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**EFFECT OF LOGISTICS MANAGEMENT PRACTICES ON  
SUPPLYCHAIN PERFORMANCE OF MANUFACTURING  
FIRMS IN KENYA**

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## **Effect of Logistics Management Practices on Supply Chain Performance of Manufacturing Firms in Kenya**

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### **Abstract**

**Purpose:** The aim of this study was to analyze the impact of logistics management on success of supply chain among Kenyan manufacturing companies.

**Methodology:** A descriptive research design was adopted. The objective populace of the investigation was all the 708 assembling firms in Kenya authorized under Kenya Association of Manufacturers the year 2017. An equation was utilized to choose 96 firms out of the complete 708 firms. The head of acquirement from each firm was focused as the unit of perception. Quantitative essential information was gathered by the examination. The investigation utilized both enlightening and inferential measurements for examination. A relapse model was utilized to set up the connection between the factors. SPSS adaptation 21 was utilized for information examination. Information discoveries was exhibited through tables and figures.

**Results and conclusion:** The study found that warehousing management positively and significantly affects supply chain performance of manufacturing firms in Kenya. The results further showed that inventory management practices positively affect the supply chain performance of manufacturing firms. Consequently, order processing management was found to positively affects the supply chain performance of manufacturing firms in Kenya. The study finally established that transportation management positively affects the supply chain performance of manufacturing firms in Kenya.

**Unique contribution to theory, policy and practice:** The study prescribes that the administration of assembling firms should consolidate the practices into their framework so as to improve their presentation and competitiveness. Strategic administrators of different assembling firms should lead every one of these pieces of training to guarantee that there is slicing of expenses through coordinations rehearses. The examination suggests for the upgrade stock control and the workforce needs outer direction concerning stock control. There is requirement for more opportunity to be taken in the procedures inside the distribution center. The association ought to have satisfactory stock control measures set up. The investigation additionally prescribes that it is important to designate stockroom assets proficiently and successfully to upgrade the efficiency and decrease

the activity expenses of the distribution center. All assembling organizations and different associations ought to be encouraged to grasp the idea with the goal that they can probably receive the rewards of embracing these practices.

**Keywords:** *Warehousing management, management of inventory, processing of order, management of transportation, performance, supply chain*

## 1.1 INTRODUCTION

Logistics management refer to a set of activities undertaken in an organization to promote effective management of its logistics, (Adebayo, 2012). Logistics management organizations are tasked with the responsibility of formulating and implementing strategies that if adopted will lead to achievement of a sustained competitive advantage. The volatility of the business environment, intense competition and improvements in technology has introduced dramatic changes to the logistics management. Globalization and severe competition of supply chains has forced manufacturing firms to look for better manufacturing methods to remain competitive.

Firms need to make solid inventory network connections that empower them to control their market directions by reacting to fast changes in clients' worth and rival moves for them to obtain prevalent business execution. Logistics management refers to a bit of stock system the officials that plans, finishes and controls the beneficial, compelling forward and turn stream and farthest point of item, benefits and related data between the purpose behind source and the inspiration driving use so as to meet customers' essentials. According to Wesley and Ricardo (2011), typical fundamentals of logistic activities include customer services, inventory control, transportation and ordering. These can give companies competitive advantages.

Bosire (2011) noted that logistic management practices provide an avenue for integrating activities in the supply chain aiming at realizing a sustained competitive advantage. The process entails formulation of ways and means through which products and service reach the firm as well as the consumer. In today's operational environment, manufacturing firms are faced with challenges of responding to the dynamic demands from customers and the heightened competition amongst firms. This has prompted the firms to adopt ways in which to improve quality of products and services, reduce production costs as well as adopt technologically friendly environment that will promote production of goods that fits the prevailing demands. Barua (2010) notes that majority of the manufacturing firms have capitalized on promoting supply chain activities to add value to their customers. This is made effective by capitalizing on the adoption of effective logistic management approaches in the supply chain operations of the firms.

Bashuna (2013) posits that transport management has been one of the main components of logistic management practice that majority of firms have heavily invested. Adoption of transport management practices aims at optimizing the process of supply chain in the most cost-effective way that helps a firm capture its competitive edge. The process of controlling, securing and managing goods movement to the firm by supplier and from the firm to the consumers has enabled majority of firms save on transportation costs which significantly contributes to supply chain performances.

Many manufacturing firms in Kenya have adopted various e-procurement practices, (Mose (2012). This is an indication that there is lack of study carried out locally to bring out an understanding of the comprehensive set of logistic management and how they can enable an organization improve its performance and gain competitive advantage. Waweru *et al* (2015) opined that to increase unrivaled profitability, the companies through the management or production team ought to executive and meet consumer needs and embrace loyalty, reaction to client grumblings, convey on convenient premise, and have a fill rate, stock-out likelihood and precision. Therefore, the current study sought to look into the impact of logistics management on success of supply chain among Kenyan manufacturing companies.

