Factors affecting supply chain performance in public organization in Kenya. A case study of Kenya Ports Authority

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Abstract: *The study was guided by information technology, staff competency, planning and supplier relationship management as specific objectives. Relationship theory, lean supply chain theory, game theory and transactional cost theory was used. The study employed descriptive and inferential research design methods. The target population for the study was 201 senior managers, managers from respective departments and suppliers. The sample size was 134 which was arrived at by using slovin's formula from the target population. The study used both primary and secondary data in collection of data from the respondents which helped them ascertain the results. The study recommends that top managers, policy makers and other key players in supply chain for various organizations should formulate best technology policies and systems that will ensure the organization has achieved its targets and objectives in regards to information technology. The study recommends that supply chain management has a great impact on the success of any business. Establishing positive, productive working relationships with suppliers is critical when trying to maximize supplier contributes to a firm's performance, and this is what supplier relationship management does. It is recommended also that organizations to enhance supplier-working relationship and establish the value-ass of these improved relationships, due its importance to help control total manufacturing and operations costs and to build market requirements to their products and services*

Key Words: *Information Technology, Staff Competency, Planning, Supplier Relationship Management & Supply Chain Performance.*

1. INTRODUCTION:

General Objective

The general objective of the study was to determine the factors affecting supply chain performance in public organizations in Kenya.

Specific Objectives

i. To examine the influence of supply chain information technology on supply chain performance in at Kenya Ports Authority
ii. To determine the influence of supply chain staff competency on supply chain performance at Kenya Ports Authority
iii. To ascertain the influence of supply chain planning on supply chain performance at Kenya Ports Authority.
iv. To identify the influence of supply chain supplier relationship management on supply chain performance at Kenya Ports Authority.

2. LITERATURE REVIEW:

Theoretical Framework

Relationship Theory

By using this theory the organization was able to successfully establish the organization's mission and attitude change will be inevitable. Establishing more precise boundaries and clear rules on the relationship of supply chain arrangement will remove any assumptions that the partner knew instinctively to accommodate the situation. Knowing the parameters of the relationship, perception of partner changes, even if the external circumstances remain unchanged. Even at the individual attitude change leads to a change in the perception of others. Accepting a supplier implies to know him.

Lean Supply Chain Theory

Lean supply chain management is a set of organizations directly linked by upstream and downstream flows of products, services, finances and information that collaboratively work to reduce cost and waste by efficiently and effectively pulling what is required in meeting the needs of the individual customer. Lean thinking in the supply chain is the use of lean principles to align activities across corporate functions within the firm and to manage business relationships with customers and suppliers (Lambert 2008). The core concept of lean thinking is the Japanese term

Muda exemplified by the practices of Japanese motor manufacturing (Lysons & Farrington, 2012). Muda means waste or any human activity that consumes resources but creates no value. In the lean paradigm, activities that consume resources but generate no redeeming value in the eyes of the consumer are waste that must be eliminated (Womack & Jones, 2003).

Review of Literature Variables

Supply Chain Information Technology

Technology capacity is defined as the branch of knowledge that deals with the creation and use of technical means and their interrelation with life, society, and the environment, drawing upon such subjects as industrial arts, engineering, applied science, and pure science (Noah & Charney, 2014). According to (Wanaina, 2011) defines Technology capacity as the purposeful application of information in the design, production, and utilization of goods and services, and in the organization of human activities.

Supply Chain Staff Competency

It is becoming impossible to remove or ignore sources of turbulence and volatility in markets. Hence, supply chain managers must accept uncertainty, but they still need to develop a strategy that enables them to match supply and demand at an acceptable cost. Global supply chains are evolving into dynamic process networks in which companies connect in novel combinations based on the context and requirements of individual projects. This dynamic environment requires effective communication, team management, and constant lifecycle innovation. Human factors insights in these areas are critical for the effective development of global process networks. Successful companies are those that consider their human capital as their most important asset. Facts and figures are the quantitative elements of successful management, yet the qualitative, i.e. the cognitive aspects, are those that actually make or break an organization.

