Effect Of Green Procurement On Performance In Manufacturing Sector In Del Monte Company Limited, Kenya

Humphery Shiyuka Likholo[*], **Dr. Wilberforce Senelwa(PhD)**[**]

[*] Msc. Student, department of Procurement and Logistics, School of Human Resource Development; Jomo Kenyatta University of Agriculture and Technology, Kenya
[**] Lecturer, Department of Procurement and Logistics, School of Human Resource Development: Jomo Kenyatta University of Agriculture and Technology, Kenya:

Abstract- The study focused on the effect of green procurement practices on performance in manufacturing sector in Kenya with a bias on Del Monte Company Limited. The specific objectives were; to determine the effect of Supplier Assessment on Performance in manufacturing sector in Kenya; to examine the effect of eco-design practices on performance in the manufacturing sector in Kenya; to examine the effect of Reverse logistics practices on performance in the manufacturing sector in Kenya and finally, to assess the effect of e-procurement practices on performance in the manufacturing sector in Kenya. The underpinning theories of the study were; Stakeholder theory, System theory, Legitimacy theory, and Institutional theory. The study adopted a descriptive research design for a thorough study of the earmarked research objectives. The study targeted a research population of 243 company employees where a sample of 73 employees was used in collecting data and eventual analysis. A census method was then employed on all the sample respondents to ensure each and every targeted member in the sample size had his/her views captured. Data was collected using the questionnaire covering all the study objectives. The sample size comprised of senior managers (15), Middle-level managers (28) and procurement staffs (30). Collected data was analyzed and interpreted using the Statistical Package for Social Sciences version 24 where relevant statistical tables were extracted for analysis and interpretation using multiple regression, correlation and ANOVA for purposes of determining the relationships between the variables. The findings of the study revealed a statistically significant effect of the specific variables on the dependent variable. The study employed the F-test in predicting the dependent variable where F=9.70 >.05 significance level which indicated that the model significantly predicted how the independent variables affect the dependent variable (Performance of manufacturing sector in Kenya) with Supplier Assessment Practice explaining 41.2% (t~3.072)of performance in the manufacturing sector, Eco-design Practice 54.5% (at t~3.781), Reverse Logistics Practice 37.3% at (t~3.006) and e-Procurement Practice 51% at (t~3.425) of Performance in the Manufacturing sector in Kenya (Del Monte Company Limited). The study was important and significant to the manufacturing sector in Kenya and the region since it contributed to the knowledge on green procurement which is key to environmental preservation and proper performance.

I. INTRODUCTION

Background of the Study

According to Makori (2017), Green Procurement, also referred to as Affirmative Procurement, is the purchasing of products or services which have lower adverse impact on the environment over their entire life cycle than standard equivalent. In relation to this definition, products or services consuming fewer natural resources than other competing products or services, that exert greater environmental impact, ought to be prioritized. Green Procurement or otherwise referred to as sustainable Procurement entails putting into consideration the social, environmental and financial factors while focusing beyond traditional economic parameters in arriving at procurement decisions that are based on the total life cost, associated risks, success measures and societal & environmental implications (CIPS, 2014; Nderitu and Ngugi, 2014).

Green procurement is the purchasing of items and services with lower-than-average environmental impacts (Gitari and Were, 2014). Green procurement refers to the purchase of items or services that have a reduced environmental effect across their full life cycle than their regular counterparts. It is the process of incorporating environmental concerns into purchasing decisions that are made on the basis of performance, quality, and price (Coddington, 2013; Gitari and Were, 2014). According to Bolton (2010), green procurement is basically the principle of preventing pollution for purposes of eliminating or reducing human health and environmental risks. Green purchasing is all about evaluation

of purchases based on a variety of criteria that ranges from purchase necessity to availability of eventual disposal options (Gitari and Were, 2014).

A number of Kenyan private firms have been striving towards improving their operations and product environmental performance which has been logically extended by green procurement practices. This green procurement practice has evidently been brought to the fore in the last two decades for specific products which include; content-recycled office paper, paints, cleaners and renewable energy among others and also the materials, substances and the chemicals purchased for products and services provided. These firms have also been developing green procurement policies covering wider products and services range and environmental issues (Odhiambo, 2018).

Statement of the problem

Lutz (2016) explored on the different approaches in which public procurement support sustainable development in the England local governments. His identification of areas where procurers adopt initiatives in addressing all aspects of sustainable procurement contributed greatly by including the encouragement to the first-tier suppliers to use local businesses to subside or replace hazardous materials in products and services on the environment side.

While surveying 281 procurement files between 2007 and 2009 relating to eight product categories with an intention to establish evidence of connections between sustainability policy goals in public procurement tenders & offers and their achievement through contract award, Amann et al., (2013) found that public procurement was more effective in influencing socially responsible goals than socially responsible operations. Muraguri (2013) while studying on implementation of the preference and reservation regulation of 2011 while focusing on state owned Nairobi enterprises anchored recommendations on the operationalization of the regulation. While researching on green supply chain of personal care manufacturing firms in Nairobi, Amina (2013) found out that management was well aware of the firms' threats on the environment resulting from supply chain waste. The study found out, from the procurement managers as respondents, that most firms did not use environmental issues in the criteria for selecting suppliers, if though they were aware, however, a large number of the firms didn't utilize the services of professionals in the coordination of environmental purchasing efforts.

