

# **ROLE OF STRATEGIC E-SOURCING PRACTICES ON SUPPLY CHAIN PERFORMANCE IN STATE CORPORATIONS IN KENYA: A CASE OF KENYA ELECTRICITY GENERATING COMPANY LTD.**

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**International Academic Journal of Procurement and Supply Chain Management (IAJPSCM)**  
**| ISSN 2518-2404**

**Received:** 14<sup>th</sup> October 2016

**Accepted:** 22<sup>nd</sup> October 2016

Full Length Research

**Available Online at:** [http://www.iajournals.org/articles/iajpscm\\_v2\\_i2\\_113\\_133.pdf](http://www.iajournals.org/articles/iajpscm_v2_i2_113_133.pdf)

**Citation:** Kimutai, B. & Ismael, N. S. (2016). Role of strategic e-sourcing practices on supply chain performance in state corporations in Kenya: A case of Kenya Electricity Generating Company Ltd. *International Academic Journal of Procurement and Supply Chain Management*, 2 (2), 113-133

## **ABSTRACT**

The purpose of this study was to assess the role of strategic e-sourcing practices on supply chain performance in state corporations and thereby determine the value addition in the value chain. The study sought to establish the effect of cost reduction on supply chain performance, ascertain the strategic supplier relationships and the supply chain risks affecting supply chain performance in state owned firms. Numerous studies have been done on strategic sourcing and effects of e-commerce on supply chain management. This study sought to further the knowledge gap in strategic E-sourcing to enable procurement process deliver the added value in supply chain management. Strategic e-sourcing create value by lowering cost, streamlining processes and enabling development of new businesses. The study was a cross –sectional survey and an analysis of purchasing activities in state corporations at given period. The target population in this study included staff in top level management, supply chain, ICT, Finance and customer service at Kenya Generating Co. Ltd drawn from the one hundred and eighty seven (187) state corporations. Stratified random sampling was adopted for commercial and non-commercial State Corporation based on government shareholding in various ministries within Nairobi County. Data collection was both quantitative and qualitative; questionnaires, unstructured interviews and observation were used to collect data. Further analysis using linear regression model was used to establish the relationship between the independent and

dependent variables. The study found that Organization cost reduction is important in customer service, return on investment and total cost while organization cost reduction is slightly important in impacting return on investment and speed of delivery. Organization ICT integration is important in impacting customer service, total cost and return on investment while it is slightly important in impacting speed of delivery and return on investment. The study confirmed that there exist a short term between Kengen and its suppliers, Kengen has a relatively stable relationship with its suppliers. The study concludes that supply chain risk management is another aspect of strategic e-sourcing practices that affects the supply chain performance of organizations. The study recommends that supply chain management practices, tools and techniques needs to be relooked into with significant importance and must call for serious attention, when it comes to strategy development and seeking advice regarding external market environment and be involved in the formulation of policies affecting the supply chain function in Kengen. Kengen should seek ways to enhance integration for greater collaboration within the industry and with suppliers. Strategic supplier relationship and supply chain management efforts should reach across the entire supply chain to help streamline essential processes such as product development and pricing, as well as reduce costs and improve responsiveness to customer demand. To avoid problems in the supply chain, there is need for the Company

to create a department for supplier selection and evaluation.

**Key Words:** *Cost reduction, strategic supplier relationships, ICT integration and supply chain risks, supply chain performance, Strategic e-sourcing practices*

## **INTRODUCTION**

With today's Sourcing, focus has shifted to efficiency, lean or just in time inventories, outsourcing, supply base reduction, centralized distribution, more products with faster launches, low cost country sourcing and supply chain globalization in highly volatile markets. Companies need e-Sourcing now more than ever before and the rate of change required of the procurement function to keep pace with business demand continues to accelerate. Barbara and Maxfield (2013) observed that, to keep pace with competition and deliver against strategic objectives procurement must employ state-of-the-art technologies including e-sourcing. Farrington and Lysons (2012) define E-sourcing as: the uses of internet to make decisions and form strategies regarding how and where services or products are obtained.

Dave Chaffey (2009) explained and highlighted the concept of e-business, its importance as a strategic issue since introduction of electronic procurement and the potential significant savings online procurement can achieve and other benefits which directly impact organizations and customers. Canan et al (2015) found out that, alongside more strategic purchasing, rapid development of e-business information technology, specifically e-procurement can contribute to more effective purchasing processes within the supply chain context. While much of the hype surrounding the internet has been focused on business to consumer sales, the business to business market is far larger, a more immediate opportunity and e-sourcing is a huge and rapidly growing component where it takes a number of forms from buy-side and sell-side e-catalogs to post specifications and solicit of bids where buyers and sellers meet to and trade (BoozAllen & Hamilton, 2000).

Global sourcing requires additional efforts compared with domestic sourcing. Several countries in the world have managed direct and indirect purchases for its member companies such as MRO (Human resources, marketing and communication, IT and telecommunications, engineering, laboratory and consulting services using several methods including personal negotiation, bidding and reverse auctions (Burt et al 2010).The sourcing software world created many electronic market places in the late 1990s that were expected to transform the purchase of goods and services. Firms such as Chemdex, vertiacalNet, Dell co, Amazon, Ford motor and Toyota in United States and Japan have promised one-stop shop where all members would buy and sell their goods (Chopra & Meindl, 2013)

Gargeya and Jin Su (2012) view strategic sourcing as a comprehensive process that integrates different functions of a firm including engineering, purchasing, operations, logistics and

marketing as well as selection, motivation, evaluation and development of suppliers through which a firm will be in better position. Chopra and Meindl (2013) noted that Sourcing strategy should state clear factors that have the greatest influence on value proposition. For example, if most spending for a firm is on materials with only a few high value transactions, improving efficiency of procurement transactions will provide little value, whereas improving design and collaboration and co-ordination with the supplier will provide significant value. In contrast, when sourcing items with many low value transactions is done, increasing the efficiency of procurement transactions will be very valuable

Gesuka and Namusonge (2013) noted that, public procurement represents 18.4 percent of world GDP and that in developing countries it accounts for more than 50 percent of total expenditure. Oginda (2013) found out that procurement procedures in the energy sector, particularly REA and KETRACCO are evidently long and laborious hence delay in acquisition of goods and services as the sources of supply are in overseas which has hampered the growth and competitiveness in the market. E- Sourcing is still a concept undergoing evolution and rarely applied at global levels in government business processes in many developing countries and despite the huge potential of information and communication technologies in leveraging socio-economic value chains, Sub-Saharan Africa countries have been generally slow in adopting and using these technologies (Bwalya et al, 2014; Mugandara - Ochara, 2010).

