



THE EFFECT OF SUPPLY CHAIN MANAGEMENT PRACTICES ON THE PERFORMANCE OF SMALL AND MEDIUM SIZED ENTERPRISES IN NAIROBI COUNTY, KENYA

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ABSTRACT

The general objective of this study was to assess the effect of supply chain management practices on the performance of SMEs. To achieve this, the study established the effects of certain SCM aspects on the performance of Selected SMEs in Nairobi County, Kenya. The SCM aspects include green supply chain management, supplier relationship management, information technology and logistics management. The study was conducted at Selected SMEs in Nairobi County, Kenya. The study was guided by the legitimacy theory, systems theory, stakeholder theory and agency theory. The study utilized a descriptive research design and did a population census as the sampling method of choice. The study used information from all the 115 employees working at selected SMEs regarding the subject. Closed-ended questionnaires with Likert scales were employed as data collection instruments. Data collected was then analyzed using SPSS V.24. The researcher utilized quantitative techniques and analyzed the findings through descriptive and inferential statistics. The response rate of the study was 80%. The findings of the study indicated that green supply chain, supplier relationships management, information technology, and logistics management have a positive relationship with performance of SMEs. Finally, the study recommended that firms should embrace supply chain management practices so as to improve performance and further research should to be carried out in other institutions to find out if the same results can be obtained.

Key words: Information Technology, Logistics Management, Supplier Relationships Management, Green Supply Chain Management and Performance

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INTRODUCTION

Supply Chain Management (SCM) has been at the center of world debate with increasing interest owing to its advanced business approach and competitive advantage (Zhou & Benton, 2017). SCM has taken center stage around debates in conferences, academic research, professional development programs and publications demonstrating its popularity. Hoping to fully understand the tenets of SCM, many fields are devoted to its proliferation. According to Burgess, (2015) his study revealed SCM revolves around the efficient flow of goods, service, information and money to the business with respect to cost, quality and time. On the other hand, SME performance is vital. Owners have injected cash and other related resources to ensure optimal performance is enhanced and maintained.

In today's competitive business environment, many companies are trying to find new ways to achieve a competitive advantage. Many changes have happened to the viewpoints of companies about the function of purchasing. Purchasing has commenced to play a more significant role in the strategy of the firm during the past few years.

Many of the developing nations were colonized and when they became independent they inherited governance structures from their colonial masters. The post-colonial public sector of these nations therefore, delivered services to their people based on the skills derived from their masters and more importantly; this was done under mono-party political dictatorship. The challenges of such a set up are obvious: skewed distribution of government resources, bloated civil service and inherent misappropriation of money (Taiwo & Idumo, 2010). Consequently, many of these nations disintegrated because conflicts were the order of the day and coups were rampant resulting into military dictatorships. The citizens lived in despair and the only hope that was left in them was the wish to have a change in leadership and most preferably

democratic change that could see countries engages in equal and meaningful distribution of government development (Kalakota & Robinson, 2011). It is against the above backdrop that service delivery to citizens by many developing nations globally and mainly Africa has been marred by poor leadership and procurement practices. The service delivery by the public sector aimed at achieving development goals, can only be realized through change to strategic procurement management (Gadde & Hakansson 2014).

Studies done around the linkage between SCM and SMEs have found that supply chain could be used by SMEs with considerable success. For instance a study by Spekman (2010) and Quayle (2013) found that the introduction of supply chain has helped SMEs in reducing costs without compromising on customer satisfaction levels. Tangible and intangible benefits were also eminent with benefits such as increasing on-time order delivery, reducing production costs, shortening the product development life cycle, improving quality, reducing inventory, and bettering inventory management being the tangible benefits. The intangible benefits include sharing and exchanging information accurately, timely, and consistently, faster response to customer needs and improving service quality. Soonhong (2015) argued that, supply chain among SMEs improves business chain collaboration and that the expected outcomes of supply collaboration could be supply chain capabilities that include better demand planning, inventory visibility and new knowledge and skills. The author adds that supply chain efficiency could be measured in reduced inventory and cost savings and supply chain effectiveness including improvements in customer responsiveness and better access to target market segments.

Statement of the Problem

Fierce competition in today's global markets, the introduction of products with shorter life cycles, and the heightened expectations of customers have

forced business enterprises to invest in and focus attention on their supply chains. Organizations are undergoing a revolution in terms of implementing new operational strategies and technologies in response to the challenges and demands of the Twenty-first Century (Gunasekaran, 2017). This is part of exploring the potential in supply chain management which would encourage organizations to respond to customers' unique and rapidly changing needs and improve revenue growth.

