



EFFECTS OF SUPPLIER APPRAISAL PRACTICES ON PERFORMANCE OF MANUFACTURING FIRMS IN NAIROBI COUNTY, KENYA

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ABSTRACT

With the increased organization performance concerns and awareness among several stakeholders in the manufacturing firms as well as interest groups such as consumer groups, manufacturing sector organizations may find it appropriate to adopt supplier appraisal practices. The study sought to analyze the effects supplier appraisal practices on performance of manufacturing firms in Kenya. The research used descriptive research design. Data was analyzed using both descriptive and inferential statistics where regression and correlation analysis were used. The population census was 455 respondents drawn from manufacturing firms Nairobi county with a sample size population of 213. The data was analyzed with SPSS version 23. Non probability sampling technique was used. A questionnaire was used to collect the data. Data collected was validated, edited, coded and then analyzed qualitatively. Descriptive statistics such as percentages and frequencies were used to summarize the data. Data presentation methods include tables, charts and figures. A good response rate of 63% was realized. The study findings showed that the supplier appraisal practices had a significant influence on performance of the firms. The study recommended that manufacturing firms should adopt supplier appraisal practices by having an effective ethical standard practices guidelines and improving the environmental aspect strategies. A similar research should be conducted with an aim at investigating the effects of supplier appraisal on performance with other variables or of other firms in other sectors, including the service industry in the Kenyan market.

Key Words; *Supplier Appraisal Practices and Performance*

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INTRODUCTION

Organization's ability to provide dependable quality and efficient products and services depends on its access to quality supply of inputs (CIPS, 2013). Market factors are always dynamic, as such, organizations also need to be in constant changes. This is particularly true in competitive and globalized markets. Organizations are progressive and under compression to find methods to reduce inputs cost and manufacturing costs through engaging in strategic supplier appraisal techniques and evaluation (Chivaka, 2005). According to Nadir (2012) supplier evaluation is perceived as a tool which provides the buying firm with a better understanding of "which suppliers are performing well and which suppliers are not performing well. But studies reveal that even after having carried out an in-depth supplier evaluation plus appraisal coupled with the enactment of Public Procurement and Disposals Act (PPDA) of 2015 and other policies on supplier evaluation, inefficiencies still exist ranging from supplies being made halfway or even termination of contracts before conclusion.

Any organizational success often hinges on the most appropriate selection of its partners and suppliers. Suppliers is an increasingly important activity within most manufacturing firms, and severe financial and operational consequences can result from the failure to optimize the procurement function. Specifically, appropriate suppliers' selection is one of the fundamental strategies for enhancing the quality of output of any organization, which has a direct influence on the company's competitiveness and reputation (Manyega, 2015). One of the techniques used by organization to select best suppliers is supplier appraisal. Supplier appraisal is the quantitative and qualitative assessment of suppliers to ensure a portfolio of best in class suppliers is available for use (Grandia, 2015). To sustain effective and reliable sources of supplies, buyers should select their suppliers carefully and evaluate them regularly (Manyenze, 2013).

In many countries, the manufacturing sector is the major source of market for suppliers sometimes demanding up to 40 percent of national demand. For instance, in the UK, the public sector demand per year stands at £150 billion. For this reason, the government of UK has formulated public contracts regulations 2015 aimed at enhancing transparency and efficiency in public procurement operations in the country Cabras, (2011). Owing to the importance of public procurement, conference on public procurement has been constituted to look at issues of integrity and transparency in public procurement (Tozay, 2012). Similarly, scholars have developed interest on the subject of public procurement in the recent past conducting a number of studies on the subject. For instance, Reza (2013) wrote a book that focused on the procurement suppliers in a number of global systems and looks at key themes relevant to all states to provide a focused view of the suppliers systems and bring a comparative perspective in understanding supplier's appraisal in all parts of the world.

