EFFECT OF SUPPLIER MANAGEMENT PRACTICES ON SUPPLY CHAIN PERFORMANCE AMONG STATE CORPORATIONS IN KENYA: CASE STUDY OF THE KENYA MEDICAL SUPPLIES AUTHORITY

[1]**KIPLAGAT Jepkogei Janet & David KIARIE**[2]
[1]**M.Sc Scholar Procurement and Logistics,**
Jomo Kenyatta University of Agriculture and Technology, Kenya
[2]**Lecturer, Jomo Kenyatta University of Agriculture and Technology, Kenya**

ABSTRACT
This research project was set to determine the effect of supplier management practices on supply chain performance among State Corporations in Kenya. Managing suppliers is a large part of the job of supply chain professionals. Suppliers are key stakeholders in any firm's supply chain since they form a key component of the upstream supply chain partners. Most researchers have looked at supplier management in one dimension, that is, the focus has been on individual aspects of supplier management, for example; supplier relations management, supplier evaluation and supplier selection. This study sought to determine the effect of supplier management practices on supply chain performance of state corporations in Kenya. A census study was conducted and questionnaires were used to obtain data in a bid to answer the following research questions; What is the effect of supplier identification practices on supply chain performance among state corporations?; What is the effect of supplier evaluation and selection practices on supply chain performance among state corporations?; What is the effect of supplier performance measurement practices on supply chain performance among state corporations?; What is the effect of supplier relationship management practices on supply chain performance among state corporations? A total 24 KEMSA employees were surveyed yielding a response rate of 85.7%. The study revealed that supply chain performance was significantly influenced by supplier selection and supplier performance measurement. The study recommended: proper protection of public institution from false information offered by suppliers, augmenting of supplier performance measurement and supplier relationship management practices as well as setting structure to minimize political interference during supplier identification and selection.
Keywords: supplier management, supply chain, medical supplies,

INTRODUCTION
Due to increased demand for better services in the public sector, there is need to effectively manage the public supply chains. Interrelationships between the partners in the supply chain needs to be managed to enhance performance, enhances continuity and shared sense of value within the whole organization (McAdam et al, 2005).In today's highly competitive environment, supply chain performance is very vital for the survival of firms because customers judge the performance of firms basing on their supply chain performance.
Eyaa and Ntayi (2010) stipulated that, worldwide, national economies are faced with the challenge of improving their supply chains. Intensifying global competition, short life cycles of the products and increased customer expectations have forced the companies to invest and focus their attention on their supply chains. Together with continuous advances in communication and transportation technologies, this has motivated the continuous evolution of supply chain and of effective managing techniques. The success of the companies in the global environment depends highly on supply chain efficiency and its capabilities to provide value to the customers (Simchi-Levi et al, 2008).

Global supply chain survey conducted by Price water Coopers (2013) shows how Leaders are moving ahead of the pack. They are tailoring their supply chains to customer needs and investing in next-generation capabilities while keeping the focus on supply chains that are both fast and efficient. Liker and Choi (2004) described, how Japanese automotive manufacturers, Toyota and Honda, are deepening and developing their relationships with their suppliers, which leads to mutual benefits for both, the customer and supplier. Park et al. (2010) studied a Korean semiconductor manufacturing company and developed a framework for supplier relationship management. Their framework integrates the supplier management functions, which are, shaping purchasing strategies, supplier selection, collaboration, and supplier management. Additionally Park et al (2010), propose continuous improvement process to develop the SRM system.

According to Diageo (2011) Kenya has firms which have achieved excellence in supply chain performance through implementation of effective supplier management programs. East African Breweries Limited (EABL) has successfully implemented effective supplier management mechanisms through the development of strong relationships with Suppliers, this ensures that Suppliers essential to its operations are sustainable, that contracts are fair and that the business they conduct together is mutually beneficial. To ensure that their Suppliers are aligned to its ways of working, they have developed the 'Partnering with Suppliers' document that sets out our minimum compliance standards which is expected by prospective suppliers to have in place and which will be enforced contractually. EABL appreciates that the way they work to achieve the standards will evolve and will consistently offer support to its suppliers in achieving minimum standards (Diageo, 2011)

A well-designed supplier management system can support professional purchasing and increase conformity and a systematic way of purchasing. It also has an effect on risk. Risk management is in close contact with supplier management because suppliers are also a source of risk (Östring, 2004). All in all, supplier management can be a great contributor to the success of a company. You cannot manage what you cannot measure (Chan, 2003). Therefore, it is easy to see that supplier evaluation and measurement are vital parts of supplier management. Evaluation can and should take place before anything is purchased from a supplier and continuously during the relationship.

Performance of supply chains has been defined by several authors differently. Kwai et al (2004) looks at it from three perspectives; delivery times, consumer satisfaction and cost reduction. A supply chain encompasses all the parties that involved, directly or indirectly, in fulfilling a customer request. The supply chain includes manufacturer, suppliers, transporters, warehouses, retailers and even customers themselves. Within each organization, such as a manufacturer, the supply chain includes all function involved in receiving and filling a customer request. These functions includes new product development, marketing, operation, distribution, finance, customer service and other function that related to serving customer request (Chopra & Meindl, 2007).

According to the KEMSA Procurement Review Report (2008) The Kenya Medical Supplies Authority (KEMSA) is a State Corporation established by a legal notice issued under CAP 466 of the Laws of Kenya. The organization is a specialized medical logistics provider for Ministries of Medical Services/Public Health-supported health facilities and programmes. The Agency was formed on 11th February 2000 as a result of recommendations of health stakeholders forum dubbed Strategies for Reforming the Drug and Medical Supplies Systems in Kenya held between June 7th and 10th, 1998.

KEMSA's core functions include procurement, warehousing and distribution of medical supplies. In performing these functions, KEMSA's mission is to improve the healthcare of Kenyans through efficient procurement and reliable distribution of quality medical commodities and promotion of rational drug use and practices. While, KEMSA's vision is to be to be the leading supplier of quality and affordable essential medical commodities to health facilities in Kenya, both the KEMSA mission and vision statements support the Ministry of Medical Services and Ministry of Public Health & Sanitation Mission, Vision and objectives as articulated in the NHSSP II 2005-2010.

The Procurement Unit at KEMSA has not fully established and implemented a supplier performance tracking system for the pre-or post-qualification process, to rate suppliers and products based on review of objective information about product safety, efficacy, and quality. However, all drugs procured are

registered with the PPB, and samples are requested and tested as part of the procurement process. KEMSA has an in-house quality control laboratory, but the bulk of testing is undertaken by the National Quality Control Laboratory, a WHO pre-qualified unit (USAID, 2010).

At the national level, the Kenya EML guides procurement, although not all medicines listed are procured. However, the EML is rarely used to guide facility-based procurement of medicines. Historically, procurement of medicines was undertaken by KEMSA (or its predecessors), while the MOH procured medical supplies and equipment. Following recommendations from the Report of the KEMSA Task Force (October 2008), procurement of both medicines and supplies (pharmaceuticals) was handed over to KEMSA (MOH, 2008b). Currently the procurement of health commodities is being done by KEMSA, MOH and County governments.

