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The Strategic JOURNAL of Business & Change MANAGEMENT
ISSN: 2312-9492 www.strategicjournals.com

Vol. 7, Iss. 1, pp 927 – 941 March 17, 2020. www.strategicjournals.com, ©Strategic Journals

INFLUENCE OF SUSTAINABLE PROCUREMENT PRACTICES ON PERFORMANCE OF PROCUREMENT IN FOOD AND BEVERAGES MANUFACTURING FIRMS IN NAIROBI COUNTY, KENYA

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Accepted: March 16, 2020

ABSTRACT

The study sought to establish the influence of sustainable procurement practices on the performance of procurement in food and beverages manufacturing firms in Nairobi County, Kenya. Four specific objectives guided this study: to establish to establish the influence of reverse logistics on the performance of procurement in food and beverages manufacturing firms in Nairobi County, to assess the influence of green specification on the performance of procurement in food and beverages manufacturing firms in Nairobi County, to evaluate the influence of green inventory management on the performance of procurement in food and beverages manufacturing firms in Nairobi County and to establish the effect of green tendering on the performance of procurement in food and beverages manufacturing firms in Nairobi County. The research design used for this study was descriptive cross-sectional design. 217 food and beverage manufacturing firms formed the source from which the respondents were sourced. The study employed Stratified random sampling technique. The study further used simple random sampling within the different strata. 108 food and beverage manufacturing firms which was 50% of the target population was sampled. A questionnaire was the primary data collection instrument. Inferential statistics as well as descriptive statistics were both used to analyse data. The research revealed that majority of the manufacturing firms practiced reverse logistics, green specification, green inventory management and green tendering to a great extent. In addition, the study revealed that the companies had been able to reduce costs after adoption of sustainable procurement practices and that sales revenue had increased since the adoption of sustainable procurement. The study recommended that the companies consider the full adoption of remanufacture and recycling reverse logistics practices as well as adoption of reuse reverse logistics practice. They should fully develop and adopt virtual warehousing with the aim of optimizing production, reducing costs and providing supply chain channels with customer service that is of high-quality. The study also recommended that the organizations consider incorporation of environmental criteria into the process of selecting suppliers at all stages.

Key Words; *Reverse Logistics, Green Specification, Green Inventory, Green Tendering, Performance of Procurement*

CITATION: Nyaga, I. W., & Achuora, J. O. (2020). Influence of sustainable procurement practices on performance of procurement in food and beverages manufacturing firms in Nairobi County, Kenya. T*he Strategic Journal of Business & Change Management*, 7(1), 927 – 941.

INTRODUCTION

Green *et al*., (2012) observes that the procurement function has moved from a reactive activity to a strategic one and thus has undergone significant changes in many countries. In order to keep pace with the changing business environment, stringent environmental protection requirement by regulatory agencies and demand for procurement excellence for procurement performance, a number of firms have instituted reforms aimed at improving procurement performance in both service delivery and ecological management (Hunja, 2013). Therefore, sustainable procurement (SP) has become an important agenda for both governments and private sectors seeking to achieve both ecological protection and procurement performance (Grandia, 2015).

Sustainable procurement (SP), as Grandia, (2015) postulates, encompasses an institution being able to meet its goods and services' need in a manner that is conducive to the environment, that is cost effective for the organization, and also in a manner that adds value to the society at large. Additionally, SP is defined by Cabras, (2011) as the process of meeting organizational needs in terms of goods needed, services required as well as utilities and works, in a cost-effective way while at the same time being conscious of the society and doing it with minimal damage to the environment. Amaratunga and Baldry (2012) posits that procurement performance is a paramount requirement for any organization intending to progress and improve competitively by improving the quality of their services. On the other hand, the absence of the procurement performance hinders the progression of the purchasing function and inhibits the organization's endeavour to change.

In the midst of changes in the global manufacturing scene, impact on natural environmental has attracted considerable attention from various stakeholders ranging from regulatory authorities to customers (Agarwal & Vijayvargy, 2012). Authorities are interested on compliance while customers are concerned on their health (Grandia, 2015). These have seen environmental and social issues claim a stake on managerial decisions in businesses globally (Grandia, 2015). Within the ecological business practices, green procurement has emerged as favourite to many firms due to its ability to address environmental issues caused by external players and at the same time improves procurement performance (Amtzen, Brown, Harrison & Trafton, 2015). Consequently, in an attempt to manage ecological issues caused by vendors, a number of firms around the globe have embraced ecological practices in their businesses operations (Amtzen et al, 2015). For example, Coca-Cola Company in the United States of America (USA) has adopted green procurement practices in all their operations and processes (Agarwal & Vijayvargy, 2012). These include having supplier guiding principles that emphasize on environmental protection by the suppliers. The Coca-Cola Company works with independent third-party auditors to regularly monitor the supplier guiding principles' compliance of companies which supply to the Coca-Cola system (Agarwal & Vijayvargy, 2012). The adoption of the green procurement practices has seen the company greatly improve its procurement performance.