According to Katra (2012), the green procurement practices positively impacted and highlighted green supply chain relevance towards overcoming environmental challenges was highly appreciated by manufacturing firms in Mombasa. The previous research in the developing economies, however, never focused on Del Monte Company which apparently faces several challenges, among them; failure to produce products that are environmental friendly, implement green procurement because of the high costs associated with it, unavailability of comprehensive and existing tools and stakeholders to evaluate the sustainability criteria. This study therefore will set out to fill the gap by narrowing down to del Monte company, a fruit manufacturing private commercial firm in Thika, Kiambu County, Kenya with an aim of assessing how sustainable procurement practices affect its performance in the manufacturing sector in Kenya. The identified gap will be tested using the research hypothesis set ought for the study.

Objectives of the Study
General Objective

The general objective of the study was the Effect of Green Procurement on Performance in Manufacturing Sector in Kenya.

Specific Objectives

The following were the specific objectives of the study:

1. To determine the effect of Supplier Assessment on Performance in Manufacturing Sector in Kenya.
2. To examine the effect of the Eco-design on Performance in Manufacturing Sector in Kenya.
3. To examine the effect of Reverse Logistics on Performance in Manufacturing Sector in Kenya.
4. To assess the effect of E-Procurement on Performance in Manufacturing Sector in Kenya.

Theoretical Framework
Theoretical Review

A theoretical framework explains how the researcher thoughts on the possible answers on the area under review are developed (Telewa, 2014). The research focused mainly on the green procurement practices at Del Monte Company in Kenya. The study was underpinned on the following theories; Stakeholder theory, System theory, Legitimacy theory, and Institutional theory.

Stake Holder Theory

The term stakeholder was first coined by Stanford Research Institute in 1963 and according to Friedman and Miles (2006) and Weng, Chen and Chen (2015), the term stakeholder is defined as those groups without whose support, the organization will seize to be in operation. Ramakrishnan, Haron and Goh (2015) opined that Freeman was the first to bring the stakeholder concept into strategic discipline where he went ahead and distinguished stakeholders from shareholders while also indicating the impact of various stakeholders in the decision making process of companies (Donaldson and Preston, 1995; Mitchell, Agle and Wood, 1997; Weng, Chen and Chen, 2015).

According to Freeman (2017) definition; Stakeholder refers to any group or individual who can affect or be affected by the achievement of an organization's objectives, these groups/individual are vital to the survival and success of the corporation. The Stakeholder theory suggests that firms produce externalities affecting many parties (Stakeholders) important to the firm and often cause increased pressures on firms to increase positive (saving the environment from pollution) as well as reduce negative impacts negative impacts (Sarkis, 2016). Stakeholder groups include; employees, customers, suppliers and distributors, local communities, shareholders, media, general public, partners in business, future generations, company promoters, competitors, trade unions (being stakeholder representatives), government, financiers among others (Ramakrishnan, Haron and Goh, 2015).

The pillar of stakeholder theory suggests that the company decisions affecting stakeholder outcomes need to be ethical and the action of an agent affecting other agents need the building of company ethical principles while decisions made exclusively without any consideration of their impact are thought to be

unethical (Ramakrishnan, Haron and Goh, 2015). Evan and Freeman (1990) concluded that firms act as vehicles for coordinating stakeholder interests and their perceived benefits and should facilitate their participation in decisions that greatly touch on their welfare.

This clearly indicates that a stakeholder approach is justified in the development of environmental strategies, towards GP adoption. Even though results from previous studies have been inconsistent on the influence of stakeholders on environmental management, the stakeholder theory has been adopted for several environmental studies such that stakeholders have been instrumental in influencing both corporate ecological responsiveness and environmental strategies of different firms (Weng, Chen and Chen, 2015). Kassinis and Vafeas (2002) as quoted by (Weng, Chen and Chen, 2015) concluded that corporate boards of large corporations have stakeholders as the core decision making unit on corporate environmental policies. According to Wagner (2007), German manufacturing firms' stakeholders influence companies' choices on environmental response patterns, these companies were also positively associated with patented environmental innovations, however, in Belgian firms, this relationship between environmental strategies and stakeholder management was more limited. This study therefore sought to adopt the stakeholder theory in its study model which included independent variables like; Supplier Assessment, Eco-design, Reverse Logistics and e-procurement on Performance in manufacturing sector (A case of Del Monte Company, Kenya).

System Theory

Systems theory explains the relationship among organization sections/parts and how a change in one section affects other sections within the organization (Li and Geiser, 2009; Sarhaye, 2017). Sarhaye (2017) further posits that organizations thrive when systems interact with the environment and any constantly changing equilibrium enables the organization to adapt to its changing environment. Systems theory is founded on the premise that all components of an organization are interrelated and that any change to one variable impacts many others (Maignan et al. 2012). An organization is viewed as an open system that continually interacts with the environment and that organizations are in a state of dynamic equilibrium as they adapt to environmental changes.

Through Systems theory, organizational structure is viewed as the established pattern of relationship and duties among the organization sections/parts (Lozano and Valles, 2013). These include themes of activity coordination (Integration); tasks division (Differentiation); hierarchical structure relationships (authority systems) and formalized policies, procedures and controls guiding the organization (administrative systems) (Maignan et al., 2012; Sarhaye, 2017). Marron (2013) indicated that organizations are open systems that depend on their environment for support and that the relationship between these organizations and their environment is characterized by a two-way flow of information and energy even though most of them try to influence their environment. Due to this perspective, systems theory supports corporate social responsibility where organizations interact with their respective environments as a system to enable them collaborate (Sarhaye, 2017).

