Journal of Procurement & Supply Chain

Relationship between International Procurement Practices and Supply Chain Performance of Energy Development Agencies in Kenya

Solomon Kyalo Mutangili, Dr. Emmanuel Awuor & Dr. John Cheluget

ISSN: 2617 - 3581

Stratford Peer Reviewed Journals and Book Publishing
Journal of Procurement & Supply Chain
Volume 4||Issue 1||Page 1- 17 || April ||2020|
Email: info@stratfordjournals.org ISSN: 2617-3581

Relationship between International Procurement Practices and Supply Chain Performance of Energy Development Agencies in Kenya

[1] Solomon Kyalo Mutangili, [2] Dr. Emmanuel Awuor & [3] Dr. John Cheluget

[*1]Post Graduate Student, Management University of Africa

[2]Lecturer, School of Management & Leadership, Management University of Africa

[3]Lecturer, School of Management & Leadership, Management University of Africa

***Corresponding Author's email:** solomonkyalomutangili@yahoo.com

***How to cite this article*: Mutangili K., S. Awour E. & Chelugut J. (2020): Relationship between International Procurement Practices and Supply Chain Performance of Energy Development Agencies in Kenya. *Journal of Procurement & Supply Chain,* Vol 4(1) pp. 1-17.**

Abstract

As part of the global economy, companies today are seeking to improve their competitiveness by managing the supply chain process. This involves managing the suppliers and the logistics involved in the movement of goods from the suppliers to the location of consumption in the organization. Worldwide, national economies are faced with the challenge of improving their supply chains, especially within their energy sectors as the generation and supply of reliable energy is the backbone of all developed economies. Therefore, this study sought to establish the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya. Positivistic philosophy approach was adopted for the study. The study adopted a cross-sectional survey research design with an aim of collecting large number of quantitative data at a point in time so as to establish patterns of value addition in the Kenyan energy sector. The study's target population consisted of six energy development agencies in Kenya as outlined by the Ministry of energy (2018). The unit of analysis was the energy development agencies. The study purposely sampled only the top managers and middle managers since they are the key individuals handling the strategic issues within the departments. This study utilized primary data. Primary data was obtained using self-administered questionnaires. Quantitative data was analyzed using Statistical Package for Social Sciences (SPSS). Regression results showed that when international procurement practices through international sourcing, international supplier

International procurement practices through international sourcing, international supplier evaluation, ethical procurement practices and supplier relationship management were positively and significantly related with supply chain performance of energy development agencies in Kenya. The study concluded that there is significant relationship between international procurement practices and supply chain performance of energy development agencies in Kenya. The study recommended that the management of energy corporations should put measures in place to ensure that all the drawn ethical policies and codes are adhered to by all the supply chain staff as well as by the suppliers that they deal with. The energy corporations should therefore firmly deal with conflicts of interest in supply chain, ensure fair dealings with the suppliers, treat suppliers' information with utmost confidentiality and adhere strictly to all their ethical policy statements, to improve their supply chain performance. The study recommended that all the energy corporations should establish supplier appraisal audit policies because this will help them ensure that they will deal with qualified and competent suppliers. It was also recommended that all the energy corporations should adopt the ethical policies and guidelines that have been established by the Public Procurement and Regulatory Authority (PPRA) as well as the Kenya Institute of Supplies Management (KISM) since they are all aimed at ensuring that all the public institutions conduct their supply chain processes in line with the Public Procurement and Asset Disposal Act (PPADA), 2015. Lastly, the study recommended that all the state corporations should focus on supplier relationship management by understanding the suppliers' business positions.

Keywords: *International Procurement Practices, Supply Chain Performance, Energy Development Agencies & Kenya.*

1.0 Introduction

1.1 Background of the Study

In a global economy, international procurement is defined the process of allowing firms around the world to bid on contracts for goods and services (Puschmann & Alt, 2015). Thai (2017) define international procurement practices as the utilization of global resources; searching for a bargain with the highest quality from all over the world. UNCTAID (2010) indicate that the concept has gained popularity as shipping and transportation costs have decreased due to an influx of cheap, readily available fuel; the globalization of large corporations has allowed them to reap the benefits of lower labor and materials costs while still selling the same quality and quantity of products. According to Disdier, Fontagné and Tresa (2019) international purchasing requires companies to set up a global manufacturing chain in order to make a rational purchasing plan and acquire the high-quality goods with a rational price. Besides, it is an effective way to measure and supervise the efficiency of purchasing processes so that it minimizes the total cost of purchasing.

According to Witjes and Lozano, (2016) international procurement practices are derived from the procurement process and methods and include the following: procurement planning, international sourcing, international supplier evaluation, international contract administration and monitoring. Molenaar, Sobin and Antillón (2010) observes that in contrast to domestic procurement, international procurement practices have: increased purchasing scope because the scope of procurement activities extends to the global arena. Therefore, they no longer just focus on the resources available in one country, they can acquire their resources from all over the world, increased purchasing risk because international procurement always involves a series purchases as companies usually buy the materials or goods on a larger scale.