Grandia, (2015) notes that green procurement has started being used in procurement decision making in Africa despite the fact that environmental criteria is still a new concept in the continent. Brammer and Walker, (2011) give an example of South Africa, where sustainable procurement has been integrated into procurement procedures and policy most specifically in the city of Cape Town. The city having integrated sustainability criterion in to its supply chain management policy allows the employees to include it in the decision-making process. Brammer and Walker, (2011) asserts that in order help the employees be able to include the sustainability criteria during the compilation of tender documents' specifications the city of Cape Town come up with a set of green procurement guiding principles that provide staff with relevant information. As a result, Cape Town has been described as one of the best performing cities in Africa (Brammer & Walker, 2011).

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As a result, a number of firms in Kenya have started to embrace ecological procurement practices in order to comply with the regulatory requirement and at the same time improve their operations. For example, Cadbury Kenya Limited, Bidco, East African Breweries Limited, Safaricom, Airtel, MRM, East African Portland Cement, Chandaria industries just to mention a few, have invested huge amounts of shillings in implementing eco-procurement practices (Odhiambo, 2014). However, despite the huge investments on the eco-procurement practices, there has not been an empirical research to justify such investments quantitatively hence the current study on how sustainable procurement practices influence the performance of procurement in food and beverages manufacturing firms.

Statement of the Problem

Manufacturing industry was the leading business activity in Kenya during the early 80's both in terms of size and employment. The industry was employing over 200,000 family households and about 30% of the labour force in the national manufacturing sector (Obiso, 2011). Later the sub-sector started declining in the mid-1980s to the current situation where it registers losses of Ksh 50 million annually (KAM, 2013) which have been attributed to acquisition issues (Hervani, Helms, & Sarkis, 2015).

There was therefore need for the manufacturing firms in Kenya to consider other management concepts with the potential of improving their procurement performance significantly. Sustainable procurement management concept has the potential to eliminate or minimize waste (energy, emissions, and chemical/hazardous, solid wastes) along procurement resulting to procurement performance. Hervani, Helms, and Sarkis, (2015) established a significant improvement in procurement performance of processing firms in South Korea due to application of ecological practices within the procurement function. However, Mwirigi (2013) noted that the concept of sustainable green procurement and its association with performance has not been empirically proved in Kenya. Omonge (2012) added that empirical studies in this area is largely in other countries outside Kenya and mainly in America, Europe and limited parts of Asia. Thus, the study established the influence of sustainable procurement practices on the performance of procurement in food and beverages firms in Nairobi County, Kenya.

Objective of the Study

The main objective of this study was to establish the influence of sustainable procurement practices on the performance of procurement in food and beverages manufacturing firms in Nairobi County, Kenya.

The study was guided by the following specific objectives;

- To establish the influence of reverse logistics on the performance of procurement in food and beverages manufacturing firms in Nairobi County, Kenya.
- To assess the influence of green specification on the performance of procurement in food and beverages manufacturing firms in Nairobi County, Kenya.
- To evaluate the influence of green inventory management on the performance of procurement in food and beverages manufacturing firms in Nairobi County, Kenya.
- To establish the effect of green tendering on the performance of procurement in food and beverages manufacturing firms in Nairobi County, Kenya.

LITERATURE REVIEW

Organizational Theory

The theory was first proposed by Frederick Taylor (1917) and Max Weber (1947). According to Hatch, (2006) there are several other fields as well as disciplines such as; engineering and economics, political science, sociology and psychology, that influence organizational theory within management and business. Therefore, in order to effectively explain the organizational structures, behaviour and design, there is need to first understand the

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organizational theory arising from the management insight. An important study of the organization theory at the inter-organizational level has resulted from supply chain relationships that exist amongst enterprises. Several management studies and practices have been broadly applied from the organizational theory.

As Ketchen and Hult, (2013) postulated, applying the organizational theory distinctly to supply chain management has become more recognized. However, the influence of this application and its relationship to green procurement has failed to be comprehensively reviewed neither has its relationship to environmental management been extensively studied. There is need therefore do a green procurement literature review from the perspective of numerous organizational theories in order to further develop this field. This organizational theory will therefore be important in this study in examining the influence of the numerous levels management as well as leadership on the relationship between the dependent variable (procurement performance) and the independent variables (sustainable procurement practices).