Statement of the Problem

According to World Bank, supply chain performance has declined at an alarming rate resulting to a decrease in global GDP to upto 4.7% (WB, 2013). A research conducted by Mageto et al, (2012) reveals that there is a drastic increase in the pressure on organizations to find new ways to create and deliver value to customers to improve on their supply chain performance. Supply chain performance is influenced by contingent factors that lie beyond the realm of strategy and structure. Poor Supply chain performance can reduce shareholder value by as much as 8 to 10 percent, or even worse in time-sensitive environments where early market introduction is critical to success (Handfield, 2007).

Medical institutions worldwide have been embarking on supplier management as a measure to overcome medical performance challenges and realize increased efficiency on supply chain profitability (Siika et al, 2005). In Kenya, Medical agency has been trying to meet efficient and effectiveness in supplying customers with good terms of price, service standards, advertising, innovation in products and services offered (Abdulla et al, 2008). Statistics from the government journals, shows that in the year 2007 KEMSA accumulated losses of Kshs.576 Million which were cleared in 2011 (GOK, 2012).

The above foregoing background reveals that supplier management and effective measures are required to keep KEMSA performance on the upward trend. Despite the significant role of supplier management strategy on Medical performance, studies by Mwabu et al, (2003) narrowed their research undertakings into different areas of strategic management and performance of Medical institutions. This therefore left a major knowledge gap on how Medical institutions should realize increased performance through successful implementation of supplier management.This study attempted to determine the effect of supplier management practices on the supply chain performance among state corporations.

Objective of the Study

The general objective of this study was to determine the effect of supplier management practices on the supply chain performance among state corporations. The specific objectives were:

i. To establish the effect of supplier identification practices on supply chain performance among state corporations
ii. To determine the effect of supplier evaluation and selection practices on supply chain performance among state corporations.
iii. To evaluate the effect of supplier performance measurement practices on supply chain performance among state corporations
iv. To assess the effect of supplier relationship management practices on supply chain performance among state corporations.

Research Questions

The study intended to answer the following questions from the literature review;

i. What is the effect of supplier identification practices on supply chain performance among state corporations?
ii. What is the effect of supplier evaluation and selection practices on supply chain performance among state corporations?
iii. What is the effect of supplier performance measurement practices on supply chain performance among state corporations?

iv.   What is the effect of supplier relationship management practices on supply chain performance among state corporations?

Theoretical Review

Network Perspective

Network's perspective also known as networks theory is mostly concerned with the value generation through inter-organizational relations. Network perspective focuses on both dyadic relationships and multi-party relationships (McNichols & Brennan, 2006). This theory was first introduced during the 1970s and the 1980s and developed from the focus on relationships between just two entities, or strategic alliances, towards an approach which entails multiple relationships between different counterparts throughout the supply chain (Wellenbrock, 2013). Harland (1996) defines the network as a specific type of relation linking a defined set of persons, objects or events. Chang, Chiang & Pai (2012) further state that the supply chain network is a complicated network model, and its specific context depends on the relationships among the network members Moreover, networks are seen as beneficial for every company embedded through the investments and actions of the other counterparts involved in the process (Hakansson& Ford, 2002).

The networks perspective has been utilized for both global supply chain studies as well as supply chain in specific industries or countries (Peck 2005; Zhao, Anand & Mitchell, 2005). Networks perspective provides framework for understanding and analyzing the several-party inter-organizational relations for increasing resources, capabilities, and competencies of the individual firms.

Rough Set Theory

Rough set theory was proposed by Pawlak in 1982 as a method which classifies objects into similarity classes (clusters) containing objects that are indiscernible with respect to previous occurrences and knowledge. According to Bai & Sarkis (2009) Rough set theory allows for distillation of a larger set of suppliers into a smaller set of candidate preferred suppliers, and eventually the selection of preferred supplier. Its application to supplier selection and decision making contributes through use of historical decisions integrating previous organizational knowledge and learning into the latest decision process. The major advantage is that it can generate satisfactory outcomes using a relatively small amount of data or with great variability in factors (Li et al, 1997).

As time progresses, organizations can further refine their decision making quality to either maintain some consistency and/or improve their decision process with further weighting and development of attributes that are salient for the organization's strategic direction. The final decision may be sensitive to the attributes that are used in the evaluation process. Practically, organizations that do not use the full complement of attributes to select suppliers or for outsourcing in a world where sustainability has gained significant importance by governments, communities, industry, customers, and markets, may have competitive disadvantage consequences. (Bai & Sarkis 2009)

Stakeholder Theory

Friedman (2006) states that the organization itself should be thought of as grouping of stakeholders and the purpose of the organization should be to manage their interests, needs and viewpoints. There is a clear relationship between definitions of what stakeholders and identification of who are the stakeholders. The main groups of stakeholders are: Customers, employees, local communities, suppliers and distributors (Friedman, 2006)

This theory is fueled by the realization that in contemporary business environment, it is not only the individual businesses that compete as solely autonomous entities, but also organizational supply chains compete in the environment as well (Drucker, 1998). This fact increases the complexity of identifying and defining the key stakeholders associated with the business processes. The stakeholder theory has been used as one of the primary theories to identify the key stakeholders in various organizational studies (Tate, Ellram & Brown, 2009)
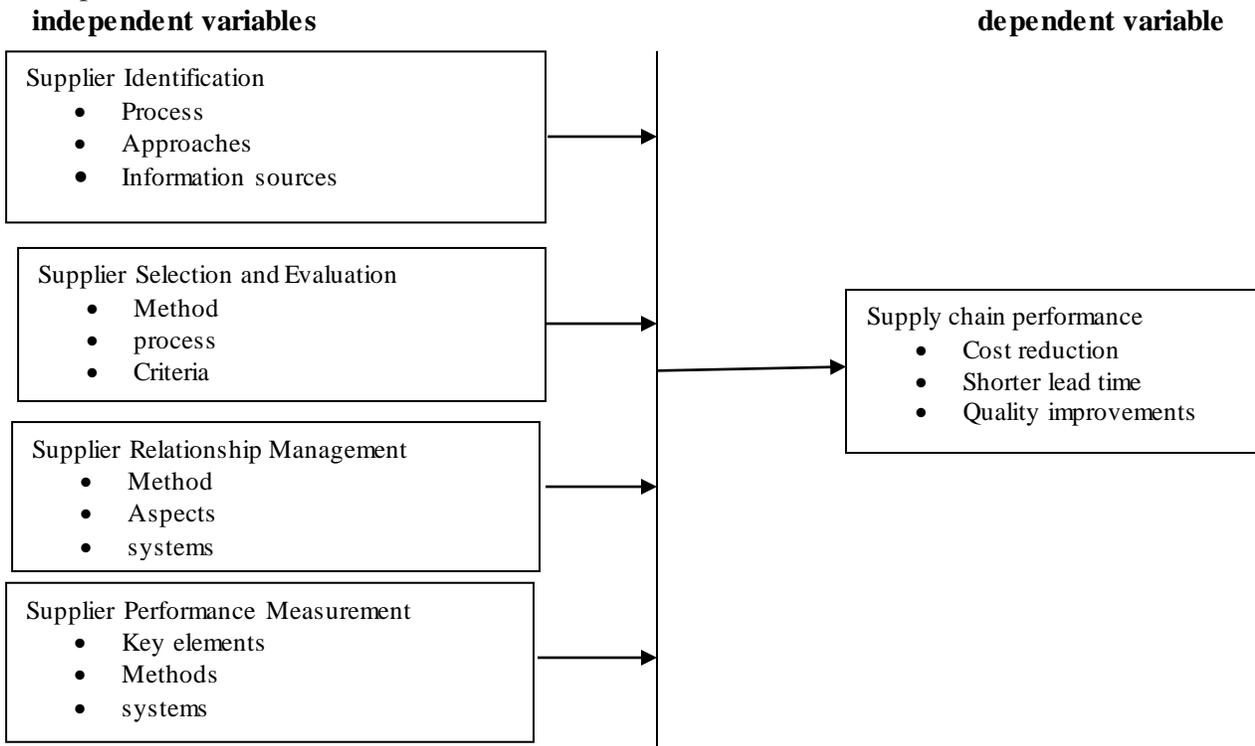
Transaction Cost Theory