Systems theory is important to this study, in relation to the reverse logistics variable, because it is part of the organizational structure which has an effect on the financial position of the organization. Through focusing on the management and movement of products and resources after the sale and delivery to the customers, reverse logistics as a process aids organizations to become more capable environmentally through the recycling, reusing, and reducing the amount of used materials (Marron, 2013).

Legitimacy Theory

Legitimization is a crucial influential component on how organizations are built, operated, understood and evaluated simultaneously (Suchman's assertion, 1995). Legitimacy of a firm serves as a source for additional external resources and as a tool for consolidation of both internal and external firm reputation (Bitektine, 2011). According to different scholars' definitions of the term legitimacy, varying degrees of specificity can be noticed; According to Sarhaye (2017), legitimacy is a general perception or assumption that entity actions are appropriate within some socially constructed systems of values, norms, beliefs, and definitions. From the definition, legitimacy is the existence of a social contract between respective companies/firms and stakeholders.

Legitimacy has a unique ability to connect organizational actions and stakeholder expectations which has led to a widespread support for the notion that superior rewards and benefits can stem from legitimate behavior. With the historical approaches to legitimacy being from two perspectives, i.e institutional and strategic perspectives; institutional perspective envisions legitimacy as a process of institutionalization and adoption of external norms and beliefs without much thought while the strategic theoretical perspective envisions legitimacy as being instrumental, proactive, a deliberate pursuit that can enhance external beliefs and creating legitimacy that is newer and at enhanced levels.

The legitimacy based view provides a sound theoretical basis for the explanation of environmentally oriented initiates due to its ability to explain the organizational initiatives without following profit-maximization norms. Studies suggest that pressures from firms' institutional field drive towards seeking legitimacy in the stakeholders' eyes (Sarhaye, 2017). According to Sarhaye (2017) in his citing of Oliver (2005), firm respond to external institutional pressure through the emphasis of the importance of obtaining legitimacy for purposes of demonstrating social worthiness. This is over and above the institutionalization highlights of organizational skeptics.

These ideologies view legitimacy within institutional lenses as regulatory compliance, competitive advantage, social concerns among others as key proponents of corporate environmental initiatives. Organization theorists contend that the visibility of an organization can invite increased institutional pressure to pursue environmentally sound practices. Organizational visibility suggests that an organization is publicly recognized, and hence more closely scrutinized by external stakeholders – customers, media, environmentalists, as well as government agencies when it comes to environmental issues. Accordingly, visible organizations will have to consciously respond to stakeholder demand to maintain their reputation and legitimacy (Sarhaye, 2017). With

regards to this theory, suppliers are key stakeholders in every organization. Their reputation will determine whether the purchasing organization will do business with them hence legitimacy theory is linked to green supplier assessment.

The theory was used in this study to bring out the role of the corporate social responsibility. This ensures that the long-term viability of company business is maintained by being proactive and innovative in protecting the environment and be recognized as one of the most responsible corporate entity by all stakeholders.

Institutional Theory

Institutional theory has been a commonly applied theory ever since 1930 for purposes of understanding the firms' response to increasing pressures for environmental management (Bansal and Clelland, 2004; Nyile, 2016). Because of the increased public awareness concerning organizational failure and environmental demands, its recommended by institutional theory that companies gain legitimacy through reduction of environmental impact and by being socially responsible (Bansal, 2005). Firms also adopt sustainable procurement practices due to institutional pressure, which may include; conformance to environmental strategies complying with regulations and industry standards or reduction of environmental impact of operations beyond regulatory requirements (Sharma and Erramilli, 2004; Nyile, 2016). Organizations can also engage with customers and suppliers for purposes of improving the environmental performance through idea exchange, suggestions and corrections (Nyile, 2016).

According to Meyer and Rowan (2016), institutional theory opines that the institutional environment influences strongly formal structures development in an organization more than market pressures. Innovative structures in organizations are therefore legitimized in order to improve efficiency and these innovations ultimately reach levels of legitimization where failure of their adoption is seen as irrational and negligent. Both new and existing organizations embrace the structural form even when it does not boost efficiency leading to ceremonial acceptance of the "Institutional Myths" for organizations to maintain legitimacy in the institutional environment with structures in relation to job titles, procedures and roles.

Supplier Assessment

Supplier evaluation refers to the process of evaluating suppliers based on their environmental performance and only doing business with those who adhere to established environmental norms and standards. Green product pollution control and green packaging are two elements that most businesses examine (Sarhaye, 2017). Supplier assessment encompasses both supplier selection and evaluation, which is a multi-criteria decision-making (MCDM) technique that provides an effective framework for comparing suppliers by taking qualitative environmental performance as an indicator in green supplier selection (Sarhaye, 2017).

