommends that large-manufacturing firms in Kenya to adopt the Strategic e-procurement, Strategic supplier relationship management, Best-value spend management and category management strategy, weighted average supplier scoring strategy and Collaborative best-value sourcing strategy to improve their supply chain performance. The study further recommends that future research to consider additional variables like risk management strategies as a moderator on the relationship between best-value procurement strategies and supply chain performance to enhance the conclusions of this study's findings.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Procurement management function has played a critical role in the corporate success of organizations in the last decade. This has necessitated many firms to position their procurement management function at a strategic level with the aim of benefiting from its contribution to the bottom-line profit. The dynamic complexity of a supply chain allows firms to formulate procurement practices that not only gives this competitive edge, but also allows it to adopt practices robust enough to handle future changes at large and also competitive environments (Mabert&Venkataramanan, 1998). Procurement is naturally strategic as it tends to connect the firm's suppliers to its strategic objectives by translating those strategic objectives into sourcing needs that assist the firm achieve the same.

According to Hutt and Speh (2012), procurement is broadly described as the overarching role that looks at the activities and procedures used to attain goods and services. Through sourcing activities like vendor evaluation, negotiation of contracts and market research, procurement is able to establish essential requirements. More importantly, procurement also looks into the purchasing methods needed in ordering and receiving goods. In procurement, not only is the place time and price expected to be on point, but also material must be right and of the required amount.

Carter and Narasimhan (2006) assert that, how a company handles Supply Chain Management (SCM) and purchasing practices willgreatly affects the company's performance. With regards to Chong and Ooi (2008), a properly organized and executed procurement process will make it possible for companies to decrease their inventories,

offer better customer service, reduce operation costs and aid fast inventory turnovers. From the long-term perspective, a procurement process has been found to significantly increase a company's market share (Li *et al*., 2006).

1.1.1 Best-Value Procurement Strategies

The term best-value has been competitively defined by various procurement sectors. Based on The *Army Source Selection Guide* (Army 2001) definition, best-value is the anticipated result of an acquisition that gives the best all-encompassing benefit with regards to the requirement in accordance to government's estimation. According to Keller *et al*., (2010), when selecting vendors in procurement, not only issues such as price should be considered, but also skills and quality must be considered. In a best value system, a contractor or vendor is selected through a process of researching the vendors or contractors before a detailed project plan is made (*The Legal Edge, n.d. Web. 30 Apr., 2013*). This research paper has adopted to use a broad definition of best-value procurement as: A procurement system whose expected outcome provides the greatest overall benefit to the requirement and enhances the long-term supply chain performance.

Best value procurement (BVP) strategies are techniques used by firms when conducting the activities involved in coming up withessential requirements, sourcing operationslikevendor evaluation, market research and negotiation of contracts. This is done to save cost, improve operational efficiency, access trusted suppliers, and improve the quality of products or servicesso as to achieve a competitive advantage against competitors. The best-value procurement strategies are namely: Strategic E-procurement, Strategic Supplier relationship management, Best-value Spend and Category Management

Strategy, Weighted Average Supplier Scoring Strategy and Collaborative Best-Value sourcing strategy (CIPS Australia, 2010).

There are many benefits that accrue to firms that use Best-Value procurement strategies. According to Sidney *et al*., (2006), late deliveries, poor quality and other inadequate actions associated with extra contracts' administrative costs, are hardly avoidable if a supplier is offered a contract based on lower prices. With Best-Value procurement, project owner can have a look at the overall costs with an inclusion of other prices such as the life-cycle costs involved during evaluation and the initial capital costs. In addition, Best-Value Procurement (BVP) strategies grant vendors the opportunity topresent their own contract proposal that is reasonable in terms of project cost and time as well as show dominant value using performance measurements of their key personnel and processes (PBSRG, 2010; Kashiwagi, 2009).

1.1.2 Supply Chain Performance

Cai*et al*., (2008), consider supply chain performance as the entire chain's ability to completely meet end-customer needs by ensuring that the products delivered are the right ones and that delivery is at the stipulated time. Supply chain performance crosses company boundaries and can be defined by supply chain profitability, which has only one source of revenue who is the customer (Chopra &Meindl, 2001). Other traditional functional organization lines that supply chain crosses in a typical firm include; procurement, manufacturing, distribution, marketing and sales not excluding research and development. Firms compete through their SCs and to conquer in the newenvironment, SC needs constant improvement which requires development of performance measures, or metrics.

A number of measures have been created to gauge supply chain and logistic activities. However, the process of opting for the right type of gauge can be upsetting. Moreover, focusing attention on one area may be very perilous, for instance, when you focus on containing cost only, may only improve one area at the expense of the whole performance of the supply chain (Arrowsmith, 1998). That said, it is imperative to conduct a naturally more holistic model for instance, Supply Chain Operations Reference (SCOR) model. This model helps in building a systematic supply chain performance measurement and improvement. The SCOR model is considered a balanced performance measurement system at numerous levels since it covers five keysupply chain processes i.e. plan, source, make, deliver, and return (Supply Chain Council, 2015).

Another model by Frazelle (2001) includes four types of measures: quality, time, financial, and productivity. For a complete analysis, all measures must be considered and they ought to work as a team.Typically, quality performance is shown by specific activities being performed which are indicated by three common logistics indicators i.e. inventory accuracy, order accuracy and picking accuracy. With time indicators, it is not only about time taken to complete precise projects but also the how time saving can improve the entire supply chain performance.To understand supply chain cost drivers, managers use financial indicators that assist in moving towards a more effectively managed supply chain.Lastly, productivity is an indication ofwell spend resources.

The all-encompassing supply chain performance measurement is vital since measurement impacts on decision making via the evaluation of previous behavior and also through benchmarking opportunities. Inadequate performance measures scores might result to continuity ofissues in the short or over time. This is due to the fact that information is

required by decision makers about operations that act as guidance to proper decision making. At the supply chain level, it is vital to have a set of performance indicators (Ploos, 1996). From Lambert and Pohlen (2001) point of view, a high probability of success of a clearly defined supply chain measurement system, is determined by the aligning processes throughout numerous companies. Target ought to be placed on the most profitable market that has additional competitive advantage through offering lower prices and differentiated services.

1.1.3 Large-Scale Manufacturing firms in Kenya

The manufacturing sector is a significant contributor to Kenya's economic development contributing 10% Gross Domestic Product, 12.5% exports and a 13% formal employment (KNBS, 2015). One of the key economic pillars in the vision 2030 geared towards making the nation a middle-level income country by the year 2030 is the manufacturing sector. To create employment and wealth, sectors' primary aim, the manufacturing sector has established an integrated Steel Mill, developed and upgraded Small and Medium Enterprise (SME) parks, Industrial manufacturing Clusters, Industrial and Technology parks and commercialization of research and development results.

According to Kenya Association of Manufacturers (KAM, 2014), the sector has got 14 subsectors: Building, construction and mining, Energy, electrical and electronics, Leather products and footwear, Plastics and rubber, Textile and Apparel, Timber, wood products and furniture,Pharmaceutical and medical, Chemical and allied energy, Fresh produce, Food, beverage and tobacco, Metal and allied, Paper and paperboard, Motor vehicle assembly, accessories and also Services and consultancy. Twelve of the sectors are involved in processing and value addition while the other two offer essential services to

enhance formal industry. In total, there are 766 established multi-sector manufacturing firms in Kenya of which 499 are large-scale manufacturing firms.

KAM posit that small-scale manufacturers are manufacturing firms with an annual turnover of between ten and twenty million Kenya Shillings. Medium-scale manufacturers are those with an annual turnover of between twenty and two hundred and fifty million while the large-scale manufacturers have an annual turnover in excess of two hundred and fifty million Kenya shillings (KAM, 2014). The accelerated output in the agro-processing industries i.e. fish, milk, tea, sugar, grain milling, fats and oils processing sub-sectors has facilitated growth in the manufacturing industry. Other key sub-sectors performing well include: cement production, manufacture of cigarettes, production of galvanized sheets and motor vehicle assembly. Over the years, it has been noted that the publicsector participation in manufacturing is growing smaller due to change in the government's policy where attention now has been shifted to privatization of the industrial sector (Scott & Westbrook, 2011).

Despite the huge contribution of this sector to the national economic development, the growth of the manufacturing industry has for years faced such challenges as dejectedlocal demand, increment in oil prices and transport costs. Furthermore, operating costs has been on the rise due to high electricity cost while roads and rail networks are degrading and hence, a depressed growth in the sector. However, appreciation of the presence of challenges, proper analysis and improvements in the value chain might lead to greater benefits. The management of a value stream would result in improved service, growth in market share, suppliers and distribution channels and provides invaluable analytics for continuous improvement (Okwiri, 2015).

1.2 Research Problem

Best-Value procurement strategies (BVP) are increasingly being recognized as a method to incorporate quality and factors such as time and cost in the procurement process to enhance the long-term performance and economic value of the work in all areas of expertise (Sidney *et al*., 2006). BVP strategies are now used in vast sectors such as Information Technology sector, professional service sector, non-construction sector among others due to its reliability in successfully delivering goods and services according to set requirements (Sullivan *et al*., 2010; Adeyemi*et al*., 2009 and Kashiwagi*et al*., 2009). In Kenya, the large-scale manufacturing face lots of challenges such as high production costs, delays occasioned by longer delivery times, supply risks and low product quality that require implementation of best value procurement strategies.

A number of studies have been done that focus on best-value procurement, a great number of these being undertaken in the developed economies and a few in the developing economies as indicated in the preceding discussion. Based on a US based research on highway construction projects, Sidney *et al*., (2006) found out thatin a best-value procurement method, selection of a contractor must be based on various selection elements. Objective elements include contractor experience with similar projects, completion within schedule, compliance with material and workmanship requirements and record of safety. The elements can also be subjective, where matters concerning proper subcontractor management, proactive actions towards reducing effects to adjacent properties and business, corporate commitment to satisfy client's wants and customer relations are evaluated.

Kashiwagi*et al*., (2010) carried out a research on Best Value Procurement/Performance Information Procurement System (BVP/PIPS) Development in US. The study concluded that BVP system is different from the traditional sourcing processes since it encourages buyer objectivity in terms of decision making during the selection phase. BVP system provides a platform for the best-value vendor to be selected through the rigorous selection process. In the process, the vendor clearly defines the service to be delivered and how it will be delivered and measured. The vendor also documents performances by all involved parties and ensures they are accountable by using the weekly risk report (WRR) andrisk management plan (RMP).

Masiko (2013) conducted a study on strategic procurement practices and procurement performance among commercial banks in Kenya focusing on six strategic procurement practices, where he looked at their contribution to success of procurement function. The key results of the researchshowed that only nineteen percent (19%) of the difference in procurement performance were explicableusing the six procurement practices. Another study conducted by Audi (2014) on "the role of strategic procurement practices on procurement performance of multinational companies in Kenya" indicated the procurement performance explainable by these practices was only twenty seven percent (27%).Although the relationship between variables was low, the studies suggested that the existing practices by suppliers to be reviewed and fortified to further better the procurement performance.

Kiplagat (2010) conducted a studyon ''impact of strategic procurement in Communications Commission ofKenya''. His studyindicated that strategic procurement at CCK has brought benefits such as reduced costs, continuous and meaningful engagement with procurement professionals and partners to inform strategy and promoted and specified

continuous improvements in quality outcomes through provider innovation and configuration.Wanyonyi (2014) studied challenges of procurement strategy implementation among road agencies in Kenya and concluded that the challenges of implementation emanated mainly from poor leadership, lack of adequate resources, frequent management changes and lack of strategy communication.

From the studies reviewed, it is evident that many studies have been done on the area of procurement strategy. However, most of these studies have prioritized on the strategic procurement practices, its role on procurement performance as well as its implementation challenges by both public and private corporations in Kenya with limited research being done on the impact of best-value procurement strategies on performance of the supply chain of large-scale firms in Kenya. It is on the basis of this gap that this research sought to fill by answering the following questions: What are the best-value procurement strategies currently used by large-scale manufacturing firms in Kenya? What is the influence of best-value procurement strategies on supply chain performance of large-scale manufacturing firms in Kenya?

1.3 Research objectives

Specific objectives of the study were:

i. To determine the best-value procurement strategies currently used by large-scale manufacturing firms in Kenya.
ii. To establish the influence of best-value procurement strategies on the supply chain performance of large-scale manufacturing firms in Kenya.