Most studies done around SCM are majorly on processing and manufacturing sectors. Studies by Apopa (2012), Blowfield & Dolan (2010), Kasomi (2012) and Roath (2012) have found varied impacts of SCM on firm performance. Some of the findings include, but not limited to; improvement and management organizational processes and enhanced performance measurement. However, the situation on the ground is that management of supply chains have not been well covered among SMEs. SMEs require total understanding of the day to day transactions to collaborate trade chain and the practices enabling SCM facilities and direct organizational performance. This has not been the case in the SME sector especially in Kenya in the recent past.

However, due to their restrictions in sizes, resources and other conventional characteristics, SMEs have less competitive advantages and are generally more vulnerable (O'Gorman, 2011). The rate of SME failure which according to statistics is three out of five businesses close down within the first few months of operation is higher in developing countries than in developed countries going by the myriad of challenges that threaten their long-term survival (Arinaitwe, 2012). Niche markets have been dominated by large firms which increasingly serve as the main competitors to small businesses (Ntakobajira, 2013). Lack of planning, improper financing, poor management and a general inability to provide quality services have been synonymous

with SMEs. This is the reason why larger companies are selected and given business merely for their clout in the industry and name recognition alone (Bowen, Morara & Mureithi, 2015).

The foregoing stems from potential clients perceiving small businesses as lacking the ability to provide quality services and are unable to satisfy more than one critical project simultaneously have been cited as the main causes of failure of small enterprises (Longenecker, 2016). It is under such a background that this study focuses on selected SMEs in Nairobi County and how they are affected by SCM practices they utilize.

Objectives of the Study

The general objective of this study is to assess the effects of supply chain management practices on the performance of small and medium sized enterprises in Nairobi County, Kenya. The specific objectives were:-

- To establish the effect of information technology on the performance of SMEs in Nairobi County.
- To determine the effect of logistics management on the performance of SMEs in Nairobi County.
- To determine the effect of supplier relationships management on the performance of SMEs Nairobi County.
- To establish the effect of green supply chain management on the performance of SMEs Nairobi County.

LITERATURE REVIEW

Theoretical Framework

Legitimacy Theory

Suchman (2012) asserts that the building of an organization is greatly influenced by legitimating 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. As Scott, Speh and Shear, (2016) postulates, although the specificity of the definition of legitimacy by scholars vary, one of the generally accepted definitions is that legitimacy is a common view that the organization's actions are considered suitable if they are within the socially created beliefs, norms values and definitions. The notion that legitimate actions by an organizations have varying benefits and rewards has gained widespread support because of its ability to link stakeholder expectations to the organizations' activities. Historically, organizations' legitimacy has been viewed from institutional perspectives and strategic perspectives which are two opposing theoretical strands. 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.

Stakeholder Theory

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 such as the supplier. 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) in this note, the theory is linked to the supplier relationship.

Systems Theory

Systems theory compares different systems in its application. There are different types of systems: organisms (animals, humans, particularly cognitive mechanisms in organisms), machines (particularly computers), physicochemical systems, psychic systems and social systems. In the years after 1940, Systems theory was developed on the basis of suggestions from biology (the 'General System Theory' of Ludwig von Bertalanffy), physiology (Walter B. Cannon, Walter Pitts, Warren McCulloch), and information theory and cybernetics (Claude Shannon, Norbert Wiener, William Ross Ashby). A system is comprised of elements and it concerns itself with the functions and structural rules valid for all systems which make a unified whole and is qualitatively different, and behaves differently, from the sum of the system's individual elements contrary to populist research. Systems theory is the trans-disciplinary study of the abstract organization of phenomena, independent of their substance, type, or spatial or temporal scale of existence(Fritz, 1985).