Ronald Coase, Chester Barnard, and Herbert Simon are among the early authors who describe the contributions of transaction cost theory to the existence of firms (Scott, 2003; Williamson, 2005). Whether we look at supply chain, as a network or as an integrated process, the transaction cost theory

explains the vertical connection and integration of various elements of organizational supply chain, from second tier and first tier suppliers to first tier and second tier customers.

Grover and Malhotra (2003) concluded that transaction cost theory applies to organizational supply chain management in four facets: effort, monitor, problem, and advantage. Effort to build and maintain the relationship with suppliers; cost of monitoring the performance of suppliers; resolving the problems that arise in the business relationships; and engagement of suppliers in an opportunistic behavior. However, transaction cost theory is primarily concerned with the direct economic factors in organizations and hence fails to address some important aspects of the operation of organizational supply chain, including personal and human relations among actors in the supply chain. (Grover & Malhotra, 2003)

Conceptual Framework

Conceptual frameworks are used to explain how the independent variables affect the dependent variable. The Study uses supply chain performance as dependent variable and supplier management elements as independent variables.

independent variables **dependent variable**

```
┌─────────────────────────────┐
│ Supplier Identification      │
│    • Process                 │────┐
│    • Approaches              │    │
│    • Information sources     │    │
└─────────────────────────────┘    │
                                    │
┌─────────────────────────────┐    │     ┌──────────────────────────────┐
│ Supplier Selection and      │    │     │ Supply chain performance     │
│ Evaluation                  │    ├────▶│    • Cost reduction          │
│    • Method                 │────┤     │    • Shorter lead time       │
│    • process                │    │     │    • Quality improvements    │
│    • Criteria               │    │     └──────────────────────────────┘
└─────────────────────────────┘    │
                                    │
┌─────────────────────────────┐    │
│ Supplier Relationship       │    │
│ Management                  │────┤
│    • Method                 │    │
│    • Aspects                │    │
│    • systems                │    │
└─────────────────────────────┘    │
                                    │
┌─────────────────────────────┐    │
│ Supplier Performance        │    │
│ Measurement                 │────┘
│    • Key elements           │
│    • Methods                │
│    • systems                │
└─────────────────────────────┘
```

Figure 1: Conceptual framework

RESEARCH METHODOLOGY

This study adopted a descriptive research design using a case study of KEMSA.. According to Donald and Pamela (2006), a descriptive study is concerned with finding out the what, where and how of a phenomenon. This study therefore generalised the findings on the effects of supplier management practices on supply chain performance in KEMSA

The population of this study constituted of twenty four (24) supply chain staff of KEMSA staff working in the procurement and distribution functions, The Tender and Procurement Committees, The Procurement Advisor and Distribution Advisor (Table 1). The study employed a census approach to collect data from the respondents hence no sampling techniques will be used.

A semi-structured questionnaire was used to collect primary data from respondents and was designed to address the various research objectives. The questionnaire was divided into six sections; Section one dealt with the general information of the respondent; section two, three, four and five will determine the

supplier management practices on the supply chain performance of the KEMSA supply chain; and finally section six will be on supply chain performance

Table 1: Population Sample

Respondents	Number in Sample
KEMSA Tender Committee Members	5
KEMSA Procurement Committee Members	5
KEMSA Procurement Unit Staff	10
KEMSA Distribution Function Staff	4
TOTAL	**24**

.
The questionnaires were self-administered to all the respondents, the questionnaires were dropped personally and picked by the researcher after a week to give the respondents adequate time to respond to the questions, telephone follow ups, were further used to enhance the response rate; 28 questionnaires were issued to all subjects of the sample and the researcher managed to get 24 back, the response rate was thus 85.7% this response rate was satisfactory to make conclusions for the study

Data Analysis

The completed questionnaires were edited for completeness and consistency. Pearson coefficient correlation analysis was used to determine the relationship between each of the effects of supplier management practices and supply chain performance.

The study employed a multiple Regression analysis to estimate the causal relationships between factors under study. With the aid of Statistical Package for Social Sciences (SPSS), the research performed multiple regressions analysis on primary data to estimate the beta values of factors and F – test statistics to determine their significance at confidence level of 95%. The results of the analyzed data were presented using tables and charts with a brief description thereafter.

The multiple regression equation of the study is shown below;

$$y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + E$$

where;

y=supply chain performance

α = Constant

$\beta1… \beta4$ = the slope representing degree of change in independent variable by one unit variable.

x_1 = supplier identification, x_2 = supplier evaluation and selection, x_3 = supplier performance measurement

x_4 = supplier relationship management, E= error

RESULTS AND DISCUSSION

Demographic Analysis

To obtain a better understanding of the population structure from which the sample was taken, a preliminary analysis of demographic data was carried. In this case the researcher sought the respondents': gender, age, level of education and the duration of work in the organization.

Table 2: The gender of the respondents

	Frequency	Percent
Male	15	62.5
Female	9	37.5
Total	**24**	**100.0**

Table 2 clearly shows that there were more male than female respondents. Male respondents comprised 62.5% of the total while the female respondents were 37.5% implying that the gender distribution of employees at Kenya Medical Supplies Authority is not balanced.

Table 3: Age of the respondents

Years	Frequency	Percent	Cumulative Percent
18-24	1	4.2	4.2
25-34	11	45.9	45.8
35-44	10	41.7	87.5
45-54	2	8.3	95.8
Total	**24**	**100.0**	

From table 3, it is clear to see that majority of the respondents were in 25 to 44 years age bracket. With only 8.3% aged 45-54 years and 4.2% aged 18-24 years. This shows that majority of the respondents were mature with appropriate work experience and therefore they were well versed with relevant information on supplier management practices which was needed for the study.