The Kenya national treasury department of Integrated Financial Management System launched electronic procurement (e-procurement) in August 2014 at KICC with the aim of automating public procurement processes thus promoting openness and accountability in using public money whereby the shift from manual to e-procurement is set to enhance transparency in the management of public finances and tendering process. Even though IFMIS has been viewed to be an automated system that enhances efficiency in budgetary planning, procurement, expenditure management and reporting, most government agencies and ministries are still struggling to meet the intended objectives of the system. Previous studies on e-sourcing and e-procurement pointed out benefits of the system which concentrated mainly on productivity and financial dimensions (Irani & Piotrowics, 2010)

## **STATEMENT OF THE PROBLEM**

E-Sourcing over the last 30 years has exhibited tremendous growth. It has been commonly accepted that information infrastructure systems such e-procurement have become increasingly connected and embedded with other infrastructure to initiate growth of enterprises (Hsin et al., 2013). Today suppliers are using the internet to submit multiple electronic bids during a fixed time period often 30 minutes or less (Duplaga et al., 2006). A survey of US companies shows that in 2004, 27 percent of buyers surveyed used e-auction, up from 15 percent who reported using e-auction in 2003 (Hannon, 2004). However, up to 85 percent of businesses in the world

have experienced incidents disrupting business and supply chain performance glitches as result of inefficient sourcing policies (Trent & Schlegel, 2015)

In Kenya a report of the presidential task force on parastatal reforms October 2013 studied the performance, governance framework and national development goals of state corporations and observed that the output of state corporations to GDP in nominal terms has been increasing from 9.54% in 2008/2009 to 11.64% in 2010/2011 based on internally generated income. Under the vision 2030 development plan, electric power generation has been highlighted as a major pillar and key enabler in realization of national development. This demands a 1200% expansion of power generation from 1597MW to 17,760 MW (Mariita, 2013). However state corporations in the recent past has opened up lucrative procurement deals that has led them into problems ranging from corruption and litigations. A study by Hassan and Abidin (2010) found out that global economic recessions hit immensely the turnovers of businesses around the world and the trend has now changed towards the reduction of operational expenditures through focus on strategic objectives and with the help of its efficient e-procurement system and purchase processes business have been able to save around 9.5% on its total spend.

In Kenya, scholars have studied strategic sourcing and supply chain management that only focused on traditional sourcing practice and efficiency in procurement; among the studies was by Amina (2013) and Kinyili (2013) that focused on the effects of Strategic sourcing in supply chain management and factors affecting procurement process in public sector. Mary, Muthoni and Mungai (2013) also studied the use of e-procurement in Kisii County and concluded that use of internet based systems lead to reduced costs and efficiency amongst firms. Guyo, Iravo and Noor (2013) carried out a research on the factors affecting E-procurement adoption in minimizing risks in the supply chain. They concluded that, optimization of purchasing through the use of internet based systems given the growth of technology and the proposed changes to the structures of public sector is appropriate in describing the impact on people, process and cost.

From the previous studies carried out it is evident that no significant research has been done about the role of Strategic e-sourcing practices on the supply chain performance in the public sector. The negative effect of inefficient public sector supply chain particularly strategic sourcing is evident. Therefore this study was motivated to bridge existing gap and evaluate the role of e-sourcing strategically from both the business and corporate view to ensure efficiency and effectiveness in the overall value chain of state corporations and to improve the management processes of the procurement function involved in the acquisition and provision of goods and services.

## **OBJECTIVES OF STUDY**

The main objective of the study was to establish the role of Strategic e-sourcing practices on supply chain performance in state owned corporations in Kenya.

## **SPECIFIC OBJECTIVES**

1. To determine the effect of cost reduction on supply chain performance in Kenya electricity generating company limited
2. To assess if ICT integration affect supply chain at Kenya Generating company limited.
3. To find out if strategic supplier relationships affects supply chain performance in Kenya Generating Company limited
4. To establish if supply chain risks affecting Supply chain performance at Kenya Generating company limited.

## **THEORETICAL REVIEW**

The study was guided by theory of Transaction cost theory, systems theory, Network theory and Agency Theory.

### **Transaction Cost Theory**

Transaction cost theory is a central theory in the field of strategy. It addresses the questions about why firm exists in the first place (that is to maximize transaction cost), how they define their boundaries and how they ought to govern operations. Therefore the starting point will be the individual transaction between the buyer and seller. According to Farrington and Lysons (2012) transaction cost theory (TCT) refers to the idea of cost of providing for some good or service if it was purchased in the market place rather than within the firm.

The Transaction cost economics focuses on the organization transactions that occur whenever a good is transferred from provider to a user (Williamson, 2007). It further argues that a firm can make efficient allocation of resources than a market due to imperfections in the markets and three types of transaction cost exist; search and information cost, bargaining cost and enforcement costs. Transaction cost economics has been the predominant theory used to examine business sourcing decisions from make versus buy and the tenets imply that sourcing decisions involve a comparison of production costs incurred in producing a product or process internally with the transaction costs associated with the transaction cost associated in purchasing a process or product from external source or market (Adams et al, 2009). Adams et al, 2009 concluded that Transaction cost economic theory offers a rational view for evaluating make or buy decisions where the sourcing choice is made strictly based on the economic merits of market versus hierarchy costs associated with each individual sourcing transaction.

### **Network Theory**

The fundamental concepts in network analysis are actor, rational tie, dyad, triad, subgroup, group, relation and network (Wasserman & Faust, 1994). Supply chains have often been conceptualized as simple linear systems represented by an event dependent series of firms

interacting through dyadic relationships (Cox et al, 2006). With network theory the chief focus is on building trust and cooperation to improve on efficiency. Investigation of supply chain network would be more usefully drawn from network theory (Chicksand, 2012). Parkhe (2006) observed that network theory shifts the focus from atomistic explanations of phenomena (attributes of independent cases) to relationship among systems of independent actors. Network theory centers on relationship a firm has with other firms and how these relationships influence a firm's behavior and outcomes (Thorelli, 1986).