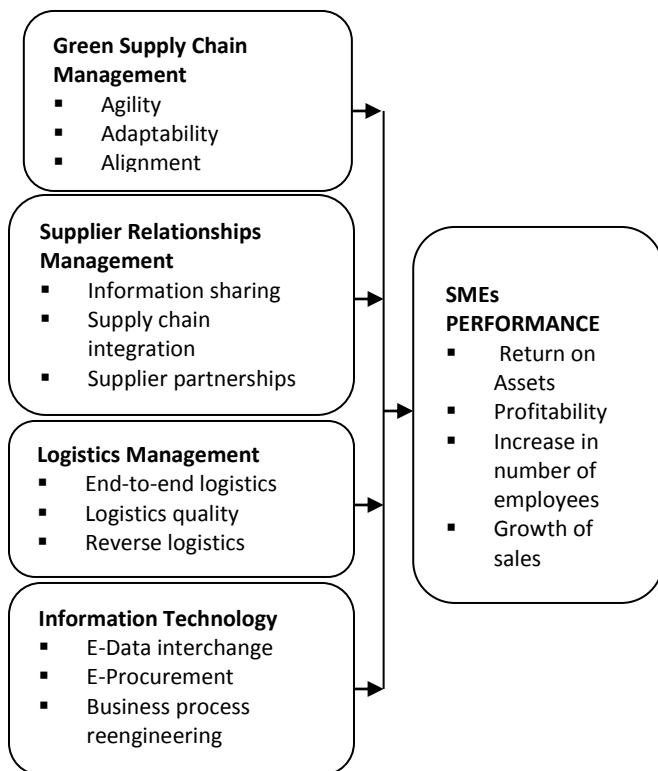
Agency Theory

The origins of Agency theory can be traced back in the 1960s and 1970sin the works on economic risk analysis recognizing broader agency problems and how they are managed under conditions of uncertainty (Eisenhardt, 1989). Seminal works of the theory are attributed to Mitnick (1973) and Ross (1973), and has been embraced in economics, political science and later adopted in a variety of disciplines like sociology, theory of the firm and management studies.

In agency relationships, there is the Principal who delegates work to an agent and any work performed by the agent is assumed as being on behalf and in representing the principal (Jensen and Meckling, 1976). In the event that profit-maximization and self-

interests set in the principal-agent relationship the theory centers on determining the most efficient contract to salvage the relationship. In most cases this happens when there is an agency problem where the goals of the agent are different from the principal's and a moral hazard sets in. This problem also occurs when it is difficult to ascertain whether agents have the expertise to perform the delegated work (i.e. adverse selection) that they claim to have. There is also the risk sharing problem in the Principal-Agent relationship where they differ on attitudes towards risk hence different ways for problem-solving (Rungtusanatham et al., 2007).

Conceptual Framework



Independent Variables **Dependent Variable**

Fig 1: Conceptual framework

Source: Author (2019)

Empirical Literature Review

In their study, Van Hock and Erasmus (2010) show that green supply chain management raises ecological efficiency. This happens through lowering the environmental risks and impacts thus achieving

competitive advantage which in turn improves performance of the process and products according to the requirements of the environmental regulations. A positive relationship is thus established between GSCM practices and firm performance Srivastava (2007).

Zhu et al., (2015) suggested that to stay competitive in the market, the managers should improve their environmental compliance which has been setup by the authority to cover the customer and the environment in their production process. Developing environmental sound policies and strategies on supply chain helps the organization to address market needs and provide a clear understanding of other supply chain member's priorities. GSM benefits range from cost reduction to integrating suppliers in a participative decision making process that promotes environmental innovation (Hall, 2013).

Proper complementary skills are obtained when strategic outsourcing and supplier capability analysis are integrated in Supplier relationships. This is evidenced in the combination of retailers and suppliers who have knowledge in different domains that improve business knowledge. Strategic outsourcing is synonymous with comprehensive supplier development activities, internal coordination of supply management with other functions in a firm, the status of supply management within the organizational hierarchy and active information sharing with suppliers (Kocabasoglu & Suresh, 2016). In addition, the construct strategic supplier partnership is an integral element to the second order construct of SCM (Li et al., 2016). Strategic sourcing has also been found to improve prospects of new product acceptance and also to influence knowledge creation and sharing among suppliers and retailers (Kaufman, 2002).

In the US automotive and electronics industries, the buying firm competitive performance was found to be positively associated with long-term relationships

with major suppliers mostly aligning with shared goals and values with suppliers and the involvement in supplier development initiatives (Krause et al., 2007). Just-In-Time (JIT) purchasing was found to influence performance measures of flexibility, slightly associated with quality and cost, and not associated with innovation among suppliers in 57 automotive firms in the U.S. (Scannell et al., 2010). Similarities in technology, communication and information sharing, learning and the involvement of all stakeholders in the programs influences the buyer-supplier relationship as evidenced in a case study on Toyota Australia (Langfield-Smith and Greenwood, 2008).