Table 4: Level of education

Education level	Frequency	Percent	Cumulative Percent
secondary	3	12.5	12.5
College	4	16.7	29.2
Bachelor's degree	15	62.5	91.7
Master's degree	2	8.3	100.0
Total	**24**	**100.0**	

Majority of the respondents (62.5%) had attained bachelor's degree education level as illustrated by table 4. This was followed by 16.7% of the respondents who had attained college education level. 12.5% of the respondents had attained secondary education with only 8.3% having attained their master's degree. This suggests that the respondents were well conversant with the issues relating to supplier management practices in KEMSA and therefore they gave accurate and relevant information needed for the study.

Table 5: Respondents' Working Duration in KEMSA

Years	Frequency	Percent	Cumulative Percent
1-5 years	5	20.8	20.8
6-10 years	15	62.5	83.3
11-15 years	3	12.5	95.8
over 16 years	1	4.2	100.0
Total	**24**	**100.0**	

According to table 5, majority of the respondents (62.5%) had worked in KEMSA for a period of 6 to 10 years, followed by those who had worked for a duration of 1 to 5 years (20.8%). 12.5% had worked for 11 to 15 years and only 4.2% had worked for over 16 years. This shows that most of the respondents had worked long enough in KEMSA and therefore they were well conversant with relevant information on supplier management practices which was needed for the study.

The Effect of Supplier Identification Practices on Supply Chain Performance
The study sought to find out the influence of supplier identification practices on supply chain performance. The researcher first obtained the responses on the existence of supplier identification practices then various aspects of supplier identification were rated depending on their use to influence performance in KEMSA. The results were as follows:
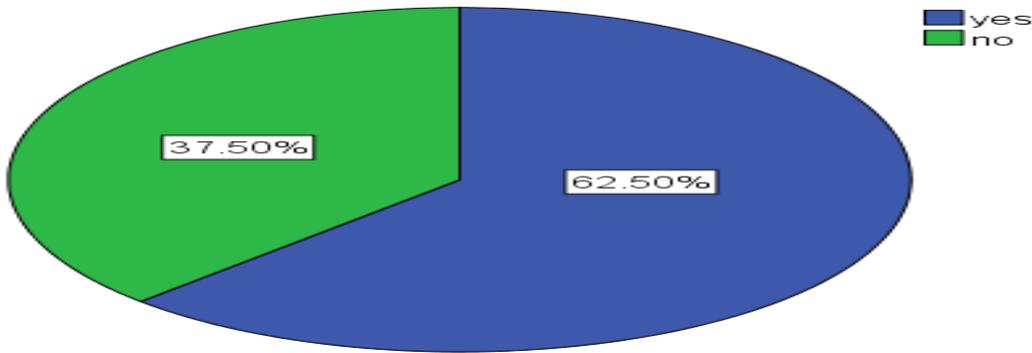
Figure 2: Existence of Supplier Identification Practices in KEMSA

From figure 2, it is clearly illustrated 62.5% of the respondents perceived that KEMSA had instituted supplier identification practices, 37.50% did not agree to existence of the supplier identification practices. The use of some specified practices to improve performance was as presented in table 6.

Table 6: The rate of using supplier practices in improving supply chain performance

	Minimum	Maximum	Mean	Std. Deviation
Extent of using reference checks with other procuring entities	1	5	3.00	.885
Extent of using market survey	1	5	2.88	1.227
Extent of requesting information from suppliers	1	4	1.96	.806
Extent of using request for proposal from suppliers	2	5	3.91	.949
Use of competitive bidding	2	5	4.21	.721
Prequalification of suppliers	2	5	3.87	.900
Considering price, delivery and quality of service	3	5	4.22	.600
Use of pre-bid meetings/conferences with suppliers	2	5	3.50	1.063

Rating scale: 5-Very great extent   4- great extent 3-moderate   2- little extent   1- very little extent**.**

Table 6 illustrates the extent of using some of the supplier identification practices. The mostly used practices that contribute to performance of the supply chain were: consideration of price, delivery and quality of service; Use of competitive bidding process; requesting for proposal from suppliers; prequalification of suppliers which had an approximate average score of 4.0 (great extent). The respondents were neutral about the use of: pre-bid meetings; reference checks with other procuring entities and use of market surveys. The least used practice according to the respondents' ratings was requesting of information from suppliers. The sources of supplier information are numerous, thanks to information technology. For example suppliers' web pages and catalogues, trade registers and journals, sales personnel, and trade shows are good information sources (Burt et al., 2003). Firms can subscribe to these key supplier information sources to stay abreast with information concerning new entrants and gain access to supplier reviews by other buyers. Kannan and Choon (2002) assert that there are two ways to decide which supplier to choose: competitive bidding and negotiations. After the bids requested in the request for proposal (RFP) have arrived the purchaser can make a decision based on the information in the bids or invite the suppliers to further negotiations.

Other practices pointed out by the respondents were: evaluation of suppliers' historical records, contacting the suppliers' customers and invitation to bid. The specified approaches laid down by the organization for supplier identification were found to be: Price review, supplier technical and financial

capacity and evaluation of the previous supplier performance. However the respondents expressed that proper identification was limited by: false information offered by suppliers, brief-case contractors and inaccessibility of some suppliers' information. Proper identification practices were further regarded as very crucial in acquiring the right suppliers. According to Monczka *et al*. (2005) supplier identification needs to be performed with care to avoid errors that may have long-lasting effects to a company.

The Influence of Supplier Selection and Evaluation Practices on Supply Chain Performance

The study aimed at establishing the influence of supplier selection and evaluation practices on supply chain performance. The existence of such practices was first evaluated then the respondents' ratings on the use of specified practices was obtained.
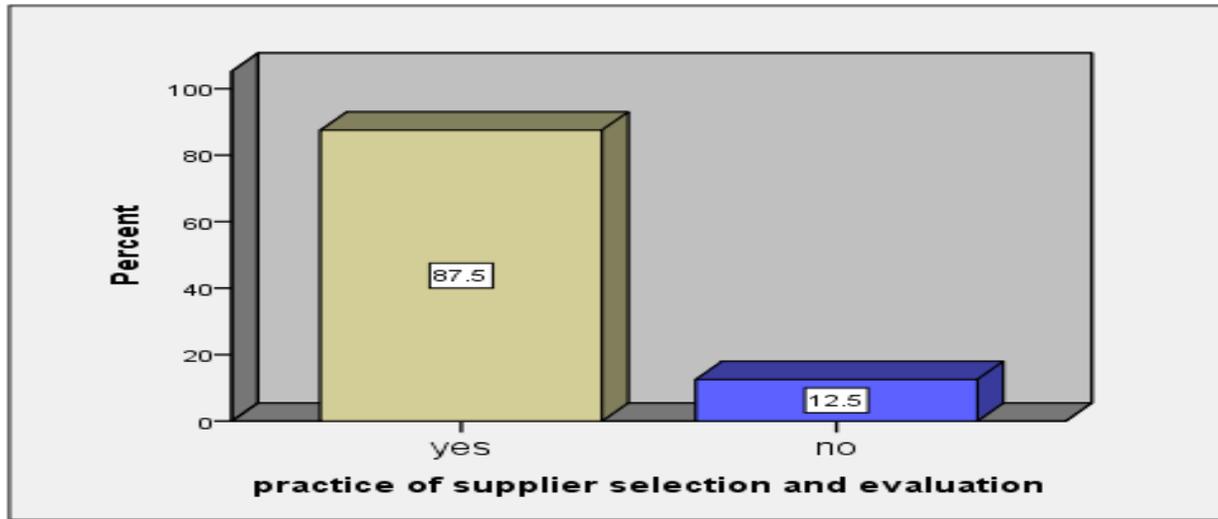
Figure 3: Existence of supplier selection and evaluation practices

From figure 3, majority of the respondents (87.5%) agreed to existence of supplier selection practices in KEMSA. Only 12.5% did not agree to this, it is therefore clear that KEMSA had laid down supplier selection and evaluation practices. The respondents' ratings on the use of some specified practices was as presented in table 7.

