Global Journal of
Purchasing and Procurement Management
(GJPPM)

EFFECT OF E-PROCUREMENT PRACTICES ON SUPPLY CHAIN PERFORMANCE

Robert Kariuki Waithaka and John G. Kimani

Global Journal of Purchasing and Procurement Management
ISSN 2710-1053 (Online)
Vol. 1, Issue 1, No. 3, pp 32 - 42, 2021
www.iprjb.org

EFFECT OF E-PROCUREMENT PRACTICES ON SUPPLY CHAIN PERFORMANCE

[1*]Robert Kariuki Waithaka

Post Graduate Student: Department of Statistics, Kenyatta University

Corresponding Authors Email: robatkariuki@gmail.com

[2]John G. Kimani

Department of Economics and Finance, University of Nairobi

Corresponding Authors Email: jgithii2002@gmail.com

ABSTRACT

Purpose: the purpose of the study is to establish the influence of electronic procurement practices on supply chain performance.

Methodology: The researcher employed a method of reviewing desktop literature. To assess the feasibility of the subject for testing, three processing stages were applied on the subject under review. This was the first step of the original identification of all papers based on the effect of electronic sourcing activities on the efficiency of the supply chain. A second quest covered fully available literature on the issue of e-procurement processes and efficiency of the supply chain. The third stage included the collection of journals that were freely available. The researcher arrived at 12 papers that were relevant for review after an in-depth quest into the top key terms (e-procurement processes, supply chain management, performance).

Findings: Procurement performance is the backbone of an organization success since it contributes to competitive purchase and acquisition of quality goods that puts the organization products or services in the competitive edge in the market. In the analysis of the use of e-procurement on performance of the procurement functions of county governments in Kenya, the results revealed that e-procurement is positively related with performance of supply chain function of County Governments in Kenya.

Unique contribution to theory, practice and policy: The study therefore recommended that the Government come up with policies on adoption of e-procurement practices and provide critical resources and leadership in adoption of e-procurement. It is recommended that in order to achieve maximum benefits of reduced order processing time, reduced costs, reduced human errors and improved delivery, management should enhance electronic system and insist on all orders being processed electronically.

Keywords: *e-procurement practices, supply chain management, performance*

INTRODUCTION

Background of the Study

Electronic Procurement is an important business avenue for lowering purchasing price and enhancing process efficiency. The e-procurement value chain consists of indent management, e-

Informing, e-Tendering, e-Auctioning, vendor management, catalogue management, Purchase Order Integration, Order Status, Ship Notice, e-invoicing, epayment, and contract management. Effective supply chains are crucial for a firm to remain competitive in today's competitive economic environment. This effectiveness is driven by striving for proper synchronization and coordination of all activities across the entire supply chain network, ranging from end-customers to suppliers. As a result, once relegated functions such as procurement, a primary determinant for the organization's relationship with suppliers become important. Major changes are currently taking place within purchasing functions of manufacturing firms.

Globally, e-procurement has gained popularity especially with the advent of technology. In United States of America for instance, rapid development of e-procurement was reported in early 2000 just before the recession. By the end of the same year, it was reported that all state functions were maintaining web presence in at least some stage of their procurement processes with some participating in online bidding (Reddick, 2004). In Malaysia, the government at some point issued a statement calling for all suppliers to use the e-procurement system (Yossuf et al., 2011). Kaliannan et al. (2009) pointed out that Malaysian public sector are going through a rapid change especially as far as adoption of technology is concerned. Adoption of e-government and particularly eprocurement is inevitable for the government. A review conducted by Commonwealth of Australia indicates that the National governments of Italy, New Zeeland, Scotland, New South Wales and Western Australia in 2005 revealed that these countries were already using e-procurement system for public procurement activities.