1.4 Value of the Study

The primary findings of this study give policy makers a glimpse of how best-value procurement strategies influence supply chain performance of large-scale manufacturing firms and consequently identify mechanism that can be harnessed by the regulators to achieve improved performance of large-scale manufacturing firms which is a critical blue print for the economic growth and development in Kenya as per vision 2030. The study also seeks to benefit firms that are yet to adopt best-value procurement strategies that will impact on the overall organization performance through their supply chains. The management of these firms are able to determine the value strategies to adopt so as to enhance supply chain performance.

The study is also useful to researchers and academicians who may be interested on furthering the research on best-value procurement strategies vis-à-vis supply chain performance in any industry. Its findings may also add into the body knowledge of supply chain management literature intended for scholarly as well as applied research purposes.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter sought to assess the past researches on Best-Value procurement strategies and supply chain performance. The clear understanding of the past studies enables the understanding of the gaps that exists as well as build onto this research. This section sought to look at procurement process, best-value procurement strategies and finally supply chain performance measures.

2.2 Procurement Process

When goods and/or services are effectively procured, it impartsenormously to the competitive advantage of an enterprise. Members in the supply chain are linked during the procurement process, taking upon itself the responsibility for assuring and managing the quality of suppliers in that chain. If the quality of material and service is excellent, client satisfaction is assured and so is revenue generation. Input costs being largely part of total costs in many industries and with procurement being a determinant of costs, revenues, and supply chain relationships, the discipline has been receiving more focus from the academicians andpractitioners (Robert *et al*., 1991).

According to Gianakis (2001), procurement is a process thatstarts with planning to make a purchase and then followed by evaluating the need for the goods or services. From there, the purchaser has to determine whether he or she has got the powers to undertake the transaction and if not then obtain any relevant approvals within the organization hierarchy and arrange the necessary funding. The reason for thorough procurement planning is to minimize budget constrain that may affect capital acquisition needs.Through procurement

planning during the early purchasing stages, the buyer has a chance to consider alternatives through making a request to the user department.At the time issues, such as, product specifications,price estimates, make or buy decisions, and outsourcing opportunities are explored (Drabkin& Thai, 2003). Any mistake in procurement planning process has got far reaching implications on each and every other function of an organization and finally impacts negatively on the overall performance of the firm.

2.3 Best-Value Procurement Strategies

There are five best-value procurement strategies which shall form the main basis of discussion. These strategies include: Strategic E-procurement, Strategic Supplier relationship management, Best-value Spend and Category Management Strategy, Weighted Average Supplier Scoring Strategy and Collaborative Best-value sourcing Strategy (CIPS Australia, 2010).

2.3.1 Strategic E-Procurement

E-procurement has got various definitions according to different researchers. According to Parida and Parida (2005), e-procurement refers to use of internet as a technological solution to facilitate corporate buying.Bhaskar (2005) defines e-procurement as a shift of the whole procurement process to an online environment. Even though there are different viewpoints with regards to online procurement, one thing is certain, best-in-class companies use technology to produce beneficial information for decision making. Mulgan andAlbury (2003) explain how use of technology significantly improves result efficiency as it creates a new way of interacting with and implementing new processes, products, and services.

As Lancioni, Smith and Oliva (2000) posit, e-business has been on the rise since late 1990's with technological advancements and this has augmented procurement opportunitiesleading to major alterations of the state at which company's procurement function operates. Information Technologies have revolutionized how firms and governments operate. Nelson *et al*., (2001) noted that since most firms' spending entail purchase, the costs can be reduced by utilizing e-procurement, the easiest way to make procurement popular, while implementing in the latest epoch by government and enterprises. However, both public and private sectors must conduct e-purchasing with great caution (Zheng, *et. al,* 2004). Ward and Peppard (2003) noted that 60% of Information Technology application in procurement initiatives and projects do not deliver the expected benefits.

2.3.2 Strategic Supplier Relationship Management

In Supplier Relationship Management (SRM),firms fully utilize their interactions with the third-party firms who supply goods and/or services. The firm's interactions are strategically planned so as to capitalize on the value of such interaction. This is in line with changes that have occurred in the buyer-supplier relationships, that previously were transactional to a more collaborative and alliance-based one (Burt, Petcavage& Pinkerton, 2010). Carr and Pearson, (2002) noted that the relationship is strategically planned in a way that not only does it begin way before the first order is placed but also persists after receiving goods and/or services. In most cases firms that perform very well in strategic procurement always work closely with their suppliers since supplier relationship management is an important ingredient in achieving strategic procurement. SRM recognizes that relationships differ according to the type of suppliers, an argument

supported by Kai (2006). He insists that a relationship will be determined by; criticality of goods or services being supplied; how available the goods are globally and the number of vendors in the market.

According to Morris and Hergert (2002), when establishing alliances with key suppliers, SRM key considerations are the benefits and cost involved in the alliance especially if it involves large Multinational Corporations (MNCs). Adopting Strategic supplier alliances by firms may be informed by globalization and alterations in company's economic activities and technological advancements. This has been anchored on the belief that companies around the world can't survive without creating alliances that will bring together vital skills, resources and capabilities that otherwise will be time and costly to obtain and with proper management of this alliance, firms are equipped to use the talents of the supply base to create sustained value while constantly seeking improvement (Ansoff, 1985).

For better market penetration, increased connection with new technology and knowledge, business owners and executives need successful strategic supplier alliances. This will also greatly impact on their returns as opposed to those who lack such alliances (Wisner, He, Tan, Lee, & Li, 2009). The objective of SRM is to overcome the traditional adversarial relationship between buyers and suppliers since it is only through communication and the sharing of information and ideas that better outcomes are provided for both parties. Bailey, Farmer, Jessop and Jones (2005) posit that mutual supplier-buyer relationships aim at providing vast benefits for instance through sharing and exchanging of information, much is achieved. On the contrary, the rivalry approach traditionally used results to a win-lose situation an outcome greatly discouraged in the SRM approach that prefers partnership for

a win-win situation (Saunders, 1997). According to Burt (2010) and Mangan, Lalwani, Butcher and Javadpour (2012), what differentiates the two relationships, is presence of organizational trust.

2.3.3 Best-Value Spend and Category Management Strategy

For successful spend management, a firm must have the capability to plan purchases. A company can proactively plans for its expenditure on goods or services only when it understands the cost involved and the right time for purchase. This helps to control cost per unit impact on spend management and also the number of units purchased (demand management). Knowing what to buy and when to buy it is critical in efficient allocation of resources and may be the basis for decision to be made on what need to purchased centrally and what to decentralize (Mohamed, 2012).

Category management (CM) has been gaining prominence over the recent past among both academic and industry practitioners. Past studies have shown a number of key factors that are important to successful adoption of category management such as: Spend analysis, aggregation and standardization, market analysis, supplier relationship management as well as category strategy. According to O'Brien (2009) category management brings together the whole organization and not only procurement leading to better management of processes, knowledge, resources and activities for a specific commodity. Category management approach is increasingly being used by companies to drive sustainable savings and results for both direct and indirect material categories. Busch (2005) noted that CM works in tandem with other procurement strategies such as strategic sourcing to help achieve higher levels of savings and efficiencies.

As noted by Brown (2011), category management solution is achieved through developing a framework of higher quality information that drives ability and increases user buy in. Practices such as organization relationship management, change management and ensuring cross functional working can help achieve understanding of users' needs and wants. Additionally, matching such practices with the best strategies will give a firm a wider business perspective and a deeper comprehension of suppliers and supply market, which plays a role that creates and deliver category management vision with efficient cross functioning and cooperated effort.

2.3.4 Weighted Average Supplier Scoring Strategy

Sidney *et al*., (2006) in their study on Public sector highway construction noted that with an exception of extraordinary circumstances, most of the contracts are strictly offered on low-bid basis. The researchers also noted that the low bid procurement pose the risk of low quality goods or services as supplier's competition focuses on low bid procurement rather than quality despite its long-term legal precedence and promotion of open competition.Therefore, a low-bid system cannot be used as a standard measurement of best-value procurement or best performance throughout the project. For this reason, a weighted average scoring strategy is fundamental as it is inclusive of other factors other than cost for selection of a procurement that makes suppliers improve performance and achieve specific project objectives.

Empirical studies by different researchers reveal an overwhelming consensus on the qualitative determinants that qualify suppliers. When selecting suppliers, the ultimate concern is on satisfaction of the end customer and enhancing organizational performance by making it competitive. There are massive benefits to the organizational buyer when the

supplier is fully aware of what selection factors are important to the buyer since it helps them customize their strategy to meet the buyers' needs (Kotabe& Murray, 2001). Garmfy (2004) and Mwikali*et al*., (2012) identified sets of generic determinants which show importance during supplier selection regardless of the industry the firm subscribes to. It's vital to note that they are interrelated and have been used in previous studies across the board.

Quality Assessment: According to Tracey and Tan (2001) quality can be described in relation to durability and ultimate products lifespan while Dzever and Saives (2001) looked at quality in terms of simplicity and flexibility of operation. Empirical studies concur that quality should be defined through the eyes of the end customer if at all organizations are to remain competitive.

Service Levels: Different scholars look at supplier service level in different perspectives. For instance, Bharadway (2004) looks at service as the ability of the supplier to provide after sales service in terms of claims policies. Anyona (2011) posits that warranties are also a way of extending service to the buyer. According to Tan (2003) provision of technical support, product customization and rate of reaction to demand can also define the level of service provision by the supplier.

Organization Profile: It is always prudent for the procuring entity to check the supplier's organization when choosing a supplier as this affects issues like risk and lead times. Issues like quality performance as evidenced by ISO 9000 accreditation, supplier innovation and technological levels need to be ascertained (Shahadat, 2003). Good suppliers should have achievement of sales and marketing goals as well as high financial performance.

Supplier profile: Supplier's past performance and history helps in making decisions for its selection. Attention should be paid to the suppliers: Financial Status (Awino, 2002); Response to Customers- Numbers don't lie -where clients are many as deals are good; and history of performance based on business references (Kibe, 2000).

Cost criteria: This criterion seeks to find thefundamental element of pricing linked to purchase. Purchase price, is the frequently occurring cost in relation to the product, plus cost of transport and taxes (Stanley & Gregory, 2001). It is imperative to additionally consider operational costs during the supplier selection and profits cannot be maximized without cost minimization. Mwikali*et al*., (2012) while quoting Beamon (1999) added that Price and Distribution Cost should be taken into consideration when using this criterion to choose suppliers.

2.3.5 Collaborative Best-value Sourcing Strategy

Collaborative BV Sourcing strategy aims for a maximum mutually beneficial outcome between parties involved through working together, a strategic sourcing activity done with resources exterior to the organization. It is the alignment of the extended company to better compete versus other extended companies, and capture a greater position to rule over a segment of the market. According to Ya-Ling (2006), it is necessary for businesses to use collaboration to get competitive positions as this helps them to improve customer responses and elevate capabilities. Spekman*et al*., (1994) noted that when collaborating you not only add value to resource in the company but can assist in lower of operating cost, incensement in agility and elimination unnecessary waste as well as to satisfy their clients.

When suppliers and producers collaborate, execution by supply chainsis hugely affected (Simchi*et al*., 2002). Cohen and Roussel (2004) posit that collaborative strategic sourcing is a cornerstone of successful supply chain management since external partners' skills and talents are necessary for the firms' success as they continue to narrow their strategic focus to a smaller number of key competences. Rather than consider strategic sourcing as just a matter for the purchasing department, companies that perform strategic procurement get internal clients to be actively involved in the decision-making process (Bassok&Anupindi, 1997).

Gunasekarani (2004) argues that collaborative relationships ensure interaction between business partners who come together to share information through information exchange results to a win-win situation, and normally works towards achievement of cost savings, reduced lead time and flexibility, thus achievement of supply chain management performance. As the speed of businesses continue to increase, pressure placed on systems and processes also increases thus need for integration, need for faster processes and better visibility which translate to getting better information faster. The necessitating factor for speed and business relationship improvement is integration and collaboration practice that works to solve information problem through network formation of various trading business partner. According to Bryan (2014), collaboration practice is important in eliminating costly delays due to systems handoffs, increased access to timely information for decision making and real time alert.

2.4 Supply Chain Performance

Supply Chain Performance is explained as theSC ability to perform activities geared towards meeting end-customer needssuch as product availability, capacity to deliver

performance and on-time delivery. The activities are considered extensive. According to Handfield*et al*., (2009), SC performance evaluation system functions to monitor and evaluate supply chain performance in a formal and strategic way.Thus, for an effective strategic evaluation of purchase decisions, effective supply chain performance is conducted. This influences the decisions such as "make – versus- buy" decisions, development and pursuit of competitive strategies as well as the choice between market and relational forms of exchange. These decisions are essential if at all owner-supplier relationship within procurement will be formed (Parsons, 2011).