The concept of supplier appraisal has gained popularity among practitioners and even scholars (Vorster, 2010). In Nigeria, the study conducted by Manal et al. (2014) on supply chain practices identified supplier evaluation and a critical supply chain activity that every organization must engage in. In Kenya, the PPDA Act 2015 and procedure 2006 serves as a guide that provides guidelines and procurement procedure and supplier evaluation and appraisal for public procurement entities to ensure judicious, economic and efficient use of state resources ensuring that public procurement is carried out in affair, transparent and non-discriminatory manner. Among other criteria, the Act 2005 states that tenderers and other suppliers should possess the necessary professional and technical qualifications and competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience in the procurement object and reputation; and the personnel to perform the procurement contract. In

spite of all these, public institutions such as Universities have never realized the objective of supplier evaluation (PPOA, 2009).

Rioba (2015) associated performance with effectiveness and efficiency operations. On the other hand, Muma et al. (2014) and Osuga *et al.* (2015) pointed out that procurement operational performance is associated with reduced procurement costs and improved achievement of procurement organizational goals respectively. The concept of procurement performance has emerged strongly in the recent past in Kenyan Public sector (Karimi, 2014).

Expert Group Meeting discussed by Palmer (2015) pointed out that procurement performance is concerned with effectiveness and efficiency in procurement operations. They came up with eight indicators for measurement of procurement operational performance. The indicators include; the level of price variance, level of contract utilization, expiration management, supplier performance, procurement cycle time and variability, payment processing time, procurement cost and staff training. Procurement performance is associated with cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage (Vorsler, 2010). This study intended to study how procurement operational performance can be enhanced through supplier appraisal.

In Kenya, the Public Procurement and Disposal Act 2015 outlined the process through which the firms operate and spends public money (Onyinkwa, 2015). It is estimated that in Kenya public procurement accounts for over 10% of the Gross Domestic Product (GDP), making it a large market for suppliers and contractors (Singer, 2017). This therefore means that every effort should be made to erect safeguards to check against corrupt malpractices in public procurement (PPOA, 2009). It is for this reason that there is a need to assess both the potential and current suppliers on one on one basis to improve their performance and capabilities

for the benefit of buying organization (CIPS Knowledge, 2014).

After the prequalification of suppliers through supplier evaluation, improvement in performance is expected, however it puzzling to note that buyer supplier relationship does not last any longer, suppliers are in most cases conventionally selected on the basis of low price and less importance is given to the suppliers who give assurance of on time delivery and long term relationships (Reza, 2013). The question arises in this case as to what criteria to manufacturing firms use in selecting and evaluating its suppliers for better organization performance.

There have been reported concerns that performance of the manufacturing firms have a lot of gray areas in the operations ranging from suppliers failure to meet delivery dates, delivery of inferior materials and even at times failing to furnish the orders completely (Choi, 2006). At the same time there is an increasing trend of a number of suppliers even those within the approved list of suppliers demanding payment before the deliveries are made (Manal et al, 2014). The aim of this research proposal therefore is to find out the effect of supplier appraisal on performance of manufacturing firms in Nairobi County, Kenya. The need of coming up with better methods of measuring and managing how materials are acquired. A strategic alliance with the suppliers and the buyers of the buying manufacturing firms should be created to ensure that supplier understand what and when to deliver.

Statement of the Problem

Suppliers are crucial backers whose operation can influence the entire performance of the organization. The selection of a supplier should follow an elaborate assessment of the effective suppliers since they have magnificent impact in the organization. Delayed deliveries, poor quality goods and services, untimely completion of works is collective scenario experienced by manufacturing firms.

PPOA report revealed that 30% manufacturing is a very essential sector in Kenya which contributes of about 10% of the Gross Domestic Product thus making the most substantial contribution to the economic development of the country. There are approximately 2600 manufacturing firms in Kenya (KAM, 2015). According to KAM (2006), Kenya is ranked first in having the most developed manufacturing sector among the EAC member countries. Kenya's manufacturing sector forms the core of the industry for economic growth and development because of its immense potential for wealth, employment creation, foreign exchange, foreign investment and poverty reduction in the society Singer, (2017).