Network theory does not seem to inform the choice when to make, buy or ally. It does, however, appear to inform the choice which or organizations chooses to buy from or engage with as alliance partners and centrality is key to network theory. Centrality refers to how pivotal a firm is within the network and high centrality means a firm is always sought out as a partner (Adams et al, 2009). Adams et al, (2009) noted that managing interorganizational relationships is central to success and firm should choose suppliers that are central to the network. Differences in national cultures, attitude towards cooperation and willingness to trust outsiders influence the continuation or dissolution of partnerships (Park & Ungson, 1997). In countries such as Japan and South Korea, intrafirm and interfirm networks are integral part of the overall structure of the economy (Gerlach, 1992). Thus supply chains can be modelled as a network by set of nodes that represent autonomous business units as firms who are able to exercise sovereign choices and a set of connections that link these firms together for the purpose of creating products and services (Hearnshaw & Wilson, 2006)

### **Systems Theory**

Systems theory examination is scarcely possible without the definition of the word systems (Skyttner, 1996). Marakas and O'Brien (2010) defined system as a set of interrelated components, with clearly defined boundary, working together to achieve a common set of objectives by accepting inputs and producing outputs in an organized transformation process. Systems theory was proposed by Ludwig von Bertalanffy in 1940s and furthered by Ross Ashby in 1956 and it focusses on the arrangement of relations between the parts which connect them into whole (Ashby, 1956). System theory views the organization as a system of interconnected parts which interact together to produce products and services (Bertalanffy, 1951).

System theory brings together various components of a complex supply chain that is the human information and financial resources to form a system which is part of a larger system of supply chain network. Scott (2003) discussed three stages in the evolution of systems theory as rational systems, natural systems and open systems and the views described as both competing and complimentary. Moreover the development of systems theory is diverse and it arises from the development of isomorphism between the models of electrical circuits and other systems. Applications include engineering, computing, management and ecology (Heylighen, 1992).

Organisations are not simple systems, rather they are complex combinations of value-added sub systems that impact cost structures and customer service levels. Inventory subsystems merit particular attention and must be designed and managed strategically (Fawcett et al, 2010).

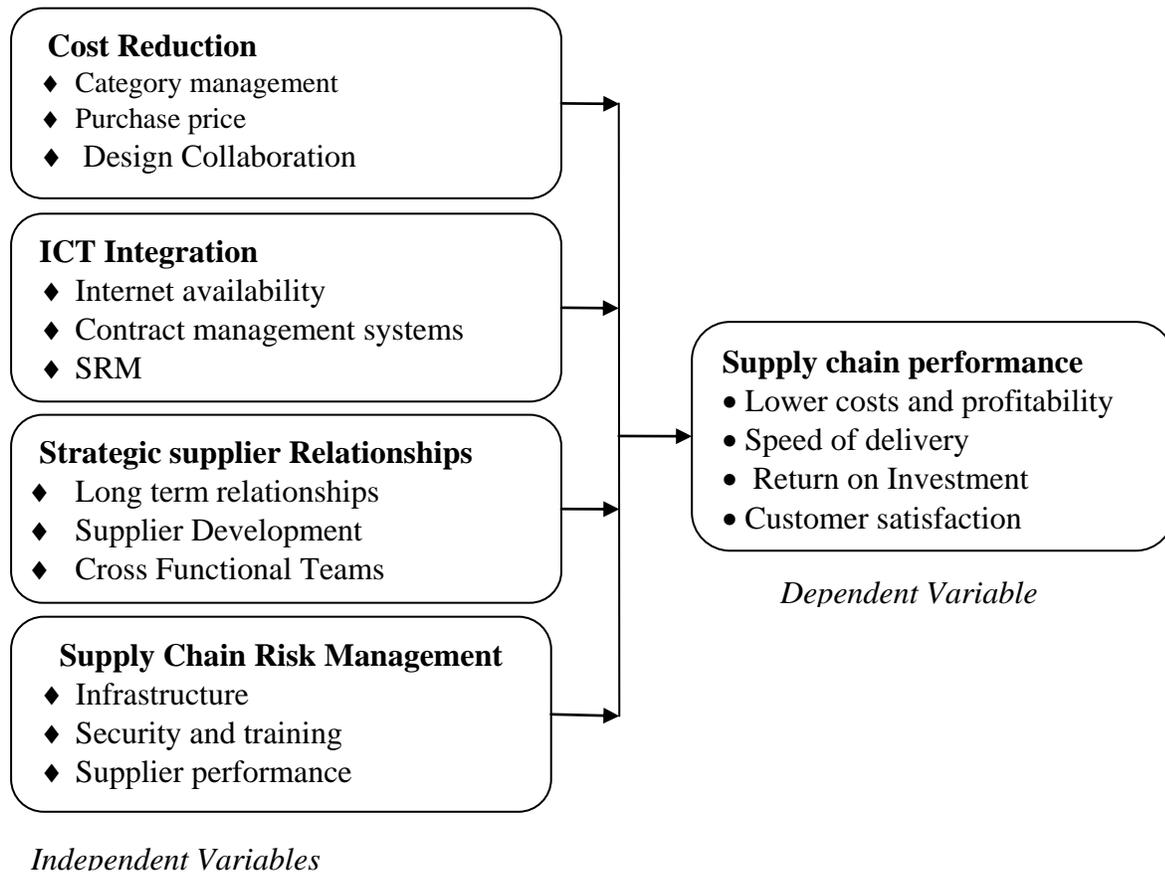
In Supply chain management, Heylighen (1992) suggested that, systems analysis developed independently of system theory, applies systems principles to aid a decision maker with problems of identifying, reconstructing, and optimizing and controlling systems. Laudon (2013) explained that getting all systems in a company to work together has proven a major challenge and one solution is to implement enterprise applications, which are systems that span functional areas, focus on executing business processes and include all levels of management. The shift from local coordination to global organization is that all interactions between all agents in the complex systems will tend towards such a coherent, stable state and until all are mutually adaptable (Heylighen, 2009)

### **Agency Theory**

Agency theory is concerned with agency relationships where two parties have an agency relationship when they cooperate and engage in an associations where in one party(principal) delegates decisions and works to another (an agent) to act on its behalf (Eisenhardt, 1989). From a management perspective, the evolution of agency theory can be dated to 1960s and 1970s (Eisenhardt, 1989). However modern agency theory largely originates from the work of Mitnick (1973) and Ross (1973) which embraces the areas of political science and economics and broadens its application beyond simple contract relations. Agency theory extends the analysis of the firm to include the separation of ownership and control as well as managerial motivation.in the field of corporate risk management, agency issues have been shown to influence managerial attitudes towards risk taking and hedging (Smith & Stulz, 1985).Consequently, agency theory implies that, defined hedging policies can have important influence on firm value (Fite & Pfleiderer, 1995).