Supply chain that is agile is market sensitive and the supply chain members should show the willingness to create an environment in which information can flow freely in both directions in the chain for them to achieve a more agile supplier base. Christopher (2010) argues that leveraging supplier relations allows companies to create agile supply chains by reducing lead time between organizations. The leverage of respective strengths and competencies of network partners assists to achieve greater responsiveness to market needs (Christopher, 2010). It is through information sharing and collaboration that the company as a whole will have responsibility in assisting its external suppliers to improve quality, delivery time and service performance. This requires real time market feedback on actual customer requirements without making forecasts based upon past sales or shipments.

Improvements in technology have enabled the quick spreading of Supply Chain Management throughout the early part of 21st Century. Organizations are taking advantage of the easily affordable and available technology to utilize supply chain strategies. The adopted supply chain strategies are then used to fight competition through creating synergies with supply chain partners (Chairman *et al*, 2012). High level best practice for SCM, technology can apply to

any business, even though the operation may be specific to an organization implementing a specific SCM System, for example, could be a waste of money if the overall operation is a problem. Automating a broken process does not fix the process.

Porter (2008) opine that the adoption of information technology will change the competitive environment in three ways, namely through changing the structure of the industry, changing the rules of competition, and giving businesses new methods by which to gain competitive advantage over the competition. Information technology help to communicate between upstream and downstream partners hence creating a virtual supply chain that is information based rather than inventory. Virtual supply chain ensures information is shared among partners thereby forming a process alignment through collaboration that is linked together as a network. Electronic Data Interchange (EDI) and the internet have made it possible for players in SCM to share the same data rather than waiting for that extended chain to transmit data from one step to another. The company that are market driven can easily realize agility by investing in product research and modern information technology that enables it to react quickly to the fluctuations in product demand and sourcing problems.

METHODOLOGY

Descriptive research design was adopted in this study. The population was made up of 115 employees from the selected SMEs in Nairobi County. The study employed Population census. The data collection instruments were questionnaires. The statistical package of social science (SPSS V.24) analysis software was utilized to code and key in data from the research instruments. Both descriptive and inferential statistics utilized in this study.

FINDINGS

Descriptive Statistics

The study set out to ascertain the effect of supply chain management practices on the performance of SMEs. To this end, four variables were conceptualized as components of supply chain practices. These

include; green supply chain, supplier relationship, logistics management and Information technology.

Green Supply Chain Management

The respondents were asked on the level of agreement on the influence of green supply chain management on performance.

Table 1: Green Supply Chain management

Statements	Mean	Std. Deviation
The organization incorporates environmental requirements during supplier selection	4.3	1.0
Our company recycles waste products which minimizes environmental pollution	3.6	1.4
It is the policy of our company to properly dispose waste products	3.8	1.3
Our company constantly redesigns the packaging of the products so as to use less material	3.0	1.4
The company accepts and processes returned merchandise due to damage	4.2	1.0
Our company also recalls goods that have not met the customers standards	3.7	0.5
We seek to reduce the environmental and social impacts of our manufacturing without affecting our profitability	3.4	1.3
Green packaging is also one of the specifications the organization insists on	4.1	4.3
The company prefers products which consume less energy	3.8	1.2
Average	3.8	1.5

The result revealed that majority of the respondent with a mean of (3.6) agreed with the statement that Our Company recycles waste products which minimize environmental pollution. The measure of dispersion around the mean of the statements was 1.4 indicating the responses were varied. The result revealed that majority of the respondent with a mean of (3.8) agreed with the statement that, it is the policy of our company to properly dispose waste products. The measure of dispersion around the mean of the statements was 1.3 indicating the responses were varied.

The result revealed that majority of the respondent with a mean of (3.0) agreed with the statement that Our Company constantly redesigns the packaging of the products so as to use less material. The measure of dispersion around the mean of the statements was 1.4 indicating the responses were varied. The result revealed that majority of the respondent with a mean of (4.2) agreed with the statement that The Company accepts and processes returned merchandise due to damage. The measure of dispersion around the mean

of the statements was 1 indicating the responses were varied. The result revealed that majority of the respondent with a mean of (3.7) agreed with the statement that “our company also recalls goods that have not met the customers’ standards.” The measure of dispersion around the mean of the statements was 1 indicating the responses were varied.

The result revealed that majority of the respondent with a mean of (3.4) agreed with the statement that we seek to reduce the environmental and social impacts of our manufacturing without affecting our profitability. The measure of dispersion around the mean of the statements was 1.3 indicating the responses were varied. The result revealed that majority of the respondent with a mean of (4.1) agreed with the statement that Green packaging is also one of the specifications the organization insists on. The measure of dispersion around the mean of the statements was 1.2 indicating the responses were varied. The result revealed that majority of the respondent with a mean of (3.8) agreed with the

statement that the Company prefers products which consume less energy. The measure of dispersion around the mean of the statements was 1.2 indicating the responses were varied. The findings of this study imply that the use of green procurement is prevalent among SMEs and that its use improves the performance of a firm significantly. The findings agree

with Knudsen (2015) that using green procurement practices when sourcing is a smart move and can reduce expenses significantly.