E-procurement as enabled by ICT development is believed to make procurement more efficient and competitive in the changing manufacturing sector by adding value to processes and thus reduce costs. E-procurement uses different tools such as the phone, fax, email, web portal, ERP in procurement processes ranging from procurement planning, sourcing, requisitioning, tender/quotation sending and receiving, tender/ quotation analysis, order processing and transmission to the suppliers, receiving goods and services, matching orders to invoices, electronic supplier payment, supplier evaluation and stock or material management. If the procurement processes are automated, it becomes efficient and effective thus value addition and reduction in order cycle, reduction in errors, standard procedures, and quick payments to suppliers, good internal and external customer relationship and improved supplier-buyers relationship will all results to improved quality of goods supplied and lead- time. The opportunity offered by digital technologies to make deep rationalization in purchase of supplies is becoming indispensable in competition between enterprises, considering positive effects in reducing the costs of the companies that have adopted the E-Procurement. As it has been confirmed by numerous case studies, automation of procedures for the purchase through e-procurement technology enables companies to achieve a reduction in costs (average 8-12%) of total purchases. So web-based models are playing a critical role within companies, especially in the generation of value of supply chain, (Centobelli & Cerchione, 2014).

A good e-procurement system must have all elements that enable the buyers and sellers interact effectively including all supply chain activities from procurement planning information to supplier evaluation. Both buyers and sellers should have access to each other's information as and when required electronically for smooth functioning of Eprocurement. The commonly adopted e-procurement practices used in procurement includes: E-Tendering, E-Request for Quotations, E-Auctions, E-Catalogues, and EInvoicing (Vaidya, Sajeev & Callender, 2006). According to Roman

and Mc Cue (2012), tools such as E-Notice, E-Auction, E-Catalogue, E-Dossier, E-Submission and ESignatures are part and parcel of e-procurement. In this study, Enterprise Resource planning (ERP); an information system package that integrates information and processes across organizational functions (Brazel & Dang, 2008), E-maintenance; maintenance managed through computer over the internet (Levrat & Lund, 2003), Etendering, tendering through online platforms (Garran, 2005) and E-Sourcing (online sourcing).

In Africa, the concept of e-procurement is just gaining popularity especially in the public sector. To deal with the problems of lack of accountability and transparency in procurement activities in the public sector, Most African countries have resorted to legal reforms and adoption of procurement. Tanzania for instance put into place eprocurement systems to allow e-sharing, e-advertisement, e-submission, e-evaluation, econtacting, e-payment, e-communication and e-checking and monitoring to ensure all public procurement activities are conducted online (Sijaona, 2010).

E-procurement applications allow employees to manage their own purchases, from the selection of the desired items from within a preprogrammed offering that matches the procurement office's parameters for cost and quality and supplier; to submitting requisitions; to tracking delivery status. This automation streamlines the procurement process and makes it more efficient, thereby making it faster and less costly. It also removes low-value tasks from the procurement department, which can then redirect its resources to higher-value activities such as negotiating contracts. Furthermore, the tools within many e-procurement applications allow procurement leaders to customize the procurement experience, determine which items will be available through e-procurement to which users

Statement of the Problem

Manual systems have been a source of major inefficiencies in the regulation and operations of the procurement function. Therefore there is need to adopt ICT in order to ensure proper functioning of the procurement system. To meet today's operating challenges, technical institutions are turning to ICT to improve the services for suppliers and other customers in order to lower operating costs and improving performance. Online communication, online tender advertising and computerized tendering process influences performance of the procurement function. IT offers smoother and faster process flow, efficient distribution of information, decentralization of tasks and decisions, increased transparency and better control (Mburu & Njeru, 2014).

The application of manual procurement processes to procure goods, services or works is a challenge in acquiring such goods, services or works at the right time, price, place, quantity and quality for the use of all the departments in an organization. Because of luck of efficiency and effectiveness of procurement process, the governments and organizations continues to lose finances through fraud in procurement activities in the government mainstream, (GAIN, 2017). Organizations operations have become inefficient and non-profitable, partly due to multiplicity of objectives, stifled private sector initiatives and failing of joint ventures requiring the government to shoulder major procurement burdens (Bilali & Bwisa, 2015).