SC needs to continuously improve which means development of performance measures, or metrics. Lapide (2000) posits that measurement is very critical since it impacts on behavior that impacts SC performance. Performance measurement provides firms with a means by which they can assess whether their SC has improved or deteriorated. Key in managing a firm's business is a performance measurement system forgiving relevant knowledge that helps make decisions and formulate actions (Holmberg, 2000). Performance measurement helps firms to improve supply chain's act effectively and efficiently (Neely *et al*., 1995). Performance can be measured by the transfer performance actuality communicated through a stream of constrained signs (Chan & Qi, 2003).

2.4.1 Supply Chain Performance Measurement Models

According to various literatures, there are several approaches of measuring Supply chain performance. The Supply-Chain Operations Reference (SCOR) approach is a model that Supply Chain Council suggested. It breaks supply chain activities into five main processes that involve planning, sourcing, making, delivering and returning. In these processes, multiple performance criteria for performance management are flexibility, responsiveness,

reliability, cost and efficiency of asset utilization. This model is generic and is therefore applicable to all industries (Supply-chain Council, 2015). The principal advantages of this method are that it considers the entire supply chain; it is balanced and it is multi-dimensional. The disadvantage with this approach is that it does not describe every business process or activity. It also fails to adequately address training, quality, information technology and administration (Aramyan*et al*., 2006).

In 1992 Kaplan and Norton developed the Balanced Scorecard (BSC) approach that takes into consideration financial measures and non-financial measures. A balanced scorecard contains four perspectives namely customer,internal business processes, financial and the learning and growth perspective. The customer perspective measures customer related concerns such as on-time delivery**.** The internal business processes perspective measures attributes that lead to excellence such as forecast capabilities. The financial perspective considers financial measures such as cost of manufacturing or total logistics cost. Lastly learning and growth point of viewis all about ensuring employees are well trained and cultural attitudes of firms are maintained,for both individual and corporate self-improvement. The BSC main advantage is its balanced view that considers financial and non-financial measures and the appropriate connection between top level and middle level management concerns. Its weakness is that it is not a quick fix and its complete implementation must be staged (Parsons, 2011).

Activity Based Costing (ABC) first accumulates costs for indirect resources for each activity for a certain area and assigns them to the product, activity cost service or other cost objects that uses the activity (Horngren et. al, 2008). ABC enables the attribution of costs to cost drivers for every supply chain process or elements. Ploos (1996) cited the main

advantage of this approach in supply chain performance measurement as its ability to give insight beyond financial information and recognizes how costs behave for different activities. Its major drawback is that it is costly and difficult to collect initial data and to determine appropriate cost drivers.

Multi-criteria analysis (MCA) makes use of various dimensions as defined by the management based on the objectives of the organization. The process involves identification of the desired outcomes, the criteria to judge these outcomes and the weights for each criterion. It has the advantage of being participatory and interactive as well as being broad based in covering financial metrics and non-financial metrics, without an exclusion of quantitative and qualitative measures. Its drawback is in the difficulty of assigning weights to criteria (Lapide, 2006).

Economic value added (EVA) also called residual income is the difference between after-tax operating income and the cost of capital. It is very useful for project evaluation. The main advantage of using EVA is that it takes into account the cost of capital and allows project to be viewed separately. However, it is difficult to calculate EVA among the divisions in an organization. Another shortcoming is that EVA cannot measure detailed supply chain performance and therefore it should be considered as part of other measures such as the Balanced Score Card and Multi-criteria analysis (Arrowsmith, 2004).

Lastly is the Life Cycle Analysis (LCA) that looks at the entire life of a project. Life cycle analysis takes into account input use and environmental impact of an entire supply chain from extraction to disposal. Its main advantage is its clear mapping of the resources required in the supply chain. It also determines where there are large environmental

burdens. Its shortcoming is that the existence of conflicting environmental indices might lead to confusion (Frazelle, 2000).

2.4.2 Supply Chain Performance Measurement Metrics

Hausman (2003) calls SC performance measures, as "metrics" that are for improvement of global supply chain i.e. cutting across company boundariesand improving supply chain at large. He further argues that in addition to quality, any supply chain requires one or more performance measures on each of the three-performance metrics; service metrics, asset (inventory) metrics and speed/time metrics.

Service Metrics: focuses on customer satisfaction by measuring the depth of service provided by a supply chain.Customer service metrics vary according to two different environments i.e. build-to-stock and build-to-order. Some common built-to-stock service metrics environments are line item and complete order fill rate, time keeping during delivery, back-order costs/lost sales indicating the numbers and aging of back-orders. For build-to-order environment, common service metrics are stated based on how timely one responds to clients in percentage. On time delivery and late order numbers, age and cost are included.

Assets/Inventory Metrics:they entail innovative measurement involved in the entire supply chain process. There are two common inventory metrics: monetary value of the supply chain inventory measured in a currency and relates to the value of inventory as an asset on the firm's balance sheet. The other one is time supply or inventory turns, which looks at the time taken to surf the supply chain that relates to flow of inventory, measuring the goods costs per value of inventory. With a supply chain eye, the metrics need to be viewed

in combination with the obtained level of service. Speed/time Metrics:these have all to do with speed, timelessness, flexibility and responsiveness. The specific metrics include time taken for a supply chain cycle, cycle of money-conversion, quoted customer response time, time taken for order processing, lead production time, procurement lead time and shipment and warehousing picking time. Other flexibility measures include upside flexibility and distributors inventory days (Frazelle, 2000).

According to Beamon (1999), supply chain performance measurement metrics mainly focus on how efficient and effective an existing supply chain system is and may also compare other competing systems. Shepherd and Gunter (2006) posit that supply chain performance measures include: resource utilization percentage, transaction costs reduction percentage, reduction in cycle time percentage, line items on back order to total line items percentage, percentage between targeted average cycle and average cycle time, in advance or delayed delivery to all of items delivered percentage, stock variance to total stock value percentage and the percentage of full department expenseto the whole department budget. In establishing the relationship between BV procurement strategies and supply chain performance of many Kenyan large-scale manufacturing firms, the metrics discussed as per Hausman (2003) and Shepherd and Gunter (2006) have been adopted for performance measurement of the supply chains of the large-scale manufacturing firms.

2.5 Conceptual Framework for Best-Value Procurement Strategies and Supply Chain Performance

The conceptual framework unfolds how dependent and independent variables relates. In this study, supply chain performance was the dependent variable since performance of many SC systems relies on results from very many procurement strategies. A number

ofsingle procurement strategies when acting individuallycould have a collective effect on the performance of the sector. The independent variables in this case were the best-value procurement strategies that impacts on performance of the supply chain.

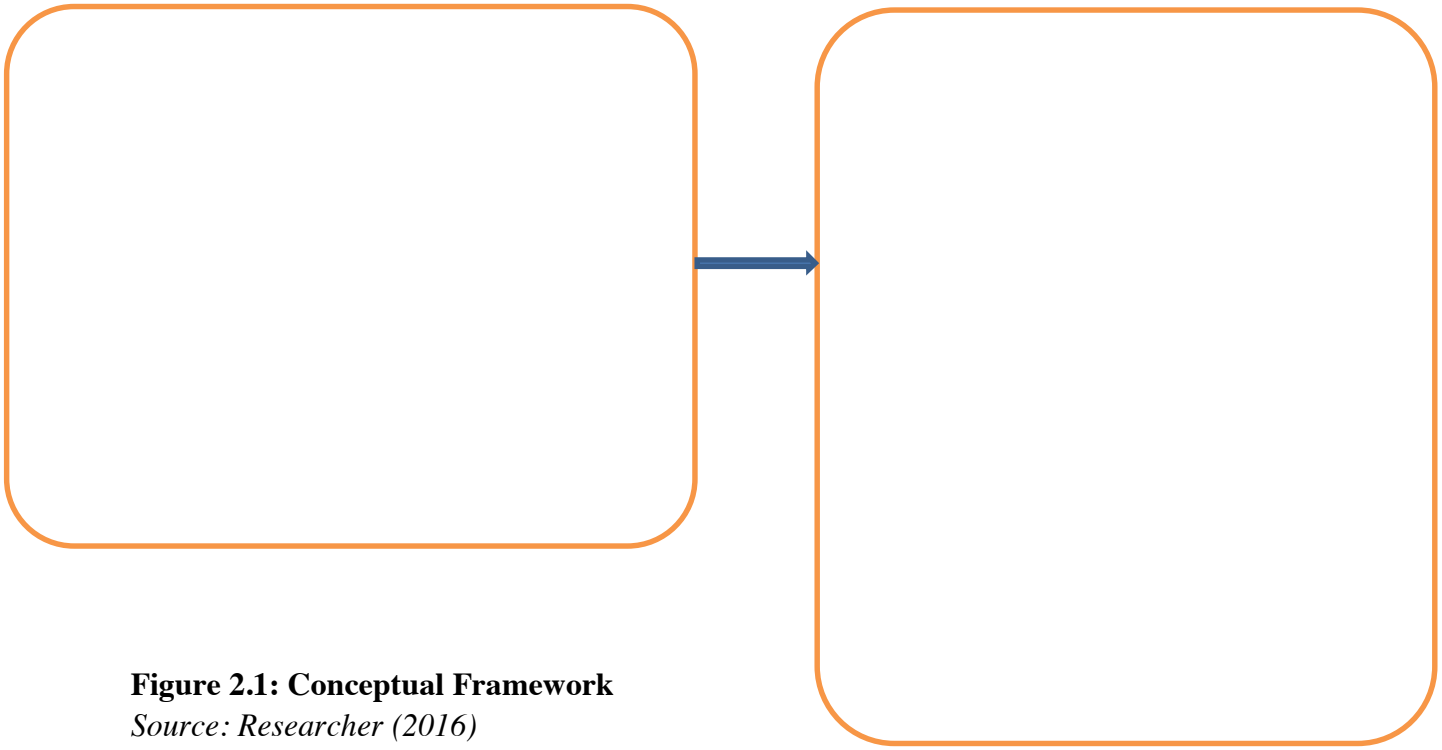

Figure 2.1: Conceptual Framework
Source: Researcher (2016)

Hypothesis

In order to achieve the specific research objectives and to ensure that consistency with the conceptual model of the study is maintained, non-directional null hypothesis was tested (Cooper and Schindler, 2001). The study sought to address the research problem by testing the following hypothesis:

Ho: Best-value procurement strategies have no significant influence on the supply chain performance of large-scale manufacturing firms in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the methodologies applied to answer research questions. The research design, research variables have been fully described, while highlighting a vast view of the description and the mode of selection of the population and the sample. Data collection techniques, research instruments, and data analysis procedure have been explained.

3.2 Research Design

The study opted for descriptive survey as the research design. Descriptive research design is a methodology used to collect datain a highly structured interview setting, at times, with a human interviewer (Cooper & Schindler, 2008). The design ensures that the data obtained gives appropriate answers to the research question without interfering with the population elements. The survey method was useful in providing descriptive information on best-value procurement strategies employed by Kenyan large-scale manufacturing firms and their benefits in improving supply chain performance. Similarly, it is a common method of studying individuals under natural conditions (Saunders &Thornhill, 2003).

3.3 Population of the Study

A population is a specificgroup of people, elements and objects or households that a researcher target for investigation (Mugenda, 2003). According to KAM (2014) directory, there are 499 Kenya's manufacturing companies as seen in the Appendix II attached at the end of the study. The 499 firms represented the study population.

3.4 Sampling

The sample size for this study constituted 125 large-scale manufacturing firms in Kenya. This is 25 % of the population and is well above the 10% minimum recommended by Mugenda and Mugenda, (2003). Sampling method applied was stratified random sampling described by Cooper and Schindler (2006) in developing the size of the samplesince the group of manufacturing firms under consideration were heterogeneous as shown in table 3.1 below:

Table 3.1 Sample Size

Sector	No of Firms	% in sector	Number of respondents
Building, Mining and Construction	20	4	5
Chemical and Allied	70	14	17
Energy, Electricals and Electronics	34	7	9
Food and Beverage	71	14	17
Leather and Footwear	7	1	2
Metal and Allied	66	13	16
Motor Vehicle and Accessories	27	6	8
Paper and Board	63	13	16
Pharmaceutical and Medical Equipment	21	4	5
Plastic and Rubber	68	14	17
Textile and Apparels	35	7	9
Timber, Wood and Furniture	17	3	4
Total	**499**	**100**	**125**

Source: Researcher (2016)

3.5 Data Collection

Primary data was used in the study having been collected by means of a structured questionnaire comprising 3 parts.. Part A captured demographic data, part B captured data that helped answer question relating to first objective which was to determine the best-value procurement strategies currently used by large-scale manufacturing firms in Kenya while part C contained data that answered the second objective of establishing how

thestrategies influenced supply chain performance of large-scale manufacturing firms. The respondents were the heads of Procurement and Supply Chain management officers in charge of materials management of their firms. It is believed that being heads of supply chain department, they were familiar with the best-value procurement strategies employed by the firm and that they had the capacity to evaluate their supply chain performance. The questionnaire was administered using a drop and pick later method.