Supplier Relationship Management

The respondents were asked on the level of agreement on the influence of supplier relationship on performance.

Table 2: Supplier Relationship Management

Statements	Mean	Std. Deviation
organization provide incentives to the potential suppliers	3.8	1.1
prequalified suppliers given awards for job well done	3.6	1.1
Frequent information sharing done to the suppliers of the organization	3.7	1.1
Mutual partnership affects performance	3.6	1.2
Incentives to suppliers affects performance	3.8	1.2
The SCM practices promote active information sharing with suppliers	3.5	1.4
Our SCM practices promote supply chain integration	3.5	1.4
Our SCM practices promote strategic supplier relationships	3.3	1.5
Long term relationship of suppliers influence performance	3.6	0.5
Average	3.6	1.2

The result revealed that majority of the respondents as indicated by a mean of (3.8) indicated that they agreed with the statement that organization provide incentives to the potential suppliers. The responses were varied as measured by standard deviation of 1.1. The result revealed that majority of the respondents as indicated by a mean of (3.6) indicated that they agreed with the statement that prequalified suppliers given awards for job well done. The responses were varied as measured by standard deviation of 1.1. The result revealed that majority of the respondents as indicated by a mean of (3.7) indicated that they agreed with the statement that “frequent information sharing done to the suppliers of the organization.” The responses were varied as measured by standard deviation of 1.1.

The result revealed that majority of the respondents as indicated by a mean of (3.6) indicated that they agreed with the statement that Mutual partnership affects performance. The responses were varied as measured by standard deviation of 1.2. The result revealed that majority of the respondents as

indicated by a mean of (3.8) indicated that they agreed with the statement that Incentives to suppliers affects performance. The responses were varied as measured by standard deviation of 1.2. The result revealed that majority of the respondents as indicated by a mean of (3.5) indicated that they agreed with the statement that The SCM practices promote active information sharing with suppliers. The responses were varied as measured by standard deviation of 1.4.

The result revealed that majority of the respondents as indicated by a mean of (3.5) indicated that they agreed with the statement that Our SCM practices promote supply chain integration. The responses were varied as measured by standard deviation of 1.4. The result revealed that majority of the respondents as indicated by a mean of (3.3) indicated that they agreed with the statement that Our SCM practices promote strategic supplier relationships. The responses were varied as measured by standard deviation of 1.5. The result revealed that majority of the respondents as indicated by a mean of (3.6)

indicated that they agreed with the statement that Long term relationship of suppliers influence performance. The responses were varied as measured by standard deviation of 0.5.

Information Technology

The respondents were asked on the level of agreement on the influence of information technology on performance.

Table 3: Information Technology

Statements	Mean	Std. Deviation
E-offer letters greatly reduce delivery time	3.9	1.2
E-local purchase orders greatly reduces delivery time	3.2	1.3
E-request for tenders reduce delivery time	4.0	0.8
E-offer letters greatly influences customer satisfaction	4.2	0.9
E-local purchase orders greatly influences customer satisfaction	3.7	0.5
E-request for tenders greatly influences customer satisfaction	2.4	1.3
E-offer letters greatly reduces costs	3.1	1.2
E-local purchase orders greatly reduces costs	3.2	1.3
E-request for tenders greatly reduces costs	3.5	1.3
Average	3.7	1.1

The results revealed that majority of the respondent (3.9) agreed with the statement that E-offer letters greatly reduce delivery time. The responses were varied as shown by the standard deviation of 1.2. The results revealed that majority of the respondent (3.2) agreed with the statement that E-local purchase orders greatly reduce delivery time. The responses were varied as shown by the standard deviation of 1.3. The results revealed that majority of the respondent (4.0) agreed with the statement that E-request for tenders reduce delivery time. The responses were varied as shown by the standard deviation of .8.

The results revealed that majority of the respondent (4.2) agreed with the statement that E-offer letters greatly influences customer satisfaction. The responses were varied as shown by the standard deviation of .9. The results revealed that majority of the respondent (3.7) agreed with the statement that E-local purchase orders greatly influences customer satisfaction. The responses were varied as shown by the standard deviation of .5. The results revealed that majority of the respondent (2.4) agreed with the statement that E-request for tenders greatly influences customer satisfaction. The responses

were varied as shown by the standard deviation of 1.3.