### 1.2 Problem Statement

World Bank (2014) report on the performance of manufacturing firms in Kenya characterized the manufacturing industry as one with stagnating growth, declining profits and decreasing market shares in East African. The Kenya Association of manufacturers noted that the Kenyan manufacturing firms lost 70% of their market share in East Africa (RoK, 2016) and also decreased the contribution to GDP by 2.4%. The poor performance is attributed to high operational costs arising from supply chain inefficiencies which constitutes up to 30% of all costs (World Bank Report, 2014). According to Mose (2012) supply chain performance can be improved by managing logistics costs since better management of the costs can save up to 40% of supply chain costs. It is due to this premise that the current study was conducted to assess the effects of logistic management practices on supply chain performance of manufacturing firms in Kenya.

Knowledge gaps in the previous studies also motivates this study since less focus has been given to logistics management as a panacea to the supply chain performance problem of the manufacturing firms. Previous studies for instance Vijayaraghavan and Raju, (2008) looked at the influence of transport and logistics on the performance of Indian Based Firms. This study was however based in India thus presenting a contextual gap. Miralam, (2017) looked at the impact of implementing warehouse management system (WMS) on auto spare part warehouses activities in Saudi Arabia market. The study however focused only on one variable considered in the current study thus presenting a conceptual gap. Mungu (2013) on the other hand looked at how logistics management usage influences the stock degrees of fundamental medications in the general wellbeing organization. The study focused on stock degree while the current study focused on supply chain performance. A study by Gitonga (2017) took a gander at the impacts of logistics management and operational execution of Fast-Moving Consumer Goods Manufacturers in Kenya. The study however focused logistic management and operational execution while the current study focused on supply chain performance.

These studies have been conducted in different contexts and have focused on different concepts thus presenting both contextual and conceptual knowledge gap that the current study sought to fill. The current study aims at establishing the effects of logistic management practices on supply chain performance of manufacturing firms in Kenya.

### **1.3 Objectives of the Study**

This research was guided by four major specific aims which were to assess the effect of;

- i. Warehousing management on success of supply chain among manufacturing companies in Kenya.
- ii. Management of inventory on success of supply chain among Kenyan manufacturing companies.
- iii. Processing of order processing management on success of supply chain among Kenyan manufacturing companies.
- iv. Management of transportation on performance of supply chain among Kenyan manufacturing companies.

## **2.0 LITERATURE REVIEW**

### **2.1 Theoretical review**

#### **2.2.1 Institutional Theory**

DiMaggio and Powell, 1983 was the advocate of the hypothesis. This hypothesis is worried about the procedures by which structures, schedules, standards and standards become set up as the rules for worthy conduct. Associations act in a manner that satisfies both client and legitimate necessity. Weights from these two gatherings impact the reception of earth mindful conduct, (Laosiri Hongthong et al, 2013). Because of regulating weights, for example, client prerequisites, associations are compelled to fit in with be seen as progressively real. Administrators may likewise initiate ecological practices as a system to mirror and beat rivalry whose natural duty has earned them an aggressive edge (Zhu *et al*, 2007). This theory provides more understanding to the study on why majority of the manufacturing firms are adopting logistics management.

#### **2.2.2 Strategic Choice Theory**

The hypothesis was proposed by Child (1972). The hypothesis accentuates on the greatness of the choices made by the executives on the presentation of firm. To comprehend the between reliance between nature and associations, activities and general business execution, Campling and Michelson (1998) built up the vital decision model. The model spotlight on accomplishing a higher presentation level in order to upgrade proficiency particularly notwithstanding constrained assets; nonetheless, the key hypothesis was fruitless in giving a more significance on relevant angles, including condition, innovation just as the level of activity into record and only thought about how the structure of a firm help in the exhibition of a business. The hypothesis interfaces the autonomous variable of stock administration to the examination.

### **2.2.3 Economic Order Quantity Model (EOQ)**

The model was created by Ford W. Harris in 1913. The EOQ model is centered around requesting divides that limits the solidness of the expense between the inventories holding costs and the re-request costs, (Ogbo, 2011). As per Ogbo (2011), there are basic suppositions for figuring EOQ as gave; the expenses of holding a stock are known, and are viewed as consistent; there are requesting costs which are seen to be steady; the degree of interest is known and is respected to be reliable; that the lead time cycle is remarkable and considered relentless; the expense per unit is in like manner seen as enduring; the restorations made rapidly, the entire group is passed on expediently and that the stock-outs are not allowed. On account of inquiries experienced in business condition, adjusted fiscal solicitation sum is an EOQ model that should be gotten in the event change looked for after is a no matter how you look at it wonder in this examination, it was urgent to comprehend to what degree EOQ model is actualized by assembling firms in Kenya, just as the effect of EOQ model on production network execution of assembling firms in Kenya. This model connections the free factor of request preparing to the examination.

### **2.2.4 Resource-Based View Theory**

The advocate of this hypothesis was Wernerfelt in 1984. The hypothesis was later best in class by Barney in 1991. The hypothesis places that the assets accessible in a specific association, both unmistakable and immaterial are a definitive wellspring of upper hand, (Tukamuhabwa, Eyaa and Derek, 2011). As per the hypothesis, these assets ought to be all around adjusted with the end goal that they supplement each other in achieving the ideal results. The association ought to likewise long to enhance and build the measure of assets claimed to profit the most. The hypothesis makes the presumption that each firm has assets that are one of a kind to that firm and if all around used, will prompt an extra advantage in rivalry. This hypothesis interfaces the autonomous variable of transportation the executives to the examination.