Systems Theory

The study was also anchored on the systems theory as proposed by von Bertalanffy in 1928. According to Li and Geiser, (2009) systems theory explains how the various sections of an institution relate to each other as well as how a slight change in one section of the organization affects all other parts. As Brammer & Walker (2011) postulates, an organization acts as a system interrelating with its environment. As the organization constantly adjusts to its changing environment any balance is consequently constantly changing. According to Maignan *et al*., (2012) the major tenent of systems theory is that all the elements of the organization are related to each other and any alteration on one component alters all the others. Additionally, organizations are regarded as open systems which constantly interact with their environs. As they adjust to the changing environment the organizations are in a state of dynamic equilibrium.

Organizational structure is therefore viewed, under the systems theory, as the conventional design of interactions among the various components of the organization (Lozano & Valles, 2013). Of specific significance therefore are the designs in interactions and responsibilities. These consist of themes of; coordination of activities, division of tasks and responsibilities, the design of the categorised authority relationships, and the official policies, processes, and organizational guiding controls (Maignan et al., 2012). Clearly therefore, organizations are open systems and they rely on their environs for sustenance.

Legitimacy Theory

The study was also anchored on the Legitimacy Theory as developed by Dowling and Pfeffer (1975). Suchman (2012) asserts that the building of an organization is greatly influenced by legitimation which has been proven to be a crucial aspect of how the organization is run, and additionally how the organization is evaluated and understood. According to Bitektine, (2011) the crucial importance of legitimacy is derived from its ability to provide additional resources from the external environment or its ability to consolidate the reputation of the organization both internally and externally. Legitimacy as such refers to the implied social contract that exists between an institution and its stakeholders. Legitimization is seen from the institutional perspective as the institutionalization process whereby no much thought is placed during the adoption of external beliefs and norms. On the other hand, legitimacy from the strategic perspective is seen as instrumental and proactive in enhancing the external norms and beliefs thereby improving and creating newer and better legitimacy levels.

The legitimacy-based perspective offers a good theoretical foundation for giving explanations to initiatives that are environmentally based, mainly because of its capability to offer explanations for initiatives, taken by the company, that are not

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profit maximization-oriented. Many studies that are reliant on the institutional theory have inferred that forces emanating from the institutional arena will pressure the organization to seek legitimacy from its stakeholders. As Oliver, (2015) postulated, the fact that a firm responds to the pressures of the external institutional forces, demonstrates the great significance of gaining legitimacy from stakeholders for purposes of illustrating their social worthiness.

Stakeholder Theory

The study was also anchored on the stakeholder theory as proposed by Richard Edward Freeman in 1984. The definitions of the term stakeholder have been given by different researchers (Mainardes, Alves & Raposo, 2011). However, most studies adopt the definition by Freeman (1984) who described stakeholder as individual or group impacted by commercial activities of a company. Stakeholder theory notes that other than shareholders, there are other individuals or groups who the organization is obligated to and who are likely to be directly influenced by the actions taken by it, or have an explicit contractual relationship with it (Alkhafaji, 2011).

With respect to the environment, some stakeholders expect that firms will operate in ways that minimize externalities such as water pollution, solid waste disposal, forest cover depletion and emission of environmentally harmful gases and assume greater responsibility to correct any effects that may occur (Alkhafaji, 2011). Failure by the organization to meet these expectations results in loss of legitimacy and subsequently diminishes its chances of survival. From a strategic point, firms that adopt GP practices have an edge over competition. Barney (2011) argues that corporate brand is a valuable resource overall and that there is evidence linking these to GP which is considered to have business value (Foerstl, Reuter, Hartmann & Blome, 2010).