Priority should be placed on pollution control as an important parameter to be accomplished in getting suppliers selected since companies ought to deal with suppliers with some special and unique values together with supplier attitude towards pollution which should determine the selection of suppliers (Marshall and Farah-Bakhsh, 2013). The production rate in the energy consumption is greatly increasing, in the production

Conceptual Theory
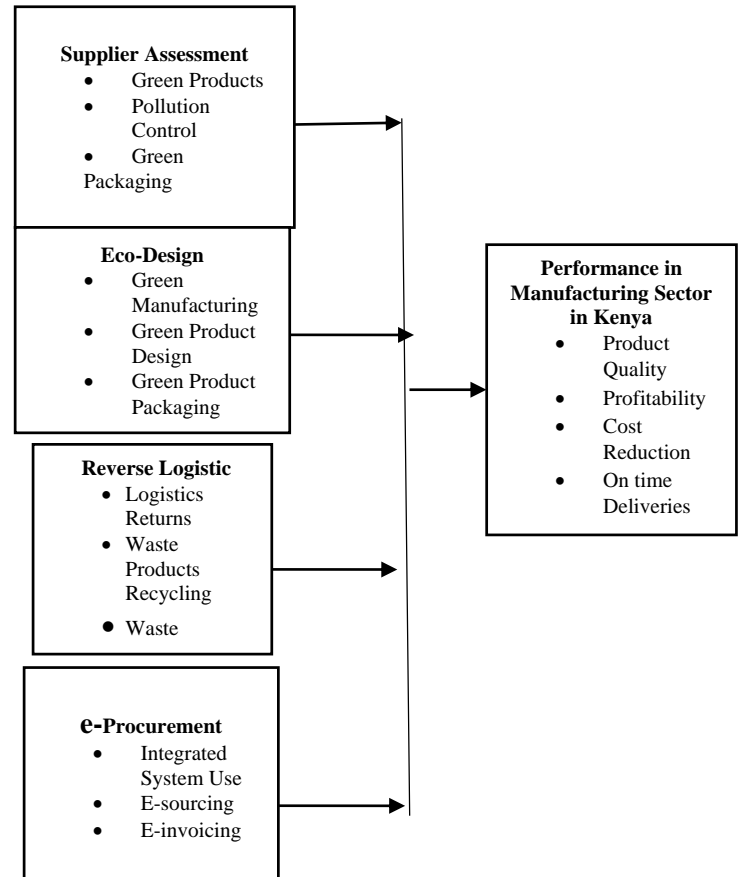
process, pollution is the by-product of energy use, which has been known to cost both a lot of money and also destroys the environment irreparably (Zang and Zhao, 2012). Zang and Zhao (2012) further states that due to this reason, companies demand from their suppliers some checklists which prohibit using harmful substances.

Along with typical selection criteria such as cost, flexibility, quality, and lead time, new aspects are also taken into account, and in this case, a green product is an interesting agent to use. Green packaging is a type of packaging that is designed to safeguard the environment by using environmentally friendly materials that dissolve or disappear in nature without harming the environment (Zang and Zhao, 2012). Reduce, Reuse, Reclaim, Recycle, and Degradable (abbreviations for Reduce, Reuse, Reclaim, Recycle, and Degradable) can be utilized to achieve green packaging.

Eco Design

Eco-design is the product and/or process environmental design which focuses on reducing or preventing product environmental effect before its production, distribution and use

(Al Khattab et al., 2015; David and Muthini, 2019). According to David and Muthini (2019), the concept of engineering and design for the manufacturability and assembly that targets the product simplification designs for purposes of ensuring that the products are not expensive over their full life cycle is where the eco-design originates from.

Sisodiya (2017) stated that eco-design comprises five processes; environmental impact assessment; market research; generation of ideas or brainstorming; design strategy selection and product design. The scholar further posits that the genesis of the eco-design concept was at the Rio Summit of the World Business Council for sustainable Development (WBCSD). The intention being to design a product or service that minimizes the environmental impact. Eco-design is effective all through the product life cycle stages and promotes: extraction of raw materials, production, packaging, distribution, usage, recovery, recycling and incineration. All these activities/stages lead to the eco-design impact on procurement performance through efficiency (David and Muthini, 2019).

Reverse Logistics

Reverse logistics is the movement of products from the point of consumption to the business manufacturing sites (Diabat et al., 2013). Reverse logistics deal with the recycling, repairing, reusing, remanufacturing and careful disposal of materials/products (Das and Chowdhury, 2012; Mafini and Okoumba, 2018). It's contribution also goes towards ensuring customer after-sales satisfaction since its implementation leads to better optimization of aftermarket processes like recycling and proper waste disposal (Bernon, Rossi and Cullen, 2011). The determinants preconditioning effective implementation of reverse logistics activities include; product/ material repairing, remanufacturing, and reconditioning (Khor *et al.*, 2016).

Sarhaye (2017) stresses that reverse logistics goes beyond reusing containers and recycling packaging materials in an organization, he stresses that it also involves waste products recycling, logistic returns monitoring, proper disposal of waste products, package redesigning to use less material, reducing energy and pollution from transportation, processing returned damaged merchandise, salvage, restock, recalls and hazardous material programs, disposal of obsolete equipment and asset recovery. Srivastava (2013) noted that reverse logistics operations support a variety of activities ranging from "green logistics" that is, the efforts put in to reduce the procurement environmental impact to activities that encompass repairs, product returns and refurbishment. Logistical prominent issues include; consumption of non-renewable natural resources, air emissions, road usage and congestion, noise pollution, and both hazardous and non-hazardous waste disposal (Russo and Cardinali, 2012). Customer risk when buying a product and increase in customer value can be reduced by reverse logistics while the success of reverse logistics implementation needs the coordination of both forward and backward flows of both materials and information (Russo and Cardinali, 2012).