Kenyan manufacturing firms have not fully embraced supplier appraisal concept. However, the few that have recognized supplier's appraisal have been able to lower their purchasing and acquisition costs by greater percentages (Rioba, 2015). Due to stiff competition that Kenyan manufacturing firms are facing in the current markets of supply chain ineptitudes in the manufacturing and public sector at large in Kenya are triggered by the deficiencies caused by the supplier's. As such most firms have come up with strategies of reducing the issues caused by the suppliers through supplier appraisal and evaluation. In ideal scenarios, supplier appraisal is anticipated to have positive influence on performance. Nonetheless, PPOA reports showed that vendors are in most cases conventionally selected on the basis of lowest price quoted and while quality, time and other important aspects is not taken with great importance. Supplier appraisal is arguably one of the most significant method of ensuring qualified suppliers are given the tenders. It is for this reason that this study focuses on the effects of supplier performance on manufacturing firms.

The study done by Grandia (2015) recommended that manufacturing firms should borrow a leaf from those that have successful proactive procurement functions in place. However, the study did not show the benefits firms stand to gain by adopting

proactive supplier practices. Onyinkwa (2010) illustrated that planning of supplier's appraisal is an ingredient to service delivery, but the study focused on service delivery ignoring other measures of procurement like financial gains from cost reduction. On the other hand Singer (2017) asserts that strategic procurement management has a direct impact on the procurement performance of the firms. Tozay (2012) concluded that procurement planning and strategies have a direct positive impact on the performance of organization in delivery of goods and services. The study did not bring out the strategic procurement practices to use to realize these benefits. According to Rioba (2015), the factors affecting supplier selection in Kenya include technical capability, associated costs, organizational profile, quality assessment, risk factors, service levels and the profile of the suppliers. The research also established that in most organizations in Kenya include opacity in the process of selecting suppliers and that it does not involve technocrats from other departments that may be affected by the requisitioned goods or services. Palmer (2013) in a research on the supplier performance indicators suggested that clear structures should be instituted to ensure defective delivery.

However, despite there being numerous studies done, none of the studies was done to investigate the supplier evaluation criteria and the influence to the organization performance in Kenya. Therefore, this study was undertaken to fill the knowledge gap by assessing the effects of supplier appraisal on performance of manufacturing firms in Kenya.

Objective of the Study

The objective was to analyze the effects supplier appraisal practices on performance of manufacturing firms in Kenya.

LITERATURE REVIEW

Strategic Theory

Strategic choice theory considers the interaction between organizational actions and events (Reza, 2013). The integrative approach of strategic choice

theory is of importance and beneficial for strategic management of suppliers in the organization, for instance, by stressing cross-functional cooperation and interrelation of vendors in the firm in organizations (Palmer, 2013). Theories enhance research and practice as they help make sense of complex and dynamic environments in the organization (Loeser et al, 2012).

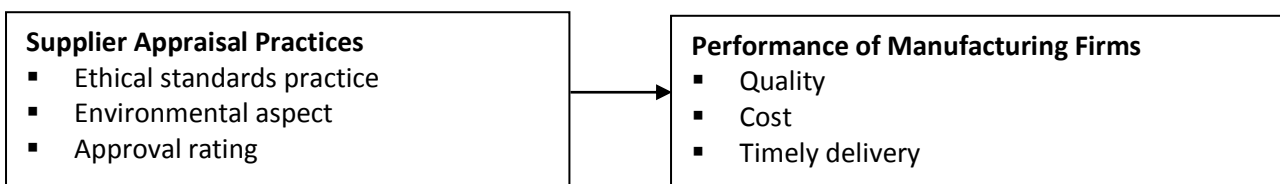
Strategic choice theory depicts the relationship between the suppliers of the firm and firm performance and the overall interaction between environment and organizations. In the context of this study, some of the variables i.e. Strategic Partnerships with Suppliers, and adoption of effective strategic supplier appraisal practices and it focuses on involving the top management critical decision to make these strategic decisions to invest on these practices to improve the performance of their organizations and achieve a competitive advantage.