## **2.2 Logistics management**

### **2.4.1 Warehousing Management**

Miralam, (2017) completed an examination to inspect the effect of executing stockroom the executive's framework (WMS) on auto extra part distribution centers exercises in Saudi Arabia advertise. The discoveries of the examination demonstrated that the WMS gives high fulfillment of administration unwavering quality and extraordinary improvement in stockroom productivity and adequacy in extra part industry advertise. The examination further uncovered that WMS gives a decrease to the general extra part industry market cost.

### **2.4.2 Inventory Management**

Oballah et al (2015) tried to research the impacts of stock administration on association execution in the Public Health office in Kenyatta National Hospital. The investigation embraced a clear contextual investigation plan. The study adopted a descriptive research design and targeted employees working in procurement and logistic department in the hospital. The study adopted questionnaires and secondary data collection sheet to gather both primary and secondary data. Quantitative and qualitative analysis approach were adopted and results generated by SPSS

software. The discoveries of the investigation uncovered that stock administration, for example, stock exactness impact association execution.

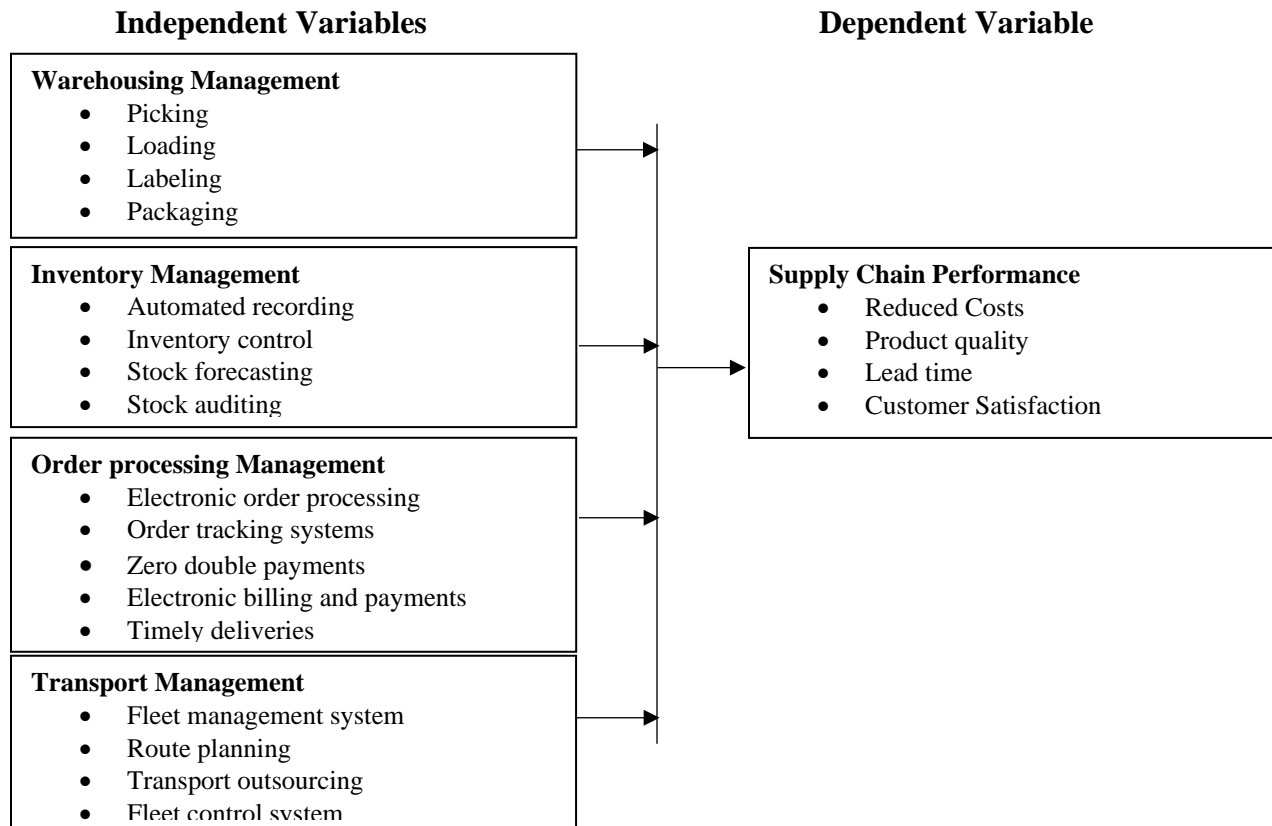
#### **2.4.3 Order processing management**

Duran and Yavuz (2015) carried an investigation on the effect of the inventory network systems and the focused methodologies on the firm execution and if this progression as indicated by the states of vulnerability. The examination concentrated on assembling organizations recorded in Borsa Istanbul in Turkey. The objective populace for the examination included 174 organizations. The discoveries of the investigation demonstrated that that focused techniques affected the inventory network systems emphatically and essentially; cost initiative procedure, request preparing methodology and lean store network procedure significantly affected the firm execution under the states of high vulnerability; while, separation procedure and coordinated production network technique significantly affected the firm execution under the low vulnerability.