Despite e-procurement gaining popularity due to globalization, technological changes and advancement, there are businesses that still carry out some activities manually. According to PPOA (2013), in public sector, most procurement processes were still manual and internet is only fully

used in web browsing and in e-mails. With the need to integrate key functions such as procurement and accounting and to streamline and enhance transparency in management of public funds as well as to provide a framework for standardized reporting, the government has adopted the policy requiring all government procuring entities to use the Integrated Financial Management Information System (IFMIS). It is for this purpose that the study was conducted to analyze influence of electronic procurement practices on supply chain performance.

Objective of the Study

The objective of the study was to establish the influence of electronic procurement practices on supply chain performance.

LITERATURE REVIEW

Theoretical review

Dynamic Capability Theory

The aspect of dynamic capability was first coined by David Teece, Gary Pisano and Amy Shuen (Chien & Tsai, 2012). The theory describes an organization's ability to deliberately organize its resources in an effort to improve performance. According to Chien and Tsai (2012), dynamic capability is the capability of an organization to purposefully adapt an organization's resource base. An organization should be able to react adequately and timely to external changes. This requires the adoption of different strategies that will harness multiple capabilities of the organization and put them into use. This will give the company the ability to integrate, develop, and leverage on the environmental competitive advantage. Indeed, the current business world is very dynamic. Changes ranging from organizational structures, culture, marketing and customer's tastes and preferences are taking a different path. As such, organizations should have the ability to respond to these changes in the most effective manner. The dynamic capability theory asserts that only those organizations able to achieve this will actually be able to break even in this competitive world (Chien & Tsai, 2012).

The market environment has become more dynamic and turbulent; companies need to adopt new supply chain strategy for them to remain competitive. Supply chain management is now moving away from traditional processes to agile capability of competitive bases of speed, flexibility, innovation, quality, and profitability through the integration of reconfigurable resources and best practices in a knowledge-rich environment to provide customer-driven products and services in a fast changing market environment (Yusuf et al., 2004).

Agility is a business-wide capability that embraces organizational structures, information systems, logistics processes and in particular, mindsets (Christopher, 2000). Lee (2004) argues that supply chain agility aims at responding quickly to short-term changes in demand or supply and ensure that the company handles external disruptions smoothly. Christopher (2000) identified four characters of agile supply chain that included sensitivity, virtuality, process integration and network based. Process integration means collaborative working between buyers and suppliers, joint product development, common systems and shared information.

Agile supply chain is market sensitive and needs the supply chain members to be able to read and respond to the market demand. The supply chain members should show the willingness to create

an environment in which information can flow freely in both directions in the chain for them to achieve a more agile supplier base. Christopher (2000) argues that leveraging supplier relations allows companies to create agile supply chains by reducing lead time between organizations. The leverage of respective strengths and competencies of network partners assists to achieve greater responsiveness to market needs (Christopher, 2000). Krajewski et al. (2009) asserts that efficient supply chain has the qualities of make to stock, low capacity cushion, low inventory investment, short lead time, emphasis low process with consistent quality and on time delivery while for responsive supply chain include assemble to order with emphasis on product variety operational strategy, high capacity cushion, just as needed inventory to enable fast delivery time, shorten lead time and emphasis on fast delivery time, customization, and flexibility. It is through information sharing and collaboration that the company as a whole will have responsibility in assisting its external suppliers to improve quality, delivery time and service performance. This requires real time market feedback on actual customer requirements without making forecasts based upon past sales or shipments.

This theory is related to e-order processing to cope and change with dynamic markets to be able to provide goods and services to sugar processing to use in their production process in highly dynamic and competitive environment. Changes in marketing strategy, organizational structure as well as tastes and preferences among customers is prevalent and as to such sugar firms should be able to process customers' orders quickly. Evidently, e-procurement integrates the in-house and external procurement components to address dynamics in the way organizations achieve operational excellence by reducing cost and saving on time used to procure goods (Mwenga, 2016). Additionally, e-procurement is IT based, and will almost always be up to date with the latest trends in the market.