According to Oromo and Mwangangi (2017), over seventy percent (70%) of public sector organizations in Kenya experience supply chain management challenges and this negatively affects effective delivery of services. Although having good suppliers is important, surveys show that Kenyan organizations continue to struggle with buyer- supplier management which is leading to poor procurement performance. International procurement practices are necessary in the energy sector as they ensure that energy development agencies effectively respond to changes in global markets while maintaining high service delivery to their respective clients.

Supply chain performance refers to the extended supply chain's activities in meeting end-customer requirements, including product availability, on-time delivery, and all the necessary inventory and capacity in the supply chain to deliver that performance in a responsive manner (Lusch, 2011). Supply chain performance crosses company boundaries since it includes basic materials, components, subassemblies and finished products, and distribution through various channels to the end customer

There are 5 essential stages in developing a successful supply chain (Awino & Marendi, 2014). These include Plan stage: The Company must decide whether to manufacture a product or buy it. The second stage is source: The Company should select the source and once selected, contracts and schedule deliveries must be negotiated. Stage three is make: This is concerned with scheduling of production activities, testing of products and packaging. At this stage companies must also manage rules for performance, data that must be stored, facilities and regulatory compliance (Awino & Marendi, 2014). The forth step is delivery: The delivery stage encompasses all the steps from processing customer inquiries to selecting distribution strategies and transportation options. Companies must also manage warehousing and inventory or pay for a service provider to manage these tasks for them. The fifth and the final step is return: Return is associated with managing all returns of defective products, including identifying the product condition, authorizing returns, scheduling product shipments, replacing defective products and providing refunds (Caritas, Kule & Mbera, 2016).

Energy is one of the key enablers of the Vision 2030 and energy security remains a matter of national priority (MoEP, 2017). Under the fourth Schedule of the Constitution of Kenya 2010, the Ministry of Energy, on behalf of the National Government, is responsible for energy policy and regulation of electricity while County Governments are responsible for planning and development of electricity and regulation

The Energy Act of 2006 brought the regulations affecting all the energy sub-sectors under one umbrella body, which is the Energy Regulatory Commission (ERC). These energy agencies includes; Kenya Electricity Generating Company (KenGen), Kenya Power and Lighting Company (KPLC), Kenya Electricity Transmission Company (KETRACO), Geothermal Development Company Limited (GDC), Rural Electrification and Renewable Energy Corporation (REREC) and Nuclear Power and Energy Agency (NUPEA).

1.2 Statement of the Problem

The energy agencies are facing serious challenges which include; inadequate power supply capacity due to rise in demand for electricity, which is growing faster than the ability to install additional generation plants, shortage of transformers and overstressed distribution network, long delays in development of power infrastructure because building of power generation, transmission and distribution network is capital intensive and takes inordinately long time from conception to commissioning (MEA, 2019). KenTrade (2016) reported that the performance of Kenya energy

sector in terms of supply chain performance in the recent past has been below expectation and this has raised anxiety among the stakeholders. Moreover, Kenya has regularly experienced frequent breaks in the supply of energy products over the years despite the state spending about Kshs. 234 billion per year in the energy sector. As a result, energy development agencies have registered a high number of complaints relating to blackouts, poor supply and delayed responses to emergency cases as well as repairs (KenTrade, 2016).

Various scholars have also undertaken studies relating to procurement practices and supply chain performance and they found mixed findings. Majority of the studies found a positive significant relationship (Okulo, 2015; Sengbeh, 2015; Caritas *et al.* 2016; Mrope, Namusonge & Iravo, 2017; Wei, Govindan, Li & Zhao, 2015 and Chen and Paulraj, 2014). Other studies find an insignificant relationship (Chokshi *et al*., 2015; Awino & Marendi-Getuno, 2014 and Anderson, 2011)

However, from the inconclusive findings the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya is therefore open to further enquiry as to whether other variables affect this relationship. This study therefore sought to investigate if international procurement practices on supply chain performance of energy development agencies in Kenya.

1.3 Objective of the Study

To establish the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

1.4 Hypotheses of the Study

Ho: There is no significant relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

2.0 Literature Review

2.1 Theoretical Framework

2.1.1 Social Network Approach Theory

The theory was put forward by Granovetter (1985). Social network theory views social relationships in terms of nodes and ties where nodes are the individual actors within the networks, and ties are the relationships between the actors. Social network approach theory is a combination of ideas drawn from the structuralist network tradition and more recent thinking, particularly the embeddedness and social capital perspectives. Khazraee and Gasson (2015) explains that the theory of embeddedness, was originally formulated and emphasizes that economic exchanges are embedded in social networks whereby embeddedness refers to: that actors prefer to interact with family members, friends, and acquaintances rather than with persons they do not know; that social ties are nested in other ties; and that previous ties influence the development of future ones.