#### **2.4.4 Transportation Management**

Bwari *et al* (2016) directed an investigation on production network in East African Breweries Limited. The examination received engaging exploration plan. The examination focused on 1653 workers in EABL. Yamane sampling formula was utilized in the study to derive a sample of 165 respondents. The respondents were drawn from all levels of management. Questionnaires containing both open and close-ended questions were utilized in collecting data. The consequences of the investigation discovered that stock control, dissemination the board, and transportation the board impacted inventory network execution as it were.

### 2.3 Conceptual Framework



**Figure 1: Conceptual framework**

### 3.0 METHODOLOGY

A descriptive research design was adopted. The objective populace of the investigation was all the 708 assembling firms in Kenya authorized under Kenya Association of Manufacturers the year 2017. An equation was utilized to choose 96 firms out of the complete 708 firms. The head of acquirement from each firm was focused as the unit of perception. Quantitative essential information was gathered by the examination. The investigation utilized both enlightening and inferential measurements for examination. A relapse model was utilized to set up the connection between the factors. SPSS adaptation 21 was utilized for information examination. Information discoveries was exhibited through tables and figures.



## 4.0 RESULTS FINDINGS

### 4.1 Introduction

The aim of the study was to unveil the impact that management of logistics has on the success of supply chain among Kenyan manufacturing companies. This chapter provides details on the analysis of the data collected in the area being studied, their presentation (in tables containing the means, standard deviation, frequencies and percentages) and there after interpretations of the findings given in prose.

### 4.2 Response Rate

The 96 respondents who were sampled were given questionnaires but only 78 questionnaires were returned by the respondents. This gave a response rate of 81.3 percent which is above the 50% considered significant for any statistical analysis as prescribed by Sekaran (2011).

**Table 1: Response Rate**

	Number of informants	Percent
Response	78	81.3
Non- Response	18	18.8
<b>Total</b>	<b>96</b>	<b>100.0</b>

### 4.3 Pilot Study

A pilot study was led to decide how solid an information accumulation instrument the survey was. An aggregate of 7 respondents took part in the pilot study. Subsequently, a reliability analysis was carried out using Cronbach's Alpha to measure internal consistency by determining whether certain items measured the same construct within a given scale. Kothari (2004) established the Alpha value threshold at 0.7.

**Table 2: Reliability Analysis**

	Cronbach's Alpha	Decision
Warehousing Management	0.858	Reliable
Inventory Management	0.863	Reliable
Order processing Management	0.773	Reliable
Transport Management	0.831	Reliable

Cronbach Alpha was established for every objective under study. The warehousing management was the most reliable with an alpha estimation of 0.863, trailed by warehousing the executives with an alpha estimation of 0.858, transport the executives came third with an alpha estimation of 0.831 while request handling the executives with an alpha estimation of 0.773. All in all, the four

variables of the study were considered reliable as their reliability values exceeded the prescribed 0.7 threshold, a depiction of the reliability of the research instrument and therefore no modifications were required (Kothari, 2004).

#### 4.4 Warehousing Management

The study tried to build up the impact of warehousing the board on store network execution of assembling firms in Kenya. The discoveries are as displayed in Table 3.

**Table 3: Level of concurrence with explanations on the impact of warehousing the board on the inventory network execution of assembling firms in Kenya**

Statement	Mean	Std. Dev.
Products are delivered in the right quantity to the customer	4.3373	.65893
The firm labels and loads the right product to the right vehicle	3.8552	1.17335
Products leaves the warehouse in a clean package and damage free for customer	3.9104	1.01102
The firm warehouse is close to the proximity of the customer	3.0597	.71522
The firm stores it products using its facility	3.6940	.67955

From the examination revelations, lion's share of the respondents agreed that things are passed on in the right add up to the customer as evidenced by a mean of 4.33. The respondents further agreed that items were removed from the stockrooms to the clients in a manner that is properly streamlined and free from any mischief as evidenced by a mean of 3.91. On the statement that the warehouses of the companies were situated in locations that were near the clients, majority of the respondents agreed as shown by a mean of 3.06 and in the same line majority agreed that their respective companies utilized their own stores to store their products and this is revealed by a mean of 3.69 and a standard deviation of 0.67. These findings are in line with Faber (2013) who concluded that warehouses that work in progressively violent markets are probably going to need to consistently alter their items and administrations so as to fulfill clients' evolving inclinations.

Getting, moving, taking care of, capacity, pressing, and facilitating tasks at the distribution center legitimately influence the adequacy of an organization in general just as its quality and strategic administration level. On respondent's opinion whether warehousing practices in their company are modern, the respondents showed that their warehousing rehearses in their organization are cutting-edge since the Products are conveyed in the correct amount to the client and items leaves the distribution center in a perfect bundle and harm free for client. The findings concur with Hilmola and Lorentz (2011) who noted that warehouses and appropriation focuses have a significant job in universal logistics rehearses. They contended that these may basically serve markets or hold stock, and in this manner, give intends to accomplish suitable client assistance in the global condition, inclined to long lead times and interruptions.

#### 4.5 Inventory Management

The study aimed at finding out the level at which the respondents agreed with specific aspects of inventory management as a factor affecting the success of supply chain among Kenyan manufacturing companies. The results are as herein indicated in table 4.