3.6 Data Analysis

Descriptive statistics method involving measures of central tendency and dispersion was used for analyzing the collected data. To ensure efficient and effective data analysis, factor analysis which uses SPSS method was used to regroup and reduce the data to a small number of underlying common factors or domains that summarized the data to help in the interpretation through coding of variables. To achieve the first objective which was to determine the best-value procurement strategies currently used by large-scale manufacturing firms in Kenya, mean scores were used. To address the second objective, i.e. to establish the influence of best-value procurement strategies on the supply chain performance of large-scale manufacturing firms in Kenya, multiple regression analysis was done. The regression model below was used: -

$Y = \beta 0 + \beta 1x1 + \beta 2x2 + \beta 3x3 + \beta 4x4 + \beta 5x5 + e$

Where Y= Supply Chain Performance,

$\beta 0$= (alpha) constant or intercept.

$\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$ and $\beta 5$are coefficients/weights of the following respective independent variables; x1= Strategic e-procurement, x2= Strategic supplier relationship management,

x3= Best-value spend and category management strategy, x4= Weighted average supplier scoring strategy, x5= Collaborative best-value sourcing strategy and e= error term.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

Interpretation and presentation of the findings obtained from the field is discussed in this chapter. The chapter presents the background information of the respondents and findings of the analysis based on the objectives of the study. Descriptive and inferential statistics have been used to discuss the findings of the study.

4.1.1 Response Rate

From the 125 respondents provided with questionnaires to fill in, 92 respondents filled and returned them making a 73.6% response rate.Although the rate was not 100%, it was reliable enough to derive conclusions. (Mugenda and Mugenda (2003), validates the argument by stating that an adequate response for analysis ranges from 50% and above. Whereas 50% represented adequate rate of response, 60 % rate is good and above 70% is excellent.

4.2 Demographic Information

This sub-section investigates on respondents' background information; mainly it includes position of the respondent, education level, period worked with the firm and period the firm has been in existence.

4.2.1 Position of the Respondent.

The researcher sought the positions of the respondents in the large-scale manufacturing firms in Kenya. From the findings all the respondents (100%) were Procurement managers

from different firms. This shows that the respondents were in a good position to answer the questionnaires accurately.

4.2.2 Educational Level of Respondents

The respondents were requested to indicate their education level. The table 4.1 below summarizes the responses.

Table 4.1: Highest Level of Education amongst the Respondents

Level of education	Frequency	Percentage
Diploma	7	7.6
Bachelor Degree	25	27.2
Master Degree	45	48.9
PhD	15	16.3
Total	92	100.0

Based on the findings from the research,majority 48.9% of the respondents held a Master's Degree. 27.2% were university graduates, 16.3% held a PhD whereas 7.6% of the respondents held a Diploma. This shows that at large, the respondents were literate enough to offer credible information relevant for the research.

4.2.3 Period of Service in the Firm

This study sought for information about the time duration worked by an individual procurement manager in the firm. The findings are shown in Table 4.2 below.

Table 4.2 Period of Service in the Firm

Period of Service	Frequency	Percentage
Below 5 Years	8	8.7
5 – 10 Years	38	41.3
10 – 15 Years	31	33.7
Above 15 Years	15	16.3
Total	92	100.0

On period of service, the study revealed that 41.3% of respondentshave served their firms for a period of 5 to 10 years, 33.7% of them have worked for 10-15 years in their firms, 16.3% have served for more than 15 yearswhile 8.7% respondents have served for less than 5years. Since most of them spend a considerable amount of time in firms, they were awarded credibility for information they gave.

4.2.4 Duration the Firm has been in Operation

The respondents were requested to indicate theduration the firm has been in operation. The Table 4.3 shows the findings of the study.

Table 4.3 Duration the Firm has been in Operation

Period of Service	Frequency	Percentage
Below 5 Years	2	2.2
5 – 15 Years	13	14.1
15 – 25 Years	46	50.0
Above 25 Years	31	33.7
Total	92	100.0

Results in Table 4.5 shows that 50% of respondents indicated that their respective firms have been in operation for 15-25 years, 33.7% for above 25years, and 14.1% for 5-15 years while 2.2% of the respondents indicated that their respective firms have been in operation for less than 5 years. Thus, the findings indicate the firms have a wide understanding on best-value procurement strategies and supply chain performance.

4.3 Best-value procurement strategies currently used by large-scale firms in Kenya

Best-value procurement strategies were the independent variables of this study. In order to determine the relationship, they have with the supply chain performance of large-scale manufacturing enterprises in Kenya, it was important to ascertain the use of these strategies by the large-scale manufacturing firms. This section presents the best-value procurement strategies currently used by large-scale manufacturing firms in Kenya.

4.3.1 Strategic E-procurement

Strategic E-procurement is among the best-value procurement strategies used in the multinational organizations like manufacturing industries in Kenya. It involves the use of technology solution to facilitate corporate buying using the Internet (Parida and Parida, 2005). The interviewees were requested to point out the length of usage of strategic e-procurement by their firms as a way to improve procurement processes. The response was fated on a scale of 1-5 on which: 1= Very small extent, 2=Small extent, 3= Moderate extent, 4=Great extent and 5=Very great extent. Mean and Standard deviation were calculated as shown in Table 4.4 below.

Table 4.4 Findings on use of Strategic E-procurement in Large-scale manufacturing firms in Kenya

Strategic E-procurement	N	Mean	Std. deviation
The firm has a functioning website to facilitate online buying of goods and services	92	4.39	0.25
The firm has automated its procurement processes such that call for proposals is done through the firm's website	92	4.36	0.26
The firm has automated its procurement processes such that all requisitions are made online	92	4.32	0.24
The firm has automated its procurement processes such that tenders are advertised online	92	4.26	0.23
The firm uses internet to facilitate corporate buying	92	4.22	0.20
The firm uses technology to produce beneficial information for decision making	92	4.22	0.20
The firm has automated its procurement processes such that payment of suppliers is done online	92	4.14	0.22
The firm has automated its procurement processes such that sourcing is done online	92	4.12	0.26
The firm has automated its procurement processes such that prospective suppliers submit proposals online	92	4.12	0.22
The firm uses information technology to successfully innovate and create new products/services.	92	4.12	0.26
The firm has automated its procurement processes such that specifications for procured items are posted to company website	92	4.11	0.28
The firm has automated its procurement processes such that order shipment tracking is done online	92	4.02	0.24
The firm has automated its procurement processes such that vendor selection is done online	92	3.71	0.14
The firm uses information technology to successfully implement new processes	92	3.71	0.14
Overall Mean		**4.13**	

The results in Table 4.4 reveal that to a great extent ($3.71 \leq mean \leq 4.39$, with a significant standard deviation) large-scale manufacturing firms have functioning websites to facilitate online buying of goods and services, have automated their procurement processes such that call for proposals is done through the firms' websites, have automated their procurement processes such that all requisitions are made online, have automated their procurement

processes such that tenders are advertised online, use internet to facilitate corporate buying, use technology to produce beneficial information for decision making, have automated their procurement processes such that payment of suppliers is done online, have automated their procurement processes such that sourcing is done online, have automated their procurement processes such that prospective suppliers submit proposals online, use information technology to successfully innovate and create new products/services, have automated their procurement processes such that specifications for procured items are posted to firms' websites, have automated their procurement processes such that order shipment tracking is done online, have automated their procurement processes such that vendor selection is done online and firms use information technology to successfully implement new processes

These findings mean that large-scale manufacturing firms use Strategic E-procurement to a great extent with an overall mean of (mean=4.13). The study finding coincide with those of Bhaskar (2005)who posits that a firm isfully involved in e-procurement if the procurement process is automated such that sourcing and selection of vendor, processes involved in procurement, tracking shipment status and payments areaccessible online.

4.3.2 Strategic supplier Relationship Management

Supplier relationship management (SRM) entails firm's capability to strategically plan for, and maximumly manage all third-party firm interaction, who supply goods and/or services. The respondents were asked to indicate the extent to which manufacturing firms have used Strategic Supplier Relationship Management in an effort to improve procurement processes. The response was fated on a scale of 1-5 on which: 1= Very small extent,

2=Small extent, 3= Moderate extent, 4=Great extent and 5=Very great extent. Mean and Standard deviation were calculated as shown in Table 4.5 below.

Table 4.5 Findings on use of Strategic Supplier Relationship Management in Large-scale manufacturing firms in Kenya

Strategic supplier Relationship Management	N	Mean	Std. deviation
The firm continuously analyzes and controls its suppliers' performance	92	4.51	0.28
The firm designs, implement and control cross-organizational relationships with its suppliers	92	4.51	0.32
The firm has integrated its suppliers in the procurement processes	92	4.23	0.25
The firm has a continuous advancement of the 'lived' partnership with its strategic suppliers	92	4.11	0.24
The firm shares and exchanges information with its key suppliers with the emphasis on building a satisfactory outcome together in a range of areas.	92	4.09	0.25
The firm proactively develops strategic relationship with its suppliers	92	4.02	0.22
The relationship between the firm and its suppliers depends largely on the criticality and value of goods/services they supply	92	4.00	0.25
There is exchange of improvement ideas between the firm and its suppliers	92	3.97	0.28
The relationship between the firm and its suppliers is collaborative and alliance-based.	92	3.93	0.16
The firm coordinates and monitors quality consistency of different suppliers	92	3.90	0.22
The firm carries out cost-benefit analysis when establishing alliances with its key suppliers	92	3.77	0.15
Overall Mean		**4.09**	

The results in Table 4.5 show that the respondents agreed that to a very great extent (mean=4.51, with a significant standard deviation) the large-scale manufacturing firms continuously analyze and control their suppliers' performance and also design, implement and control cross-organizational relationships with their suppliers. This may be attributed to the fact that, large-scale manufacturing firms in Kenya have realized that creating closer

relationships with their key suppliers would enable them to discover and realize new benefits and reduce risks such as supplier quality problems. The data agrees with Burt et al., (2010) who posit that supplier relationship have evolved from being transactional in nature.

Further, the respondents agreed that to a great extent ($3.77 \leq mean \leq 4.23$, with a significant standard deviation) the firms have integrated their suppliers in the procurement processes, have a consistent improvement of the 'lived' partnership with their strategic vendors, share and exchange information with their key suppliers emphasizing on creating a combined fulfilling score linein a wide scope. Moreover, proactive development of strategic relationship with its suppliers, is crucial for a mutually beneficial outcome in terms of goods and/or services provided, exchange of improvement ideas between the firms and their suppliers, the relationship between the firms and their suppliers is collaborative and alliance-based, the firms coordinate and monitor quality consistency of different suppliers and the firms carry out cost-benefit analysis when establishing alliances with their key suppliers.

The results indicated that large-scale manufacturing firms use Strategic Supplier Relationship Management to a great extent with an overall mean of (mean=4.09). The findings conform to Carr and Pearson, (2002) argument that "the strategic relationship with suppliers begins way before the first order is placed and continues well beyond the receipt of goods." The findings also support Burt, Petcavage and Pinkerton (2010) conclusion that there has been an evolution of buyer-supplier relationships from a naturally transactional one to a friendlier partnership often referring each other as alliances.

4.3.3 Best-value Spend and Category Management Strategy

According to O'Brien (2009) category management brings together the whole organization and not only procurement leading to better management of processes, knowledge, resources and activities for a specific commodity. The respondents were asked to indicate the extent to which manufacturing firms have used Best-value Spend and Category Management Strategy in an effort to improve procurement processes. The response was fated on a scale of 1-5 on which: 1= Very small extent, 2=Small extent, 3= Moderate extent, 4=Great extent and 5=Very great extent. Mean and Standard deviation were calculated as shown in Table 4.6 below.