E-Procurement

E-procurement is the aspect of the procurement function support by various forms of electronic communication (Yatundu, et al., 2016). In Kenya, ICT has been greatly adopted by both public and private sector in service delivery to the public and citizen in general (Mambo, 2015). From the existing literature, a number of firms in Kenya have adopted the use of e-procurement technology successfully. The Public Procurement and Asset Disposal Act (PPAD, 2015) provided the use of e-procurement as one of the procurement procedures through electronic reverse auction. PPAD (2015) defined electronic reverse auction as an online real-time purchasing technique utilized by the procuring entity to select the successful submission, involving presentation by tenderers, suppliers/contractors of successively lowered bids during scheduled periods and the automatic evaluation of bids. This process aims at ensuring reduced tendering delays as well as transparency and accountability. Due to the need for companies to integrate key functions such as procurement and streamline as well as enhance transparency in management, they have adopted the policy of using e-procurement (Mambo, 2015).

Research Methodology

The study will adopt a case study approach within Del Monte Company in collecting data for the study to justify the relationship between the dependent variable (Performance of Manufacturing sector in Kenya) and the independent variables (Supplier Assessment Practice, Eco-design Practice, Reverse Logistics Practice, and e-procurement Practice).

A case study was adopted because it allowed an in-depth exploitation of the pattern of behavior in the area under study as well as providing room to the researcher to employ one or more research methods as circumstances permit (Nyale, 2016). Green Procurement Practices were identified in the company and there role on performance in the manufacturing sector also identified. Nyale (2016) further averred that case study approach is the most appropriate for examining event unfolding processes, exploring causal relationships and provision of holistic understanding of phenomena.

The target population of interest to this study consisted of 243 staff members

A study sample is the subjects from which study information/data is obtained (Creswell, 2013). Creswell (2013) further says that there is no widely recommended formula to be used in the determination of the study sample. Sampling technique is the procedure adopted in the selection of a sample from a target population. The study adopted the stratified random sampling technique in sample selection for purposes of data collection. Sample population was from the transport and agriculture, production and engineering departments of the firm and was determined using Mugenda and Mugenda (2003) formula which provide that 30% of the target population is a reasonable enough sample size for carrying out the study. This brought the sample size to seventy-three (73) staffs

The study used questionnaires in collecting data for analysis purposes. According to Wekesa (2016), a questionnaire is a potent tool used to capture valuable data from the targeted population. The questionnaires were designed in a likert-scale format i.e. showing the respondents' agreement /disagreements on the questions or statements posed to them.

According to Likert (1932), a likert-scale was on a five-point scale with the lowest scale representing strongly disagree (SD) while the highest scale was strongly agree (SA). Questionnaires were preferred for this study because they enabled data to be collected with investigation ease and economical way

of data accumulation. This also allowed the researcher to collect both qualitative and quantitative data while including the respondents' opinion on the research objectives.

reliability analysis purposes to measure the consistency of the research instrument towards the reflection of the overall reliability of the study variables. The results were then correlated with other scores obtained from other items in the research instrument to determine how the items correlated and measured the internal consistency. A Cronbach Alpha coefficient method was adopted being the most commonly used measure of reliability for scored data with the most acceptable alpha coefficient being 0.70 and above on a scale of 0 to 1.

Collected data was analyzed and presented using frequency tables, Analysis of Variances (ANOVA), Correlation, and Regression tables. The statistical Package for Social Sciences (SPSS version 24) was used. Inferential statistical methods were adopted for purposes of determining the relationship between the predictor variables and predicted variable. The analyzed data was then presented in form of a multiple linear regression model of the form;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon_i$$

Research Results
Supplier Assessment on Performance in the Manufacturing Sector
On supplier assessment, the findings from the data analysis were as presented in the table below;

Effect of Supplier Assessment on Performance

	SD	D	UD	A	SA
	%	%	%	%	%
Supplier assessment is carried out on the basis of ability to supply green products for safe environment	22	32	10	14	22
Firm supplier selection and evaluation ensures provision of effective green packaging	7	10	7	44	32
Ability to control pollution for safe environment is one of the factors considered in supplier assessment	3	7	10	44	36
Supplier assessment contributes greatly towards the overall organizational performance	7	14	14	43	22

The respondents' feedback on the first specific variable (Supplier Assessment) was presented as shown in the table below.

As to whether supplier assessment is carried out on the basis of ability to supply green products for safe environment, 22% of the

respondents strongly disagreed, 32% disagreed and 10% of the respondents were undecided as to whether supplier assessment is carried out on the basis of ability to supply green products for safe environment. 14% of the respondents agreed while 22% strongly agreed that supplier assessment is carried out on the basis of ability to supply green products for safe environment. On whether Firm supplier selection and evaluation ensures provision of effective green packaging, 7% of the respondents strongly disagreed and remained undecided respectively, 10% disagreed, 44% agreed while 32% strongly agreed that indeed firm supplier selection and evaluation ensures provision of effective green packaging.

Asked to comment on whether ability to control pollution for safe environment is one of the factors considered in supplier assessment in the firm, only 3% strongly disagreed, 7% disagreed and 10% remained undecided. 44% of the respondents agreed that

firm ability to control pollution for safe environment is one of the factors considered in supplier assessment while 36% strongly agreed. From the results, majority of the respondents (80%) were in agreement that Ability to control pollution for safe environment is one of the factors considered in supplier assessment. The final statement/question to the respondents on this variable was whether supplier assessment contributes greatly towards the overall organizational performance, 7% of the respondents strongly disagreed, 14% disagreed and remained undecided respectively. 43% and 22% agreed and strongly agreed respectively.