The network theory provides deep understanding of the many sides of inter organizational relations on insisting the befits of relationships that happen in the organizational parties, development of long term relations that result to trust and cooperative relations as well as mutual relationships in work routines proliferated by exchange processes. By developing this kind of network, the relationships relay the sense of being unique hence leading to supply chain as a personalization to achieve personal customer requirements. The parties involved in this kind of relationship develop trust through social exchange processes. The rationale to adopt the network theory is its descriptive

nature which has been adopted in supply chain management to mark activities and resources in a supply chain. The aim is to build long term relationships and trust within the supply chain. An example of network theory application include; seller –vendor relationships. For many years, frequently invoked criticism of network analysis was that its adherence had been successful in presenting elegant mathematical descriptions of social structures but they had been less successful in demonstrating that those structures have actual behavioral consequences.

The theory is relevant in supply chain performance as social network analysis assist in understanding the relationships and structures of the supply chain involved in international procurement as a network, whereby the nodes of the network are the procurement professionals, suppliers, agents and end users, while the links are the relationships between these actors. In addition, nodes are also used to represent events, ideas and objects related to international procurement supply chain. The theory therefore helped in focusing on the interaction between actors in international procurement and the organization's supply chain from a relational, contextual and systematic approach..

2.2 Empirical Review

A study by Chokshi, Farooqui, Selvaraj and Kumar (2015) dubbed measuring efficiency in international public procurement, brought out empirical techniques that help in understanding the determinants of efficiency in the procurement cycle by focusing on time taken and drawing on exclusive datasets on the procurement processes within the World Bank. The study adopted cross-sectional survey research design. The researchers described procurement efficiency as a constituent of public performance management that can lead to value for money by reducing administrative overhead costs and directing resources to sustain more compound procurement processes. In addition, the study found that different methods of bidding, and contract attributes partially explained differences in the duration of procurement processes.

Caritas *et al.* (2016) established the effect of procurement practices on performance of public projects in Rwanda based on descriptive survey research design. In the findings, it was established that procurement planning was well implemented and that the tendering system utilized open tendering system, direct procurement and restricted tendering in requesting for tenders. Finally, findings indicated that there was a significant relationship between public procurement planning and performance of construction. The researcher concluded that public procurement planning exceedingly contributed to positive performance of construction.

Mrope, Namusonge and Iravo (2017) conducted a study to determine factors promoting integrity in public procurement using a cross-sectional research design that incorporated government parastatals in Tanzania. The study reported that ethical procurement practices are acceptable standards that supply chain professionals and state ministries adopted to ensure flawless supply process. Findings further revealed that ethical procurement forbids breach of public trust by discouraging a state officer from attempting to realize personal gain through behavior that is inconsistent with the proper discharge of the officer's duties.

Procurement competences provide knowledge standard and management knowledge standard of procurement and supply of goods and services (Celentani, & Ganuza, 2019). This kind of knowledge includes; management of integration, scope, time, quality, human resource communication, risk and procurement. Additionally, competent procurement managers have been described by different attributes as the key aspects of procurement success. The core skills are in the areas of budgeting, scheduling, and resource allocation as well the key tools related to these

areas such as resource loading networks and resource - loading chats. Management of customer satisfaction which involves identifying who the customer is and understanding what leads to customer satisfaction (Parsons, 2011).

2.3 Conceptual Framework

The study's conceptual framework is the conceptualization of international procurement practices and the dependent variable is supply chain performance. The study's conceptual framework is illustrated in Figure 1.