Supply Chain Planning

Planning to define marketing making plans and market forecasting methods enhance the efficiency of SCM. For efficient working, compare prices of different suppliers and select those who have low prices, good quality of raw material and obtain discounts Underutilized capacity, industrial planning and machine upgrading Planning are also increases the effectiveness of supply chain in the public organizations. Planning link is developed by analyzing the environment and related resources. SWOT analysis, analytical hierarchical process (AHP) and analytical network analysis (ANP) are the main tools for making planning link and these steps are important for strategic decisions which leads to competitiveness for the public organizations. Planning in supply chain entails proper procurement procedures laid down to counter any hitches during the procuring process in terms of insufficient funds to pay the suppliers.

Supplier Relationship Management

Supplier Relationship Management (SRM)" refers to the practice and process for interacting with suppliers (Cavinato, 2012). Most supply professionals view SRM as an organized approach to defining what they need and want from a supplier and establishing and managing the company-to-company (or procurement-to-sales) link to obtain these needs. Formal or not, academic and consulting company research shows that organized approaches to supply and suppliers produce positive sourcing results. Supplier relationship management acts as a focal point between the organization and the final consumers. Organizations that have problems with their supply chain networks or channels can adopt Supplier Relationship Management practice to enhance their supply chain efficiency. Hughes (2010) stated that “inefficient supply chains were the major cause of poor organizational performance” he insisted that organizations with integrated supply chains recorded high profits than those who paid little attention to supply chains (Rogers, 2001).

3. RESEARCH METHODOLOGY:

Research Design

The study adopted descriptive research design. This design provided qualitative and quantitative descriptions of the trends, attitudes and perception of the population by studying a sample of that population (Kothari, 2008). The study purposely selected respondents to ensure all senior management personnel from various departments are included in the sample elements. This is because supply chain performance primarily concern them. (Gadara, 2010) Holds that, descriptive designs are less expensive and can enable the researcher examine data from a wider area within a short time. This made this design even more appealing for this study.

Sample Size and Sampling Techniques

This study applied simple random sampling technique so that the research questions can be answered. According to (Theuri, 2015) this method gave the assurance of equitable distribution of wanted population characteristics through the selection of persons for the study. Simple random sampling was used to select the sample size as the researcher observed that almost all the respondents are available at Kenya Ports Authority as classified in the sampling frame.

Table 3.2 Sample Size

Department	Population Size	Sample %	Sample Size
Procurement	19	10	13
Finance	21	10	13
Human Resource	47	23	32
Operations	35	18	24
Security	17	09	12
Suppliers	61	30	40
Total	**201**	**100**	**134**

Data Analysis, Processing and Presentation

(Kumar, 2015) Advises that a researcher must pay attention toward data organization and coding prior to the input stage of data analysis. If data are not properly organized, the researcher may face difficulty while analyzing their meaning later on. Following this advice, data will be carefully coded and reduced to manageable chunks and hunks by use of SPSS Version 23.

Statistical methods to reduce data such as calculation of central tendencies were used. The relevancy and relationships was determined by the simple regression analysis and correlation analysis techniques where**:**

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + \varepsilon$$

a – is a constant, the results when all variables x_1 to x_4 are zero.

X_1 – Supply Chain Information Technology

X_2 – Supply Chain Staff Competency

X_3 –Spply Chain Planning

X_4 – Supplier Relationship Management

'b_1 – b_4 – Regression coefficients

ε – error term

4. RESEARCH FINDINDS AND DISCUSSION:

Supply Chain Information Technology

The study sought to evaluate the effect of information technology on the performance of Kenya Ports Authority. From the study, the results shows that 68% agree that adoption of information technology has facilitated internet based technology for the organization. The findings of Eke, (2010) agree that test reveals that there is significant relationship between information technology and organization performance. The results also shows that 81% majority of the respondents agree that installation of internet based infrastructure has facilitated smooth communication with supplier's more easily in the organization.

Table 4.1 Supply Chain Information Technology

	N	Mean	Std. Deviation
The organization adoption of IT has facilitated internet-based technology, information flow within the organization departments and therefore improved the supply chain performance	95	4.32	.688
The introduction and installation of internet based infrastructure has enabled the organization to communicate with its suppliers more easily and react where need be faster in solving challenges arising in the transaction	95	4.31	.813
The adoption of information technology has enabled the organization to get accurate information of inputs as well outputs from the firm and therefore helped in reducing losses	95	4.16	1.114

The organization has incorporated in place system for suppliers to share viable information about the issues that affect them on the supplier portals	95	4.24	.964
The organization and suppliers exchange information that support the establishing of business planning	95	4.40	.642
Valid N (listwise)	95		