Eco-Design on Performance in the Manufacturing Sector

The data analysis findings on the second variable (Eco-design) were as presented in the table below;

Effect of Eco-design on Performance

	SD	D	UD	A	SA
	%	%	%	%	%
User satisfaction is enhanced by green product packaging	22	14	10	32	22
Company green product design has improved product quality	4	4	10	43	39
Company product cost is improved through green product design	14	14	7	39	26
Green manufacturing improves product quality	3	4	10	44	39

As far as the second specific study variable (Eco-design) was concerned, 22% of the respondents strongly disagreed as to whether user satisfaction is enhanced by green product packaging, 14% disagreed, 10% remained undecided, 32% agreed while 22% strongly agreed. Overall, it was clear that the respondents were almost divided into half as concerns user satisfaction enhancement by green product packaging. As to whether company green product design has improved product quality, 4% strongly disagreed and disagreed respectively, 10% remained undecided, 43% agreed and 39% strongly disagreed.

As to whether company product cost is improved through green product design, 14% of the respondents strongly disagreed and disagreed respectively, 7% remained undecided, and 39% agreed that company product cost is improved through green

product design while 26% strongly agreed that indeed company product cost is improved through green product design. Concerning whether green manufacturing improves product quality, 3% of the respondents strongly disagreed, 4% disagreed and 10% were undecided. 44% of the respondents agreed that green manufacturing improves product quality while 39% strongly agreed.

Reverse Logistics on Performance in the Manufacturing Sector

below was recorded the feedback by the respondents on the third study specific variable (Reverse Logistics);

Effect of Reverse Logistics on Performance

	SD	D	UD	A	SA
	%	%	%	%	%
There is a safe environment in the organization that ensures customer satisfaction is achieved	14	16	14	37	19
Productivity is very well enhanced by proper warehousing management in the organization	7	10	17	39	27
The Company ensures timely material deliveries and hence a safe environment	10	10	14	29	37
A proper manufacturing cycle is maintained by the firm	0	7	10	44	39

Data was collected on the effect of reverse logistics on performance of manufacturing sector in Kenya by finding out from the respondents on number of questions/statements and their feedback recorded. As to whether there is a safe environment in the organization that ensures customer satisfaction is achieved, 14% of the respondents strongly disagreed, 16% disagreed, and another 14% of the respondents remained undecided. 37% agreed while 19% strongly agreed that there is a safe environment in the organization that ensures customer satisfaction is achieved. The second question was whether productivity is very well enhanced by proper warehousing management in the organization; 7% of the respondents strongly disagreed with the question, 10% disagreed and 17% were undecided. 39% agreed while 27% of the respondents strongly agreed that productivity is very well enhanced by proper warehousing management in the organization, The respondents were also requested to respond to whether the Company ensures timely material deliveries and hence a safe environment where 10% strongly disagreed and disagreed respectively, 14% were undecided while 29% and 37% of the respondents agreed and strongly agreed respectively that indeed the Company ensures timely material deliveries and hence a safe

environment. The respondents were finally required to state their position on whether a proper manufacturing cycle is maintained by the firm where none strongly disagreed, 7% disagreed, 10% were neutral, 44% agreed and 39% strongly agreed that a proper manufacturing cycle is maintained by the firm.

From the analysis of the effect of reverse logistics variable, it is evident that it has positively affected performance of the manufacturing sector though with a divided opinion among the respondents. The results of this variable concurred with Pietroet et al., (2012) who concluded that reverse logistics attempts to describe measurement and minimization of the impact of logistical activities on the performance of the organization. The activities in this case refer to product flow, information and services right from the origin all the way to consumption aimed towards forming a sustainable and valuable firm through environmental efficiency.

E-Procurement on Performance in the Manufacturing Sector

The feedback from the respondents on the fourth and final specific study variable (e-procurement on Performance in the Manufacturing Sector) was recorded and presented in the table below;

Effect of e-Procurement on Performance

	SD %	D %	UD %	A %	SA %
The company has ensured that there is an appropriate use of e-procurement software for service execution	22	17	27	40	22
The e-procurement has eliminated the stock out problem in the company	7	10	14	32	37
The e-procurement system has been integrated with other systems in the company	12	17	10	22	39
The e-procurement system has contributed to prompt payment of suppliers	10	17	7	37	29

The collected data on the fourth and last specific variable of the study was amazed and presented as shown above. The respondents' feedback on each of the question was as follows; as to whether the company has ensured that there is an appropriate use of e-procurement software for service execution, 22% strongly disagreed, 17% disagreed, 27% were neutral, 22% agreed while just 12% strongly agreed that indeed the company has ensured that there is an appropriate use of e-procurement software for service execution. These results depicted a situation that needs further scrutiny by the management of the firm (Del Monte Company Limited) to find out why the respondents who are their employees had such a negative feedback on whether the e-procurement software is appropriately used for service execution.