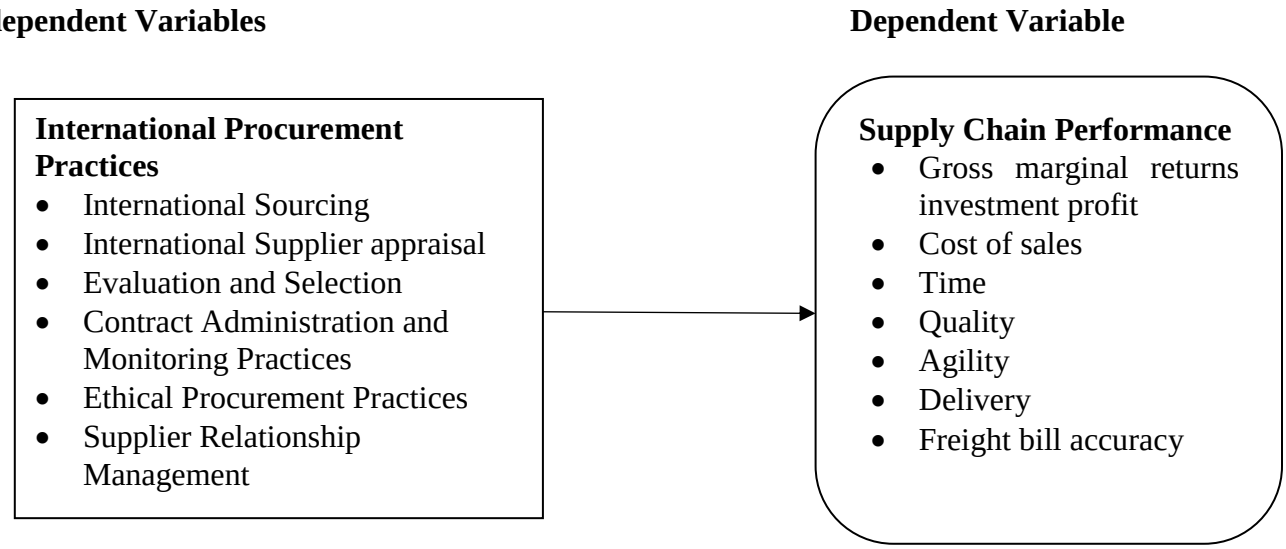

Figure 1: Conceptual Framework

3.0 Research Methodology

Positivistic philosophy approach was adopted for the study. The study adopted a cross-sectional survey research design with an aim of collecting large number of quantitative data at a point in time to establish patterns of value addition in the Kenyan energy sector. The study's target population consisted of six energy development agencies in Kenya as outlined by the Ministry of energy (2018). These agencies include: Rural Electrification and Renewable Energy Corporation (REREC), Geothermal Development Company (GDC), Kenya Electricity Transmission Company (KETRACO), Kenya Generation Company (KENGEN), Kenya Power and Lighting Company (KPLC) and Nuclear Power and Energy Agency (NUPEA). The justification for picking the 6 agencies was because they are energy sub-sectors under one umbrella body, which is the Energy Regulatory Commission (ERC). The unit of analysis was the energy development agencies. The study purposely sampled only the top managers and middle managers since they are the key individuals handling the strategic issues within the departments. This study utilized primary. Primary data was obtained using self-administered questionnaires. Quantitative data was analyzed using Statistical Package for Social Sciences (SPSS).

An empirical model tested the statistical significance of the independent variable (international procurement practices) on the dependent variable (supply chain performance) in energy development agencies in Kenya.

The model for the study was:

$$SCP = \beta_0 + \beta_1 IS + \beta_2 ISESRF + \beta_3 CAMP + \beta_4 EPP + \varepsilon$$

Where:

SCP = Supply Chain Performance

IS= International sourcing,

ISES= International supplier evaluation and selection,

CAM = Contract administration and monitoring practices

EPP= Ethical procurement practices

β_0 = Constant

β_{1-4} = Beta coefficient

ε = Error term

4.0 Results and Findings

4.0 Results and Findings

4.1 Descriptive Statistics

4.1.1 Descriptive Statistics for International Procurement Practices

The objective of the study was to establish the relationship between international procurement practices and supply chain performance. The mean showed the average values, the mode showed the most common value and the median indicated the middle number in set numbers. The results are as depicted in Table 1.

Table 1: Descriptive Statistics for International Procurement Practices

Measure	International Sourcing	International Supplier Evaluation & Selection	Contract Administration and Monitoring Practices	Ethical Procurement Practices	Supplier Relationship Management
N	132	132	132	132	132
Mean	3.081	3.117	3.154	3.067	3.0706
Median	3.200	3.100	3.150	3.150	3.555
Mode	2.100	3.000	3.000	3.000	3.660
Std. Deviation	1.100	1.195	1.145	1.157	0.810
Skewness	-0.200	-0.043	-0.228	-0.251	-0.473
Std. Error of Skewness	0.211	0.211	0.211	0.211	0.211
Kurtosis	-0.898	-1.214	-0.930	-1.143	-1.414
Std. Error of Kurtosis	0.419	0.419	0.419	0.419	0.419

The results from the Table 1 shows the descriptive statistics that indicates central tendency and dispersion of all the measures of international procurement practices. The total number of respondents measured was 132. Distribution of data was measured using skewness and kurtosis whereas central tenancy was measured using mean, median and mode. The standard deviation was used to measure dispersion. The results show that international sourcing had a mean of 3.081, median of 3.200 and mode of 2.100. This implied that the mean of 3.081 implied that majority were agreeing with the statement. The standard deviation of 1.100 showed that the members of the group differed from the mean value of 3.081 for the group in the observation.