**Table 4: Management of Inventory and Success of Supply Chain**

Statement	Mean	Std. Dev.
Q-systems are used in the firm to control its inventory	4.4030	.67554
Enterprise Resource Planning system used in the firm to control its inventory	3.8373	1.03468
The firm has automated its recording of inventory	4.5716	.56106
The inventory management practices reduce inventory bottleneck in production	4.0373	.63552
There is cycle counting of inventory in the firm	3.4925	.68253
There is usage of JIT inventory management technique in the firm	3.8926	.68253

According to the examination findings, the respondents are shown that the firm has mechanized its chronicle of inventory as depicted by a mean score of 4.4716, Q-systems are used in the firm to control its stock as sketched out by a mean score of 4.4030, the stock organization practices diminishes stock bottleneck in progress as spoken to by a mean score of 4.0373, there is use of JIT stock organization strategy in the firm as spoken to by a mean score of 3.8926 and adventure resource orchestrating structure used in the firm to control its stock as outlined by a mean score of 3.8373. They were in any case dubious in transit that there is cycle incorporating of stock in the firm as sketched out by a mean of 3.4925. The findings concur with Miller (2010) who argues that inventory management is related with all exercises built up to ensure that clients get to a particular item or administration. It empowers the coordination of the exercises buying, fabricating alongside conveyance so as to meet the promoting needs of guaranteeing that items are profited to a customer.

On respondents' opinions on whether they think their firm uses appropriate inventory management practices, they indicated that their firm uses the appropriate inventory management practices since they furnish the executives with the important data to upgrade their operational exercises and to limit mistakes, creates the most extreme benefit from minimal measure of stock venture without impeding consumer loyalty levels or request fill rates. Stock administration was additionally accepted to help represent load of crude material accordingly empowering the improvement and supportability of construction firm's performance. The findings are in line with Lysons and Farrington (2012) who noticed that to quantify the viable and proficient execution of stock relies upon to what degree the firm has the correct amount of stock in the opportune spot and at the

perfect time. The markers to quantify such stock are the lead time, the administration time (wellbeing stock), the pace of stock turn, stock outs in a given period and stock spread.

#### 4.6 Order Processing management

The study was motivated to analyse the views of the respondents on how processing of orders affected the success of supply chain in their respective manufacturing enterprises. The responses are as shown in Table 5.

**Table 5: Order processing management and Success of Supply Chain**

Statement	Mean	Std. Dev.
The firm uses Electronic Order Processing	4.0166	.49875
Orders are processed in a timely manner	3.6269	.51745
The firm uses a database to track its orders and inventory	3.9418	.59548
The firm has on time vendors for delivery when inventory runs low	3.3254	.85835
ERP systems eliminates double payments in the firm.	4.3235	.87548

From the findings, larger part of the respondents was of the opinion that their respective companies processed their orders using electronic based mechanisms as evidenced by a mean of 4.01. In the same note, the workers agreed that their respective enterprises embraced timeliness in processing the orders as shown by 3.62 as the mean and 0.51 as the standard deviation. The results further depicted that their respective companies applied a designated database as a tool to track down their orders and inventory and this is evidenced by a mean of 3.94. The respondents stated that their firms had specific on-time suppliers to work on deliveries just in case their inventory was inadequate. Majority of the surveyed respondents agreed that as a result of their companies adopting ERP systems, double payments were eliminated and this is evidenced by a mean of 4.32. The findings are in line with Christopher (2010) who noted that in most supply chains, client necessities were transmitted as requests. The handling of these requests included all parts of overseeing client necessities, including beginning request receipt, conveyance, invoicing, and gathering.

On the respondents' thoughts about the order processing practices in their firm, they indicated that order processing practices in their firm integrates the requests from numerous channels with stock databases, information gathering, request preparing including Visa check, satisfaction frameworks and returns over the whole satisfaction arrange. What's more, they showed that speedy, precise preparing of requests decidedly impacts the whole progression of products in their firm. The discoveries are in accordance with Bowersox et al, (2010) who contends that it looks bad for a firm to collect arranges at a neighborhood deals office for seven days, mail them to a provincial office, process the requests in a group, dole out them to a circulation distribution center, and after that ship them by means of air to accomplish quick conveyance

#### 4.7 Transportation Management

The study sought to explore the respondents' level of agreement with statements on the effect of transportation management on the supply chain performance of manufacturing firms in Kenya. The findings are as shown in Table 6.

**Table 6: Level of agreement with statements on the effect of transportation management on the supply chain performance of manufacturing firms in Kenya**

Statement	Mean	Std. Dev.
There is timely delivery of products and services to customers	4.1164	.59813
The firm uses fuel management system to monitor fuel utilization	3.5373	.70342
The firm uses transport management system to plan the routes for distribution	4.0821	.65480
The firm uses transport management system to schedule its fleet	4.0522	.65790
The firms use fleet management system to track all product that are transported to customer	3.7194	.89650

The study found that dominant part of the respondents agreed that their respective companies upheld timeliness in delivering various commodities to the customers as shown by a mean of 4.11. The results further depicted that most of the respondents were of the opinion that their respective enterprises had put in place systems to manage fuel utilization as a way of minimize wastage of fuel and save on operational costs as shown by a mean of 3.53. Most of the respondents said that their companies planned their distribution routes by use of systems of managing transport and that their companies use such systems to make arrangements based on timelines on their next fleet. This is one way of ensuring that the supplies get to the customers on good time to meet their needs. Majority of the respondents were of the opinion that the products delivered to their different clients were effectively tracked by use of an appropriate system as evidenced by a mean of 3.71. The findings correlate with Bowersox *et al.* (2010) who argues that transporting is required in the entire creation strategies, from assembling to conveyance to the last purchasers and returns. Just a decent administration and coordination between every segment would carry the advantages of logistics to a most extreme. A decent transport the executives in logistics exercises could give better logistics proficiency, lessen activity cost, and advance administration quality on firms.