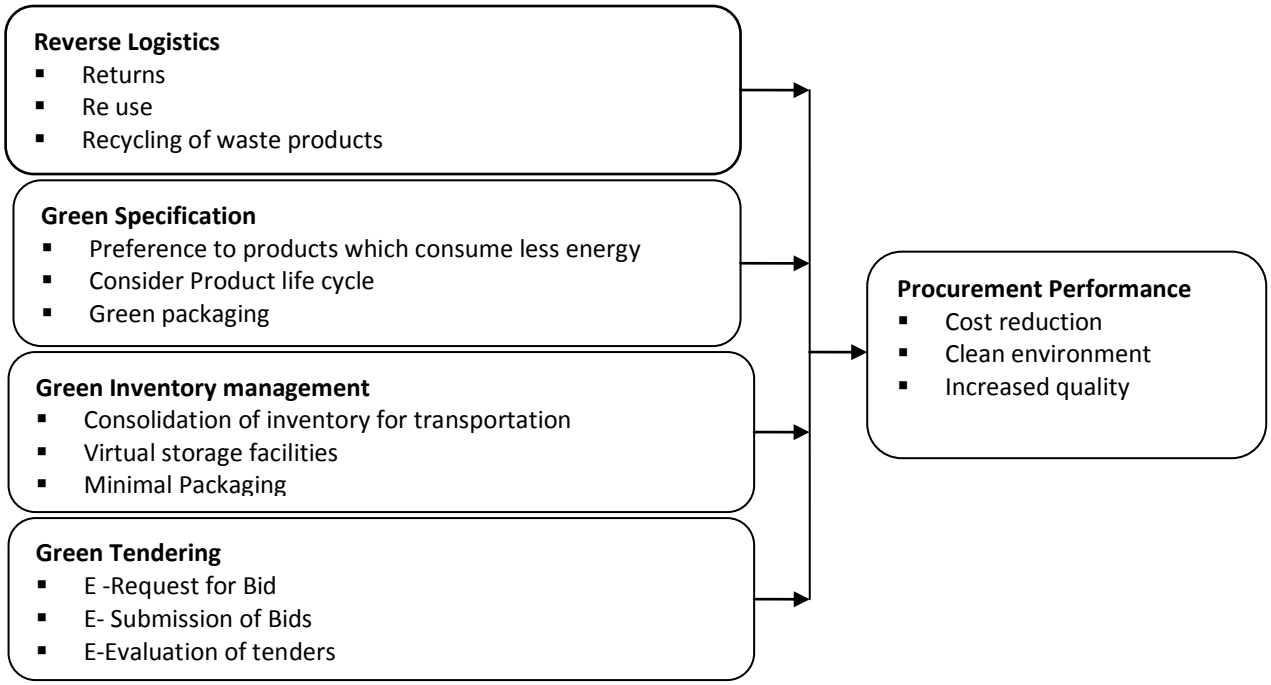

Figure 1: Conceptual Framework

Empirical Literature

Muttimos (2014), conducted a study on how organizational performance is affected by practices of reverse logistics in manufacturing firms in Kenya. The study used a survey research design and used a sample of ten manufacturing firms in the country. Increased organizational performance of manufacturing firms were found to be dependent

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on increased adoption of remanufacture and recycling reverse logistics practices with minimal adoption of reuse reverse logistics practice.

Kabergey & Richu (2015) carried a study on how operational performance is affected by reverse logistics in sisal processing firms in Nakuru County, Kenya. Their study discovered that operational performance is positively affected by product reuse as well as product recovery in sisal processing firms. It was recommended by the study that for the organizations to achieve competitive advantage, the top executives should always regard the reverse logistics as an important driver and strategy and should therefore be managed strategically same as all other critical areas of management.

A study done by Agarwal and Vijayvargy (2012), on supplier assessment in environmentally responsive supply chains through analytical network process found that Supplier assessment is also necessary for sustainable supply chain analysis based on the analytical network process (ANP) and environmental factors. Since environment protection has been concern to public in recent years, and the traditional supplier selection did not consider about this factor; therefore, this paper found introduces green criteria into the framework of supplier selection criteria, hence this criteria is very important for organizational performance. Liao and Rittscher (2013), carried out a study on green suppliers with environmental performance in the supply chain perspective he found out that GSCM lead to material cycles in the supply chains managed in an environmentally, socially, and economically responsible manner that is, the product must generated as little waste as possible and conserve energy ate each stage of the product's life cycle.

As Fung, Cheung, Lee and Kwok, (2015) postulates that virtual warehousing is a model developed for businesses with the aim of optimizing production, reducing costs and providing supply chain channels with customer service that is of high-quality. In addition, for it to keep providing operating efficiencies and visibility of global inventory that is similar to those realized in a single-location warehouse that is world-class, the virtual warehousing heavily depends on real-time decision algorithms as well as information technologies.

There was a proposal by Yang and Ma (2014) for the management of inventory of emergency spare parts using the VW model. The VW was employed in their research, for the management of the inventory of spare parts stocked in several locations to cater for any sudden surge in demand. Mathien and Suresh (2015) have in more recent times examined how appropriately VW can be implemented through sharing of information among the retailers and manufacturer and the suitable supply chain structures for the same. The appropriateness of the VW model for pooling inventory is in its provision of a search engine that is powerful and that assists in checking various locations simultaneously and is able to identify any sudden demand online.