Value Chain theory

The theory of value chain was founded by Michael Porter in 1985 (Christopher, 1992). To better understand the activities through which a firm develops a competitive advantage and creates shareholder value, it is useful to separate the business system into a series of value-generating activities referred to as the value chain. In his 1985 book Competitive Advantage, Michael Porter introduced a generic value chain model that comprises a sequence of activities found to be common to a wide range of firms (Christopher, 1992).

A value chain disaggregates a firm into its strategically relevant activities in order to understand the behavior of costs and the existing and potential source of differentiation. Porter's value chain consists of a set of activities that are performed to design, produce and market, deliver and support its product. Porter distinguishes between primary activities covering inbound logistics, operations, outbound logistics, marketing and sales, service in the core value chain creating directly value and support activities including procurement, technology development, human resource management and firm infrastructure. Porter formulates the general strategies for the value chain of cost leadership and differentiation to reach competitive advantage (Porter, 1985). These cross-value chain strategies established a principle that competitive advantage can be reached only by managing the entire value chain as a whole including all involved functions. Porter's value chain is one basis for the development of the supply chain. The term supply chain was created by consultant Keith Oliver in 1982. Compared to the company-internal focus of Porter's value chain, the supply chain extends the scope towards intra-company material and information flows from

raw materials to the end consumer. A supply chain is a network of organizations that are involved through upstream and downstream linkages in different processes and activities that product value in the form of products and services in the hand of the ultimate consumer (Christopher, 1992). Because technology is employed to some degree in every value creating activity, changes in technology can impact competitive advantage by incrementally changing the activities themselves or by making possible new configurations of the value chain (Simichi-Levi, 2000).

From the theoretical framework, Electronic material management practice is explained by the Value Chain Theory. Compared to the company-internal focus of Porter's value chain, the supply chain extends the scope towards intra-company material and information flows from raw materials to the end consumer. Porter's value chain consists of a set of activities that are performed to design, produce and market, deliver and support its product. For this study the Value chain theory implies that those firms that adopt E-procurement are able to gain from the growth of the internet and technologies which enable real-time information sharing such as inter-connected ERP systems, web-based EDI, electronic portals between buyers and suppliers and online order processing systems which supports the building of closer links with customers, suppliers and third-party vendors such as logistics service providers.

Empirical Review

Globally, e-procurement has gained popularity especially with the advent of technology. In United States of America for instance, rapid development of e-procurement was reported in early 2000 just before the recession. By the end of the same year, it was reported that all state functions were maintaining web presence in at least some stage of their procurement processes with some participating in online bidding (Reddick, 2004). In Malaysia, the government at some point issued a statement calling for all suppliers to use the e-procurement system (Yossuf et al., 2011). Kaliannan et al., (2009) pointed out that Malaysian public sector are going through a rapid change especially as far as adoption of technology is concerned. Adoption of e-government and particularly eprocurement is inevitable for the government. A review conducted by Commonwealth of Australia indicates that the National governments of Italy, New Zeeland, Scotland, New South Wales and Western Australia in 2005 revealed that these countries were already using e-procurement system for public procurement activities.

Ratanya (2013) reveals that there is some level of e-procurement implementation among the large scale manufacturing firms in Nairobi. For instance, it was established that most of the large scale manufacturing firms have in place an information system that enables their departments to share information. This sharing of information is one of the preliminary foundations upon which e-procurement is founded. It is also evident from the study that most of the firms have a centralized procurement system that is made possible through information technology. The results further confirm that most of the firms practice online internal procurement. This implies that internal procurement activities are made possible due to e-procurement adoption and implementation.

Ngeno and Kinoti (2017) explored the effect of e-procurement on effective supply chain management process in energy sector in Kenya. The purpose of the study was to assess the effect e-procurement on effective supply chain management process in energy sector in Kenya. The study applied the research design where both qualitative and quantitative techniques were used. The study aimed at collating and collecting information from the respondents. The study employed stratified random sampling technique in coming up with sample size of 152 respondents from a

total of 246 target population in the energy sector. All the variables, that is, electronic data interchange, e-tendering, supply chain integration were found to have influence on effective supply chain management process on energy sector.