Table 4.6 Findings on use of Best-value Spend and Category Management Strategy in Large-scale manufacturing firms in Kenya

Best-value Spend and Category Management Strategy	N	Mean	Std. deviation
There is integration of purchasing decision making across functions in geographically dispersed parts of the firm	92	4.52	0.32
The firm actively involves internal stakeholders in developing comprehensive sourcing strategies	92	4.50	0.28
The firm has got standardized processes and tools across functions in geographically dispersed parts of the firm	92	4.24	0.25
The firm use cross-functional teams in conducting purchasing activities such as tender evaluation.	92	4.13	0.24
The firm carries out category identification of items and prioritizes them accordingly	92	4.11	0.25
The firm conducts category portfolio analysis in carrying purchasing activities	92	4.01	0.28
The firm conducts supply market analysis for purposes of consolidating suppliers	92	4.00	0.22
The firm conducts demand analysis and forecasting in the procurement of its goods.	92	3.91	0.25
The firm consolidates volume of its purchases to take advantage of economies of scale	92	3.91	0.22
The firm carries out spend analysis during the procurement planning process	92	3.78	0.15
The firm proactively plans for its purchases leading to knowing what to buy and when to buy	92	3.77	0.16
Overall Mean		**4.08**	

The respondents indicated that to a very great extent (4.50≤mean≤4.52, with a significant standard deviation) the large-scale manufacturing firms integrate their purchasing decision making across functions in geographically dispersed parts of the firm and also actively involve internal stakeholders in developing comprehensive sourcing strategies. Integrating purchasing decisionsand involving internal stakeholders in developing comprehensive sourcing strategies implies that large-scale manufacturing firms are able realize sustainable savings results for both direct and indirect material categories. This is in line with the arguments put forward by Busch (2005) who noted that CM is in tandem with other procurement strategies.

Further, the respondents agreed that to a great extent (3.77≤mean≤4.24, with a significant standard deviation) the firms have got standardized processes and tools across functions in geographically dispersed parts of the firm, use cross-functional teams in conducting purchasing activities such as tender evaluation, carry out category identification of items and prioritizes them accordingly, conduct category portfolio analysis in carrying purchasing activities,conduct supply market analysis for purposes of consolidating suppliers, conduct demand analysis and forecasting in the procurement of its goods, consolidate volume of its purchases to take advantage of economies of scale, carries out spend analysis during the procurement planning process and proactively plans for its purchases leading to knowing what to buy and when to buy.

The study findings imply that large-scale manufacturing firms use Best-Value, Spend and Category Management Strategy to a great extent with an overall mean of (mean=4.08). The findings agree with the argument by (Brown (2011) that category management solution is achieved through developing a framework of knowledge of highest quality to

advancecompetence and quicken user buy in and can be achieved by a combination of best practices such as strategic procurement, ability for firms to manage relationships and firm alterations and working together.

4.3.4 Weighted Average Supplier Scoring Strategy

Weighted Average Supplier scoring Strategy is one of the best-value procurement strategies used in Kenya's large-scale manufacturing entities. It encompasses all other factors rather than only prices that result to a good procurement deal. The interviewees were requested to point out the extent to which manufacturing firms have used Weighted Average Supplier Scoring Strategy in an effort to improve procurement processes. The response was fated on a scale of 1-5 on which: 1= Very small extent, 2=Small extent, 3= Moderate extent, 4=Great extent and 5=Very great extent. Mean and Standard deviation were calculated as shown in Table 4.7 below.

Table 4.7 Findings on use of Weighted Average Supplier Scoring Strategy in Large-scale manufacturing firms in Kenya

Weighted Average Supplier Scoring Strategy	N	Mean	Std. deviation
The firm considers supplier's stability when selecting its suppliers	92	4.51	0.32
The firm considers flexibility of the supplier when selecting its suppliers	92	4.43	0.26
The firm considers reliability of the supplier when selecting suppliers	92	4.26	0.25
The firm considers supplier technical capability when selecting its suppliers	92	4.12	0.24
The firm analyzes the suppliers risk profile before awarding contracts	92	4.10	0.25
The firm considers production capacity of the supplier when selecting its suppliers	92	4.09	0.22
The firm considers service performance level when awarding contracts	92	4.04	0.28

The firm considers suppliers' financial capability before awarding contracts	92	4.02	0.22
The firm considers total cost of acquisition and not only purchase price into the vendor selection process	92	3.87	0.25
The firm analyzes suppliers' past performance when making supplier selection decisions	92	3.76	0.15
The firm incorporates quality performance as a factor into the vendor selection process	92	3.67	0.14
Overall Mean		**4.08**	

The results in Table 4.7 show that the respondents agreed that to a very great extent (mean=4.51, with a significant standard deviation)the large-scale manufacturing firms consider supplier's stability when selecting its suppliers. Considering suppliers' stability in vendor sedation process, implies that large-scale manufacturing entities in Kenya have taken into consideration issues like risk and lead times of delivery of raw materials that could negatively impact on performance by supply chain if not put into proper check. This data agrees with Shahadat (2003) who noted that good suppliers should have achievement of sales as well as high financial performance.

Further, the respondents agreed that to a great extent ($3.67 \leq mean \leq 4.43$, with a significant standard deviation) the firms consider supplier flexibility, reliability of the supplier, supplier technical capability, suppliers risk profile before awarding contracts, production capacity of the supplier, service performance level when awarding contracts, suppliers financial capability before awarding contracts, total cost of acquisition and not only purchase price into the vendor selection process, suppliers' past performance when making supplier selection decisions and incorporates quality performance as a factor into the vendor selection process.

The results imply that large-scale manufacturing firms use Weighted Average Supplier scoring Strategy to a great extent with an overall mean of (mean=4.08). The findings of the study agree with the set of generic determinants that are important during supplier selection regardless of the industry the firm subscribes to as identified by Garmfy (2004) and Mwikali*et al*., (2012).

4.3.5 Collaborative Best-value Sourcing Strategy

Cohen and Roussel (2004) posit that collaborative strategic sourcing is a cornerstone of successful supply chain management since external collaborator's the skills and talents becomes very fundamental to the firms' success as they persistentlylimit their strategic focus to a smaller number of key competences. The respondents were asked to indicate the extent to which manufacturing firms have used Collaborative Best-value Sourcing Strategy in an effort to improve procurement processes. The response was fated on a scale of 1-5 on which: 1= Very small extent, 2=Small extent, 3= Moderate extent, 4=Great extent and 5=Very great extent. Mean and Standard deviation were calculated as shown in Table 4.8 below.

Table 4.8 Findings on use of Collaborative Best-value Sourcing Strategy in Large-scale manufacturing firms in Kenya

Collaborative Best-value Sourcing Strategy	N	Mean	Std. deviation
There is cultural fit between the firm and its key suppliers to ensure effective collaboration	92	4.35	0.26
The firm has invested in software collaboration tools to facilitate collaboration with the key suppliers	92	4.22	0.25
There is mutual trust between the firm and its key suppliers	92	4.13	0.25
The firm carries out joint planning with its key suppliers.	92	4.05	0.19
There is information sharing between the firm and its suppliers ensuring smooth flow of information.	92	4.00	0.28
The information shared between the firm and the suppliers is credible, accurate and timely	92	3.97	0.22
The firm's goals are congruent with the supplier's goals	92	3.93	0.26
The firm considers collaboration with its key partners as a value adding resource.	92	3.78	0.16
Overall Mean		**4.05**	

The respondents agreed that to a great extent (3.78≤mean≤4.35, with a significant standard deviation) there is cultural fit between the firm and its key suppliers to ensure effective collaboration, the firm has invested in software collaboration tools to facilitate collaboration with the key suppliers, trust is mutual between the firm and its key suppliers, the firm carries out combined planning with its key suppliers, there is sharing of key knowledge between the enterprise and its vendors ensuring smooth flow of information, the information shared between the firm and the suppliers is credible, accurate and timely, the firm's goals are congruent with the suppliers goals and the firm considers collaboration with its key partners as a value adding resource.

The results show that large-scale manufacturing firms use Collaborative Best-value Sourcing Strategy to a great extent with an overall mean of (mean=4.05). The findings of the study cement those arguments put forward by Gunasekerani (2004) that collaborative

relationships ensure interaction between business partners who come together to share information through information exchange.

4.4 The Performance of the firm's Supply Chain

Finally, the study sought to determine how the large manufacturing firms' supply chain perform. The table 4.9 shows the results.

Table 4.9. Supply Chain Performance

Supply Chain Performance	Unit of Measure	YEAR					Average
		2011	2012	2013	2014	2015	
Supply chain cycle time *(The total time it would take to fulfill a new order if all upstream and in-house inventory levels were zero)*	Number of Days	50	47	45	41	39	44.4
Cash-conversion-cycle *(The duration between paying for raw material/components and getting paid by the customers)*	Number of Days	30	29	26	25	23	26.6
Procurement lead time *(The time between placing an order to the suppliers and when the order is received)*	Number of Days	62	61	57	55	54	57.8
Inventory holding cost *(The amount of money spent in keeping raw materials and other production components)*	As a Percentage of value of inventory	60%	58%	57%	53%	52%	56%
Line item fill rate *(The percentage of "lines" of all customer orders that are filled immediately)*	As a Percentage of orders	48%%	51%	52%	55%	57%	52.6%

Cost of back/late orders (*Number of Lost sales in one year)*	Number of unfilled orders	13%	12%	10%	9%	8%	10.4%
Order fill rate *(The percentage of which all lines of an order have been filled - large No. of orders per line)*	As a Percentage of orders	25%	27%	33%	34%	41%	32%
Number of back/late orders*(Number of late/back orders in one year)*	Number of orders	21%	20%	17%	15%	14%	17.4%
Percentage on time completion *(The percentage of orders completed on time)*	As a Percentage of orders	36%	37%	39%	42%	45%	39.8%
Delivery process on time *(The percentage of the delivery processes on time)*	As a Percentage of deliveries	45%	47%	48%	50%	53%	48.6%

The study findings in table 4.11 show that the average countable days for the (2011 to 2015) period, taken for a new order to be fulfilled with a zero upstream and in-house inventory levels and was 44.4 days. Whereas, the average number of days between raw material payment and being paid by the buyer was 26.6 days and the average number of days between placing an order to the suppliers and when the order is received was 57.8. In the three cases the number of days decreased from 2011 to 2015. The study further found that the amount of money spent in keeping raw materials and other production components had decreased continuously from 2011 to 2015 which had an average mean of 56%.

The “lines”percentage among all customer orders filled instantly increased from 2011 to 2015 with an average mean of 52.6% while the percentage of order fill rate increased from 2011 to 2015 with average mean of 32%. The average percentage of the lost sales in one

year was 10.4% while the average percentage of the orders completed on time was 39.8%. Further the research study established thatthe percentage of the delivery processes on time for the period (2011 to 2015) increased continuously with an average mean of 48.6%. These findings were in line with Shepherd and Gunter (2006) who stipulatedthat measures of performances by ought to indicated by resource utilization percentage, transaction costs reduction percentage, reduction in cycle time percentage, line items on back order to total line items percentage, cycle time average to cycle timetargeted average percentage, in advance or delayed delivery to items total delivered percentage, stock variance to total stock value percentage and the percentage of departmental total expenditure to total budget.

4.5 Regression Analysis

A Multiple regression model was applied to identify the best-value procurement strategies influencing supply chain performance of large-scale manufacturing firms in Kenya. The following regression equation were adopted by the study to establish the relationship between variables $Y = \beta 0 + \beta 1x1 + \beta 2x2 + \beta 3x3 + \beta 4x4 + \beta 5x5 + e$; where Y= Supply Chain Performance, β0=the constant of regression, β1, β2, β3, β4 and β5= are the regression coefficients/weights of the following respective independent variables; x1= Strategic e-procurement, x2= Strategic supplier relationship management, x3= Best-value spend management and category management strategy, x4= Weighted average supplier scoring strategy, x5= Collaborative best-value sourcing strategy and e= error term. Required measurements from the five independent variables were got from respondents. The results are discussed below.

Table 4.10 Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.883[a]	0.779	0.761	0.04

The five independent variables that were studied explain 77.9% of the best-value procurement strategies influencing Supply Chain Performanceas represented by R Squared (Coefficient of determinant). Therefore, other factors not included in the research contribute 22.1% in influencing Supply Chain Performance. The results of findings agree with Lapide (2000) who found that strategic e-procurement play an essential function in Supply Chain Performance.