On their opinion on thoughts about transportation practices adopted by their firm have minimized the operation costs, the respondents indicated that transporting enhances the whole production procedures, from manufacturing to delivery to the final consumers and returns and could provide better logistics efficiency, reduce operation cost, and promote service quality on firms. The respondents also indicated that transport management systems (TMS) lead to a reduction in the overall operation costs for the manufacturing firms. The findings concur with Wisner *et al* (2011) who noticed that in logistics, it is transportation that gives the progression of materials, items and

people between creations offices, stockrooms, the dispersion focuses, the terminals and the clients. Transportation is the main action that gives the time and spot utilities through the outbound and inbound logistics.

#### 4.8 Supply Chain Performance in Manufacturing Firms

The study assessed the views of the respondents regarding the success of supply chain in their respective companies. The findings were as herein shown in Table 7.

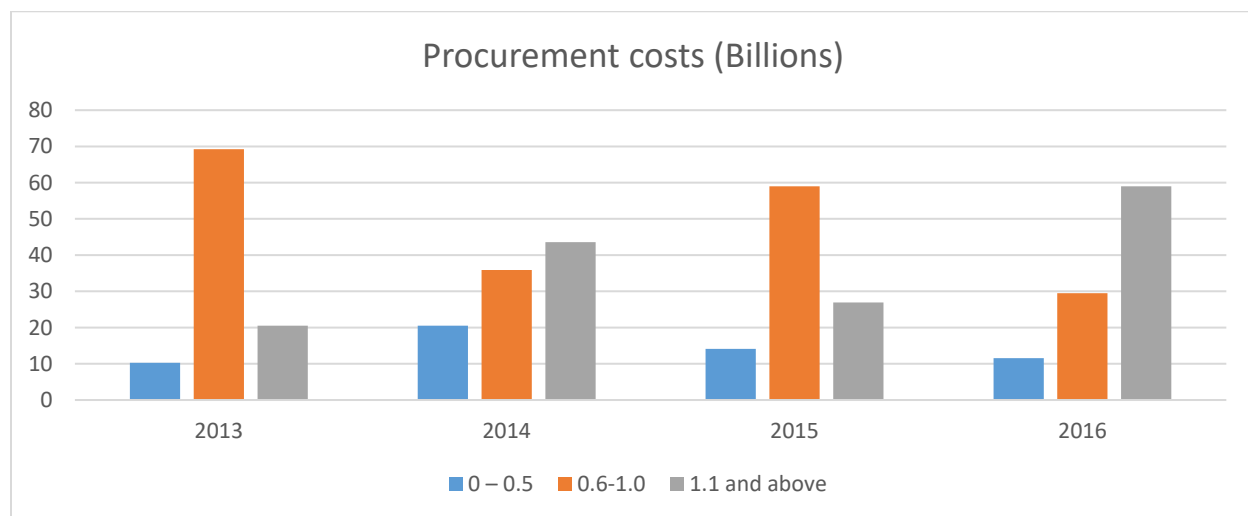
**Table 7: Performance of Supply Chain**

Statement	Mean	Std. Dev.
The level of customer satisfaction has increased	3.7762	0.6832
There has been a rise in the volume of sales	3.1944	0.9701
Quality of products delivered have increased	4.1964	0.6533
The firm meets customer requirement	4.3477	0.7868
There has been an increase in the market share of the firm	2.7625	0.8385

As the results depict, most of the respondents indicated that indeed their respective firms strived towards achieving the contentment of their clients as evidenced by a mean of 3.77. The results further outlined that most of the companies surveyed had increased their sales volume in the recent past as shown by a mean of 3.19 and that they had achieved a higher quality of the supplied products as shown by a mean of 4.19. Most of the respondents surveyed indicated that their respective companies had satisfactorily met the expectations of their customers as shown by a mean of 4.34 while majority disagreed that their respective companies had captured more market as evidenced by a mean of 2.76. The findings are in line with Blos *et al*, (2009) who argues that in estimating the presentation of the inventory network and contrasting against inside and outside industry objectives centers around: unwavering quality accomplishment of client request satisfaction on-schedule, total, without harm and so on., responsiveness the time it takes to respond to and satisfy client request, spryness the capacity of production network to expand/decline request inside a given arranged period, cost target evaluation of all segments of store network cost, resources the appraisal of all assets used to satisfy client request. SCOR model can help inventory network directors assess cost/execution tradeoffs, create techniques for gathering new client desires, and react to household and worldwide market development.