Nafula and Namusonge (2017), effect of e-procurement practices on efficiency frontier of kakamega county government, major findings were that, the availability of websites to facilitate e-procurement within the County Government of Kakamega was low and this might affect their efficiency in procurement. In addition, placing orders for supplies online within the County Government of Kakamega was done to a low extent. There was also less availability and reduced application of e-procurement platform and practices in e-ordering within the County Government of Kakamega and this ultimately affects their efficiency in performance of the procurement function. The study recommends that procurement departments in county governments should adopt a user-friendly information system that all suppliers can use with ease be they tech savvy or the old suppliers. This will reduce the bias on the use of electronic procurement and all will embrace it on procurement staff competencies.

Nyile and Shale (2016) in the study, role of sustainable procurement practices on supply chain performance of manufacturing sector in kenya: a case study of east african portland cement company, found out that the use of e-procurement systems has enabled prompt payment of suppliers, majority 34.7% to a large extent agreed as 26.5% to a very large extent agreed that the use of e-procurement has enabled prompt payment. This implies that there is a good rapport between suppliers and EAPCC since one of the elements that cause difference between an organization and suppliers is eliminated. The use of e-procurement systems also is termed to reduce ordering costs.

Matunga, Nyanamba and Okibo (2013) assessed the effect of e-procurement on efficient procurement in public hospitals. The objectives of the study were to assess the extent to which e-procurement had improved the quality of goods in public hospitals, to determine the extent to which e-procurement has reduced price charged for goods purchased in public hospitals and to identify the extent to which e-procurement has ensured best value for money in public hospitals procurement. The study established that Kisii Level 5 hospital uses e-tendering, e - quotations and e- sourcing as the main e-procurement applications and that the greatest challenges faced when using e-market provider was inadequate funding, organization's inability to handle change management and lack of training of employees on how to use the system. The study concluded that public hospitals have adopted some of the e-procurement applications regardless of the challenges that accompany the adoption.

Fozia, Namusonge and Shaelle (2016) in their study, effect of electronic supplier management practices on the implementation of preference regulations on state corporations in Kenya, findings on electronic supplier management revealed that employees electronically search for new products in the market. Supplier prequalification is done electronically together with confirmation of new suppliers' references. Besides, appraisals on marginalized groups are done electronically though there is doubt whether new suppliers are searched for electronically. Also, it was not fully established whether new suppliers are evaluated electronically, if employees electronically interact with new suppliers, if employees electronically categorize new customers, whether employees electronically do E-auctions and if employees electronically do location search.

Kioko and Mwangangi (2017) carried out a study on the influence of e-procurement on performance of parastatals in Kenya. The main objective of this study was to analyze the influence of e-procurement on performance of parastatals. The specific objectives were to find out whether e-sourcing, e-informing, e-payments and e-tendering have a positive relationship with performance in parastatals. the study concludes that performance of parastatals can be improved by e-sourcing, e-informing, e-payment and e-tendering. Finally, the study recommended that public institutions should embrace e-procurement practices so as to improve their performance and further researches should to be carried out in other public institutions to find out if the same results can be obtained.

Research gaps

In the study, to assess the effect e-procurement on effective supply chain management process in energy sector in Kenya (Ngeno & Kinoti, 2017), results indicated that electronic data interchange, e-tendering, supply chain integration were found to have influence on effective supply chain management process on energy sector. The study addressed electronic data interchange, e-tendering, supply chain integration and left out some important E-procurement components such as electronic order processing and electronic material management the which this study intends to fill.

Barasa, Namusonge and Okwaro (2017) investigated the effects of E-Procurement on organizational performance of Public organizations focusing on Bungoma County Government. The study has not linked how supply chain performance impacts on the organizational performance the gap this study intends to fill. Fozia, Namusonge and Shaelle (2016) in their study, effect of electronic supplier management practices on the implementation of preference regulations on state corporations in Kenya. The study utized primary data collection techniques in the form of questionnaires. This study entails a desk study.