Table 7: The rate of using supplier selection and evaluation in improving supply chain performance

|	Minimum	Maximum	Mean	Std. Deviation
Extent of basing evaluation and selection on quality of goods /service	1	5	4.42	.881
Use of delivery schedules	1	5	3.92	1.100
Use of price of goods/services	1	5	3.54	1.250
Use of terms of payment agreeable by supplier	1	5	2.29	1.398
Evaluating manufacturing practices of the supplier	2	5	3.74	1.054
Evaluating quality assurance and certification	3	5	4.25	.737
Using technical support and after sales service	2	5	3.08	.929
Using past performance of suppliers	3	5	4.42	.654
Using financial capacity of suppliers	3	5	4.14	.774

Rating scale

5-Very great extent   4- great extent   3-moderate   2- little extent   1- very little extent

Table 7 illustrates that the most rated supplier selection practices were: evaluation based on quality of goods/service and use of past performance of the supplier during selection (score= 4.42, approximately= great extent) the standard deviation for both was also less than 1, indicating that most of the responses were close to average score. These were followed by: evaluating based on quality assurance and certification; use of financial capacity; use of delivery schedules in selection; evaluating manufacturing practices; using price of goods/services which all had an approximate score of 4.00(great extent). The respondents were neutral about the use of technical support and after sales services offered while the use of terms of payment agreeable by supplier was to a little extent.

The respondents further suggested that the key checkpoints during supplier selection were: the price, financial and technical capacity of the supplier and supplier tract record. However it was expressed by some respondents that proper selection was inhibited by political interference, false documents given by suppliers and inadequate risk estimation practices. Supplier selection was further said to be very crucial in meeting the contractual targets and mitigating risk. Kannan and Choon (2002) postulate that, supplier selection is important because it includes the performance criteria on which the supplier later is evaluated. Therefore, an effective selection process with the use of the right performance criteria can reduce or prevent risk.

Supplier Relationship Management Practices and Supply Chain Performance

The effect of supplier relationship management practices was also evaluated. The study aimed at finding out whether KEMSA had instituted supplier relationship management practices and which practices were mostly used to enhance supply chain performance. The results were as follows:
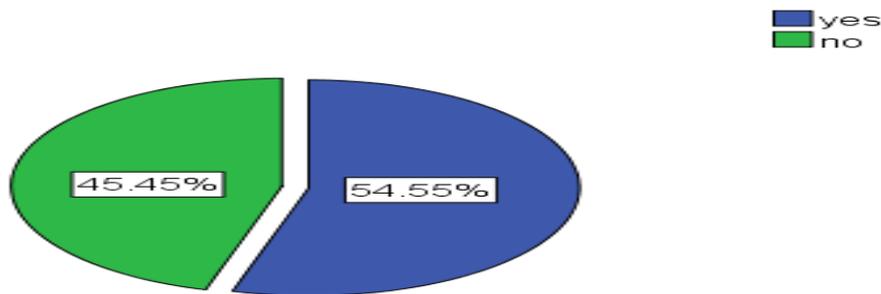
Figure 4: Existence of Supplier Relationship Management Practices

Figure 4, shows that 54.55% were aware of existence of supplier relationship management practices while 45.45% were not aware of any supplier relationship management practices in KEMSA. This is an indication that supplier relationship management practices were not very much emphasized. To understand this further the use of various specified management practices was rated and presented as shown by table 8.

From table 8, the supplier relationship management practices that were highly used to enhance supply chain performance were: conduction of supplier debriefs after tendering and conducting periodic supplier conferences; their use was rated by respondents to be between great extent (4.00) and very great extent (5.00). This was followed by: Clear commitment between the organization and suppliers, open cooperation between the two parties, Cooperation and collaboration with suppliers and Interactions between supplier and the organization; which had an average score of approximately 4.00 (great extent). The respondents were however neutral about the use of: Involvement of supplier through pre-bid meetings and advance payment for disadvantaged group of suppliers which had a moderate score. According to Hughes and Wadd (2012), supplier relationship management is more than merely part of the enterprise resource planning system or playing golf with supplies. Proper supplier relationship management requires that a company systematically manages all the interactions across the business with suppliers.

Table 8: The rate of using supplier relationship management practices in improving supply chain performance

|	Minimum	Maximum	Mean	Std. Deviation
Involvement of supplier through pre-bid meetings	2	4	3.08	.717
Advance payment for disadvantaged group of suppliers	1	5	3.13	.900
Cooperation and collaboration with suppliers	2	5	3.92	.830
Conducting suppliers debriefs after tendering	4	5	4.52	.511
Conducting periodic suppliers conferences on your organization requirements	4	5	4.48	.511
Clear commitment between the organization and suppliers	2	5	4.22	.850
Understanding, agreeing and codifying the Interactions between supplier and the organization	2	5	3.63	.970
Open cooperation between the two parties	2	5	4.04	.825

Rating scale

5-Very great extent   4- great extent   3-moderate   2- little extent   1- very little extent

Further discussions by respondents elaborated that the organization debriefed suppliers after awarding tenders to justify the tendering criteria, the organization also organized joint activities with suppliers and suppliers' complements and complaints were very much welcomed. The suppliers' records and information was said to be maintained in a computerized data base where frequent updates were made. The respondents however did not express much significance of the supplier relationship management on supply chain performance; the strategies that enhance SRM were yet to be effectively implemented. According to CIPS (2012) successful supplier relationship management is largely driven by changes in policies, processes, roles, and supplier agreements.