**Table 8: Range of Procurement Costs**

Procurement costs (Billions)	2013		2014		2015		2016	
	F	P	F	P	F	P	F	P
0 – 0.5	8	10	16	21	11	14	9	12
0.6-1.0	54	69	28	36	46	59	23	29
1.1 and above	16	21	34	44	21	27	46	59
<b>Total</b>	<b>78</b>	<b>100</b>	<b>78</b>	<b>100</b>	<b>78</b>	<b>100</b>	<b>78</b>	<b>100</b>

**Figure 2: Range of Procurement Costs**

From the findings, majority of the respondents indicated that the highest recorded procurement costs for most of the firms was 0.6 to 1 billion shillings in 2013 as shown by 69%, 1.1 Billions and above in 2014 as shown by 44%, 0.6 to 1 Billion in 2015 as shown by 59% and 1.1 billion and above in 2016 as shown by 59%.

**Table 9: Average Lead Time in Months**

Year	Procurement Lead time (Months)	Frequency	Percent
2013	2	12	15.4
2014	3	32	41.0
2015	4	22	28.2
2016	5	12	15.4
<b>Total</b>		<b>78</b>	<b>100</b>

The respondents indicated that the average lead time in months in 2013 was 2 months (15.4%), in 2014 was 3 months as shown by 41%, in 2015 was 4 months as shown by 28.2% and in 2016 was 5 months as shown by 15.4%. This implies that the average lead time in months for the last five years was between 1 and 6 months.

#### 4.9 Regression Analysis

In this study, a different relapse investigation was directed to test the impact among indicator factors. The exploration utilized factual bundle for sociologies (SPSS V 25.0) to code, enter and register the estimations of the numerous relapses.

**Table 10: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.781	0.611	0.589	0.751

The coefficient of determination as denoted by adjusted  $R^2$  shows the variance in the dependent variable that could be explained uniquely by the study's independent variables. As the results depicts, the performance of supply chain would change by up to 61.1% as a result of the combined effort of management of warehouse, management of the inventory, processing of orders and management of transportations.

**Table 11: ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	67.223	4	16.806	28.613	0.000
	Residual	42.876	73	0.587		
	<b>Total</b>	<b>110.099</b>	<b>77</b>			

The probability value of 0.000 indicates that the regression relationship was highly significant in predicting how warehousing management, inventory management, order processing management and transportation management affected supply chain performance of manufacturing firms in Kenya. The F calculated at 5% level of significance was 28.613 since F calculated is greater than the F critical (value = 2.5252), this shows that the overall model was significant.



**Table 12: Regression coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.053	0.317		3.322	.0014
Warehousing Management	0.682	0.279	0.613	2.444	.0169
Inventory Management	0.701	0.281	0.149	2.495	.0149
Order Processing Management	0.599	0.296	0.234	2.024	.0467
Transport Management	0.763	0.221	0.138	3.452	.0009

The overall estimated regression model was therefore as represented by the equation ( $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$ ) becomes:

$$Y = 1.053 + 0.682X_1 + 0.701X_2 + 0.599X_3 + 0.763X_4$$

The regression equation above set up that considering all elements (warehousing the board, stock administration, request preparing and transportation the executives) steady at zero stock system execution of collecting firms in Kenya will be 1.053. The divulgences displayed besides show that taking all extraordinary self-overseeing segments at zero, a unit increment in the Warehousing Management would affect a 0.682 expansion in the scores of store compose execution of gathering firms in Kenya and a unit increment in the scores of Inventory Management would incite a 0.701 growth in the scores of age orchestrate execution of gathering firms in Kenya. Further, the disclosures display that a unit enlarges in the scores of Order preparing Management would prompt a 0.599 expansion in the scores of co store compose execution of gathering firms in Kenya. The appraisal moreover found that a unit increment in the scores of Transport Management would incite a 0.763 expansion in the scores of production network execution of assembling firms in Kenya.

The discoveries are in accordance with Blos et al, (2009) who contends that in estimating the presentation of the production network and contrasting against inside and outside industry objectives centers around: unwavering quality accomplishment of client request satisfaction on-schedule, total, without harm and so on., responsiveness the time it takes to respond to and satisfy client request ,dexterity the capacity of store network to expand/decline request inside a given arranged period ,cost target evaluation of all segments of inventory network cost, resources the appraisal of all assets used to satisfy client request. SCOR model can help store network chiefs assess cost/execution tradeoffs, create techniques for gathering new client desires, and react to local and worldwide market development.

Generally, Transport Management had the best impact on the production network execution of assembling firms in Kenya, trailed by Inventory Management, at that point Warehousing

Management while Order handling Management had minimal impact to the store network execution of assembling firms in Kenya. Every one of the factors were noteworthy ( $p < 0.05$ ).

## **5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Summary of the Findings**

#### **5.1.1 Warehousing Management**

The study sought to establish the effect of warehousing management on supply chain performance of manufacturing firms in Kenya. The study found that products are delivered in the right quantity to the customer, products leaves the warehouse in a clean package and damage free for customer, the firm labels and loads the right product to the right and that the firm stores its products using its facility. The study also found that the firm warehouse is close to the proximity of the customer warehousing practices in the company are up to date since the Products are delivered in the right quantity to the customer.