The measures of kurtosis and skewness are used to determine if indicators met normality assumptions (Kline, 2005). According to Bai and Ng (2005), if skewness is less than -1 or greater than 1, the distribution is highly skewed, if skewness is between -1 and -0.5 or between 0.5 and 1, the distribution is moderately skewed, if skewness is between -0.5 and 0.5, the distribution is approximately symmetric. Skewness for international sourcing was -0.200. Since the values were between -0.5 and 0.5, we thus conclude that the distribution is approximately symmetric. Kurtosis results showed that leadership style had -0.898. Thus, we can conclude that the values were platykurtic since they are less than 3 and thus had a broad tail distribution and no outliers.

The results show that international supplier evaluation and selection had a mean of 3.117, median of 3.100 and mode of 3.000. This implied that the mean of 3.117 implied that majority were agreeing with the statement. The standard deviation of 1.195 showed that the members of the group differed from the mean value of 3.117 for the group in the observation. Skewness for international supplier evaluation and selection was -0.043. Since the values were between -0.5 and 0.5, we thus conclude that the distribution is approximately symmetric. Kurtosis results showed that international supplier evaluation and selection had -1.214. Thus, we can conclude that the values were platykurtic since they are less than 3 and thus had a broad tail distribution and no outliers.

The results showed that contract administration and monitoring practices had a mean of 3.154, median of 3.150 and mode of 3.000. This implied that the mean of 3.154 implied that majority were agreeing with the statement. The standard deviation of 1.145 showed that the members of the group differed from the mean value of 3.154 for the group in the observation. Skewness for contract administration and monitoring practices was -0.228. Since the values were between -0.5 and 0.5, we thus conclude that the distribution is approximately symmetric. Kurtosis results showed that contract administration and monitoring practices had -0.930. Thus, we can conclude that the values were platykurtic since they are less than 3 and thus had a broad tail distribution and no outliers.

The results showed that ethical procurement practices had a mean of 3.067, median of 3.150 and mode of 3.000. This implied that the mean of 3.067 implied that majority were agreeing with the statement. The standard deviation of 1.157 showed that the members of the group differed from the mean value of 3.154 for the group in the observation. Skewness for contract administration and monitoring practices was -0.251. Since the values were between -0.5 and 0.5, we thus conclude that the distribution is approximately symmetric. Kurtosis results showed that contract administration and monitoring practices had -1.143. Thus, we can conclude that the values were platykurtic since they are less than 3 and thus had a broad tail distribution and no outliers.

4.1.2 Descriptive Statistics for Supply Chain Performance

Descriptive statistics were carried out on supply chain performance and the results are shown in Table 2.

Table 2: Descriptive Statistics for Supply Chain Performance

Measure	Supply Chain Performance
N	132
Mean	3.470
Median	3.500
Mode	3.500
Std. Deviation	0.402
Skewness	0.177
Std. Error of Skewness	0.211
Kurtosis	-0.169
Std. Error of Kurtosis	0.419

The results from the Table 2 shows the descriptive statistics for supply chain performance. The total number of respondents measured was 132. Distribution of data was measured using skewness and kurtosis whereas central tenancy was measured using mean, median and mode. The standard deviation was used to measure dispersion. The results show that supply chain performance had a mean of 3.470, median of 3.500 and mode of 3.500. The standard deviation of 0.402 showed that the members of the group differed from the mean value of 3.470 for the group in the observation. The standard deviation of 0.402 further implies that the data points tend to be very close to the mean of the data and a high standard deviation implies that the data points are spread over a wide range of the values.

Skewness for supply chain performance was 0.177. Since the values were between -0.5 and 0.5, we thus conclude that the distribution is approximately symmetric. Kurtosis results showed that supply chain performance had -0.169. Thus, we can conclude that the values were platykurtic since they are less than 3 and thus had a broad tail distribution and no outliers. Sustainability was evenly distributed and the measure between the high and low score was small and exhibits normal supply chain performance.

4.2 Correlation Analysis

Table 3 below presents the results of the correlation analysis.

Table 3: Correlation Matrix

Variables		Supply Chain Performance	International Procurement Practices
Supply Chain Performance	Pearson Correlation	1.000	
	Sig. (2-tailed)		
International Procurement Practices	Pearson Correlation	.739**	1.000
	Sig. (2-tailed)	0.000	

The results in Table 3 indicated that international procurement practices was positively and significantly associated to supply chain performance (r= 0.739, p=0.00<0.05). This was an indication that international procurement practices portrayed a strong connection with and supply chain performance.

4.3 Hypothesis Testing

The objective of the study was to establish the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya. A simple regression model was used to test the statistical significance of the independent variable (International procurement practices) on the dependent variable (Supply chain performance) of energy development agencies in Kenya. The first hypothesis stated in the null form is as follows:

H_{o1}: There is no significant relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

Hypothesis 1 sought to establish the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya. This hypothesis was tested by regressing composite index IPP and SCP guided by the equation $Y= \beta_0+\beta_1 IPP$

Where IPP represented composite international procurement practices and SCP denoted supply chain performance.