Influence of Supplier Performance Measurement Practices on Supply Chain Performance

The study evaluated the effect of supplier performance measures on supply chain performance. The study first sought to establish whether the organization practiced supplier performance measurement, then the use of various performance measurement was rated by the respondents.
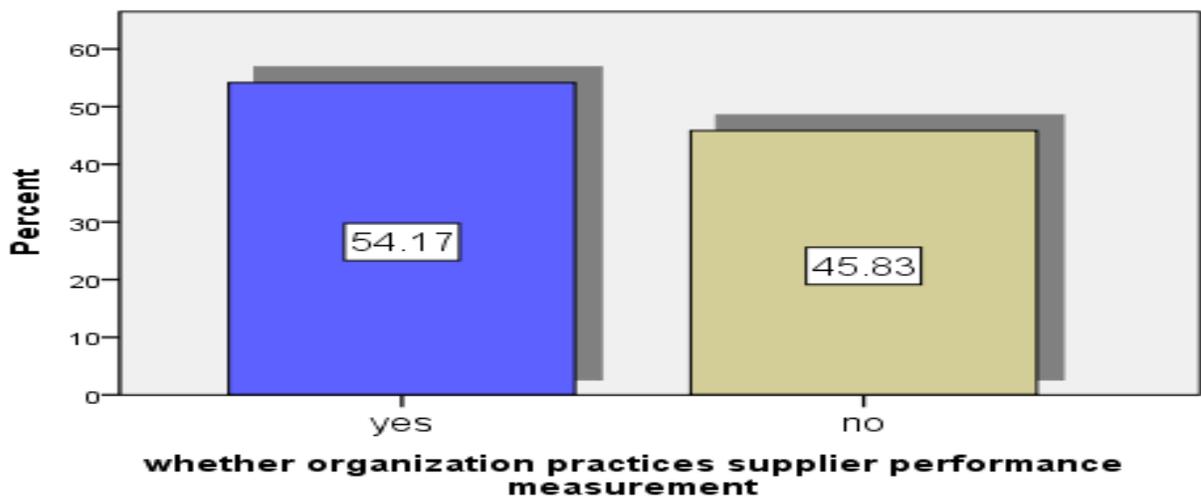
Figure 5 Supplier performance measurement

From figure 5, it is clear to see that 54.17% of the respondents agreed that the organization carried out supplier performance measurement, while 45.83% did not agree. This is a clear indication that supplier performance measurement practices were not rampant in the organization.

Firms will be able to realize improved performance in their respective supply chain with the design and implementation of effective supplier performance management metrics. This is alluded by Gordon (2008) argues that when a performance measurement system is well deployed the pay-back period (Return of investment) can be very fast. The measurement a broader range of suppliers allows a company to have better insight of suppliers, which eventually can avoid risk, identify improvement areas, save time and cost, and eliminate cost drivers. The ratings on the use of performance measurement practices were as presented by table 9.

Table 9: The rate of using supplier performance measurement practices in improving supply chain performance

	Minimum	Maximum	Mean	Std. Deviation
Use of personal judgments on performance	2	4	3.13	.741
Use of delivery performance of suppliers	3	5	4.29	.624
Use of product quality measure	3	5	4.50	.590
Assessing the number of complaints	4	5	4.54	.509
Use of willingness to change product	2	5	2.79	.833
Using the will to share sensitive information	2	5	3.17	.868
Participate in new product development and value analysis	3	5	4.42	.584
Customer extra services offered	2	5	4.08	.776

Rating scale

5-Very great extent   4- great extent   3-moderate   2- little extent   1- very little extent

From table 9, the respondents rated to very great extent assessing of the number of complaints" and use of product quality measure in evaluating supplier performance (the score= 4.54 and 4.50 respectively). Followed by product development and value analysis, use of delivery performance of the suppliers then assessing the customer extra services offered all of which had an average score of 4.00 (to a great extent). The respondents rated moderately the use of: the will to share sensitive information, use of personal judgments on performance and use of willingness to change product".

The general response on the commonly used performance measurement practices in KEMSA were: Assessing suppliers' lead times, evaluating the quality of products and checking the technical capacity of the supplier. Over time a number of complementary dimensions have been proposed, but in practice the majority of supplier evaluations for long tended to be routinely viewed as consisting of just three factors: price/cost, quality, and delivery (Hirakubo & Kublin, 1998).

However, the researcher observed that there was no performance measurement system kept by the organization. Further interaction with the organization's staff revealed that performance measurement was just implied but not actively undertaken. The performance measurement checks were found to be undertaken mostly during supplier selection.

Overall Influence of Supplier Management Practices on Supply Chain Performance

Supply chain performance is the entire chain's ability to meet end-customer needs through product availability and responsive, on-time delivery (Ndambuki, 2013). The study endeavored to evaluate the overall influence of supplier management practices on the attributes of supply chain performance such as: Cost reduction, lead time reduction and quality of goods and services. From table 10, supplier management practices had most influence on lead time reduction and quality assurance followed by cost reduction as illustrated by the percentages of 83.3% and 79.2% of respondents who agreed to such influence.

Table 10: Influence of supplier management practices on supply chain performance attributes

Response	Cost reduction		Lead time reduction		Quality assurance	
	Freq	%	Freq	%	Freq	%
Yes	19	79.2	20	83.3	20	83.3
No	5	20.8	4	16.7	4	16.7
Total	24	100	24	100	24	100

Other aspects of supplier management practices were rated according to their influence on performance and the results were as presented by table 1. From table 11 the supplier management practices that contributes most towards supply chain performance can be ranked as: continuous improvement process, implementation of effective supplier management programs, delivery times, consumer satisfaction and cost reduction, focus on supply chains that are both fast and efficient, putting greater pressure than ever on supply chain executives and development of strong relationships with supplier. This is consistent with Choy et al. (2002) that a well-designed supplier management system can support professional purchasing and increase conformity and a systematic way of purchasing.

Table 11: Contribution of supplier management practices on Performance

	Minimum	Maximum	Mean	Std. Deviation
Focus on supply chains that are both fast and efficient	2	5	4.35	.714
Putting greater pressure than ever on supply chain executives	3	5	4.33	.565
Continuous improvement process	3	5	4.54	.588
Implementation of effective supplier management programs	3	5	4.46	.588
Development of strong relationships with suppliers	2	5	3.71	.999
Delivery times, consumer satisfaction and cost reduction	3	5	4.39	.583

Rating scale

5-Very great extent   4- great extent   3-moderate   2- little extent   1- very little extent

Regression Model

Regression analysis was used to express the relationship between the independent and dependent variables. The dependent variable was supply chain performance measured by the increase in performance which is attributable to supplier management practices while the independent variables were the contributions of: supplier identification practices, supplier selection and evaluation, supplier relationship management, supplier performance measurement. The ability of independent variables to explain the changes in dependent variables was measured by adjusted R-square as shown by table 12.

Table 12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.900[a]	.810	.770	.458

From table 12, it is clear to see that the independent variables explained 77% of variations in the dependent variable as shown by the adjusted R-square (0.77). Therefore 23% of the variations in the dependent variable were due to other factors not considered by the model. This is because performance increase is multi-dimensional factor and may be due to actions taken by other departments or latent factors within the supply chain departments.

The significance of the model was further established by carrying out ANOVA test as shown by table 12. Table 12, shows that the variables of regression are statistically significantly different, they therefore measure different attributes. The p-value=0.000 is less than 0.05 therefore we confirm the significance of the model under 95% confidence level.

Table 12: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	16.979	4	4.245	20.265	.000[b]
1	Residual	3.980	19	.209		
	Total	20.958	23			

In order to construct the regression equation, regression co-efficient were obtained and presented as shown by table 13.