Table 4.11 ANOVA of best-value procurement strategies influence on Supply Chain Performance

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	416.22	5	83.244	27.32	.001[a]
Residual	262.042	86	3.047		
Total	678.262	91			

The study used ANOVA to establish the significance of the regression model from which an f-significance value of p less than 0.05 was established ($p=0.001 <0.05$). The model is statistically significant in predicting how Strategic e-procurement, Strategic supplier relationship management, Best-value spend and category management strategy, Weighted average supplier scoring strategy and Collaborative best-value sourcing strategy affect Supply Chain Performance. This shows that the regression model has a less than 0.05 likelihood (probability) of giving a wrong prediction. Regression method is thus positioned at a 95% confidence level for reliability. Using the F-test statistic, the sample F value had a 27.32 value, with critical f value at $\alpha = 0.05$, 5 freedom degree for the numerator and 86 freedom degree for the denominator; this explains why regression model is statistically

significant since 27.32 >6.75. (Hausman, 2003) recommends on the use of the model for estimating purposes.

Table 4.12 Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.189	0.036	.177	5.25	.001
Strategic e-procurement (X_1)	.545	.016	.445	34.063	.003
Strategic supplier relationship management ($X_{2)}$	.312	.142	.299	2.197	.001
Best-value spend management and category management strategy (X_3)	.278	.028	.268	9.929	.001
Weighted average supplier scoring strategy (X_4)	.127	.011	.121	11.545	.003
Collaborative best-value sourcing strategy (X_5)	.231	.012	.223	19.25	.004

a) Predictors: (Constant), Strategic e-procurement, Strategic supplier relationship management, Best-value spend management and category management strategy, Weighted Average Supplier Scoring Strategy and Collaborative Best-Value sourcing strategy.

b) Dependent Variable: Supply Chain Performance.

The established regression equation was

$$Y = 0.189 + 0.545X_1 + 0.312X_2 + 0.278X_3 + 0.127X_4 + 0.231X_5$$

The regression equation above has established that holding all best-value procurement strategies (Strategic E-procurement, Strategic Supplier Relationship Management, Best-value spend management and category management strategy, Weighted average supplier scoring strategy and Collaborative best-value sourcing strategy) constant, other factors influencing supply chain performance will be 0.189.

The findings also show that taking all other independent variables at zero, a unit increase in strategic e-procurement leads to a 0.545 increase in the scores of the Supply Chain Performance. A unit increamemt in Strategic supplier relationship management will further cause a 0.312 increase in of Supply Chain Performance. On the other hand, an increase in unit inBest-value spend and category management strategy will lead to a 0.278 increase in Supply Chain Performance and unit increase in Weighted average supplier scoring strategy will lead to a 0.127 increased Supply Chain Performance while a unit increase in Collaborative best-value sourcing strategy will lead to a 0.231 increase in the Supply Chain Performance. This deducts that Strategic e-procurement influences the Supply Chain Performance most followed by Strategic supplier relationship management, Best-value spend and category management strategy, Collaborative best-value sourcing strategy and Weighted average supplier scoring strategy.

The study also conclude about an imperative relationship between the Supply Chain Performanceand the independent variables; Strategic e-procurement ($p=0.003<0.05$), Strategic supplier relationship management ($p=0.001<0.05$), Best-value spend and category management strategy ($p= 0.001<0.05$), Weighted average supplier scoring strategy ($p=0.003<0.05$) While the coefficient for Collaborative best-value sourcing strategy ($p=0.004<0.05$). The regression coefficients were tested for significance at alfa=0.05. Significance occurs at p-values less than 0.05. According to outcomes, all the predictors are good foretellers of the supply chain performance. These findings were consistent with that of (Aramyan*et al*., 2006) who found out that Supply Chain Performance is dependent on Collaborative best-value sourcing strategy.

4.6 Discussion

The study established that the firms use internet to facilitate corporate buying in a great extent, also it was noted that the firms have functioning websites to facilitate online buying of goods and services, most of firms have automated their procurement processes such that sourcing to be done online and also to a great extend the firm uses information technology to successfully implement new processes. Prediction by regression model indicated that taking all other independent variables at zero, a unit increase in strategic e-procurement lead to an increase in the scores of the Supply Chain Performance. These findings were in line with Parida and Parida (2005) who found that even though there are different viewpoints as far as e-procurement is concerned, one thing is certain, best-in-class companies use technology to produce beneficial information for their good decision making.

The study found that manufacturing firms have used Strategic Supplier Relationship Management in an effort to improve their procurement processes in a great extent. Further it was established that the relationship between the firm and its suppliers is collaborative and alliance-based, the firm and its supplier's relationship was found to depend largely on the criticality and value of goods/services they supply and also it was noted that there is a great exchange of improvement ideas between the firm and its suppliers. The regression prediction also indicated that a unit increase in Strategic supplier relationship management lead to a 0.312 increase in of Supply Chain Performance. These findings correlate with Kai (2006) who asserts that Supplier relationship management entails developing a strategic plan for third party firm and managing all interactions with them so as to fully utilize the

value of interaction. It was also found out that there exists a relationship between Strategic Supplier Relationship Management and Supply Chain Performance.

Further the study established that use of best-value Spend and Category Management Strategy influences to a great extent improves the procurement processes. From the regression model the study also established a significant relationship between best-value Spend and Category Management Strategy and Supply Chain Performance. Also from the prediction it was noted that a unit increase in best-value Spend and Category Management Strategy leads to an increase in Supply Chain Performance. The result conforms to those of (Mohamed, 2012) that Spend management affect the cost per unit as well as the number of units purchased.

The study investigated on the extent to which manufacturing firms have used Weighted Average Supplier Scoring Strategy in an effort to improve procurement processes. The study revealed that the manufacturing firms use Weighted Average Supplier Scoring Strategy to improve their procurement processes in a great extent. Also, the study noted that firm incorporates quality performance as a factor into the vendor selection process and also the firm analyzes suppliers' past performance when making supplier selection decisions. Prediction from regression indicated that a unit increase in weighted average supplier scoring strategy lead to a 0.127 increase in the Supply Chain Performance. Also, a strong relation between weighted average supplier scoring strategy and Supply Chain Performance was found to be significant. The result colludes with Sidney *et al*., (2006) who noted although lower priced procurements systems may promote open competition and has long standing legal precedence, strictly bidding based on low bids may be

disadvantageous to the owner. This is the case where low bids compel contractors to focus solely on cutting bids rather than quality and hence low bids could mean low quality.

Finally, the study established that while a unit increases in Collaborative best-value sourcing strategy will lead to a 0.231 increase in the Supply Chain Performance. This is in line with Ya-Ling (2006) who found that there exists a strong relationship between Collaborative best-value sourcing strategy and Supply Chain Performance. Also, the study established that manufacturing firms use collaborative Best-value Scoring Strategy to a great extent in an effort to improve its procurement processes. The study also revealed that Firm's goals are congruent with the suppliers' goals and firm carries out joint planning with its key suppliers.

CHAPTER FIVE

SUMMARY OF FINDINGS CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the data findings on the analysis of the best-value procurement strategies and supply chain performance of large-scale manufacturing firms in Kenya, conclusions and recommendations are presented as well. Summary of findings, conclusions, recommendations, study limitations and areas of further studies are presented too.

5.2 Summary of findings

The findings are based on the specific research objective of the study which is highlighted in chapter one. On the best-value procurement strategies currently used by large-scale manufacturing firms in Kenya, it wasdeducted that to a great extent most of the large-scale manufacturing firms in Kenya use Strategic e-procurement, Strategic supplier relationship management, Best-value spend management and category management strategy, Weighted average supplier scoring strategy and Collaborative best-value sourcing strategy in an effort to improve its procurement processes.

The study specifically established that the firms use internet to facilitate corporate buying, the manufacturing firms have functioning website to facilitate online buying of goods and services, and also it was noted that most of manufacturing firms have automated their procurement processes such that sourcing is done online. Further the study established that anentity and its supplier's partnership ought to be collaborative and alliance-based. Their

supply relationship basis is dependent of goods and/or services value and criticality (mean=4).

On influence of best-value procurement strategies on the supply chain performance of large-scale manufacturing firms in Kenya, the study established that taking all other independent variables at zero, a unit increase in Strategic e-procurement leads to a 0.545 increase in the scores of the Supply Chain Performance. A unit increase in Strategic supplier relationship management leads to a 0.312 increase in of Supply Chain Performance. On the other hand, a unit increase in Best-value spend and category management strategy leads to a 0.278 increase in Supply Chain Performance and unit increase in Weighted average supplier scoring strategy leads to a 0.127 increase in the Supply Chain Performance while a unit increase in Collaborative best-value sourcing strategy leads to a 0.231 increase in the Supply Chain Performance.

5.3 Conclusion

This study has provided a comprehensive review of the best-value procurement strategies and supply chain performance of large-scale manufacturing firms in Kenya. Based on the findings of this study, the study concluded that best-value procurement strategies have great influence on the performance of these firms. Further the study concludes that the manufacturing firms in Kenya use Strategic e-procurement, Strategic supplier relationship management, Best-value spend management and category management strategy, Weighted average supplier scoring strategy and Collaborative best-value sourcing strategy to a great extent in order effort to improve procurement processes.

The study deducts that taking all other independent variables at zero, a unit increase in Strategic e-procurement, Strategic supplier relationship management, Best-value spend management and category management strategy, Weighted average supplier scoring strategy and Collaborative best-value sourcing strategy will lead an increase in the Supply Chain Performance. Also, further the study established a significant relationship between the Supply Chain Performanceand the independent variables (Strategic e-procurement, Strategic supplier relationship management, Best-value spend management and category management strategy, Weighted average supplier scoring strategy and Collaborative best-value sourcing strategy).

5.4 Recommendations

The study recommends that all large-scale manufacturing firms in Kenya should adopt the Strategic e-procurement, Strategic supplier relationship management, Best-value spend management and category management strategy, weighted average supplier scoring strategy and Collaborative best-value sourcing strategy to improve their supply chain performance since there is a positive relationship between these variables and supply chain performance.

5.5 Limitations of the Study

The study findings were applicable to the large-scale manufacturing firms in Kenya only. Therefore, the findings cannot be used as representative of all firms without considering service industry. An inadequate resource such as finances was a challenge in this study leading to non-exhaustive exposition of best value procurement strategies among Kenyan large-scale manufacturing firms. Similarly, there was constrained time resource.

5.6 Future Research Direction

A number of interesting and exciting future research possibilities exist based on the findings from this study. Even though the objectives of the study were achieved, in order to enhance the conclusions of this study's findings, future research can consider additional variables such as risk management strategies as a moderator on the relationship between best-value procurement strategies and supply chain performance. Further research can also focus on the service firms in order to relate to the above industry.

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APPENDIX I: INTRODUCTION LETTER

UNIVERSITY OF NAIROBI
SCHOOL OP BUSINESS
MBA PROGRAMME

Telephone: 020-2059162
Telegrams: "Varsity", Nairobi
Telex: 22095 Varsity

P.O. Box 30197
Nairobi, Kenya

DATE. 18TH JULY 016

TO WHOM IT MAY CONCERN

The bearer of this letter **AGURE ERICK OMONDI**

Registration No. **D61/72594/2014**

is a bona fide continuing student in the Master of Business Administration (MBA) degree program in this University.

He/she is required to submit as part of his/her coursework assessment a research project report on a management problem. We would like the students to Jo their projects on real problems affecting firms in Kenya. We would, therefore, appreciate your assistance to enable him/her collect data in your organization.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organizations on request.

Thank you.

UNIVERSITY OF NAIROBI
SCHOOL OF BUSINESS
18 JUL
P.O. BOX 30197 - 00100, NAIROBI

PATRICK NYABUTO
MBA ADMINISTRATOR
SCHOOL OF BUSINESS

APPENDIX II: RESEARCH QUESTIONNAIRE

Introduction

This questionnaire has been developed for the purpose of gathering data on the best-value procurement strategies and its effects on the performance of supply chains of large-scale manufacturing firms in Kenya. The data collected will be used for academic purposes only and information confidentiality will be strictly observed.

Instructions: Please respond to the following questions and where applicable, mark the relevant box with a tick **(√).**

Confidentiality: The responses you provide will be strictly confidential. No references will be made to any individual (s) in the report of the study.

SECTION A

1. Position/Designation of the respondent

(Tick where appropriate)

[ ] Procurement/Supply Chain Manager

[ ] Others (specify)…….