Most studies reviewed have concentrated on the effects of E-procurement with other variables like operational, compliance policy manuals and overall organizational performance. . Studies carried out focused on other areas of procurement and logistics. Muhia and Afande (2015) studied the role of adoption of e-procurement strategy on procurement performance of state corporations in Kenya by focusing on KRA. Kioko and Mwangangi (2017) studied the influence of eprocurement on performance of parastatals in kenya. Fozia, Namusonge and Shaelle (2016) studied the effect of electronic supplier management practices on the implementation of preference regulations on state corporations in Kenya. Nafula and Namusonge (2017) studied the effect of e-procurement practices on efficiency frontier of Kakamega County Government. Barasa, Namusonge and Okwaro (2017) studied the effects of E-procurement on the organizational Performance of County Governments in Kenya. A few studies have related e-procurement with Supply chain performance with none entailing a desk study methodology employed the gap which this study intends to fill.

METHODOLOGY

The researcher employed a method of reviewing desktop literature (desk study). This included a comprehensive review of research pertaining to electronic procurement activities and the performance of the supply chain. To assess the feasibility of the subject for testing, three processing stages were applied on the subject under review. This was the first step of the original identification of all papers based on the effect of electronic sourcing activities on the efficiency of

the supply chain. In particular, the search was achieved by looking for the articles in the title of the article, abstract, keywords. A second quest covered fully available literature on the issue of e-procurement processes and efficiency of the supply chain. The third stage included the collection of journals that were freely available. Limiting the literature to only fully available publications provided specificity and enabled the researcher to concentrate on articles relating to e-procurement processes and efficiency of the supply chain, which were separated into top key terms. The researcher arrived at 12 papers that were relevant for review after an in-depth quest into the top key terms (e-procurement processes, supply chain management, performance). The drawing and interpretation of research findings and sense which is not a quantitative impact evaluation, was important in this context, which implies that qualitative and thematic analysis was most suitable in this study.

CONCLUSION AND POLICY IMPLICATION FOR FURTHER STUDY

Conclusion

Procurement performance is the backbone of an organization success since it contributes to competitive purchase and acquisition of quality goods that puts the organization products or services in the competitive edge in the market. However, on several occasions, poor procurement performance has caused private and public sectors financial loss due to delivery of poor quality work materials, loss of value for money and inflated prices. Poor procurement performance also contributed to decrease of profitability of private sector.

Procurement departments are under pressure to reduce costs while maintaining timeliness and quality. Inconsistent procurement policies can result in the cancellation of projects, cost overruns and delays, staff dissatisfaction and litigation. Procurement policies must reflect the needs of the organization in question. After policies have been established, selecting the right electronic tendering tools and techniques through careful analysis can help you meet your procurement challenges. In recent years, public and private sector organizations have come under intense scrutiny to improve their procurement practices. Inconsistent procurement policies have resulted in the cancellation of projects, cost over runs and delays, staff dissatisfaction and litigation. Increasingly, stakeholders, shareholders and the general public are demanding that organizations take greater accountability for their actions.

In the analysis of the use of e-procurement on performance of the procurement functions of county governments in Kenya, the results revealed that e-procurement is positively related with performance of supply chain function of County Governments in Kenya. The study therefore recommended that the Government come up with policies on adoption of e-procurement practices and provide critical resources and leadership in adoption of e-procurement. By deploying an Electronic Purchase Order Requisition system, in concert with an Accounts Payable automation solution, internal control over expenses, payables, disbursements, and suppliers can be enhanced. Going electronic allows for a much more efficient payable process by eliminating many of the manual tasks generally associated with purchase order requisition. PO Requisition technology enables generation of POs and route them online for approval using Smart Routing technology.