The results revealed that majority of the respondent (3.1) agreed with the statement that E-offer letters greatly reduces costs. The responses were varied as shown by the standard deviation of 1.2. The results revealed that majority of the respondent (3.2) agreed with the statement that E-local purchase orders greatly reduce costs. The responses were varied as shown by the standard deviation of 1.3. The results revealed that majority of the respondent (3.5) agreed with the statement that E-request for tenders greatly reduces costs. The responses were varied as shown by the standard deviation of 1.3. The findings of this study imply that the use of e-mailing is prevalent among the firms and that its use improves the performance of a firm significantly. These findings imply that through information technology, companies can improve competitive positioning, gain entry to new dynamic and technology driven markets (Maina, 2008).

Logistics Management

The respondents were asked on the level of agreement on the influence of logistics management on performance.

Table 4: Logistics Management

Statements	Mean	Std. Deviation
logistics timelines play a significant role in performance of the firm	3.2	1.3
Logistics cost plays a significant role in performance	2.9	1.0
Logistics security plays a significant role in return on investment	4.3	0.8
Delivery timelines play a significant role in improving customer satisfaction index	4.3	0.9
The business has adopted End-to End logistics in SCM	4.1	1.0
The enterprise employs quality logistics	4.2	0.8
The enterprise employs quality logistics	4.4	0.6
Supplier logistics portals greatly reduce costs	4.4	0.7
Electronic logistics management greatly reduces costs	4.4	0.6
Average	4.4	0.9

The respondents were requested to indicate the descriptive replies for logistics management. The results revealed that the bulk of the respondents (3.2) accepted the statement that logistics timelines play a significant role in performance of the firm. The responses were different as shown by a standard deviation of 1.3. The results discovered that majority of the respondent (2.9) approved the proclamation that logistics cost plays a significant role in performance. The responses were varied as revealed by a standard deviation of 1. The results discovered that majority of the respondent (4.3) approved with the statement that Logistics security plays a significant role in return on investment. The responses were varied as shown by a standard deviation of 1.

The results discovered that majority of the respondent (4.3) approved with the statement that Delivery timelines play a significant role in improving customer satisfaction index. The responses were varied as shown by a standard deviation of 0.8. The results discovered that majority of the respondent (4.1) approved with the statement that “the business has adopted End-to End logistics in SCM.” The responses were varied as shown by a standard deviation of 1. The results discovered that majority of the respondent (4.2) approved with the statement that “the enterprise employs quality

logistics.” The responses were varied as shown by a standard deviation of 0.8

The results discovered that majority of the respondent (4.4) approved with the statement that “the enterprise employs quality logistics.” The responses were varied as shown by a standard deviation of 0.6. The results discovered that majority of the respondent (4.4) approved with the statement that Supplier logistics portals greatly reduce costs. The responses were varied as shown by a standard deviation of 0.6. The results discovered that majority of the respondent (4.4) approved with the statement that electronic logistics management greatly reduces costs. The responses were varied as shown by a standard deviation of 0.7. The results imply that an organization benefits greatly when end to end logistics is embraced to reduce costs (Bird, 2009)

Performance of SMEs in Nairobi County

The research requested the respondents to indicate the extent to which they agree firms implemented the supply chain management practices to enhance overall organizational performances in their firms. From the research findings, majority of the respondents neither agree that; the firm’s implementation of supply chain management practices positively affects the performance, as such all the variables have effects on the performance of the firm as an important element in its supply chain management practices. The firms incorporated supply

chain management practices also have positive impact on the return on Assets, profitability and sales as shown in the figure 2.