2. Educational Level of the respondent

(Tick where appropriate)

[ ] Diploma [ ] Bachelor Degree

[ ] Master Degree [ ] PhD

3. How long have you worked for the firm?

(Tick where appropriate)

[ ] Below 5 Years [ ] 5 – 10 Years [ ] 10 – 15 Years

[ ] Above 15 Years

4. How long has this firm been in existence?

(Tick where appropriate)

[ ] Below 5 Years [ ] 5 – 15 Years [ ] 15– 25 Years

[ ] Above 25 Years

SECTION B

5. Kindly indicate to what extent your manufacturing firm has used **Strategic E-procurement** in an effort to improve its procurement processes. Use the scale of: 1= Very small extent, 2= Small extent, 3= Moderate extent, 4=Great extent and 5= Very great extent

S/No.	Strategic E-procurement	1	2	3	4	5
1	The firm uses ***internet to facilitatecorporate buying***					
2	The firm has automated its procurement processes such that ***sourcing is done online***					
3	The firm has automated its procurement processes such that ***vendor selection is done online***					
4	The firm has automated its procurement processes such that ***order shipment tracking is done online***					

5	The firm has automated its procurement processes such that ***tenders are advertised online***					
6	The firm has automated its procurement processes such that ***prospective suppliers submit proposals online***					
7	The firm has a ***functioning website to facilitate online buying*** of goods and services					
8	The firm has automated its procurement processes such that ***specifications for procured items are posted to company website***					
9	The firm has automated its procurement processes such that ***all requisitions are made online***					
10	The firm has automated its procurement processes such that ***call for proposals is done through the firm's website***					
11	The firm has automated its procurement processes such that ***payment of suppliers is done online***					
12	The firm ***uses technology to produce beneficial information*** for decision making					
13	The firm ***uses information technology to successfully innovate and create new products/services***.					
14	The firm ***uses information technology to successfully implement new processes***					

6. Kindly indicate to what extent your manufacturing firm has used **Strategic supplier RelationshipManagement** in an effort to improve its procurement processes. Use the scale of:

   1= Very small extent, 2= Small extent, 3= Moderate extent, 4=Great extent and 5= Very great extent

S/No.	Strategic supplier Relationship Management	1	2	3	4	5
1	The relationship between the firm and its suppliers is ***collaborative and alliance-based.***					
2	The relationship between the firm and its suppliers depends largely on the ***criticality and value of goods/services*** they supply					
3	The firm carries out***cost-benefit analysis*** when establishing alliances with its key suppliers					
4	The firm ***shares and exchanges information with its key suppliers*** with the emphasis on building a satisfactory outcome together in a range of areas.					
5	There is ***exchange of improvement ideas*** between the firm and its suppliers					
6	The firm ***coordinates and monitors quality consistency*** of different suppliers					
7	The firm has ***integrated its suppliers*** in the procurement processes					
8	The firm ***continuously analyzes and controls its suppliers' performance***					
9	The firm has a ***continuous advancement of the 'lived' partnership*** with its strategic suppliers					
10	The firm ***designs, implement and control cross-organizational relationships*** with its suppliers					
11	The firm ***proactively develops strategic relationship*** with its suppliers					

7. Kindly indicate to what extent your manufacturing firm has used **Best-value Spend and Category Management Strategy** in an effort to improve its procurement processes. Use the scale of:

   1= Very small extent, 2= Small extent, 3= Moderate extent, 4=Great extent and 5= Very great extent

S/No.	Best-value Spend and Category Management Strategy	1	2	3	4	5
1	The firm ***proactively plans for its purchases*** leading to knowing what to buy and when to buy					
2	The firm conducts***demand analysis and forecasting***in the procurement of its goods.					
3	The firm carries out***spend analysis*** during the procurement planning process					
4	The firm carries out ***category identification***of items and prioritizes them accordingly					
5	The firm conducts ***category portfolio analysis*** in carrying purchasing activities					
6	The firm ***consolidates volume*** of its purchases to take advantage of economies of scale					
7	The firm has got ***standardized processes and tools***across functions in geographically dispersed parts of the firm					
8	The firm actively ***involves internal stakeholders*** in developing comprehensive sourcing strategies					
9	The firm use ***cross-functional teams in conducting purchasing activities***such as tender evaluation.					
10	There is ***integration of purchasing decision*** making across functions in geographically dispersed parts of the firm					
11	The firm conducts ***supply market analysis*** for purposes of consolidating suppliers					

8. Kindly indicate to what extent your manufacturing firm has used **Weighted Average Supplier Scoring Strategy** in an effort to improve its procurement processes. Use the scale of:

   1= Very small extent, 2= Small extent, 3= Moderate extent, 4=Great extent and 5= Very great extent

S/No.	Weighted Average Supplier Scoring Strategy	1	2	3	4	5
1	The firm incorporates ***quality performance*** as a factor into the vendor selection process					
2	The firm considers ***total cost of acquisition*** and not only purchase price into the vendor selection process					
3	The firm analyzes ***suppliers' past performance*** when making supplier selection decisions					
4	The firm analyzes the ***suppliers risk profile*** before awarding contracts					
5	The firm considers ***service performance level*** when awarding contracts					
6	The firm considers suppliers ***financial capability*** before awarding contracts					
7	The firm considers ***reliability of the supplier*** when selecting suppliers					
8	The firm considers ***flexibility of the supplier*** when selecting its suppliers					
9	The firm considers ***supplier technical capability*** when selecting its suppliers					
10	The firm considers ***supplier's stability*** when selecting its suppliers					
11	The firm considers ***production capacity of the supplier*** when selecting its suppliers					

9. Kindly indicate to what extent your manufacturing firm has used **Collaborative Best-value Sourcing Strategy** in an effort to improve its procurement processes. Use the scale of:

   1= Very small extent, 2= Small extent, 3= Moderate extent, 4=Great extent and 5= Very great extent

S/No.	Collaborative Best-value Sourcing Strategy	1	2	3	4	5
1	The firm considers collaboration with its key partners as a ***value adding resource***.					
2	The firm's ***goals are congruent*** with the suppliers goals					
3	The firm carries out ***joint planning*** with its key suppliers.					
4	There is ***mutual trust*** between the firm and its key suppliers					
5	There is ***information sharing*** between the firm and its suppliers ensuring smooth flow of information.					
6	The information shared between the firm and the suppliers is ***credible, accurate and timely***					
6	The firm has invested in ***software collaboration tools*** to facilitate collaboration with the key suppliers					
7	There is ***cultural fit*** between the firm and its key suppliers to ensure effective collaboration					
8	The firm focuses on ***supplier integration*** for effective collaboration.					

SECTION C

10. Kindly indicate the performance of your firm's Supply Chain linked to the adoption of Best-value Procurement Strategies for the period between the year 2011 and 2015.

Supply Chain Performance	Unit of Measure	YEAR				
		2011	2012	2013	2014	2015
• Supply chain cycle time *(The total time it would take to fulfill a new order if all upstream and in-house inventory levels were zero)*	Number of Days					
• Cash-conversion-cycle *(The duration between paying for raw material/components and getting paid by the customers)*	Number of Days					
• Procurement lead time *(The time between placing an order to the suppliers and when the order is received)*	Number of Days					
• Inventory holding cost *(The amount of money spent in keeping raw materials and other production components)*	As a Percentage of value of inventory					
• Line item fill rate *(The percentage of "lines" of all customer orders that are filled immediately)*	As a Percentage of orders					
• Cost of back/late orders *(Number of Lost sales in one year)*	Number of unfilled orders					
• Order fill rate *(The percentage of which all lines of an order have been filled - large No. of orders per line)*	As a Percentage of orders					
• Number of back/late orders *(Number of late/back orders in one year)*	Number of orders					
• Percentage on time completion *(The percentage of orders completed on time)*	As a Percentage of orders					
• Delivery process on time *(The percentage of the delivery processes on time)*	As a Percentage of deliveries					

END*THANK YOU

APPENDIX III: LARGE SCALE MANUFACTURING FIRMS IN KENYA

Sector: Building, Mining and Construction (20)	
Athi River Mining Ltd	Kenbro Industries Ltd
Bamburi Cement Limited	Kenya Builders and Concrete Ltd
Bamburi Special Products Ltd	Malindi Salt Works
Central Glass Industries	Manson Hart Kenya Ltd
Flamingo Tiles (Kenya)Limited	Mombasa Cement Ltd
Glenn Investments Ltd C/O The Mehta Group Ltd	Orbit Enterprises Ltd
Homa Lime Company Ltd	Saj Ceramics Ltd
KarsanMurji and Company Limited	Savannah Cement
Kay Salt Ltd	Skylark Construction Ltd
Kemu Salt Packers	WarengNdovu Enterprises 2005
Sector: Chemical and Allied (70)	
Basco Products (K) Ltd	Kip Melamine Co. Ltd
Bayer East Africa Ltd	Kridha Limited
Beiersdorf East Africa Ltd	Maroo Polymers Ltd
Blue Ring Products Ltd	Match Masters Ltd
BOC Kenya Limited	MEA Ltd
Buyline Industries Limited	Metoxide Africa Ltd
Canon Chemicals Limited	Milly Glass Works Ltd
Canon Chemicals Limited (Former United	Murphy Chemicals Ltd

Chemicals) Ltd	
Carbacid (CO2) Limited	Oasis Limited
Chemicals And Solvents (EA) Ltd	Odex Chemicals Ltd
Chrysal Africa Limited	Orbit Chemicals Industries Limited
Coates Brothers (E.A.) Limited	Orbit Enterprises Ltd
Continental Products	Osho Chemicals Industries Ltd
Coopers K Brands Ltd	Pan Africa Chemicals Ltd
Coopers K- Brands Ltd	Polychem East Africa
Coopers Kenya Ltd	Procter and Gamble East Africa Ltd
Crown Berger Kenya Ltd	PZ Cussons EA Ltd
Crown Gases Ltd	Reckitt Benckiser (E.A.) Ltd
Crown Paints (Kenya) Ltd	Revolution Stores Ltd
Darfords Enterprises Ltd	Rumorth Group of Companies Ltd
Deluxe Inks Ltd	S C Johnson And Son Kenya
Desbro Kenya Limited	Sadolin Paints (E.A.) Ltd
Diversey Eastern and Central Africa Limited	Sanergy
Eastern Chemicals Industries	SoilexProsolve Limited
Elex Products Ltd	Strategic Industries Limited
Eveready Batteries East Africa Ltd	SupaBrite Ltd
Faaso Exporters Ltd	Superfoam Ltd
Galaxy Paints and Coating Co. Ltd	Syngenta East Africa Ltd
Grand Paints Ltd	Synresins Ltd
HacoTigerbrands East Africa Ltd	Tata Chemicals Magadi Ltd

Henkel Kenya Ltd	Tri-Clover Industries (K) Ltd
Intercomsumer Products Ltd	Twiga Chemical Industries Limited
Johnson Diversey East Africa	Unilever East And Southern Africa
KAPI Limited	Vitafoam Products Limited
Kel Chemicals Limited	Westminister Paints and Resins Ltd
Sector: Energy, Electricals and Electronics (34)	
Alloy Steel Casting Ltd	Marshall Fowler (Engineers)
Amedo Centre Kenya Ltd	Metlex International Ltd
AssaAbloy East Africa Limited	Metsec Ltd
Aucma Digital Technology Africa Ltd	Mustek East Africa Limited
Avery East Africa Ltd	Optimum Lubricants Ltd
Baumann Engineering Limited	PCTL Automation Ltd
Biogas Power Holdings (EA) Ltd	Pentagon Agencies
Centurion Systems Limited	Power Technics Ltd
East African Cables Ltd	Powerex Lubricants
Holman Brothers (E.A) Ltd	Reliable Electricals Engineers (Nrb) Ltd
Iberaafrica Power (EA) Ltd	Socabelec (EA) Ltd
International Energy Technik Ltd	Solimpexs Africa Ltd
Karan Biofuel Ltd	Sollatek Electronics (Kenya) Limited
Kenwest Cables Ltd	Specialised Power Systems Ltd
Kenya Power Ltd	Synergy-Pro
Libya Oil Kenya Limited (Formerly Mobil Oil	Virtual City Ltd