Grey System Theory

According to Grey System Theory, in a practical business environment, in most instances, supplier selection takes place in an environment with less than perfect information. As such, there is some level of uncertainty in the decisions related to

supplier selection. In such an environment, it is important to develop certain indicators or criteria; qualitative or quantitative that the supplier can be subjected to before selection. From this theory, the grey correlation analysis model with seven progressive steps was developed (Rioba, 2015). These steps include; grey generation aimed at gathering information on grey aspects, grey modeling done to establish a set of grey variation equations and grey differential equations, grey prediction aimed at achieving a qualitative prediction, grey decision, grey relational analysis and grey control (Karimi, 2014).

The theory of Grey System considers the following factors in deciding on the best supplier; Existence of key factors important to the buyer, the numbers of factors are limited and countable and can be directly attributed to potential suppliers, in dependability of factors and factor expandability. The theory applies the principle of series comparability to generate a grey relation. An evaluation matrix may be developed to facilitate this process. The best supplier is selected by choosing a goal and weighting the values of all evaluation factors based on the characteristics of materials to be sourced based on demand patterns (Manyenze, 2013).



Independent Variable

Dependent Variable

Figure 1: Conceptual Framework

Empirical Review

A study by Manyega (2015) on the determinants of firm’s performance in manufacturing firms established that the main concern of organization function is to make sure that one buys from the best suppliers and also improve the current suppliers. The organizations therefore choose suppliers with who have the capacity to deliver. The study further observed that supplier incentives and

awards can work as a tool to influence future behavior of both buyer and supplier organization. By connecting procurement targets to certain supplier competence, organizations achieve higher supplier performance thereby leading to improved procurement performance. On the other hand Cardenas et al (2017) in his study on factors affecting performance of manufacturing firms in Nairobi County found out that selection of suppliers

is done based on certain set criteria and the needs of the procuring entity. He points out that among the factors which affects the performance of a firm includes timely preparation of procurement plan, strategic supplier selection plus buyer supplier relationships among other factors.

A research by Kagendo (2010) on the Effects of Public Procurement and Disposal Act on Procurement in Parastatals in Kenya found that while PPOA reforms have helped professionalize and streamline public procurement and disposal in Kenya, challenges still remain, including corruption and incompetence by procurement officers, ignorance of guidelines provided by the PPOA, inefficiencies in procurement processes, no incentives for the organizations and the pressure of implementing PPOA and PPDA guidelines on procurement. The process of supplier selection in Kenya as outlined by the PPOA and PPDA guidelines requires that public organizations first determine their needs, and then place an advert in media (tender advertisement) that can reach a significant proportion of the Kenyan population. After the receiving of bids that should be sealed and opened in a public forum; all bidders must be vetted to ensure they meet the required criteria as set in the tender documents. Supplier Evaluation Criteria and Procurement Performance Supplier selection is largely seen as the most vital role of the procurement function since the organization's suppliers can affect the price, quality, delivery reliability and availability of its products (Kebo *et al*, 2013).

Grandia (2015) conducted a literature review on drivers and barriers for environmental supply chain management. They broadly distinguish internal (organizational) and external (regulatory, customer, competition, society, and suppliers) drivers, as well as internal (cost, training, lack of legitimacy) and external (regulation, poor supplier commitment, industry specific) barriers. Their qualitative study among seven large private and public organizations revealed that the organizations face very diverse internal and external barriers. The drivers, on the

contrary, seemed to be more homogeneous, with regulatory compliance being mentioned by all seven organizations. Such heterogeneity is also identified by Panagiotis (2010) quantitative study on sustainable public procurement in the United Kingdom. Likert scales were employed to measure the degree of implementation of different sustainable procurement practices. Their conclusion is that financial barriers seem to be the most important inhibitor to sustainable procurement (Gill *et al* 2015).

METHODOLOGY

The study adopted a descriptive research design. The descriptive research design was effective because it enabled the study to collect data across a varied sample. Information is collected without altering anything in the in the area of study; also known as observational studies. The population for this study was 455 employees of manufacturing firms in Nairobi Kenya. The study used the Yamane (1967) formula to arrive at the sample size. The selection formula was as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where

n= the required sample size

N = is the Target Population (455 employees)

e = accuracy level required. Standard error = 5%

Sample calculation

$$n = \frac{405}{1 + 405(0.05)^2}$$

$$n = \frac{2}{2.0125}$$

$$n = 213$$

n=213 Respondents

The study used stratified random sampling in selection of 213 employees, Random sampling frequently minimizes the sampling error in the population. The questionnaire was the selected instrument or tool for data collection for the study.