With the help of an e-procurement system, buyers can easily follow products' prices and specifications purchased from suppliers, and they can submit their orders to suppliers by using electronic forms. A good e-procurement system enables a firm to organize its interactions with its

most critical suppliers, a set of built-in monitoring tool to help control costs, assure maximum supplier performance and keeping and open line of communication with potential suppliers during a business process. The system allows managers to confirm pricing and leverage previous agreements to assure each new price quote is more competitive than the last.

Recommendations

It is recommended that management should ensure that all modules from purchasing Requisition, Quotation/tenders, request for proposals, purchasing order approvals and Transmission, contract monitoring, Goods receipt note. This will reduce tender processing time, eliminate postal, printing & storage costs, wide supplier base will be achieved and audit trails will be maintained thus reduction of corruption. It is recommended that in order to achieve maximum benefits of reduced order processing time, reduced costs, reduced human errors and improved delivery, management should enhance electronic system and insist on all orders being processed electronically.

Recommendations for further study

The study recommends a study to find out the reasons why some of these companies have not incorporated all the procurement activities in E-procurement. A comparative study will be critical in order to establish whether there are any similarities or differences in the factors leading to success of E-procurement across different industries such as between private and public firms and between manufacturing industry and another industry.

References

Bilali, J., & Bwisa, H. (2015). Factors influencing the Adoption of e-Procurement: A case of Garissa County Government. *The Strategic Journal of Business & Change Management, 35*, p662-682.

Centobelli, P & Cerchione, R. (2014). E-procurement and E-supply Chain: Features and Development of E-collaboration. *International Conference on Future Software Engineering and Multimedia Engineering*. (2014)

Chegugu, N. R. & Yusuf, K. G. (2017). Effect of electronic procurement practices on organizational performance in public hospitals in the county government of Uasin Gishu, Kenya. *International Academic Journal of Procurement and Supply Chain Management*, 2(3), 16-32.

Christopher, M. (1992). Logistics and Supply Chain Management. London: Pitman Publishing.

Christopher, M. (1992). Logistics and Supply Chain Management. London: Pitman Publishing.

Global Agricultural Information Network (2017). *Kenya Annual Sugar Report*, Nairobi: GAIN.

Kaliannan, M., Awang, H., & Raman, M. (2009). Electronic procurement: a case study of Malaysia's e-Perolehan (e-procurement) initiative. *International Journal of Electronic Governance, 2*(2-3), 103-117.

Kioko, M. M., & Mwangangi, P. (2017). Influence of E-Procurement on Performance of Parastatals in Kenya. *International Journal of Supply Chain and Logistics*, 1(3), 19-45.

McCue, C. & Roman, A. (2012). E-Procurement: myth or reality? Journal of Public Procurement, 5(1), 54–72. McGraw Hill.

Nafula, B. J., & Namusonge, G. (2017). Effect of e-procurement practices on efficiency frontier of Kakamega county government. *International journal of social sciences and technology*, 2147-2157.

Ngeno, K., & Kinoti, J. (2017). Effect of e-procurement on effective supply chain management process in energy sector in Kenya. *International Journal of Supply Chain Management*, *2*(3), 18-37.

Nyile, E.K. & Shale, N.I. (2016), role of sustainable procurement practices on supply chain performance of manufacturing sector in Kenya: a case study of East African Portland cement company. *European Journal of Logistics, Purchasing and Supply Chain Management*, 4(3), 1-31.

Porter, M.E. (1985). Competitive Advantage. Creating and Sustaining Superior Performance. New York: The Free Press

Public Procurement Oversight Authority (PPOA) (2011). Final report Procurement review of National Social Security Fund (NSSF). PPOA/NSSF: PPOA.

Ratanya, E. (2013). E-procurement implementation and supply chain integration among large scale manufacturing firms in Nairobi, Kenya. Unpublished MBA project Nairobi: University of Nairobi.

Simichi-Levi, D., Kaminisky, P., & Simichi-Levi, E., (2000). Designing and Managing the Supply Chain, Boston: McGraw-Hill.