Table 13: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-.420	.593		-.708	.487
Contribution of supplier identification towards performance	.072	.159	.058	.452	.656
Contribution of supplier selection and evaluation towards performance	.698	.128	.715	5.444	.000
Contribution of supplier performance measurement practices towards performance	.411	.135	.336	3.039	.007
Contribution of supplier relationship practices towards performance	.059	.089	.073	.670	.511

From table 13, the constant of the model was -0.42 which was statistically insignificant (p-value= 0.487). The highest statistically significant coefficient was 0.715 which belonged to supplier selection and evaluation variable (P.value= 0.000). This was followed by supplier performance measurement's coefficient; 0.336 (p-value=0.007). The coefficient for supplier identification variable was 0.058, however not statistically significant, the same case with the coefficient for supplier relationship management (0.073, p-value= 0.511).

We can thus conclude that from the sample results the supplier management practices that significantly influenced supply chain performance were: supplier selection and evaluation and supplier performance measurement practices. According to Kannan (2002) improving long-term performance requires not only a buying firm's strategic commitment to improved supply chain performance, but a corresponding commitment from its partners, thus proper selection is inevitable for good performance. The regression equation can thus be expressed as:

$$y = -0.42 + 0.058x_1 + 0.715x_2 + 0.336x_3 + 0.073x_4 + E$$

where;

y=supply chain performance

x_1 = supplier identification x_2 = supplier evaluation and selection x_3 = supplier performance measurement x_4 = supplier relationship management   E= error

X1= 0.058, shows that one unit change in supplier identification results in 0.058 units increase in supply chain performance.

X2= 0.715, shows that one unit change in supplier evaluation and selection results in 0.715 units increase in supply chain performance.

X3= 0.336, shows that one unit change in supplier performance measurement results in 0.336 units increase in supply chain performance.

X4= 0.073, shows that one unit change in Supplier relationship management results in 0.073units increase in supply chain performance.

CONCLUSION

The study concludes that more emphasis in KEMSA is on supplier selection and identification practices. Least emphasis was put on performance measurement practices and supplier relationship management practices despite the fact that performance measurement was deemed as having significant impact on supply chain performance.

Supplier selection and evaluation practices were found out to be the most utilized by the organization and had the most influence on supply chain performance. From the study findings it is important to observe that performance of supply chain highly dependent on the choice of the supplier. Performance measurement was also an important evaluative tool which further aided the identification of suppliers and determined the relationship with former and current suppliers.

Supplier identification practices were commonly carried in KEMSA but their effectiveness was affected by inaccessibility of some supplier information, false information offered by some companies and customer collusion with brief case companies to ascertain documents of inexistent contracts.

RECOMMENDATIONS

In relation with the findings and discussions the study recommends: proper intervention in protecting public institutions against inappropriate information offered by fraudulent suppliers, emphasizing on performance measurement and laying down proper checks for all contracts, setting supplier selection structures that avoid political interference and augmenting of supplier relationship management practices to ensure supplier and public institutions work towards the same goal.

REFERENCES

Aberdeen Group (2002). The Supplier Performance Measurement Benchmarking Report. *Measuring Supply Chain Success.*

Abdulla, F., Abu Qdais, H., & Rabi, A. (2008). Site Investigation on Medical Waste Management Practices in Northern Jordan. *Waste Management*, 28(2), 450-458.

Bai .C. and Sarkis.J (2009). A Grey Rough Set Evaluation. *Supplier Selection and Sustainability*: Working Paper No. 2009-05

Burt, D, N., Dobler, D. & Starling, S. L. (2003) *World class supply management, the key to supply chain management.* 7th edition. New York, McGraw-Hill Companies.

Carr, A.S., Pearson, & John N., (1999) Strategically Managed Buyer–Supplier Relationships and Performance Outcomes. *Journal of Operations Management*, Vol. 17. pp. 497-519

Chan, F.T.S, (2003), Performance measurement in a supply chain. *The international journal of advanced manufacturing technology,* Vol. 21. pp 534-548

Chang, C.W., Chiang, D. M., & Pai, F.Y. (2012). Cooperative Strategy n Supply Chain Networks. *Industrial Marketing Management.*

Chartered Institute of Purchasing and Supply (2012) Intelligence, *Supplier Performance Management.*

Chopra, S. and Meindl Peter (2001), The Supply Chain Management: *Strategy, Planning & Operations, 3rd edition*, PHI

Chopra, S., & Meindl, P. (2007). Supply Chain Management: Strategy, *Planning, & Operation. (3th ed) NJ:Prentice-Hall. Inc*

Choy, K.L., and Lee, W.B., (2002). A generic tool for the selection and management of supplier relationships in an outsourced manufacturing environment. *The application of case based reasoning, Logistics information management,* Vol. 15 (4). pp. 235-253.

Choy, K.L., and Lee, W.B., (2002). On The Development Of A Case Based Supplier Management Tool For Multinational Manufacturers. *Measuring Business Excellence 2002*; 6(1): pp.15–22.

Chuah, P, Wong, W.P, Ramayah, T. and Jantan, M. (2010). Organizational context, supplier management practices and supplier performance. *Journal of Enterprise Information Management*. Vol. 23 (6), 724-758.

De Boer , Luitzen, Labro, Eva; Morlacchi & Pierangela, (2001) A review of methods supporting supplier selection. *European Journal of Purchasing & Supply Management*, No. 7. PP 75-89

Denscombe, M. (2010), The Good Research Guide: Philadelphia: Open University press. supplier selection. *European Journal of Purchasing & Supply Management*, No. 7. PP 75-89

Diageo, (2011) *Partnering with Suppliers: Diageo's Standards of Business Ethics and Sustainability for Suppliers,* Version 2.2 November 2011, retrieved on 18th October, 2012 https://www.eabl.com/downloads/Partnering-with-Suppliers.pdf

Donald R. C and Pamela S. S. (2003). "*Business Research Methods*" 8th Ed, Tata McGraw Hill/Irwin- New Delhi.

Drucker, P.F. (1998) Strategic dimension of the supply chain*, Transport Logistics*, 3, pp: 155–166.

Eyaa.S. and Ntayi.J (2010).Procurement practices and supply chain performance of smes in Kampala. *Asian Journal of Business Management*, 2(4), 82-88.

Gadde, L.-E., & Hakansson, H. (2001). *Supply Network Strategies.* Chichester, UK: John Wiley.

Gordon, S.R. (2008) *Supplier Evaluation and Performance Excellence,* J. Ross Publishing, p. 83.

Grover V. and Malhotra M. K. (2003) Transaction cost framework in operations and supply chain management research: theory and measurement, *Journal of Operations Management, 21(4), pp: 457-473.*

Gunasekaran, A., Patel, C. & Tirtiroglu, E., (2001). Performance measures and metrics in a supply chain environment. *International Journal of Operations and Production Management.* Vol. 21 (*1/2),* 71-87.

Gunasekaran, A., & Ngai, E. W. T. (2004). Information Systems in Supply Chain Integration & Management. *European Journal of Operational Research*, 159 (2), pp.269- 295.prentice-Hall. Inc

Hakansson, H., & Ford, D. (2002). How Should Companies Interact in Business Networks? *Journal of business research, vol*(2), pp133- 139.