Supply chain scholars have shown growing interest in using agency theory to understand how participants within the supply chain manage risks, align incentives and forge relationships (Fayezi et al, 2012). In essence agency theory can explain how players both independently and collectively within supply chain respond to transaction cost dilemmas where rational and non-rational behavior occur, hence abnormal behaviors of network partners can be analyzed and counterbalancing remedies devised (Fayezi et al ,2012). The assumptions in agency theory fit naturally with the issues inherent in supply chain quality management processes for instance in the process of managing supplier quality, the buyers in agency relations are faced with potential problems where the different interests between suppliers and buyers may result in the two parties concerning themselves only with their self-interest (Kaynak, 2012).

## CONCEPTUAL FRAMEWORK



**Figure 1: Conceptual Framework**

## EMPIRICAL REVIEW

Effective supply chain management has been identified as a key determinant of an organizations competitive advantage. Zelbst et al (2010) noted that supply chain performance is the ability to satisfy the ultimate customer in terms of quality and cost. According to Chopra and Meindl (2013), to understand how a company can improve supply chain performance in terms of responsiveness and efficiency, logistical and cross functional drivers of supply chain performance must be examined. They further argued that supply chain performance can only be optimized when an inter-organizational and inter-functional strategic approach is adopted by all partners operating within the supply chain.

Lambert and Stock (2001), observed that measuring supply chain performance is rarely focussed as it is often difficult to measure in that: differences in supply chains make it difficult to establish standards and some aspects of supply chain performance are difficult to quantify. Despite several evidences suggesting that performance improvement are related to supply chain management, performance improvements rarely support their suggestions with statistical evidences and also

there are rarely empirical studies to measure the extend of performance improvement. Supply chain council (2013) proposed the supply chain operations reference (SCOR) model designed to measure performance based on five key supply chain processes that are plan, source, make, deliver and return.

Alan (2010) investigated and explored through a case study the extend of business adoption of e-procurement. The research provided empirical evidence of the drivers and challenges encountered in the implementation of e-procurement and found out that the growth in use of e-commerce in business-to-business markets has shown a significant adoption of new supply chain-related technology and applications by organizations globally. Canan et al (2015) in their study to analyse the impact of strategic sourcing and E-procurement on performances found out that, strategic sourcing have significant impact on several aspects of a firm performance. The hypothesized conceptual framework adopted for the study was strategic sourcing and e-procurement as the major variables for firm performance. The theory of dynamic capability was empirically examined and it was concluded that e-procurement provides firms with competitive advantage by purchasing with minimized transaction cost and transparency. Mugume and Ntayi (2014) argued that, despite increased research, there remains a certain level of confusion surrounding the conceptualization of strategic sourcing.

Giaconda et al (2010) studied the impact of e-procurement on procurement practices and performance .The study was motivated by the fact that, there was a gap in analyzing e-procurement where previous literature had limited the studies to internet- based procurement only .The findings of the study showed that e-procurement is not widely used and at least 30 percent of multinational firms surveyed had implemented a basic e-procurement system. The study concluded that procurement managers should seriously consider adopting electronic buying to continuously improve their information gathering, supplier contact, contracting, intelligence and analysis practices. Previous studies have also linked supply chain processes integration with operational agility, lower costs, superior product or service design and enhanced profitability. The studies revealed significant relationship between firm size and e-procurement applicability (Giunipero & Percy, 2008)

Federico et al (2005) investigated and examined in depth the e-business strategy and the impact on supply chains. The purpose of the study was to investigate how manufacturing firms started using the internet to integrate their processes across the supply chains. The study found out that firms have focused their attention on tools that could provide quick and measurable benefits-sourcing and E-procurement applications responded to these requirements and they have been preferred to the more complex, expensive and long term oriented collaboration and integration tools. Tassabehji (2010) noted that there is no distinction between early and late adopters of e-auctions and the introduction of e-auctions presents organization with a need to review their purchasing processes and relationships with their buyers or suppliers.

Rebecca and Ravin (2007) in their study of business-to-business e-procurement success factors and challenges to implementation pursued the understanding and found out that the success factors result from firms rationalization of management of suppliers, end user behavior and e-procurement business process and Information and e-procurement infrastructure. However they noted that the challenging factors emanated from lack of system integration and standardization issues, maverick buying and difficult in integrating e-commerce with other systems and immaturity of e-procurement based market services and end user resistance. In the study of benchmarking procurement functions; causes for superior performance Brand Meier and Rupp (2010) examined the procurement strategy, organization, processes, methods and tools and overall procurement success. They emphasized the requirement to analyze data from supply chain benchmarks and what constitute a superior performing procurement unit. The study found significant correlation between supply management practices, sourcing strategy, methods and tools and organization processes.

The mentioned studies have demonstrated the fact that Strategic sourcing can improve efficiency, reduce costs, improve customer satisfaction and increase return on investments. On the other hand strategic e-sourcing has faced many challenges in its implementation ranging from security risks and fear of change by the implementing agencies or business unit. However the Highlighted studies were not sufficient to evaluate the role of strategic sourcing and supply chain performance. Therefore the study was intended to fill the knowledge gap by investigating the role of strategic e-sourcing on supply chain performance.

## **RESEARCH METHODOLOGY**

### **Research Design**

This study adopted a cross-sectional survey to describe the incidence of a phenomenon in the targeted organization at a given point in time to explain factors related to strategic sourcing and selection of strategic suppliers. Bryman and Bell (2007), notes that cross-sectional design is often called a social survey design and it entails the collection of data on more than one case usually quite a lot more than one and at a single point in time in order to collect a body of quantitative or quantifiable data in connection with two or more variables. Both quantitative and qualitative techniques were used.