Quantitative data collected was analyzed by the use of descriptive statistics using SPSS (Version, 23) and presented through percentages, means, standard deviations and frequencies. The information was

displayed by use of bar charts, graphs and pie charts and in prose-form. Content analysis was used to test data that is qualitative in nature or aspect of the data collected from the open ended questions. The study conducted a correlation analysis to establish the strength of the relationship between the independent and the dependent variable. Regressions was done to analyses effects of supplier appraisal practices on performance of manufacturing firms in Kenya.

FINDINGS

Supplier Appraisal Practices

The research sought to determine from the respondents the extent to which they agree the firms implemented the supplier appraisal practices in an effort to improve performance function in the manufacturing firms. From the research findings, majority of the respondents indicated that they neither agreed nor disagreed that the firms have effective supplier practices based on the average mean of 3.31. Majority of the respondents agreed that the firms have implemented environmental

aspect when selecting the suppliers as shown by a mean of 3.12; the respondents also had moderate agreement stand that the ethical standard of the supplier crucial before the award of the tender to supplier in the organization as shown by a mean of 2.94; respondents also were in agreement that organization provides the approval rating for key suppliers in the organization as shown by a mean of 3.53. Majority of the respondents were in agreement that ethical measurement affects performance shown by mean of 3.81 and the respondents were in agreement that approval rating increase quality of products and services shown by mean of 4.17.

This implies that majority of the firms had started recognizing the role of supplier appraisal practices on performance with other firms in the manufacturing sector. The findings of this study are in tandem with literature review by Shapiro, (2009) who observed that supplier appraisal practices that are enhance issues such as using effective purchasing strategies, and proper ethical standards that enhances performance.

Table 1: Descriptive analysis of supplier appraisal practices

Statements	Mean	Std. Deviation
Environmental aspect is considered when selecting the suppliers	3.12	1.32
The ethical standard of the supplier crucial before the award of the tender	2.94	1.3
Do the organization provides the approval rating for key suppliers in the organization?	3.53	1.45
Do ethical measurement affects performance	3.81	1.4
Do approval rating increase quality of products and services	4.17	1.12
Average	3.314	1.318

Performance of the Firms

The research requested the respondents to indicate the extent to which they agree firms implemented the supplier appraisal to enhance their performances in their firms. From the research findings, majority of the respondents neither agree that; the firms' implementation of supplier

appraisal positively affects to the performance, As such supplier appraisal practices has effects on the performance of the firm as an important element in its supplier appraisal. The firms incorporated supplier appraisal also has positive impact on the cost budget, quality and timely delivery as shown in the figure

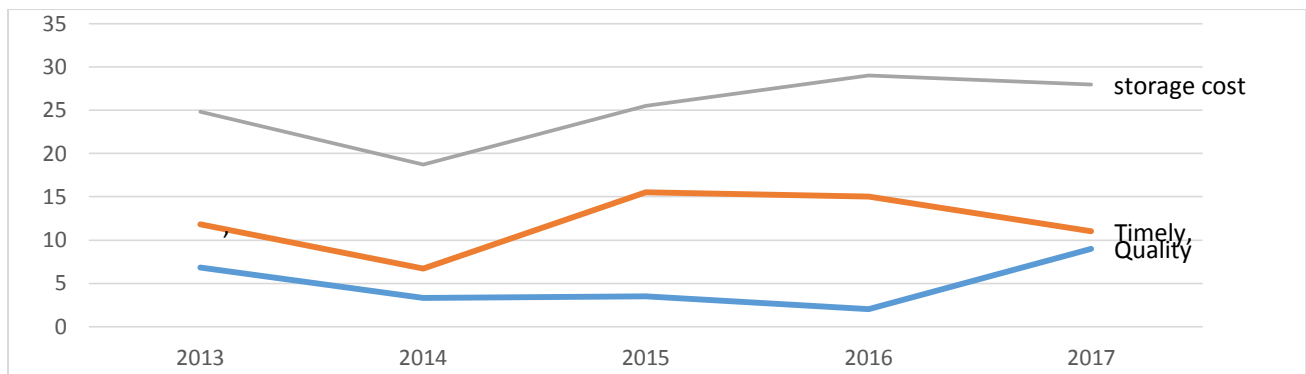


Figure 2: Performance of the firms

Inferential Analysis

Correlation Analysis

After the descriptive analysis, inferential analysis was conducted using correlation and multiple