Handfield. R.(2007) Reducing the Impact of Disruptions to the Supply Chain. *Industry Issues Sascom Magazine.*

Harland, C. M. (1996). Supply Chain Management: Relationships, Chains and Networks. *British Journal of management, VOL 7*

Hirakubo, N., and Kublin, M., (1998) The relative importance of supplier selection criteria: the case of electronic components procurement in Japan. *International Journal of Purchasing and Materials Management*, Spring, pp. 19-24.

Hughes, J. and Wadd, J. (2012) Getting the most out of SRM. *Supply Chain Management Review.* January/February, 22-29

Kannan, V. R., and Tan, K. C., (2002). Supplier selection and assessment: Their Impact on Business Performance, *Journal of Supply Chain Management*, Vol. 38. (*4*). pp 11-21

Kombo D.K &Tromp, L.A (2006). Proposal &Thesis Writing: *An Introduction. Nairobi; Paulines Publication.*

Kothani C.R(2006). *Research methodology methods&techniques. New Delhi; New age int.*

Krause, D.R., Handfield, R.B., & Scannell, T.V., (1998) An empirical investigation of supplier development: reactive and strategic processes. *Journal of operations management*, Vol. 17. pp 39-58

Kwai-Sang Chin, Tammala,V.M.R., Leung, J. P.F and Tang, X.(2004). A Study On Supply Chain Management Practices: *International Journal of Physical Distribution and Logistics Management*, Vol 34 Iss: 6 pp. 505-524.

Lasch, R., and Janker, C.G., (2005) Supplier selection and controlling using multivariate analysis. *International Journal of Physical Distribution & Logistics Management*, Vol. 35. No. 6. pp 409-425.

Liker, J. K., and Choi, T.Y., (2004) Building deeper supplier relationships. *Harvard Business Review*. Vol. 82 *(12),* 104-113.

Ling, L.Y and Ling, C. T (2012). The effect of service supply chain management practice on the public healthcare organizational performance. *International Journal of Business and Social Science,* Vol 3 no 16(special issue-August 2012)

McAdam, R., Hazlett, S.A. & Casey, C. (2005). Performance management in the UK public sector: Addressing multiple stakeholder complexity, *The International Journal of Public Sector Management,* Vol. 18, No.3, pp. 256-273.

McCue, C.P. and Johnson, B. R. (2010). Strategic Procurement Planning in the Public Sector. Herndon, VA: NIGP, and the Scottish Public Procurement Toolkit - *A step by step guide to producing a strategic sourcing strategy, August 17, 2010*

McNichols T. and Brennan L. (2006) Evaluating Partner Suitability for Collaborative Supply Networks, Int. J. *Networking and Virtual Organizations*, 3(2), pp: 220-237.

Ministry of Medical Services (2008), Kenya National Pharmaceutical Policy, *Ministry of Medical Services*, Nairobi

Monczka, Robert, Trent, Robert & Handfield, R., (2005). *Purchasing & Supply Chain management*, 3rd edition, Mason, Thomson South-Western.

Morgan, J., (2001) New Survey Finds Big Gap between Rhetoric and Reality. *Purchasing* 130 (22), 10–11.

Mugenda O.M, Mugenda A.G. (2003). Research Methods: *Quantitative and Qualitative Approaches*: Nairobi: ACTS Press.

Mwabu .G., Ainsworth .M., &Nyamete .A. (1993). Quality of Medical Care and Choice Of Medical Treatment in Kenya: An Empirical Analysis. *Journal of Human Resources*, 838-862

Ngechu. M.(2004), Understanding the Research Process and Methods. *An Introduction to Research Methods*. Acts press, Nairobi

Orodho .C. R 2009. Element of Education and Social Sciences., *Research Methods* 2nd Edition, Kanezja Publishers. New Delhi

Östring P., (2004). *Profit –Focused Supplier management*. New York, Amacom. p238

Park, J., Shin, K., Chang, T.W., & Park, J. (2010) An integrative framework for supplier relationship management. *Industrial Management & Data Systems*, Vol. 110 (4), 495-515.

Peck H. (2005) Drivers of Supply Chain Vulnerability: an integrated framework, *International Journal of Physical Distribution & Logistics Management*, 35(4), pp: 210-232.

Petroni, A. (2000). *Vendor selection using principal component analysis*. The JSCM,1(13), pp:63-69.

Reinecke. N, Spiller.P & Ungerman.D (2007). The talent factor in purchasing. *The McKinsey Quarterly,* (1):6–9,

Serekan .U. 2003. Research methods for business. *A skill building approach* 4th edition. New York; John Willy and sons inc.

Shiati. M., Kibet .Y., Musiega .D.(2014). Determinants Of Supplier Selection on the Performance of Public Institutions in Kenya. *International Journal of Management Research & Review vol.4*

Siika, A. M., Rotich, J. K., Simiyu, C. J., Kigotho, E. M., Smith, F. E., Sidle, J. E., ... & Tierney, W. M. (2005). An Electronic Medical Record System for Ambulatory Care Of HIV-Infected Patients in Kenya . *International Journal of Medical Informatics*, 74(5), 345-355.

Simchi-Levi D, Kaminsky P, Simchi-Levi E (2008) Designing and Managing the Supply Chain: *concepts, strategies, and case studies*. McGraw-Hill/Irwin, Boston.

Simpson, P. M., Siguaw, J. A. & White, S. C. (2002) Measuring the Performance of Suppliers: An Analysis of Evaluation Processes. *The Journal of Supply Chain Management*. Winter, pp. 29-41.

Statistics Canada (2010), Survey Methods and Practices, Minister of Industry, Catalogue no. 12-587-X

Stimson, J. A., (1998) *Supplier selection*. United States: PT Publications, Inc

Sufian M. Qrunfleh (2010) Alignment of Information Systems with Supply Chains: *Impacts on Supply Chain Performance and Organizational Performance: published PhD thesis.* University of Toledo.

Tan, K.C., Lyman, S.B. & J.D. Wisner (2002) Supply Chain Management: A Strategic Perspective. *International Journal of Operations and Production Management*, Vol. 22, No. 6, pp. 614-631.

Tate W. L., Ellram L. M. and Brown S. W. (2009) Offshore Outsourcing of Services: *A Stakeholder Perspective, Journal of Service Research,* 12(1), pp: 56-72.

Theodorakioglou, Y., Gotzamani, K. & Tsiolvas, G. (2006). Supplier Management and Its Relationship to Buyers' Quality Management, Supply Chain Management: *An International Journal,* Vol. 11 (2), 148 – 159.

Van H. R., (1998) "Measuring the Unmeasurable" – Measuring and Improving Performance in the Supply Chain, *Supply Chain Management*, Vol. 3, (4). pp. 187-192

Weele.V. A. J., (2005) Purchasing & Supply Chain Management: *Analysis, Strategy, Planning and Practice*. 4th edition, London, Thomson Learning. p 364

Wagner, S.M., (2006) Supplier Development Practices: An Exploratory Study. *European Journal of Marketing*, Vol. 40. (5/6). pp 554-571

World bank (2013), "*Reducing Supply Chain Barriers Could Increase Global GDP Up To 6 Times More Than Removing All Import Tariffs Report*", Switzerland