		P	SAP	EDP	RLP	EPP
Performance	Pearson Correlation	1				
	Sig. (2-Tailed)					
	N	69				
Supplier Assessment	Pearson Correlation	.769**	1			
	Sig. (2-Tailed)	.001				
	N	69	69			
Eco-Design	Pearson Correlation	.825**	.355**	1		
	Sig. (2-Tailed)	.000	.06			
	N	69	69	69		
Reverse Logistics	Pearson Correlation	.754**	.511**	.539**	1	
	Sig. (2-Tailed)	.001	.049	.072		
	N	69	69	69	69	
e-Procurement	Pearson Correlation	.796**	.322**	.445**	.298**	1
	Sig. (2-Tailed)	.001	.067	.065	.184	
	N	69	69	69	69	69

The feedback from the respondents as to whether the e-procurement has eliminated the stock out problem in the company, 7% strongly disagreed, 10% disagreed, 14% were neutral, and 32% were in agreement with the statement while 37% strongly agreed that the e-procurement has eliminated the stock out problem in the company. Asked whether the e-procurement system has been integrated with other systems in the company; 12% strongly disagreed, 17% disagreed and the undecided respondents were 10%, 22% agreed while 39% strongly agreed the e-procurement system has been integrated with other systems in the company. The respondents were finally requested to react on the contribution of the e-procurement system on prompt payment of suppliers; 10% strongly disagreed that the e-procurement system has not contributed to prompt payment of suppliers, 17% disagreed, 7% were undecided, 37% agreed while 29% strongly agreed that the e-procurement system has contributed to prompt payment of suppliers.

Inferential Statistics
Correlation Analysis
The relationship between study variables was found necessary and was hence measured using the correlation analysis. The variables included the dependent variable (Performance of the manufacturing sector in Kenya) and the independent variables (Supplier Assessment, Eco-Design, Reverse Logistics and e-Procurement). The SPSS version 24 software was used, from which the analysis results were extracted and presented as shown in the table below;

Pearson's' Correlation Coefficients
The correlation analysis results revealed strong and direct correlation between supplier performance practice and performance at r=.769 at a statistical p-value of .001<.05; a positive and strong correlation between eco-design and performance at r=.825 at a statistical p-value of .000<.05; a strong and positive correlation between reverse logistics and performance at r=.754, at a statistical p-value of .001<.05 and another positive and strong correlation between e-procurement at r=.796, statistically significant p=.001<.05. These results implied that the four study variables namely; Supplier Assessment, Eco-Design, Reverse Logistics and e-Procurement were performance related. These findings were concurrence with Ndua and Were (2017) who concluded that adoption of green procurement practices improve environmental performance.

Model Summary
The four study variables namely; Supplier Assessment, Eco-Design, Reverse Logistics and e-Procurement jointly explained 75.6% of the performance of manufacturing sector in Kenya as represented by the adjusted co-efficient of determination (Adjusted R^2) in the model summary below. The difference to 100% implied that other factors outside the variables in this study contributed/ affected performance to the extent of 24.4%. The findings agreed with Omonge (2012) who concluded that banks competitiveness as a result of green supply chain practices included improved efficiency, offering superior services, waste level reductions which all result to improved performance.

Model Summary

a. Dependent variable: Performance
b. Predictors: (Constant): b. Predictors: (Constant); Supplier Assessment
Procurement

Model	R	R Square
1	.880a	.775

ANOVA

The data analysis results that enabled the variable prediction were presented in the ANOVA table below;

ANOVA

The table above presents data from the analysis of variances (ANOVA) which indicated that the model significantly predicted how Supplier Assessment, Eco-Design, Reverse Logistics and e-Procurement affect performance of manufacturing sector in Kenya. This was due to its p-value of .002 being less than the .05 significance level. From the table above, the F-calculated value (9.70) at a significance level of .05 was greater than the F critical (2.439) which indicated the goodness of fit of the model.

Model		Sum of Squares	df	Mean Square	Sig.
1	Regression	12.71	1	12.71	.002b
				9.70	
	Residual	87.65	67	1.31	
	Total	100.36	68		

Regression Results

The analyzed data on the nature of the relationship between the dependent and independent variables was carried out and presented in the table below;

Regression Coefficients

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		β	Std. Error	Beta		
1	(Constant)	3.561	.205		4.118	.000
	Supplier Assessment	.412	.099	.423	3.072	.020
	Eco-Design	.545	.125	.555	3.781	.000
	Reverse Logistics	.373	.071	.384	3.006	.030
	e-Procurement	.510	.104	.517	3.425	.000

a. P<.001,95% Confidence level, N=69
Source: Data Analysis 2021 SPSS

The table above on regression coefficients for the variables revealed that the dependent variable (Performance in the manufacturing sector in Kenya) was significantly and linearly affected by the four specific variables (Supplier Assessment, Eco-design, Reverse Logistics and e-procurement) of the study, and the following multiple regression model was therefore extracted from the table;

$Y = 3.561 + .412X_1 + .545X_2 + .373X_3 + .510X_4$

According to the results and the model, eco-design was the highest predictor variable of performance in the manufacturing sector in Kenya with a coefficient value of .545 which indicated that an increase by a unit of eco-design would result in a corresponding increase of .545 or 54.5% in the performance in the manufacturing sector in Kenya. E-procurement was the second predictor variable which affected performance in the manufacturing sector with a coefficient value of .510 which implied than a unit increase in eco-design could lead to a corresponding similar increment of .510 units (51%) in performance. A unit increase in Supplier Assessment, as the third predictor variable in the order of affecting the dependent variable (performance) would lead to an increase of .412 units (41.2%) in

performance while finally, a unit increase in the least affecting predictor variable (Reverse Logistics) by .373 coefficient value will lead to an increase in the performance variable by 37.3%. When all factors are held constant at zero for the predictor variables, the dependent variable remained at 3.561.