Supply Chain Planning

The third objective sought to determine the effect of supply chain planning on the performance at Kenya Ports Authority. Under this supply chain planning variable there was general consent that there is increase in supply chain performance. Table 4.8 shows the mean averages for the entire variable results as 4.83, 4.80, 4.77, 4.75 and lowest of 4.68. 68% of the respondents agree that having proper plan of workforce in any organization would improve performance. This statement is support of Alison, (2015) who asserts that proper planning for any given organization in terms of resources and workforce is very critical for performance.58% of the respondents agree that supply chain planning is a key component created in the demand plan for the organization.

Table 4.2 Supply Chain Planning

	N	Mean	Std. Deviation
The organization considers workforce recruitment on supply chain performance as a resourceful tool	95	4.68	.688
The organization considers proper budgeting as avenue for supply performance	95	4.77	.494
The organization considers proper cost estimation as a method of supply chain performance	95	4.83	.429
The organization adoption of proper financial year planning has helped the organization save much on unnecessary costs and focus on valuable activities that enhance supply chain performance	95	4.75	.583
Supply chain planning is the component of supply chain management involved with determining how best to fulfil the requirements created from the demand plan for the organization	95	4.80	.612
Valid N (listwise)	95		

Supplier Relationship Management

The study sought to determine the effect of supplier relationship management on the performance at Kenya Ports Authority. Table 4.9 shows the entire mean averages for the variable as 4.78, 4.76, 4.75, 4.69 and 4.62. From the study the results revealed that 80% of respondents agreed that collaborative relationship management method signified as the best technique method to increase supply chain performance. 67% of the respondents agree that supplier partnerships relationship management method has critically placed the organization performance at upper hand. The results is asserted to findings of Dobler, (2003) implicating on the supplier relationship management significant to organization performance. The findings of Mugo, (2010) agree test reveals that there is significant relationship between supplier relationship management and organization performance. 75% of the respondents agreed that viable mechanism in place to replace suppliers with other comparative suppliers based on poor performance would play significantly to the supply chain performance.

Table 4.3 Supplier Relationship Management

	N	Mean	Std. Deviation
The organization considers collaborative relationship management as the best technique for supply chain performance	95	4.62	.801
The organization considers supplier partnerships relationships management as parameter for supply chain performance	95	4.78	.671
The organization considers adversarial relationship management as a tool for supply chain performance	95	4.76	.596

The organization invest much of its resources in the building relationship with suppliers to enhance supply chain performance	95	4.75	.618
The organization has viable mechanism in place where it can easily replace suppliers with other comparative suppliers based on poor performance	95	4.69	.759
Valid N (listwise)	95		

5. CONCLUSION:

The study results concluded that there was strong positive significant relationship between supply chain information technology and supply chain performance. The results were attributed by the organization investing much in electronic procurement system where most of the operations are done electronically thus enabling them to reduce cost and value for money for the country. The results clearly depicts that information technology greatly influenced supply chain performance. The study concluded that the findings of correlation and regression analysis it replicated a strong significant positive relationship between supply chain staff competency and supply chain performance. The study concluded that measurement of supply chain staff competency indicators greatly influenced supply chain performance as a dependent variable. The results were attributed due to organization having appropriate training programs and workshops for the staff and even the external customer to the organization.

6. RECOMMENDATIONS:

- Top managers, policy makers and other key players in supply chain for various organizations should formulate best technology policies and systems that will ensure the organization has achieved its targets and objectives in regards to information technology.
- Supply chain management has a great impact on the success of any business. Establishing positive, productive working relationships with suppliers is critical when trying to maximize supplier contributes to a firm's performance, and this is what supplier relationship management does. SRM provides a structured way for firms and suppliers to enhance their relationships, increase profitability, and ultimately provide improved products and services to the end users customers.
- It is recommended that each organization develop an on -going culture of effective relationships with suppliers and also try occasional initiative-based efforts to improve their working relationships with suppliers.
- It is recommended also that organizations to enhance supplier-working relationship and establish the value-ass of these improved relationships, due its importance to help control total manufacturing and operations costs and to build market requirements to their products and services

The study recommends the organization to formulate and cultivate culture of performance in terms appropriate better strategies, vision and mission and direction for the organization.

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