Gitau and Shalle, (2014) posits that a clear base for the appropriate criteria of selection can be on records of compliance with regulations relating to sustainable procurement or policies of environmental procurement such as corporate policies of the organization, regulatory bodies' certification such as the National Environment Management Authority commonly referred to as NEMA, as well as the international standards organization also referred to as ISO. Humphreys, (2013) also offers a structure of the incorporation of environmental criteria into the process of selecting suppliers. The best evaluated tender/bid should be the one that offers the best in all the three sustainability aspects.

METHODOLOGY

The study used descriptive cross-sectional research design. The target population in this study was all the food and beverage manufacturing firms in Kenya, who were members of the Kenya Association of Manufacturers (KAM, 2018). Stratified random sampling was ideal for this study because the corporations from which the study was done were uniquely different as they fell under different categories. The study further used simple

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random sampling within the different strata. Since the study used primary data, the data was collected using a structured questionnaire as the main data collection instrument. Descriptive statistics were used to describe the basic features of the data in a study. Inferential statistics was used to make judgments of the probability that an observed difference between groups is a dependable one or one that might have happened by chance in this study

DATA ANALYSIS AND FINDINGS

In this study, the researcher had targeted 108 respondents from the food and beverages manufacturing firms in Nairobi County. Out of the 108 respondents, 100, which represented 93% of the respondents, fully completed and handed over their questionnaires while the rest (8) or 7% did not. The information presented in this chapter, therefore, was as derived from the 100 respondents.

Descriptive Statistics

Reverse Logistics and Procurement Performance

The aim of the researcher here was to establish the level of the participants' agreement to the statements relating to reverse logistics practices in their firms.

Table 1: Participants' Level of Agreement on Reverse Logistics Practices in the Firm

Statements	Mean	Std. Dev
Our company recycles waste products which minimises environmental pollution	4.24	0.557
The company is very keen in the monitoring of logistics returns	4.61	0.539
It is the policy of our company to properly dispose waste products	4.33	0.546
Our company constantly redesigns the packaging of the products so as to use less material	4.44	0.672
The company accepts and processes returned merchandise due to damage	4.24	0.601
Our company also recalls goods that have not met the customers standards	3.69	1.34

The study participants strongly agreed that their companies were very keen in the monitoring of logistics returns as illustrated by a mean score of 4.61. Additionally, the research participants agreed that their companies constantly redesigned the packaging of the products so as to use less material and that it was the policy of their companies to properly dispose waste products as evidenced by mean scores of 4.44 and 4.33 respectively. The respondents also agreed that their companies recycled waste products which minimised environmental pollution and that the companies accepted and processed returned merchandise due to damage as illustrated by mean scores of 4.24 respectively. The respondents also agreed that their companies recalled goods that had not met the customers' standards as shown by a mean score of 3.69.

The research also requested the participants to state whether there were any other reverse logistics practices used by their firms. Most of the research participants stated that instead of throwing them away as waste, their companies had started remanufacturing products that had been returned by customers because they were not earlier properly manufactured.

Green Specification and Procurement Performance

As illustrated, most of the respondents strongly agreed that their organizations assessed whether the intended procurement represented optimum value in terms of whole-life costing and quality and that the organizations specified on suppliers who supported a culture of improvement of social environmental performance as shown by mean scores of 4.50 and 4.49 respectively. Additionally, the respondents strongly agreed that their organizations incorporated environmental requirements during supplier selection as evidenced by a mean score of 4.48. The research participants also agreed that pollution control was one of the specifications during the selection of a supplier and that the companies demanded from their suppliers some checklists which prohibited using harmful substances as illustrated by mean

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scores of 4.41 and 4.29 respectively. The respondents further agreed that green packaging was also one of the specifications the organizations insisted on and that the companies preferred products which consumed less energy as illustrated by mean scores of 4.08 and 3.69 respectively.

Table 2: Level of Agreement on Green Specification Practices in the Firm

Statements	Mean	Std. Dev
The organization incorporates environmental requirements during supplier selection	4.48	0.511
The organization assesses whether the intended procurement represent optimum value in terms of whole-life costing and quality	4.50	0.303
We specify on suppliers who support a culture of improvement of social environmental performance	4.49	0.495
Pollution control is one of the specifications during the selection of a supplier	4.41	0.510
The company demands from their suppliers some checklists which prohibit using harmful substances	4.29	0.797
Green packaging is also one of the specifications the organization insists on	4.08	0.708
The company prefers products which consume less energy	3.69	0.693

The researcher additionally asked the participants to state any other green specification practices used by their firms. Majority of the respondents stated that one of the requirements in their supplier selection was statement on how the suppliers handled and disposed of their solid waste.