### **Population of the Study**

The target population of this study comprised of 450 employees in supply chain, finance, customer service, ICT department and top level management. Purposive probability sampling was used to select and analyses the sample. Participants thus were chosen arbitrarily based on their experiences, characteristics and attitudes. Stratified sampling was adopted to classify the various employee management levels at KenGen according to span of control. The sampling

method chosen was appropriate since the study investigated characteristics of a population sub groups which is homogenous internally and heterogeneous with other sub groups hence the possibility to obtain accurate estimate of the whole population. The sample size was determined using Fisher, Laing and Stoeckel (1983) formula for estimating sample sizes in social surveys which emphasizes 50% of the target population. As such a sample of 45 respondents was selected.

### **Data Collection**

Data collection was done using primary sources of data that is, self-administered questionnaires were used to collect data in which respondents were required to answer based on their own understanding. Drop and pick method was applied of which the questionnaires were available for the respondent to fill in a period of one week. The reasons why the researcher adopted questionnaire is because questionnaire is relatively cheap compared to any other method of data collection and that validity of information was required.

### **Data Analysis**

Information collected from the field was classified into nominal ordinal and scale to form common data. The instrument was then scrutinized to determine the extent to which they were filled up and whether they have errors, inadequate responses or irrelevancies. Errors found were recorded on a piece of paper to ensure that this does not compromise data analysis at all. Data coding was done whereby categories of responses were identified, classified and then recorded on a prepared sheet as per research questions or objectives of study. Then, descriptive and inferential statistics was done using the Statistical Package for Social Sciences (SPSS).

## **RESEARCH FINDINGS AND DISCUSSIONS**

The findings and discussions of the study are based on 38 responses obtained from the 45 sample population which accounted for 84.4% response rate.

### **Effect of Cost Reduction on Supply Chain Performance in KenGen**

From the study, majority of the respondents indicated that organization cost reduction is important in customer service as shown by a mean score of 3.6875, as well as return on investment shown by a mean score of 3.5729 and total cost shown by a mean score of 3.5521. On the other hand, they indicated that organization cost reduction is slightly important in impacting return on investment and speed of delivery as shown by mean scores of 3.4896 and 3.4583 respectively.

Further, 37.2% of the respondents reported that category management, purchase price and design and collaboration impact on cost reduction activities in Kengen to a little extent, 34.9% of them

indicated that category management, purchase price and design and collaboration impact on cost reduction activities in Kengen to a moderate extent, 23.3% of the respondents opined to a great extent, whereas 4.7% of them reiterated that category management, purchase price and design and collaboration impact on cost reduction activities in Kengen to no extent.

Majority of the respondents recapped that strategic e-sourcing reduces costs through improved process efficiencies to a great extent as shown by a mean score of 3.6354, design and collaboration strategies can help the organization pay lower costs to a great extent as shown by a mean score of 3.5729 and strategic e-sourcing creates value to the organization through innovation to a great extent as shown by a mean score of 3.5313, while they indicated that total cost of ownership and category management are key considerations in cost reduction to a moderate extent as shown by a mean score of 3.4583. These results imply that strategic e-sourcing compels firms to be super-efficient and proactive in their quest to reduce costs and increase return on their investments.

### **Effects of ICT integration on Supply Chain Performance in KenGen**

Majority of the respondents reiterated that organization ICT integration is important in impacting customer service as shown by a mean score of 3.6977 as well as total cost shown by a mean score of 3.5313 and return on investment shown by a mean score of 3.5116. In addition, the respondents reported that organization ICT integration is slightly important in impacting speed of delivery as shown by a mean score of 3.4651 and return on investment as shown by a mean score of 3.4583. According to these results, rapid development of e-business information technology can contribute to more effective purchasing processes within the supply chain function impacting on various aspects of supply chain performance.

On the extent to which the Organization (Kengen) has implemented systems that support strategic E-sourcing, 46.9% of the respondents indicated that Kengen has implemented systems that support strategic E-sourcing to a great extent, 40.6% of them indicated to a moderate extent, 9.4% of the respondents indicated to very great extent, while 3.1% of the respondents recapped that Kengen has implemented systems that support strategic E-sourcing to a little extent. These remarks imply that Kengen has invested significantly in the implementation of e-sourcing systems.

From the study, majority of the respondents indicated that sourcing electronically creates efficiency in Kengen to a great extent as shown by a mean score of 3.6667, ICT integration reduces sourcing cycle times and access to information to a great extent as shown by a mean score of 3.5729, internet connectivity is adequate in the Organization to a great extent as shown by a mean score of 3.5417 and information communication technologies are key in strategic e-sourcing to a great extent as shown by a mean score of 3.5313. Generally, supply chain processes

integration are linked with operational agility, lower costs, superior product or service design and enhanced profitability.

Majority of the respondents reiterated that E-ordering is more likely adopted by Kengen in purchasing for goods and services as shown by a mean score of 3.5902 and E-tendering is also more likely adopted by Kengen in purchasing for goods and services as shown by a mean score of 3.5480. The respondents also reported neutrality on that E-contracting, supplier portals, E-auctions and E-catalogues are adopted by Kengen in purchasing for goods and services as shown by mean scores of 3.4754, 3.4426, 2.9750 and 2.9000 in that order. It is clear from these results that companies need ICT integration in e-sourcing and the rate of change required of the procurement function to keep pace with business demand continues to accelerate.

### **Effects of Strategic Supplier on Supply Chain Performance in KenGen**

From the study, 67.4% of the respondents indicated that there exist a short term relationships between Kengen and its suppliers, 20.9% of them rated the relationship to be long term, while 11.6% of the respondents indicated that there is no relationship between Kengen and its suppliers. These results imply that Kengen has a relatively stable relationship with its suppliers. Majority of the respondents (comprising 56.9% of the population) indicated that Kengen has developed and maintained strategic relationships with suppliers to a great extent, 29.4% of them indicated that moderate extent, 8.8% of the respondents indicated to a very great extent, while 4.9% of the respondents reiterated that Kengen has developed and maintained strategic relationships with suppliers to a least extent. These results imply that Kengen has established a great working relationship with its suppliers to promote better buyer-supplier relationships and supplier development.