regressions to determine the extent and direction of relationship of supplier appraisal criteria, Supplier appraisal practices, supplier appraisal approach and Supplier development.

Table 2: Correlation Matrix

	Supplier Appraisal Practices	
Performance	Sig Pearson correlation	.575** 0.000

A Pearson correlation was used since the data was discrete. Correlation indicates the direction in one variables if another variables changes. The results revealed that the correlation between Supplier appraisal practices and performance at 0.575 with a corresponding p value of 0.000. The correlation coefficient was also significant and positive which

implied that if increase in supplier appraisal practices increases the performance of manufacturing firm. This finding conforms to those of palevich (2012) who found out that there is a strong relationship between approval rating of suppliers and performance of a firm.

Regression Analysis

Table 3: Multivariate Regression Analysis

Model	R	R ²	Adjusted R ²	Std. error of the estimate
1	0.640 ^a	0.41	0.401	0.54908

In order to establish the statistical significance of the hypothesized relationship, regression was conducted at 95 percent confidence ($\alpha=0.05$). The findings revealed a relationship $R=0.640$, indicating a strong positive association between supplier

appraisal practice and performance. $R^2 =0.41$ indicated that 41.7% of variation in the performance can be explained by the supplier appraisal practices.

Table 4: Analyze of various (ANOVA) results

Model		Sum of squares	df	Mean square	F	Sig
1.	Regression	13.146	1	13.146	22.411	.000 ^b
	Residual	77.14312	132	0.5866		
	Total	90.5772	133			

- a) dependent variable: performance
- b) Predictors: (constant), supplier appraisal practices

The result of ANOVA test showed that the F value was 22.411 with a significance of p value =0.000 which was less than 0.05, meaning that there is a significant relationship between supplier appraisal practices and performance of a firm. The ANOVA statistics at 5% level of significance showed that the value of F calculates (F computed) is 22.411 and the

value of F critical (F tabulated) at 1degrees of freedom and 132 degrees of freedom at 5% level of significance is 3.913. F calculated (F computed) is greater than the critical (F tabulated) (22.411>3.913), this showed that the overall model was statistically significant at 5% significance level.

Table 5: Regression coefficient Results

	B	Std error	T	Sig.
(constant)	2.331	0.173	13.473	0.000
Supplier Appraisal Practices	0.260	0.065	4.000	0.000

a) Dependent Variable: performance function

The coefficient of supplier appraisal practices was ($\beta=0.260$, $p=0.000$, <0.05) showed a statistically significant relationship between supplier appraisal practices and performance. The results implied that unit increase in supplier appraisal practices would results to an increase of 0.260 units in performance. This finding conforms to those of Navon & Berkovich (2006) who found out that there is a strong relationship between supplier appraisal practices and performance, therefore the study conclude that the presence of a supplier appraisal positively affects performance in organization.

CONCLUSIONS AND RECOMMENDATIONS

Supplier appraisal practices had a strong positive relationship with performance. The study found that effectiveness of in supplier appraisal practices contributes to ability to approve the available suppliers based on their ability to perform the duties assigned. The organization provides the approval rating for key suppliers in the organization Ethical standard practices, environmental aspects and approval ratings also contributes to

performance improvement of the firm's performance.

The study recommended that manufacturing firms should adopt supplier appraisal practices. These should be done by having effective ethical standard practices guidelines, improving the environmental aspect strategies in the organization, and implementing effective and efficient approval ratings of the suppliers in the organization. This will aid in improving performance as much capital will not be tied up in correcting the defects caused by the suppliers due to lack of effective practices.