As presented in the Table 4 the coefficient of determination R Square is 0.604. The model indicates that international procurement practices explains 60.4% of the variation in supply chain performance. This implies that there exist a significant relationship between international procurement practices and supply chain performance.

Table 4: Model Fitness for International Procurement Practices

R	R Square	Adjusted R Square	Std. Error of the Estimate
.777a	0.604	0.591	0.25687

The Analysis of Variance (ANOVA) results are shown in Table 5.

The F-Calculated (4, 127) = 48.411 which is greater than F-Critical (1, 131) = 3.96 at 95% confidence level. Results also show that p-value = 0.000 < 0.05. This further confirms that international procurement practices positively and significantly influences supply chain performance.

Table 5: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	12.777	4	3.194	48.411	.000b
Residual	8.38	127	0.066		
Total	21.157	131			

Table 6 shows the coefficient for international procurement practices.

Table 6: International Procurement Practices and supply chain performance

	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	2.536	0.072		35.127	0.000
International Sourcing	0.069	0.034	0.189	2.026	0.045
International supplier evaluation and selection	0.086	0.033	0.257	2.598	0.010
Contract Administration and Monitoring Practices	0.045	0.031	0.128	1.456	0.151
Ethical Procurement Practices	0.101	0.034	0.291	2.958	0.004

Findings presented in Table 6 show that when international procurement practices through international sourcing, international supplier evaluation and selection, contract administration and monitoring practices and ethical procurement practices, is held constant, supply chain performance will remain at 2.536. At the same time, an increase in international sourcing by one unit leads to an increase in supply chain performance by 0.069 units with a p-value of 0.045<0.05 while an increase in one unit of international supplier evaluation and selection leads to an increase in supply chain performance by 0.086 with a p-value of 0.010<0.05. When contract administration and monitoring practices increases by one unit, supply chain performance increases by 0.045 with a p-value of 0.151>0.05. Lastly, an increase in ethical procurement practices by one unit leads to an increase in supply chain performance by 0.101 units with a p-value of 0.004<0.05. Given the Anova of 0.000 and majority of the variables had P-values<0.005, the study thus, rejected the null hypothesis and adopted the alternative hypothesis that there is significant relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

This can be summarized by the following model:

$$SCP = 2.536 + 0.069IS + 0.086ISE + 0.045CAMP + 0.101EPP$$

Where;

SCP= Supply Chain Performance

IS= International Sourcing

ISE= International supplier evaluation and selection

CAMP= Contract Administration and Monitoring Practices

EPP= Ethical Procurement Practices

4.4 Discussions

The objective of the study was to establish the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya. A simple regression model was used to test the statistical significance of the independent variable (International procurement practices) on the dependent variable (Supply chain performance) of energy development agencies in Kenya. The hypothesis sought to establish the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

This hypothesis was tested by regressing composite index IPP and SCP. The coefficient of determination R Square was 0.604. The model indicates that international procurement practices explains 60.4% of the variation in supply chain performance. This implies that there exist a significant relationship between international procurement practices and supply chain performance. Under ANOVA, the F-Calculated was (4, 127) = 48.411 which is greater than F-Critical (4, 127) = 2.3719 at 95% confidence level. Results also show that p-value = 0.000 < 0.05. This further confirms that international procurement practices positively and significantly influences supply chain performance. Regression of coefficients results showed that when international procurement practices through international sourcing, international supplier evaluation and selection, contract administration and monitoring practices and ethical procurement practices, is held constant, supply chain performance will remain at 2.536. At the same time, an increase in international sourcing by one unit leads to an increase in supply chain performance by 0.069 units with a p-value of 0.045<0.05 while an increase in one unit of international supplier evaluation and selection leads to an increase in supply chain performance by 0.086 with a p-value of 0.010<0.05. When contract administration and monitoring practices increases by one unit, supply chain performance increases by 0.045 with a p-value of 0.151<0.05. Lastly, an increase in ethical procurement practices by one unit leads to an increase in supply chain performance by 0.101 units with a p-value of 0.004<0.05. The study thus, rejected the null hypothesis and adopted the alternative hypothesis that there is significant relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

The findings are in line with the findings also agree with Caritas et al. (2016) whose findings established that procurement planning was well implemented and that the tendering system utilized open tendering system, direct procurement and restricted tendering in requesting for tenders. Finally, findings indicated that there was a significant relationship between public procurement planning and performance of construction. The researcher concluded that public procurement planning exceedingly contributed to positive performance of construction. The findings are in kline with Mrope, Namusonge and Iravo (2017) who reported that ethical procurement practices are acceptable standards that supply chain professionals and state ministries adopted to ensure flawless supply process. Findings further revealed that ethical procurement forbids breach of public trust by discouraging a state officer from attempting to realize personal gain through behavior that is inconsistent with the proper discharge of the officer's duties. Chokshi, Farooqui, Selvaraj and Kumar (2015) who described procurement efficiency as a constituent of public performance management that can lead to value for money by reducing administrative overhead costs and directing resources to sustain more compound procurement processes. In addition, the study found that different methods of bidding, and contract attributes partially explained differences in the duration of procurement processes.