Green Inventory Management and Procurement Performance

The aim of the researcher was to establish the level of the participants' agreement to the statements relating to green inventory management.

Table 3: Participants' Level of Agreement on Statements on Green Inventory Management

Statements	Mean	Std. Dev
Our company has adopted and uses virtual warehousing in its supply chain	4.38	0.626
Inventory relocation here is conducted using inventory information instead of physical stock movement	4.44	0.613
Our company has adopted consolidation of inventory for transportation	4.08	0.708
Our company has adopted minimal packaging as a way of reducing environmental pollution	3.70	0.796
The company uses inventory pooling as a way of locating any abrupt demand or order to any site	4.31	0.667

As shown in the table, the study participants agreed that inventory relocation in their companies was conducted using inventory information instead of physical stock movement as evidenced by a mean score of 4.44. The respondents also agreed that the companies had adopted and used virtual warehousing in their supply chain and that the companies used inventory pooling as a way of locating any abrupt demand or order to any site as illustrated by mean scores of 4.38 and 4.31 respectively. In addition, the research participants agreed that their companies had adopted consolidation of inventory for transportation and that the companies had adopted minimal packaging as a way of reducing environmental pollution as shown by mean scores of 4.08 and 3.70 respectively.

Green Tendering and Procurement Performance

This section examined the level of the participants' agreement to the statements relating to green tendering.

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Table 4: Participants' Level of Agreement on Statements on Green Tendering

Statements	Mean	Std. Dev
The company has adopted e–request for bids in the procurement process	4.56	0.310
The company has incorporated e-submission of bids in its procurement process	3.96	0.653
The company also adopted technology in the evaluation of tenders	3.66	0.716
The purchasing department focuses on value by comprehensively considering the total cost in the process of eliminating waste	4.42	0.423
Close cooperation of with our suppliers promotes the successful completion of green purchasing activities	4.21	0.569

As illustrated, most of the research participants strongly agreed that the companies had adopted e–request for bids in the procurement process as illustrated by a mean score of 4.56. In addition most of them agreed that the purchasing departments focused on value by comprehensively considering the total cost in the process of eliminating waste and that close cooperation of with the companies' suppliers promoted the successful completion of green purchasing activities as illustrated by mean scores of 4.42 and 4.21 respectively. The respondents also agreed that the companies had incorporated e-submission of bids in their procurement process and that the companies also adopted technology in the evaluation of tenders as demonstrated by mean scores of 3.96 and 3.66 respectively.

The researcher additionally asked the participants to state any other green tendering practices used by their firms. Most of the respondents stated that their organizations monitored the activities of their suppliers and deduced the impact they had on the environment and consequently developed a purchasing environmental policy that was aimed at reducing their own impact to the environment as well as that of their suppliers, in their activities as well as the goods and services they offered.

Procurement Performance

The research also requested the research participants to indicate their level of agreement to statements relating to procurement performance. According to the findings as presented in table 5, most of the respondents indicated that there was a clean environment in the organizations as a result of adoption of sustainable green procurement as illustrated by a mean score of 4.34. In addition the respondents agreed that the companies had been able to reduce costs after adoption of sustainable procurement practices and that sales revenue had increased since the adoption of sustainable procurement as shown by mean scores of 4.25 and 4.16 respectively. Further, the respondents agreed that the procurement function was able to reach the objectives and goals with minimum costs as illustrated by a mean score of 3.76.

Table 5: Level of Agreement on the Procurement Performance

Statements	Mean	Std. Dev
The procurement function is able to reach the objectives and goals with minimum costs	3.76	1.302
The company has been able to reduce costs after adoption of sustainable procurement practices	4.25	0.212
There is a clean environment	4.34	0.222
Sales revenue has increased since adoption of sustainable procurement	4.16	0.156
There has been increased quality of products	3.88	1.021

Correlation Analysis

The study carried out correlation analysis between the variables of the study using Pearson product moment correlation coefficient. Correlation coefficient was used to test whether there existed interdependency between independent variables

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and whether the independent variables were related to the dependent variable, procurement performance.