Kenya)	
Manufacturers and Suppliers (K) Ltd	Vivo Energy Kenya Ltd
Sector: Food and Beverage (71)	
Africa Spirits Limited	Kwality Candies and Sweets Ltd
Agriner Agricultural Development	Lari Dairies Alliance Ltd
Agro Chemical And Food Company Ltd	London Distillers
Alpine Coolers Limited	Mafuko Industries Limited
Arkay Industries Ltd	Mayfeeds Kenya Limited
Belfast Millers Ltd	Milly Fruit Processors Ltd
Broadway Bakery Ltd	Mini Bakeries (Nbi) Ltd
Brookside Dairy Ltd	Mjengo Ltd
Bunda Cakes and Feeds Ltd	Mombasa Maize Millers
Buzeki Dairy Limited	Mount Kenya Bottlers Ltd
C. Dormans Ltd	Mzuri Sweets Ltd
Candy Kenya Ltd	NAS Airport Services Ltd
Capwell Industries Limited	Nesfoods Industries Ltd
Chirag Kenya Limited	Nestle Foods Kenya Ltd
Deepa Industries Limited	New Kenya Co-Operative Creameries Ltd
Edible Oil Products	Nicola Farms Ltd
Europack Industries Limited	Nutro Manufacturers EPZ Ltd
Farmers Choice Ltd	Palmhouse Diaries Ltd

Githunguri Dairy Farmers Co-Operative Society	Patco Industries Limited
Global Fresh Ltd	Pearl Industries Ltd
Global Tea and Commodities (K) Limited	Pembe Flour Mills Ltd
Gonas Best Ltd	Proctor and Allan (E.A.) Ltd
Green Forest Foods Ltd	Promasidor Kenya Ltd
Happy Cow Ltd	Sigma Supplies Ltd
Insta Products (EPZ) Ltd	Spice World Ltd
Jambo Biscuits (K) Ltd	The Breakfast Cereal Company (K) Ltd
Kabianga Dairy Ltd	Unga Group Ltd
Kakuzi Ltd	United Millers Ltd
Kapa Oil Refineries Limited	Usafi Services Ltd
Kenafric Industries Ltd	Valley Confectionery Ltd
Kenblest Limited	Valuepak Foods
Kenya Nut Company Ltd	W. E. Tilley (Muthaiga) Ltd
Kenya Sweets Ltd	Wanainchi Marine Products (K) Limited
Kenya Tea Development Agency	Wrigley Company (E.A.) Ltd
Kenya Tea Growers Association	Xpressions Flora Ltd
Kevian Kenya Ltd	
Sector: Leather and Footwear (7)	
Alpharama Limited	Leather Industries of Kenya Limited
Bata Shoe Company (Kenya) Ltd	Sandstorm Africa Limited
Budget Shoes Limited	Zingo Investments Limited

C and P Shoe Industries Ltd	
Sector: Metal and Allied (66)	
African Marine and General Engineering Co. Ltd	Kenya General Industries Ltd
Allied East Africa Ltd	KhetshiDharamshi and Co. Ltd
Alloy Steel Casting Ltd	Kitchen King Ltd
Apex Steel Limited	Laminate Tube Industries Limited
Apex Steel Limited - Rolling Mill Division	Mabati Rolling Mills Limited
Ashut Engineers Ltd	Marvel Lifestyle Ltd
ASL Limited- Steel Division	Mecol Limited
ASP Company Ltd	Metal Crowns Ltd
Athi River Steel Plant	Modulec Engineering Systems Ltd
Blue Nile Wire Products Ltd	Nail and Steel Products Ltd
Booth Extrusions Limited	Nampak Kenya Ltd
Brollo Kenya Limited	Napro Industries Limited
City Engineering Works (K) Limited	NarcolAluminium Rolling Mills Ltd
Cook ?N Lite Ltd	Ndume Ltd
Corrugated Sheets Ltd	Orbit Engineering Ltd
Crystal Industries Ltd	Richfield Engineering Ltd
Davis and Shirtliff Ltd	Rolmil Kenya Ltd
Devki Steel Mills Ltd	Sheffield Steel Systems Ltd
Doshi Enterprises Ltd	Soni Technical Services Ltd

East Africa Glassware Mart Ltd	Southern Engineering Co. Ltd
East Africa Spectre Limited	Specialised Engineering Co. (EA) Ltd
East African Foundry Works (K) Ltd	Standard Rolling Mills Ltd
Elite Tools	Steel Structures Ltd
Elite Tools Ltd	Steelmakers Ltd
Farm Engineering Industries Limited	Steelwool (Africa) Ltd
Friendship Container Manufacturers Limited	Tarmal Wire Products Ltd
Friendship Container Manufacturers Ltd	Technosteel Industries Limited
General Aluminum Fabricators Ltd	Tononoka Steel Ltd
Greif East Africa Ltd	Vicensa Investments Ltd
Hobra Manufacturing Ltd	Viking Industries Ltd
Insteel Limited	Warren Enterprises Ltd
Kaluworks Ltd	Welding Alloys Limited
Kens Metal Industries	Wire Products Ltd
Sector: Motor Vehicle and Accessories (27)	
Alamdar Trading Company Limited	Kenya Grange Vehicle Industries Ltd
Associated Battery Manufacturers (EA) Ltd	Kenya Vehicle Manufacturers Limited
Associated Vehicle Assemblers Ltd	King-Bird (K) Ltd
Auto Ancillaries Ltd	Labh Singh Harnam Singh Ltd
Auto Springs Manufacturers Ltd Company	Megh Cushion Industries Ltd
Autofine Filters and Seals Ltd	Mutsimoto Company Limited
Automotive and Industrial Battery Manufacturers	Pipe Manufacturers Ltd

Banbros Ltd	Sohansons Limited
Bhachu Industries Ltd	Theevan Enterprises Ltd
Chui Auto Spring Industries Ltd	Toyota Kenya Ltd
CICA Motors	Unifilters Kenya Ltd
Foton East Africa Ltd	VarsaniBrakelinings Ltd
General Motors East Africa Limited	Mann Manufacturing Co. Ltd
Impala Glass Industries Ltd.	
Sector: Paper and Board (63)	
Paper House of Kenya Ltd	Kim-Fay East Africa Ltd
Adpak International Limited	L.A.B International Kenya Limited
Allpack Industries Ltd	Label Converters
Andika Industries Ltd	Manipal International Printing Press Ltd
Associated Paper and Stationery Ltd	Modern Lithographic (K) Ltd
Autolitho Ltd	Mufindi Paper Ltd
Bag And Envelope Converters	Nation Media Group Limited Printing Plant
Bags and Balers Manufacturers (K) Ltd	National Printing Press Limited
Cempack Solutions Ltd	Packaging Manufacturers (1976) Ltd
Chandaria Industries Ltd	Palmy Enterprises
Colour Labels Ltd	Paper House of Kenya Ltd
Colour Packaging Limited	Paperbags Limited
Colourprint Ltd	Pressmaster Ltd

D.L Patel Press Ltd	Printing Services Ltd
De La Rue Currency and Security Print Ltd	Printpak
Dodhia Packaging Limited	Printpak Multi Packaging Ltd
East Africa Packaging Industries Limited	Printwell Industries ltd
Elite Offset Ltd	Punchlines Ltd
Ellams Products	Ramco Printing Works Ltd
Ellams Products Ltd	Regal Press Kenya Ltd
English Press Limited	Sintel Security Print Solutions Ltd
Flora Printers Ltd	Soloh Worldwide InterEnterprises Ltd
General Printers Limited	Stallion Stationary Manufacturers Ltd
Graphics and Allied Ltd	Standard Group Ltd
Guaca Stationers Ltd	Statpack Industries Ltd
Highland Paper Mills Ltd	Taws Limited
Icons Printers Ltd	Tetra Pak Ltd
Interlabels Africa Ltd	The Rodwell Press Ltd
International Paper and Board Supplies Ltd	Twiga Stationers and Printers Ltd
Kartasi Industries Limited	Uneeco Paper Products Ltd
Kenafric Diaries Manufacturers Limited	United Bags Manufacturers Ltd
Kenya Litho Ltd	
Sector: Pharmaceutical and Medical Equipment (21)	
African Cotton Industries Ltd	Laboratory and Allied Limited
Alpha Medical Manufacturers Ltd	Manhar Brothers (K) Ltd

Beta Healthcare International	Medivet Products Ltd
Biodeal Laboratories Ltd	Novelty Manufacturing Ltd
Biopharma Ltd	Oss.chemie (K) Limited
Cosmos Limited	Pharm Access Africa Ltd
Dawa limited	Pharmaceutical Manufacturung Co. (K) Ltd
Elys Chemical Industries Limited	Regal Pharmaceuticals Ltd
Gesto Pharmaceuticals Ltd	Revital Healthcare (EPZ) Ltd
GlaxoSmithkline Kenya Ltd	Universal Corporation limited
KAM Industries	
Sector: Plastic and Rubber (68)	
ACME Containers Ltd	Ombi Rubber Rollers Ltd
Afro Plastics (K) Ltd	Packaging Industries Ltd
Betatrad (K) Ltd	Packaging Masters Limited
Bluesky Industries Ltd	Plastic Electricons
Bobmil Industries Ltd	Plastics and Rubber Industries Ltd
Brush Manufacturers	Polly Propelin Bags Ltd
Cables and Plastics Ltd	Polyblend Limited
Canaaneast Company	Polyflex Industries Limited
Complast Industries Limited	Polythene Industries Ltd
Coninx Industries Ltd	Premier Industries Limited
Dune Packaging Limited	Prosel Ltd

Dynaplas Limited	Pyramid Packaging Ltd
Elgon Kenya Ltd	Raffia Bags (K) Ltd
Eslon Plastics of Kenya Ltd	Rubber Products Ltd
Five Star Industries Ltd	Safepak Limited
Fleya Kenya Limited	Sameer Africa Ltd
General Plastics Limited	Sanpac Africa Ltd
Hi-Plast Ltd	Shiv Enterprises (E) Ltd
Jamlam Industries Ltd	Signode Packaging Systems Ltd
Jumbo Chem	Silpack Industries Limited
Kamba Manufacturing (1986) Ltd	Solvochem East Africa Ltd
Kenpoly Manufacturers Limited	Springbox Kenya Ltd
Kenrub Ltd	Styloplast Limited
Kentainers Ltd	Styroplast Limited
Kenya Suitcase Manufacturers Limited	Sumaria Industries Ltd
King Plastic Industries Ltd	Super Manufacturers Ltd
Kinpash Enterprises Ltd	Techpak Industries Ltd
L.G. Harris and Co. Ltd	Thermopak Ltd
Laneeb Plastic Industries Ltd	Top Pak Ltd
Metro Plastics Kenya Limited	TreadsettersTyres Ltd
Mombasa Polythene Bags Ltd	Umoja Rubber Products Limited
Nairobi Plastics Ltd	Uni-Plastics Limited
Wonderpac Industries Ltd	Vectus Kenya
ZaverchandPunja Ltd	Vyatu Ltd

Sector: Textile and Apparels (35)	
Adpack Limited	New Wide Garments (K) Ltd
Alltex EPZ Ltd	Ngecha Industries Ltd
Alpha Knits Ltd	Senior Best Garments Kenya EPZ Ltd
Ashton Apparel EPZ Ltd	Shin-Ace Garments Kenya (EPZ) Ltd
Bedi Investments Limited	Spin Knit Limited
Brilliant Garments	Spinners and Spinners Ltd
Fantex (K) Ltd	Squaredeal Uniforms Centre Ltd
Kamyn Industries Limited	Straightline Enterprises
KavirondoFilments Ltd	Summit Fibres Limited
Kema (EA) Limited	Sunflag Textile and Knitwear Mills Ltd
Ken-Knit (Kenya) Ltd	Tarpo Industries Limited
Kenwear Garment Manufacturers	Teita Estate Ltd
Kikoy Co. Ltd	Thika Cloth Mills Ltd
Le Stud Limited	United Aryan (EPZ) Ltd
Leena Apparels Ltd	Vajas Manufacturers Ltd
Lifeworks Shukrani Limited	Wildlife Works (EPZ) Ltd
Longyun Garments	World of Kikoys
Midco Textiles (EA) Ltd	
Sector: Timber, Wood and Furniture (17)	
Comply Industries Ltd	RaiPlywoods (Kenya) Ltd

Economic Housing Group Ltd	Rosewood Furniture Manufacturers
Elburgit Enterprises Ltd	Shah Timber Mart Ltd
Fine Wood Works Ltd	Shamco Industries Ltd
Furniture International Limited	Shayona Timber
Kenya Wood Limited	Timber Treatment International Ltd
Newline Ltd	Timsales Ltd
Panesars Kenya Ltd	Woodtex Kenya Ltd
PG Bison Ltd	

Source: http://www.manufacturersandexportersdirectory.co.ke*Web. 15 July, 2016*