According to majority of the respondents, working with cross functional teams improves supplier/buyer relationships to a great extent as shown by a mean score of 3.5833 and long term commitments with suppliers creates competitive advantage to a great extent as shown by a mean score of 3.5104, while they recapped that strategic suppliers relationships reduces risks and creates value to an organization to a moderate extent as shown by a mean score of 3.3953 and supplier development impacts on capacity and quality of service or products to a moderate extent as shown by a mean score of 3.0698. These results are an indication that supplier involvement is practiced to develop the supplier expertise, suppliers are paid promptly to enhance good relationship with the Organization.

### **Effects of Supply Chain Risks on Supply Chain Performance at KenGen**

From the study, 57% of the respondents indicated that Kengen maintains and prevents risks in supply chain to a moderate extent, 29% of the respondents indicated to a great extent, 9% of the respondents indicated that Kengen maintains and prevents risks in supply chain to a little extent,

while 5% of them indicated to a very great extent. The results imply that in general there is a moderate maintenance and prevention of risks in supply chain at Kengen.

majority of the respondents indicated that managing risks in supply chain is important for business continuity to a great extent as shown by a mean of 3.5528, top management support allows secure IT Infrastructure for e-sourcing implementation to a great extent as shown by a mean of 3.5423 and that adoption of sourcing technologies has greater perceived risks within supply chain to a great extent as shown by a mean of 3.5417. In addition, the respondents reported that IT processes are critical in providing secure information to suppliers to a moderate extent as shown by a mean of 3.3322.

### **Supply Chain Performance in KenGen**

Majority (76.3%) of the respondents indicated that cost reduction is considered to have an impact on the overall supply chain performance in KenGen, followed by strategic supplier relationships (as indicated by 71.1% of the population that participated in the study), 63.2% of them indicated that supply chain risk management activity is considered to have an impact on the overall supply chain performance in KenGen, while only 55.3% of the responses indicated that ICT integration is considered to have an impact on the overall supply chain performance in KenGen.

Majority of the respondents indicated that cost reduction has a high overall impact on supply chain performance of the Organization as shown by a mean score of 3.6146, as well as strategic supplier relationships shown by a mean score of 3.5938, then supply chain risk management shown by a mean score of 3.5208 and finally ICT integration shown by a mean score of 3.5104. As such, these e-sourcing activities have a high impact on the performance of the supply chain function in KenGen. Moreover, majority of the respondents agreed that e-sourcing allows purchasing staff on value addition as shown by a mean score of 3.6354, enables non procurement to participate in sourcing as shown by a mean score of 3.5729, allows consistent and transparent use of controlled procedures as shown by a mean score of 3.5625 and makes it easier for purchasers to collaborate on common sourcing needs as shown by a mean score of 3.5521. On the other hand the respondents were neutral with the statement that E-sourcing reduces costs through improved process efficiencies as shown by a mean score of 3.4583.

### **MULTIPLE REGRESSION ANALYSIS**

**Table 1: Model Summary**

<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
1	.832	.692	.600	.0378

**A Predictors:** (Constant), Cost reduction, strategic supplier relationships, ICT integration and supply chain risks

The coefficient of determination,  $r^2$  is the square of the sample correlation coefficient between outcomes and predicted values. As such it explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (supply chain performance of Kengen) that is explained by all the four independent variables (cost reduction, ICT integration, strategic supplier relationships and supply chain risks). The four independent variables that were studied, revealed that there exist a strong relationships between supply chain performance of Kengen as represented by the  $R^2$  and the strategic e-sourcing practices. This therefore means the four independent variables contribute about 69.2% to the supply chain performance of Kengen while other factors not studied in this research contributes 31.8% of the supply chain performance of Kengen.

A one way analysis of variance (ANOVA) that provided information about levels of variability within the regression model and which formed a basis for tests of significance was used. The ANOVA F-statistic was used to test the research questions for the regressor coefficients for each variable to be equal to zero. An analysis to determine the combined influence of all the independent variables was done.

**Table 2: ANOVA Test**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.787	1	.447	4.617	.034
	Residual	62.191	26	.351		
	Total	63.978	27			

Predictors: (Constant), cost reduction, ICT integration, strategic supplier relationships and supply chain risks management; Dependent Variable: Supply chain performance of KenGen

All the independent variables were combined and involved in the analysis. The results of Analysis of variance (ANOVA) for regression coefficients are shown in Table 4.9. The analysis results revealed that the significance of F statistics is 0.034 which is less than 0.05. This implies that there is a significant relationship between cost reduction, ICT integration, strategic supplier relationships, supply chain risks management and supply chain performance of KenGen.

**Table 3: Coefficient of Determination**

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
(Constant)	1.112	1.223		0.917	0.000
Cost reduction	0.637	.075	0.235	1.379	0.020
ICT integration	0.220	0.096	0.215	1.922	.0182
Strategic supplier relationships	0.396	0.204	0.155	2.560	.0158
Supply chain risks management	0.260	0.056	0.453	1.967	.0167

Dependent Variable: Supply chain performance of Kengen

The researcher conducted a multiple regression analysis so as to determine the relationship between the parameters of supply chain performance of Kengen and the four variables of strategic e-sourcing practices. As per the SPSS generated table, the equation ( $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$ ) becomes:

$$Y = 1.112 + 0.637X_1 + 0.220X_2 + 0.396X_3 + 0.260X_4$$

According to the regression equation established, taking all factors (cost reduction, ICT integration, strategic supplier relationships and supply chain risks) constant at zero, supply chain performance of Kengen would be 1.112. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in cost reduction will lead to a 0.637 increase in supply chain performance of Kengen; a unit increase in strategic supplier relationships will lead to a 0.396 increase in supply chain performance of Kengen; a unit increase in supply chain risks will lead to a 0.260 increase in supply chain performance of Kengen, while a unit increase in ICT integration will lead to a 0.220 increase in supply chain performance of Kengen.

These results infer that cost reduction in e-sourcing contributes more to supply chain performance of Kengen, followed by strategic supplier relationships, then supply chain risks, while ICT integration contributes the least to supply chain performance of Kengen. At 5% level of significance and 95% level of confidence, ICT integration had a 0.0182 level of significance and supply chain risks had a 0.0167 level of significance, while strategic supplier relationships had a 0.0158 level of significance hence the most significant aspect of strategic e-sourcing practices in influencing the supply chain performance of Kengen.