Table 6: Correlation matrix

			Reverse logistics	Green specification	Green inventory management	Green tendering
Reverse logistics	Pearson correlation		1			
Green specification	Sig correlation	Pearson	0.413 0.000	1		
Green inventory management	Sig correlation	Pearson	0.372 0.000	0.460 0.000		
Green tendering	Sig correlation	Pearson	0.421 0.000	0.318 0.001	0.302 0.001	
Procurement performance.	Sig correlation	Pearson	0.567 0.003	0.517 0.013	0.502 0.021	0.479 0.026

The findings in table above indicated that the correlation between reverse logistics and procurement performance in food and beverages manufacturing firms in Nairobi City County was 0.567 with a corresponding p value of 0.003. The correlation coefficient was therefore significant and positive implying that if reverse logistics elements increase the procurement performance in food and beverages manufacturing firms in Nairobi City county also increases. The findings concur with Xie and Breen (2012), who asserts that reverse logistics is essentially the process of planning for the flow of raw materials, in-progress inventory as well as finished goods from the consumption point to the original point for purposes of either recapturing, adding value or even properly disposing off the goods.

The results further revealed that the correlation between green specification and procurement performance in food and beverages manufacturing firms in Nairobi City County was 0.517 with a corresponding p value of 0.013. The correlation coefficient was also significant and positive which implied that an increase in green specification increases the procurement performance in food and beverages manufacturing firms in Nairobi City County. This finding conforms to those of Chan et al., (2014) who suggests that since organizations are becoming heavily dependent on their suppliers, poor decision making as far as supplier selection is concerned will have dire consequences to the organization

The findings also indicate that the correlation between green inventory management and procurement performance in food and beverages manufacturing firms in Nairobi City County was 0.502 with a corresponding p value of 0.026. The correlation coefficient revealed a significant and positive association implying that if green inventory management increase the procurement performance in food and beverages manufacturing firms in Nairobi City County also increases. (Fichtinger *et al*. 2015) also emphasize that green inventory management is very crucial in the development of a supply chain that is carbon efficient facilities.

The finding results indicated that the correlation between green tendering and procurement performance in food and beverages manufacturing firms in Nairobi City County was 0.479 with a corresponding p value of 0.021. The correlation coefficient revealed a significant and positive

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association implying that increase in green tendering increases the procurement performance in food and beverages manufacturing firms in Nairobi City County. Avery (2015), postulated that Suppliers must ensure that the materials as well as other components entering the firm, in the process of procuring and purchasing, are up to standard.

Multiple Regression Analysis

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.892	0.796	0.791	1.073

According to Table 7, the four variables that were studied reverse logistics, green specifications, green inventory management and green tendering) explained 79.6% of the procurement performance of food and beverage manufacturing firms in Nairobi City County as represented by the R^2. This therefore meant that the four variables (reverse logistics, green specifications, green inventory management and green tendering) contribute 79.6% to the procurement performance of food and beverage-manufacturing firms in Nairobi City while other aspects not studied in this research contribute 20.4% of procurement performance of food and beverage manufacturing firms in Nairobi City.

Table 8: ANOVA Results

Model	Sum Squares	Df	Mean Square	F	Sig.
Regression	734.11	4	183.528	92.821	0.000
Residual	187.83	95	1.9772		
Total	**921.94**	**99**			

The results showed that the regression relationship was highly significant in predicting the effect of reverse logistics, green specification, green inventory management and green tendering in procurement performance in food and beverages manufacturing firms in Nairobi City County as shown by p-value (0.000) <0.005 and F calculated at 5 percent level of significance (92.821)>F critical (value = 2.428).

Table 9: Coefficients of Determination

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.319	0.352		3.747	0.000
Reverse logistics	0.634	0.214	0.591	2.963	0.003
Green specification	0.793	0.317	0.648	2.502	0.013
Green inventory management	0.608	0.271	0.575	2.244	0.021
Green tendering	0.542	0.233	0.517	2.326	0.026

The established model for the study was:

$$Y = 1.319 + 0.634X_1 + 0.793\ X_2 + 0.608X_3 + 0.542X_4$$

As per regression equation, it was established that taking all the factors constant at zero procurement performance in food and beverages manufacturing firms in Nairobi City County was 1.319.

The findings presented shows that reverse logistics positively affects procurement performance in food and beverages manufacturing firms in Nairobi City County as shown by r=0.634. This variable was significant since p=0.003 is less than 0.05. These findings were in line with those of Muttimos (2014), who stated that Increased organizational performance of manufacturing firms were found to be dependent on increased adoption of remanufacture and recycling reverse logistics

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practices with minimal adoption of reuse reverse logistics practice.

The study further revealed that green specification positively affects procurement performance in food and beverages manufacturing firms in Nairobi City County as shown by r=0.793. This variable was significant since p=0.013 which is less than 0.05.