Hawking, Stein, Wyld and Forster (2014) identified these on the merit of relevance as poor technical infrastructure, poor technological infrastructure among business partners, implementation costs, lack of skilled personnel, lack of integration with business partners, inadequate business processes to support e-procurement, company culture, security, regulatory and legal controls, upper management support, inadequate e-procurement solutions, and cooperation of business partners. Calipinar and Soysal (2012) established that with little time and financial investment, saving considerable time and money can be ensured by using the proposed advice given to pharmacies working in hospitals. The study concluded that the general picture for e-procurement in growing nations can be seen by academics and practitioners with e-procurement adoption by pharmacies located in Turkey.

Sharifai, Mbaraka and Agaba (2013) found out in their research the connection between electronic procurement and the performance of the service organizations that were selected. The study used a descriptive survey design with quantitative and qualitative approaches. It established e-procurement has a significant relationship with performance of service organizations. This conclusion came because IT has been embarrassed in all spheres of life to an extent that almost everything revolves around use of information technology. This research mainly focused only on service organizations in Uganda not in any other country. Mose, Njihia and Magutu (2013) studied large-scale manufacturing firms in Nairobi, fundamental success factors and challenges when implementing e-procurement. The study established that e-procurement practices have been accepted by many Kenyan large scale manufacturers. These include: publication of tenders, submission and receiving applications and shortlisting suppliers online.

5.0 Conclusions

The study concluded that there is significant relationship between international procurement practices and supply chain performance of energy development agencies in Kenya. The study also found out that from the responses, the agency's stakeholders did understand the actual means by which contracts are evaluated and awarded and there existed fair and equal treatment of providers and integrity in the agency's procurement process and there exist no preference to any group of suppliers. In addition, there was safe-guards supplier confidentiality and the agencies debriefs all its unsuccessful suppliers on the weaker aspects of their tender documents. The study also found that transparency in the agency's procurement process bears an immediate cost both for government and bidders and the agencies had an adequate level of transparency to ensure fair and equal treatment of providers and integrity in procurement.

6.0 Recommendations

The study recommended that the management of energy corporations should put measures in place to ensure that all the drawn ethical policies and codes are adhered to by all the supply chain staff as well as by the suppliers that they deal with. The energy corporations should therefore firmly deal with conflicts of interest in supply chain, ensure fair dealings with the suppliers, treat suppliers' information with utmost confidentiality and adhere strictly to all their ethical policy statements, so as to improve their supply chain performance. Since the establishment of corruption prevention committees is not entrenched in our public procurement law, the study also recommended that the management of all the energy corporations should establish corruption prevention committees that will be mandated with ensuring that all corruption, fraudulent, coercive and collusive practices are prevented and firmly dealt with.

The study also strongly recommended that the supply chain staff should at large be encouraged to develop a responsive attitude towards all the community stakeholders including the suppliers and external customers since they all play a vital role in the firms' supply chain processes. The study also recommended that the firms that explained that they do not have codes of conduct on confidentiality of information, prevention of collusion, and prevention of inappropriate influence on the supply chain process should put in place such policies and codes since they can go a long way in improving their supply chain performance.

The study recommended that all the energy corporations should establish supplier appraisal audit policies because this will help them ensure that they will deal with qualified and competent suppliers. It was also recommended that all the energy corporations should adopt the ethical policies and guidelines that have been established by the Public Procurement and Regulatory Authority (PPRA) as well as the Kenya Institute of Supplies Management (KISM) since they are all aimed at ensuring that all the public institutions conduct their supply chain processes in line with the Public Procurement and Asset Disposal Act (PPADA), 2015. The energy corporations should also establish policies on ethical use of information technology since this would be a major boost to ensure that there is transparency and accountability in the supply chain performance.

Lastly, the study recommended that all the state corporations should focus on supplier relationship management by understanding the suppliers' business positions. Find out who their investors are and whether they're publicly traded. Also, delve into their mission, their purpose, and how they operate. Armed with this understanding, the firms can better align their businesses with theirs, and grow together.

REFERENCES

Adèr, H. J., Mellenbergh, G. J., & Hand, D. J. (2015). *Advising on research methods: A consultant's companion*. Huizen, the Netherlands: Van Kessel.

Awino, Z. B., & Marendi-Getuno, P. N. (2014). Public procurement legal framework implementation challenges and organizational performance. *DBA Africa Management Review, 4* (3), 103-117.