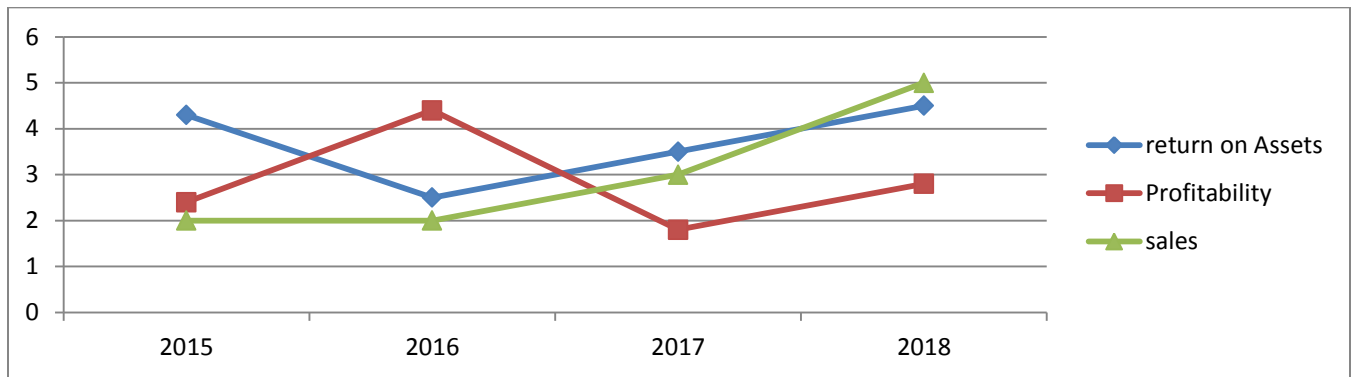


Figure 2: Performance of SMEs in Nairobi County

Correlation Analysis

Correlation analysis was used to determine both the significance and degree of association of the variables

and also predict the level of variation in the dependent variable caused by each independent variable in table 5:

Table 5: Summary of Pearson’s Correlations

Correlations		Green supply chain management	Supplier relationship	Information technology	Logistics management	Performance of Firms
Green supply chain	Pearson Correlation	1				
	Sig. (2-Tailed)					
Supplier relationship	Pearson Correlation	.372**	1			
	Sig. (2-Tailed)	0				
Information technology	Pearson Correlation	.353**	.449**	1		
	Sig. (2-Tailed)	0	0			
Logistics management	Pearson Correlation	.363**	.771**	.547**	1	
	Sig. (2-Tailed)	0	0	0		
Performance of Firms	Pearson Correlation	.556**	.662**	.703**	.691**	1
	Sig. (2-Tailed)	0	0	0	0	

** Correlation is Significant at the 0.05 Level (2-Tailed).

The correlation summary shown in Table 5 indicated that the associations between each of the independent variables and the dependent variable were all significant at the 95% confidence level. The

correlation analysis to determine the relationship between supply chain practices and performance of firms, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate

that there was a positive relationship ($r=0.556$) between green supply chain and performance of the firm. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$).

The correlation analysis to determine the relationship between supplier relationship and performance of the firm, Pearson correlation coefficient computed and tested at 5% significance level. The results indicated that there was a positive relationship ($r=0.662$) between supplier relationship and performance of the firm. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$).

The correlation analysis to determine the relationship between information technology and performance of the firms, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there was a positive relationship ($r=0.703$) between electronic data interchange and performance of the firms. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$).

The correlation analysis to determine the relationship between logistics management and performance of the firms, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there was a positive relationship

($r=.691$) between logistics management and performance of the firms. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$). Hence, it was evident that all the independent variables could explain the changes in the performance of the firms, on the basis of the correlation analysis.

Regression Analysis

In this study multivariate regression analysis was used to determine the significance of the relationship between the dependent variable and all the independent variables pooled together.

Table 6 presented the regression coefficient of independent variables against dependent variable. The results of regression analysis revealed there was a significant positive relationship between dependent variable and the independent variable. The independent variables reported R value of 0.846 indicating that there was perfect relationship between dependent variable and independent variables. R square value of 0.715 means that 71.5% of the corresponding variation in performance of the firms can be explained or predicted by (green supply chain, supplier relationship, information technology, logistics management) which indicated that the model fitted the study data. The results of regression analysis revealed that there was a significant positive relationship between dependent variable and independent variable at ($\beta = 0.715$), $p=0.000 <0.05$).

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.846 ^a	.715	.703	.14869

a) Predictors: (Constant), green supply chain, supplier relationship, information technology, logistics management.

b) Dependent Variable: Performance of Firms

Table 7: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.002	4	1.251	69.888	.000 ^b
	Residual	1.99	111	0.0179		

Total	6.992	115
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a) Predictors: (Constant), green supply chain, supplier relationship, information technology, logistics management.

b) Dependent Variable: Performance of Firms.

The significance value is 0.000 which is less than 0.05 thus the model is statistically significance in predicting how green supply chain, supplier relationship, information technology, logistics management influence performance of the firms. The F critical at 5% level of significance was 18.15. Since F calculated which can be noted from the ANOVA table above is 69.888 which is greater than the F critical (value= 21.15), this shows that the overall model was

significant. The study therefore establishes that; green supply chain, supplier relationship, information technology, logistics management were all important supply chain practices aspects influencing performance of the firms. These results agree with Odhiambo and Kamau (2013) results which indicated a positive and significant influence of supply chain practices elements on performance of the Small Medium Enterprises firms.