II.   SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The following were the summaries deduced from the study findings:

Supplier Assessment

The findings of the study indicated that supplier assessment significantly affected performance of the manufacturing sector in Kenya. Supplier assessment variable positively affected performance in all the areas to which the respondents' data was collected apart from whether supplier assessment was carried out on the basis of ability to supply green products for safe environment which greatly returned a negative response. On the other hand, majority of the respondents agreed that ability to control pollution for safe environment is one of the factors considered in supplier assessment; finally, majority of the

respondents concurred that supplier assessment contributes greatly towards the overall organizational performance.

Eco-design

The study established that although majority of respondents concurred that user satisfaction is enhanced by green product packaging, the respondents with an adverse opinion or were out rightly undecided was substantially large. The response on whether company green product design has improved product quality was largely positive and the same was the verdict on whether company product cost is improved through green product design. Finally, the respondents overwhelmingly confirmed that green manufacturing improves product quality.

Reverse Logistics

The study analysis on this variable was varied. There were a nearly equal number of respondents on either side as to whether there is a safe environment in the organization that ensures customer satisfaction is achieved and the same verdict was experienced as to whether productivity is very well enhanced by proper warehousing management in the organization with close to 40% of the respondents seeming not convinced or undecided with a similar trend on whether the company ensures timely material deliveries and hence a safe environment. However, the position was close to overwhelming that a proper manufacturing cycle is maintained by the firm.

E-Procurement

The study established that it was not possible to confidently say whether the company has ensured that there is an appropriate use of e-procurement software for service execution, this was due to over 27% of the respondents being undecided while overall, a total of 66% of the respondents returning an adverse or undecided feedback. According to the respondents' feedback, Del Monte Company limited has ensured that e-procurement has eliminated the stock out problem in the company. Majority of the respondents also agreed that e-procurement system has been integrated with other systems in the company thereby impacting performance of the manufacturing sector. And finally, the respondents positively averred that the contribution of the e-procurement system on prompt payment of suppliers was immense.

Conclusion

According to the study findings, the following conclusions were made:

There was correlation between the dependent variable (Performance of the manufacturing sector) and the independent variables (Supplier Assessment, Eco-design, Reverse Logistics and e-Procurement) and also among the independent variables themselves. The correlation indicated significant relationship between the dependent and independent variables. From the analysis results, as presented in the Pearson's Correlation Matrix, the results revealed strong and direct correlation between supplier performance and performance at $r=.769$ at a statistical p-value of $.001<.05$; a positive and strong correlation between eco-design and performance at $r=.825$ at a statistical p-value of $.000<.05$; a strong and positive correlation between reverse logistics and performance at $r=.754$, at a statistical p-value of $.001<.05$ and another positive and strong correlation between e-procurement at

$r=.796$, statistically significant $p=.001<.05$. it was from these results that it was concluded that the four study variables were performance related, which had concluded that adoption of green procurement practices improve environmental performance.

Recommendations

The study made the following recommendations in line with the findings therein:

Supplier Assessment

The study recommended that the management of Del Monte Company Limited should ensure that the supplier assessment is carried out on the basis of ability to supply green products for safe environment, this was necessary since the feedback was adverse implying that the area needed keen attention. The management should also put in more resources for the success of green procurement by ensuring that it has the ability to control pollution for safe environment as one of the factors considered in supplier assessment.

Eco-design

The company ought to ensure that user satisfaction is enhanced by green product packaging; this was necessitated by the substantially large number/percentage of respondents with an adverse opinion or was out rightly undecided. Further improvement should be enhanced on company green product design to further improve product quality. Green product design improvement should also be considered since it greatly improves company product cost.

Reverse Logistics

There is need for a safe environment in the organization that ensures customer satisfaction is achieved. From the findings, there were a nearly an equal number of respondents on either in support or against this development in the company. The management of Del Monte Co. Ltd should strive to ensure that productivity is very well enhanced by proper warehousing management in the organization. Proper measures should also be put in place to ensure that the company manages timely material deliveries and hence a safe environment.

E-Procurement

The study recommended the following steps in relation to the e-procurement in Del Monte Co. Ltd: that the company has to ensure that there is an updated module use of e-procurement software for service execution; this was because only a third of the respondents were positive about the question. That much as the company has ensured that e-procurement has eliminated stock out problem, it is imperative that it maintains and even continues improving on the position since stock out costs are unnecessary to its operations. Prompt payment of supplier's impact performance positively since it enables the firm to attract reliable and experienced suppliers, due to this, the firm is encouraged to improve on the e-procurement system in order to integrate with other systems in the company

III.   STUDIES AND FINDINGS

Supplier Assessment

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AUTHORS

First Author – Humphery Shiyuka Likholo, Msc. Student, department of Procurement and Logistics, School of Human Resource Development; Jomo Kenyatta University of Agriculture and Technology, Kenya: Email:hshiyuka@gmail.com

Second Author – Dr. Wilberforce Senelwa(PhD), Lecturer, Department of Procurement and Logistics, School of Human Resource Development: Jomo Kenyatta University of Agriculture and Technology, Kenya: Email: wsenelwa@jkuat.ac.ke