## **CONCLUSIONS**

The study concludes that Kengen has achieved a given degree of e-sourcing adoption. This is evident from the fact that the Company is able to use online systems like E-catalogues, E-auctions, E-tendering, E-contracting, Supplier Portals and E-ordering; share information among departments and centralization of supply chain activities. The results show that e-sourcing implementations have broadened in reach and deepened in scope. This change has resulted in greater adoption of functioning website, online requisition and online proposal activities consistent with the move towards more fully operational systems and the development of greater e-commerce capabilities.

The study further concludes that strategic supplier relationships affects supply chain performance significantly. Long term supplier relationships yielded better quality goods and services to the Organisation. The Company also faces supply chain risks in the current business environment and thus the Firm should focus on Mitigating supply chain risk through adoption of e-sourcing practices is a critical component of a company's overall risk management strategy. It was thus concluded that the benefits accruing to Company as a result of the adoption of e-sourcing

practices in supply chain included competitive advantage, reduction in operational cost and increased customer loyalty.

## **RECOMMENDATIONS**

The study recommends that supply chain management practices, tools and techniques needs to be relooked into with significant importance and must call for serious attention, when it comes to strategy development and seeking advice regarding external market environment and be involved in the formulation of policies affecting the supply chain function in Kengen.

There is a need to centralize its structures and develop clear governance issues regarding cost management in Kengen. However Kengen needs to benchmark especially from non-state institutions or private institutions regarding e-sourcing practices in supply chain operations and practices in order to manage its operational costs and capability challenges in delivering services in the current operating environment at the best value.

Kengen should seek ways to enhance integration for greater collaboration within the industry and with suppliers. ICT integration is a new level of visibility into the work order status is also essential to ensure seamless visibility across all supply chain processes in the supply chain. The study recommends that there is need for adoption of improved technology so as to ensure efficiency in information flow. For a supply chain to achieve its maximum level of effectiveness and efficiency, material flows, money flows and information flow throughout the entire chain must be managed in an integrated and holistic manner, driven by the overall service and cost objectives. When automating these processes, the relevant stakeholders must support the information-sharing, collaboration, and monitoring activities that are needed to effectively manage the relationship with other stakeholders in the supply chain

Strategic supplier relationship and supply chain management efforts should reach across the entire supply chain to help streamline essential processes such as product development and pricing, as well as reduce costs and improve responsiveness to customer demand. The Company should have a good supplier relationship management with suppliers so as to create a long lasting relationship based on a win-win situation, where the Firm will benefit from crucial information regarding the market and innovation and also be able to curb goods and material shortages, supply chain risks, inventory costs and handling costs. This would be a cutting edge since non-governmental organizations that utilize sustainable supply chain management as a strategic tool in business management are likely to have a competitive edge over others.

Supply chain risks influence supply chain performance in Kengen Company where supply chain complexity hinders visibility of supply chain risks in the industry as well as the increasing complexity in a supply. As such, to avoid problems in the supply chain, there is need for the Company to create a department for supplier selection and evaluation. The requirements of the

Company should be conveyed earlier to the suppliers and steps taken to reduce the likelihood of a shortage in raw materials. Employees need to be trained on usage of the e-sourcing system. This will enable them to operationalize the system and also put more resources and support to the E-sourcing team so that they may realize full potentials of procurement.

## REFERENCES

- Abdikadir, M, H. (2013). *Report on Presidential Taskforce on Parastatal Reforms*, Acts Press, Nairobi
- Aberdeen Group (2005). *Strategic e-Sourcing Best Practices: A Total Value Management Perspective*. Available from [http:// e-sourcingwiki.com/index.php/strategic\\_e-sourcing\\_Best\\_Practices](http://e-sourcingwiki.com/index.php/strategic_e-sourcing_Best_Practices) accessed on 16<sup>th</sup> May 2016
- Alan, S. (2010) Exploring the business case for e-procurement; *International Journal of Distribution and Logistics Management*, 40(3), 181-201
- Amina, K. (2013). Effects of Strategic sourcing in supply chain management in selected public universities within Nakuru County. *International Journal of Social Sciences and Entrepreneurship*, 1(5), 16-18
- Athmani, M.A. & Mburu, D.K. (2013) Role of E-Business in Supply Chain Management. *International Journal of Social Sciences and Entrepreneurship* 1(3), 247-262
- Baily, P., Farmer, D. & Jessup, D. (2010). *Purchasing Principles and management* (10<sup>th</sup> ed). London: Prentice Hall, 177-200
- Barahona, J.C. & Elizondo, A.M. (2012) The Disruptive Innovation Theory Applied to National Implementations of E-Procurement. *Electronic Journal of E-Government*, 10(2), 107-119
- Barbara, A. & Maxfield D. (2013). *Revolutionizing esourcing Adoption*, available from <http://www.qad.com/./livesource-revolutionizing-e-sourcing-adoption.pdf>. Accessed on 16<sup>th</sup> May 2016.
- Bessant, J., Lamming, R.M., & Steve, B. (2012) *Strategic Operations Management*, Pearson.
- Bixby, M. C., Bowersox, J.D. & David, J.C. (2008). *Supply Chain Logistics Management* (2<sup>nd</sup> ed). Tata: McGraw Hill, 81-96
- Canan, K., Minkyun, K., & Nallan .C.S. (2015). A Contextual Analysis of the Impact of Strategic Sourcing and E-Procurement on Performance, *Journal of Business & Industrial Marketing*, 30(1), 1-16
- Chaffey, D. (2009). *E-Business and E-Commerce Management: Strategy, Implementation and Practice* (4<sup>th</sup> ed), Financial Times: Prentice Hall, 51-95
- Chaffey, D. Fiona, E.C., Kevin, J., & Richard,. M. (2009). *Internet Marketing: Strategy, Implementation and Practice* (4<sup>th</sup> ed), FT: Prentice Hall. 648-657
- Chartered Institute of Purchasing & Supply (2012a) *Sourcing in Procurement and Supply*, Profex Publishing, 130-141
- Chicksand, D (2012) Theoretical Perspective in Purchasing and Supply Chain Management: An Analysis of Literature. *Supply Chain Management*, 17(4), 454-472
- Dennick, R., Mohagheghi, M.A. & Tavakol, M. (2011). Making Sense of Cronbach's alpha, *International Journal of Medical Education*, 2(1), 53-55