Table 8: Coefficients of Determination

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.07	0.193		10.725	0.000
	Green supply chain	0.166	0.041	0.255	4.048	0.000
	Supplier relationship	0.138	0.053	0.235	2.603	0.010
	Information technology	0.119	0.021	0.398	5.667	0.000
	Logistics management	0.09	0.043	0.201	2.093	0.037

a) Predictors: (Constant), green supply chain management, supplier relationship, information technology and logistics management.

b) Dependent Variable: Performance of Firms

The research used a multiple regression model

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

The regression equation will be;

$$Y = 2.07 + 0.166X_1 + 0.138X_2 + 0.119X_3 + 0.09X_4$$

The regression equation above has established that taking all factors into account (green supply chain, supplier relationship, information technology and logistics management constant at zero, performance of the firms will be an index of 2.07. The findings presented also shows that taking all other independent variables at zero, a unit increase in green supply chain will lead to a 0.166 increase in performance of the firms. The P-value was 0.000 which is less 0.05 and thus the relationship was significant.

The study also found that a unit increase in supplier relationship will lead to a 0.138 increase in performance of the firms. The P-value was 0.00 and thus the relationship was significant. In addition, the study found that a unit increase in information technology will lead to a 0.119 increase in the performance of the firms. The P-value was 0.000 and thus the relationship was significant.

Lastly, the study found that a unit increase in logistics management will lead to a 0.09 increase in the performance of the firms. The P-value was 0.00 and hence the relationship was significant since the p-value was lower than 0.05.

CONCLUSION

Based on the study findings, the study concluded that performance of the firms can be improved by green

supply chain, supplier relationship, and information technology and logistics management.

First, in regard to green supply chain management, the regression coefficients of the study show that it has a significant influence of 0.166 on performance of the firms. This implied that increasing levels of green supply chain by a unit would increase the levels of performance of the firms by 0.166. This shows that green supply chain management have a positive influence on performance of the firms.

Second in regard to supplier relationship, the regression coefficients of the study show that it has a significant influence of 0.138 on performance of the firms. This implies that increasing levels of supplier relationship by a unit would increase the levels of performance of the firms by 0.138. This showed that information sharing has a positive influence on performance of the firms.

With regard to information technology, the regression coefficients of the study show that it has a significant influence of 0.119 on performance of the firms. This implies that increasing levels of electronic data interchange by a unit would increase the levels of performance the firms by 0.119. This shows that information technology has a positive influence on performance of the firms.

Lastly, in regard to the fourth objective, the regression coefficients of the study show that it has a significant influence of 0.09 on performance of the firms. This implies that increasing levels of logistics management by a unit would increase the levels of performance of the firms by 0.09. This shows that logistics management have a positive influence on performance of the firms.

Drawing on this research, green supply chain, supplier relationship, information technology and logistics management in the firms is leading to performance. Though the SMEs firms are striving hard to improve their performance there are still issues of poor quality products, long lead time and high cost of

projects/products. It was articulated that the current phenomenon of poor performance in the firms can be reversed if the firms and other stakeholders ensure green supply chain, supplier relationship, information technology and logistics management are embraced in the procurement function.

RECOMMENDATIONS

The study recommended that for SMEs firms to have better performance they should focus more on embracing green supply chain practices to ensure that the products in their firms are environmentally friendly.

The study recommended that it would be constructive for firms to invest more in supplier communication to reduce the cost of procurement through unnecessary reworks and ensure professional suppliers get it right the first time.

The organizations should embrace electronic offer letters and e-local purchase orders while communicating with their vendors so as to have a more improved and prompt communication characterized by prompt responses.

There is need for SMEs to always set aside a substantial part of their resources for activities that spend a huge amount of total resources, and this entails for logistics purposes.

The study recommends that procurement staff in the firms should ensure that they strictly follow procurement procedures to ensure that goods supplied are of the right quality, in the right quantity, at the right time, to the right place from the right source.

Areas for Further Research

The current study should be expanded further in future in order to include other supply chain practices platforms that may as well have a positive significance to performance of the firms. Existing literature indicates that as a future avenue of research, there is need to undertake similar research

in other institutions and other sectors in Kenya and other countries in order to establish whether the explored supply chain management platforms herein

can be generalized to affect performance in other institutions.

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