Caritas, T., Kule, M. and Mbera, V. (2016). Effect of procurement practices on performance of public projects in Bugesera District office construction project in Rwanda. *Journal of Managerial Studies, 6*(1), 23-32

Chayes, A., Chayes, A. H., & Mitchell, R. B. (2017). Managing compliance: a comparative perspective. *Engaging countries: Strengthening compliance with international environmental accords*, 39-62.

Chen, I. J., & Paulraj, A. (2004). Understanding supply chain management: critical research and a theoretical framework. *International Journal of production research, 42*(1), 131-163.

Chokshi, M., Farooqui, H. H., Selvaraj, S., & Kumar, P. (2015). A cross-sectional survey of the models in Bihar and Tamil Nadu, India for pooled procurement of medicines. *WHO South-East Asia journal of public health, 4*(1), 78.

Disdier, A. C., Fontagné, L., & Tresa, E. (2018). Public Procurement-Related Protection: Insights from the Global Trade Alert Database.

European Commission (2016). *Report from the Commission to the Council and the European Parliament - EU Anti-Corruption Report*, accessed online on 8 June 2018 at http://ec.europa.eu/dgs/home-affairs/e-library/documents/policies/organized-crime-and-human-trafficking/corruption/docs/acr_2016_en.pdf

Golafshani, K. (2003). Entry regulation as a barrier to entrepreneurship. *Journal of Financial Economics,* 82,591-629.

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American journal of sociology, 91*(3), 481-510.

Handfield, R.B., & Nichols Jr., E.L. (2012). *Introduction to Supply Chain Management*. Upper Saddle River, NJ: Prentice-Hall.

Kamotho, K. D. (2014). *E-Procurement and procurement performance among state corporations in Kenya*. University of Nairobi.

Kenya Trade Network Agency (Kentrade) (2016). *Procurement Review Report*. Available from:http://www.ppoa.go.ke/images/downloads/review-reports

Kenyan Energy Sector (University of Nairobi).

Kusi, L. Y., Aggrey, G. A., & Nyarku, K. M. (2014). Assessment of Public Procurement Policy Implementation in the Educational Sector (A Case Study of Takoradi Polytechnic). *International Journal of Academic Research in Business and Social Sciences*, *4*(10), 260.

Lysons (2016), Procurement and Supply chain management 8th Edition, New York: *Prentice Hall publishers.*

Ministry of Energy Agencies (2019). *Semi-Autonomous Agencies in the State Department of Energy*. Retrieved from: http://energy.go.ke/energy/ on 24th January 2019.

Molenaar, K. R., Sobin, N., & Antillón, E. I. (2010). A synthesis of best-value procurement practices for sustainable design-build projects in the public sector. *Journal of Green Building*, *5*(4), 148-157.

Mrope, N. P., Namusonge, G. S., & Iravo, M. A. (2017). Does Compliance with Rules Ensure Better Performance? An Assessment of the Effect of Compliance with Procurement Legal and Regulatory Framework on Performance of Public Procurement in Tanzania. *European Journal of Logistics, Purchasing and Supply Chain Management*, *5*(1), 40-50.

Muange, E., & Chirchir, M. (2016). Procurement Legislation and Performance of Constituency Development Fund Committees in Kenya. *International Journal of Supply Chain Management*, *1*(1), 19-33.

Nantege, G. (2011). *Procurement management and financial performance of banks in Uganda: case study-Fina Bank Uganda Limited* (Doctoral dissertation, Uganda Martyrs University).

Ngugi, J. K., & Mugo, H. W. (2012). Internal factors affecting procurement process of supplies in the public sector; a survey of Kenya government ministries. In *5th International Public Procurement Conference was held on August 17th*.

Osoro, A. (2018). *Challenges Affecting Performance of Supply Chain Systems in the Petroleum Industry in Kenya* (Doctoral dissertation, COHRED-JKUAT).

Owili, A. (2013). E-procurement implementation and transaction cost among the Non-governmental organizations in Kenya.. *University of Nairobi, Kenya*.

Puschmann, T., & Alt, R. (2015). Successful use of e-procurement in supply chains. *Supply Chain Management: an international journal*, *10*(2), 122-133.

Thai, K. V. (2017). International public procurement: Concepts and practices. In *International handbook of public procurement* (pp. 33-56). Routledge.

Thoumrungroje, A. & P. Tansuhaj. B. (2017). Globalization effect and firm performance. *Journal of International Business Research,* 6(2): 43-58

UNCTAID (2010). *Managing international Logistics* "Module 10 of ITC Modular

World Bank (2016).*National Competitive Bidding (NCB)* [Online].Available at http://go.worldbank.org/ QNQHR747P0.

Zhong, R. Y., Newman, S. T., Huang, G. Q., & Lan, S. (2016). Big Data for supply chain management in the service and manufacturing sectors: Challenges, opportunities, and future perspectives. *Computers & Industrial Engineering*, *101*, 572-591.