- Duplaga, E.A., Hartley, J.L. & Lane, D.M. (2006). Exploring the Barriers to Adoption of E-auctions for Sourcing, *International Journal of Operations & Production management*, 26(2), 41-53.
- Farrington, K. & Lysons, K. (2012) *Purchasing and Supply Chain Management*, 8<sup>th</sup> ed, Prentice Hall, 218-232
- Frazelle, H.E (2009) *Supply Chain Strategy*, New Delhi; Tata McGraw Hill, 155-158.
- Gargeya, V.B & Jin Su (2012) Strategic Sourcing, Sourcing Capability and Firm Performance in the US Textile and Apparel Industry Strategic Outsourcing: *An International Journal*, 5(2) 145 – 165.
- Gesuka, D.M & Namusonge, G.S (2013) Factors affecting Compliance of Public Procurement Regulations in Kenya: A Case Study of Butere District. *Journal of social sciences and Entrepreneurship*, 1(5), 882-896.
- Gioconda, Q., Marvin, E. G., James, M & Rene, M. (2010) Impact of E-Procurement on Procurement Practices and Performance: Benchmarking: *An International Journal*, 17(4), 516 -538.
- Government of Kenya (2007). *The Public Procurement and Disposal Act*. Nairobi: The Government Printer
- Harsono, A. (2014). The Impact of E-Commerce in Supply Chain Management at Dell inc. *Journal of Multidisciplinary Engineering Science and Technology (JMEST)* 1(3). 12-21.
- Hearnshaw, S.J & Wilson, M.J (2013) A complex network approach to supply chain network theory; *International Journal of Operations and Production Management*, 33(4), 442-469.
- Irani, Z & Piotrowics, W. (2010) Analysing B2B Electronic Procurement Benefits: Information Systems Perspective, *Journal of Enterprise Information Management*, 23 (4), 559 - 579
- Jack, P.E. & Powers, L.T. (2015). Managing Strategic Supplier Relationships: Antecedents and Outcomes. *Journal of Business & Marketing*, 30(2), 129-138
- Kaynak, H. & Zu, X. (2012) An Agency Theory Perspective on Supply Chain Quality Management: *International Journal of Operations and Production Management*, 32(4), 423-446.
- Kinyili, R. (2013) Factors Affecting the Procurement Process in Government Ministries, *International Journal of Social and Entrepreneurship*, 1(2), 14-27.
- Lee, L.H (2002) Aligning Supply Chains Strategies with Product Uncertainties, *California Management Review*, 44(3), 105-119.
- Laudon, K.C., & Laudon, J.P. (2013). *Management Information Systems: Managing the Digital Firm* (10<sup>th</sup> ed.). Upper Saddle River, N.J: Pearson Education Inc
- Mullins, J.L. (2013) *Management and Organisational Behaviour*, 10<sup>th</sup> ed, Prentice Hall.
- Murali S., Tamizarasu, N. & Zainal, A.M (2009) Performance Measures and Metrics for E-Supply Chains: *Journal of Enterprise Information Management*, 22(3), 346 – 360
- Marakas, G. & O'Brien, J.A. (2010). *Introduction to Information Systems*, International Edition, New York: McGraw-Hill.
- Martin, C. (2011) *Logistics and Supply Chain Management; Creating Value-Adding Networks* (4<sup>th</sup> ed). London: Prentice Hall, 233-250.

- Oginda, E., (2013) *Challenges of implementing Procurement Strategy at Kenya Power and Lighting Company*, University of Nairobi.
- Ordanini, A. & Rubera, G. (2008) Strategic Capabilities and Internet Resources in Procurement: A Resource-Based View of B-to-B Buying Process; *International Journal of Operations & Production Management*, 28(1), 27 – 52.
- Pressey, A., Tzokas, N. & Winklhofer, H (2007) Strategic Purchasing and the Evaluation of “Problem” Key Supply Relationships; *Journal of Business & Industrial Marketing*, 22(5), 282-294.
- Rebecca, A & Ravin, N. (2007) Business-to-Business E-Procurement; Success Factors and Challenges: Supply Chain Management. *An International Journal*, 12(2), 104-115
- Rendon, R.G. (2007) Commodity Sourcing Strategies: Processes, Best Practices and Defense Initiatives. *Journal of Contract Management*, 3(1), 34-39.
- Smith, C.S. & Todaro, (2011). *Economic Development* (11th ed), Pearson.
- Smith, C.W. & Stulz, R.M. (1985) The Determinants of Firms Hedging Policies: *Journal of Finance and Quantitative Analysis*, 20(4), 391-405.
- Sopple, V.V. (2010) *Logistics Management; The Supply Chain Imperative*, (2<sup>nd</sup> ed) New Delhi: Pearson.
- Stevenson, J.W. (2012) *Operations Management; Theory and Practice*, Global edition, New York: McGraw –Hill, 662-680.
- Svahn, S. & Wastelund, M (2009) Purchasing Strategies in Supply Relationships, *Journal of Business & Industrial Marketing*, 24(3), 173-181.
- Tassabehji, R. (2010) Understanding E-Auction used by Procurement Professionals, Motivation, Attitudes and Perceptions, Supply Chain Management; *An International Journal*, 15(6), 425-437.
- Vitasek, K. (2016) Strategic Sourcing Business Models, Strategic Outsourcing; *An International Journal*, 15(6), 126-138.
- Wasserman, S., & Faust, K. (1994). *Social Network Analysis: Methods and Applications*. Cambridge University Press.
- Williamson, O.E (2007) Transaction Cost Economics: The Governing of Contractual Relations; *Journal of Law and Economics*, 22(1), 232-261.
- Yen, B. P.-C., & Ng, E. O. S. (2003) The Impact of Electronic Commerce on Procurement, *Journal of Organizational Computing and Electronic Commerce*, 13(3), 167-189.
- Zelbst, P. J., Green, Jr K. W., Sower, V. E. & Gary, B. (2010). RFID Utilization and Information Sharing: The Impact on Supply Chain, *Journal of Business and Industrial Marketing*, 25(8), 582–589.