Areas for Further Research

Similar research should be conducted with an aim at investigating the effects of supplier appraisal on performance with other variables or of other firms in other sectors, including the service industry in the Kenyan market. Concisely, the findings showed that 41.7% of the performance is explained by the four variables while 58.3 can be accounted by other factors captured by the standard error.

REFERENCES

- Cabras, I. (2011). Mapping the spatial patterns of public procurement. *International Journal of Public Sector Management*, 24(3), 187–205.
- Cardenas, IC; Voordijk, H; Dewulf, G (2017). "Beyond theory: Towards a probabilistic causation model to support project governance in infrastructure projects". *International Journal of Project Management*.

- Chivaka, R. (2005). Cost Management along the Supply Chain — Methodological Implications. *Research Methodologies in Supply Chain Management*, 4(4), 299–314.
- Choi, T., & Krause, D. R. (2006). *The supply base and its complexity: Implications for transaction costs, risks, responsiveness, and innovation*. *Journal of Operations Management*, 24(5), 37–52.
- Cooper, D.R. & Schindler, P.S. (2013). *Business Research Methods*. New York: Mc
- Grandia, J. (2015). *The role of change agents in sustainable public procurement projects*. *Public Money & Management*, 35(2), 119–126.
- Karimi K. and Namusonge G.S. (2014) *Role of Information Technology on Warehouse Management in Kenya: A Case Study of Jomo Kenyatta University of Agriculture and Technology*.
- Kebo V., Staša P., Beneš F. and Švub J. (2013) *RFID Technology in Logistics Processes*. In *Proceedings of the 13th International Multidisciplinary Scientific Geo-Conference SGEM 2013*, Albena, Bulgaria; ISBN: 978-954-91818-9-0
- Loeser, F. et al. (2011) 'Aligning purchasing with environmental strategies: development of a conceptual framework that leverages sustainability and firm competitiveness', *AMCIS 2011*, Detroit, Michigan, USA, 4–8
- Manal, S. A., Wafaa, M. A., Tarek, M. A., Hosny, O. A., & Samia, A. M. (2014). *Identification of Quality management and Risk Approach for Egyptian Contractors*. *International Journal of Emerging Technology and Advanced Engineering*, 4(2), 200–259.
- Manyega, V. B. (2015). Effects of Supplier Selection on Procurement Performance of Public Institutions: A Case Study of Kisii County. *International Journal of Economics, Commerce and Management*, 3(9).
- Manyenze, N. (2013). Procurement Performance in the Public Universities in Kenya (Unpublished Master's Thesis). University of Nairobi, Nairobi.
- Onyinkwa, J. (2013). *Factors Influencing Compliance to Procurement Regulations in Public Secondary Schools in Kenya: A case of Nyamache District, Kisii County*. *Journal of Contemporary Research in Business*, 5(1). 25-35
- Palmer, L. (2013, October 24). The power of procurement: Can sustainable purchasing save the world? *The Guardian*. Retrieved from
- Panagiotis, C. (2014, September). *Investigating the non-compliant purchasing behavior At Company X—A Case Study (Master)*. Lund University, Lund, Sweden.
- Reza, F. S. (2013). Using Data Envelopment Analysis for Ranking Suppliers in the Presence of Non-discretionary Factors. *Islamic Azad University*.
- Rioba E. M. (2015), *Manufacturing Industry and Economic Growth in Kenya: A Kaldorian Approach*
- Schmalensee, R., 2010. *Renewable electricity generation in the United States*. In: Moselle, B., Padilla, J., Schmalensee, R. (Eds.), *Harnessing Renewable Energy in Electric Power Systems*. Resources for the Future Press, Washington.
- Singer, Paul (21 April 2017). "Recycling market in a heap of trouble". *USA Today*. Melbourne, Florida. pp. 1B, 2B. Retrieved 21 April 2017.

Tozay G. J. (2012) Warehouse location and design decisions among large scale manufacturing firms in Nairobi, Kenya; Research Project, University of Nairobi.

Vorster J. H. (2010) Research on the need for a MRP-II system within a manufacturing company, South Africa.