Moreover, the study showed that green inventory management positively affects procurement performance in food and beverages manufacturing firms in Nairobi City County as shown by r=0.608 on. This variable was significant since p=0.026 was less than 0.05. These findings were consistent with those of Fung, Cheung, Lee and Kwok, (2015) who postulates that virtual warehousing is a model developed for businesses with the aim of optimizing production, reducing costs and providing supply chain channels with customer service that is of high quality

Finally, the study revealed that green tendering positively affects procurement performance in food and beverages manufacturing firms in Nairobi City County as shown by r=0.542. This variable was significant since p-value=0.021 was less than 0.05. These findings were in line with those of Gitau and Shalle, (2014) who stated that a clear base for the appropriate criteria of selection can be on records of compliance with regulations relating to sustainable procurement or policies of environmental procurement such as corporate policies of the organization, regulatory bodies' certification.

CONCLUSION

The study also concluded that the companies were very keen in the monitoring of logistics returns. The companies constantly redesigned the packaging of the products so as to use less material and that it was the policy of their companies to properly dispose waste products. In addition, the companies recycled waste products which minimised environmental pollution and that the companies accepted and processed returned merchandise due to damage. The companies recalled goods that had not met the customers' standards and instead of throwing them away as waste, the companies had started remanufacturing products that had been returned by customers because they were not earlier properly manufactured.

The study concluded that in majority of the manufacturing firms, green specification had been incorporated to great extent. The organizations assessed whether the intended procurement represented optimum value in terms of whole-life costing and quality and that the organizations specified on suppliers who supported a culture of improvement of social environmental performance. The organizations incorporated environmental requirements during supplier selection. Pollution control was one of the specifications during the selection of a supplier and that the companies demanded from their suppliers some checklists which prohibited using harmful substances. The research also concluded that green packaging was also one of the specifications the organizations insisted on and that the companies preferred products which consumed less energy.

The study concluded that most of the firms had practiced green inventory management to a great extent. The inventory relocation in the companies was conducted using inventory information instead of physical stock movement. The companies had adopted and used virtual warehousing in their supply chain and that the companies used inventory pooling as a way of locating any abrupt demand or order to any site. The companies had adopted consolidation of inventory for transportation and that the companies had adopted minimal packaging as a way of reducing environmental pollution.

The study also concluded that the companies had adopted e–request for bids in the procurement process. The purchasing departments focused on value by comprehensively considering the total cost in the process of eliminating waste and that close cooperation of with the companies' suppliers promoted the successful completion of green purchasing activities. The companies had incorporated e-submission of bids in their

The Strategic Journal of Business & Change Management. **ISSN** 2312-9492 (Online) 2414-8970 (Print). www.strategicjournals.com

procurement process and that the companies also adopted technology in the evaluation of tenders. The organizations monitored the activities of their suppliers and deduced the impact they had on the environment and consequently developed a purchasing environmental policy that was aimed at reducing their own impact to the environment as well as that of their suppliers, in their activities as well as the goods and services they offered.

The study further concluded that there was a clean environment in the organizations as a result of adoption of sustainable green procurement. That companies had been able to reduce costs after adoption of sustainable procurement practices and that sales revenue had increased since the adoption of sustainable procurement. Further, the study concluded that the procurement function was able to reach the objectives and goals with minimum costs.

RECOMMENDATIONS

Based on the above findings, the study recommended that the companies consider the full adoption of remanufacture and recycling reverse logistics practices as well as adoption of reuse reverse logistics practice.

The companies incorporate criteria of environmental performance at the supplier evaluation and selection stages and also fully integrate environmental requirements in their procurement specifications for goods and services.

The study further recommended that firms should work together with their supply chain counterparts so as to cultivate supply sources that continuously support social environmental performance.

The organizations to fully develop and adopt virtual warehousing with the aim of optimizing production, reducing costs and providing supply chain channels with customer service that is of high-quality. The study also recommended that organizations fully adopt inventory pooling in order to reduce costs while at the same time improving their performance logistically and the maintenance management.

The study also recommended that the organizations should monitor the activities of their suppliers and deduce the impact they have on the environment and consequently develop a purchasing environmental policy that will be aimed at reducing their own impact to the environment as well as that of their suppliers, in their activities as well as the goods and services they offer.

Recommendations for Further Studies

The study recommended that further research be carried out on the influence of sustainable procurement practices on the performance of procurement in food and beverages manufacturing firms in Kenya. In doing so, since this study was based in Nairobi County, the research should focus on all the other Counties in Kenya to get the actual state of affairs across the country.

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