#### **5.1.2 Inventory Management**

The study inquired the respondents' level of agreement with statements on the effect of inventory management on the supply chain performance of manufacturing firms in Kenya. The study established that the firm has automated its recording of inventory, Q-systems are used in the firm to control its inventory, the inventory management practices reduces inventory bottleneck in production, there is usage of JIT inventory management technique in the firm and enterprise resource planning system used in the firm to control its inventory. The study also found that there is cycle counting of inventory in the firm. The study also established that appropriate inventory management practices generates the maximum profit from the least amount of inventory investment without hindering customer satisfaction levels or order fill rates.

#### **5.1.3 Order processing management**

The study further sought to determine the respondents' level of agreement with statements on the effect of order processing management on the supply chain performance of manufacturing firms in Kenya. The study established that ERP system eliminates double payments in the firm, the firm uses Electronic Order Processing, the firm uses a database to track its orders and inventory and that orders are processed in a timely manner. The study also found that firm has on time vendors for delivery when inventory runs low.

#### **5.1.4 Transportation Management**

The study sought to explore the respondents' level of agreement with statements on the effect of transportation management on the supply chain performance of manufacturing firms in Kenya. The study found that there is timely delivery of products and services to customers, the firm uses transport management system to plan the routes for distribution, the firm uses transport management system to schedule its fleet, the firms uses fleet management system to track all product that are transported to customer and that the firm uses fuel management system to monitor fuel utilization. It was also established that transporting enhances the whole production procedures,

from manufacturing to delivery to the final consumers and returns and could provide better logistics efficiency, reduce operation cost, and promote service quality on firms.

## 5.2 Conclusion

The study concluded that warehousing management positively and significantly affects supply chain performance of manufacturing firms in Kenya. It was deduced that products are delivered in the right quantity to the customer, products leave the warehouse in a clean package and damage free for customer, the firm labels and loads the right product to the right and that the firm stores its products using its facility. The study further concluded that inventory management affects the supply chain performance of manufacturing firms in Kenya significantly. This was attributed to the fact that the firm has automated its recording of inventory, Q-systems are used in the firm to control its inventory, the inventory management practices reduces inventory bottleneck in production, there is usage of JIT inventory management technique in the firm and enterprise resource planning system used in the firm to control its inventory.

The study further concluded that order processing management positively affects the supply chain performance of manufacturing firms in Kenya. The study established that ERP system eliminates double payments in the firm, the firm uses Electronic Order Processing, the firm uses a database to track its orders and inventory and that orders are processed in a timely manner. The study also found that firm has on time vendors for delivery when inventory runs low. The study further concluded that transportation management positively affects the supply chain performance of manufacturing firms in Kenya. The study revealed that there is timely delivery of products and services to customers, the firm uses transport management system to plan the routes for distribution, the firm uses transport management system to schedule its fleet, the firms uses fleet management system to track all product that are transported to customer and that the firm uses fuel management system to monitor fuel utilization.

## 5.3 Recommendations

The study prescribes that the administration of assembling firms should consolidate the practices into their framework so as to improve their presentation and competitiveness. The examination suggests that hierarchical aptitude particularly from the generation firms ought to be prepared further on the different parts of co-ordinations the board and the requirement for the equivalent towards boosting generally speaking firm execution.

What's more, strategic administrators of different assembling firms should lead every one of these pieces of training to guarantee that there is slicing of expenses through co-ordinations rehearses. The organizations ought to in this manner contribute assets on preparing of urgent workforce-related with execution of co-ordinations the executives rehearse in order to help their store network execution through the usage of co-ordinations the executives rehearse.

The examination suggests for the upgrade stock control and the workforce needs outer direction concerning stock control. There is requirement for more opportunity to be taken in the procedures inside the distribution center. The association ought to have satisfactory stock control measures

set up. The effect of stock control preparing as upgraded by the association ought to be entrenched in consistence with the guidelines and guidelines.

The examination prescribes for the best possible dissemination arranging upgrading authoritative profitability in the state partnerships. The association ought to have inner appraisal when arranging. The dispersion arranging ought to guarantee convenient conveyance. The association ought to guarantee that the participatory arranging is satisfactory. There is need distinguishing proof and very much assessed when arranging.

The examination suggests that the administration of assembling firms should grasp better administration of inventories which would discharge capital for use somewhere else gainfully. The most effective strategy for stock control is the utilization of Just-in-Time framework. The assembling firms ought to guarantee that working capital isn't kept in stock which amplifies inventory network gainfulness through cost regulation and responsiveness.

The investigation additionally prescribes that it is important to designate stockroom assets proficiently and successfully to upgrade the efficiency and decrease the activity expenses of the distribution center. There ought to be legitimate capacity areas for simple request and material taking care of. There is requirement for choosing proper capacity task strategies and steering techniques with views as a conceivable answer for improve the proficiency.

All assembling organizations and different associations ought to be encouraged to grasp the idea with the goal that they can probably receive the rewards of embracing these practices. Association are likewise encouraged to embrace the practices that are right now received at a little degree since they can fundamentally improve association execution from the present position. They incorporate practices like redistributing, lean practices and delay which have demonstrated to have colossal outcomes in different associations like Toyota for instance.

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