

# Effects of Logistics Management on the Organisation Performance of Shipping Firms in Mombasa County

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**Abstract:** *In today's highly competitive business environment, organizations are striving to achieve effectiveness, cost efficiencies and economies of scale. Most of these organizations perform various logistical operations so as to meet their customers' needs. However, managing these operations in order to achieve their objectives has posed a great challenge to the firms. Many firms have not yet established how much to invest in logistics and the right balance between responsiveness and efficiency. The study will seek to address the following general objective; to establish the effect of logistics management on the organization performance of shipping firms in Mombasa. Specifically, the study will establish the effect of warehousing, inventory management and transportation management on organizational performance. The study will employ a descriptive survey design and will target all the shipping lines in Mombasa town. Data will be collected from all the sixteen (16) shipping lines that are operational in Mombasa County. The data will be gathered using structured questionnaires and analyzed using both descriptive and inferential statistics, with the help of Statistical Package for Social Sciences (SPSS). The validity and reliability of the research instrument will be tested using a pilot study and the Cronbach's alpha coefficient of reliability respectively. Means, percentages and Frequencies will be used in data analysis and the chi-square test will be used to test the hypothesis developed for the study. The analyzed data will be presented using frequency distribution tables.*

## 1.1 Objectives of the Study

### 1.1.1 General Objective

The main objective of this study is to determine the effect of logistics management on the performance of shipping firms in Mombasa County.

### 1.1.2 Specific Objectives

- i. To study the effect of warehousing management on the organizational performance of shipping firms in Mombasa County
- ii. To examine how inventory management affects the organizational performance of shipping firms in Mombasa County
- iii. To determine the effect of transport management on the organizational performance of shipping firms in Mombasa County
- iv. To determine the effect of reverse logistics management on the organizational performance of shipping firms in Mombasa County

## 1.2 Research Questions

- i. What is the effect of warehousing on the organizational performance of shipping firms in Mombasa County?
- ii. How does inventory management affect the organizational performance of shipping firms in Mombasa County?
- iii. What is the effect of transportation management on the organizational performance of shipping firms in Mombasa County?
- iv. What is the effect of reverse logistics on the performance of the shipping firms in Mombasa County?

## 2.2 Theoretical Framework

On the theoretical front, the theory of supply chain management, the systems theory and resource based view are majorly used to explain the concept of logistics management.

### 2.2.1 The Theory of Supply Chain Management

The term supply chain management (SCM) has been used to explain the planning and control of materials and information flows as well as the logistics activities not only internally within a company but also externally between companies Fisher, (1997). A number of fields such as purchasing and supply, logistics and transportation, operations management, marketing, organizational theory, management information systems and strategic management have contributed to the explosion of the SCM theory. Many authors have highlighted the pressing need for clearly defined constructs and conceptual frameworks to advance the theory of supply chain management Saunders, (1998).

### 2.2.2 The Systems Theory

The Systems theory focuses on the relations between the parts. Rather than reducing an entity such as the human body into its parts or elements (e.g. organs or cells), systems theory focuses on the arrangement of and relations between the parts how they work together as a whole. The way the parts are organized and how they interact with each other determines the properties of that system. The behavior of the system is independent of the properties of the elements. This often referred to as a *holistic* approach to understanding phenomena Ahrne, (1994).

### 2.2.3 The Coordination Theory

The coordination theory is a body of principles about how activities can be coordinated, that is, about how actors can work together harmoniously (Hewitt, 1986). There are theories, concepts, and results from many different fields that could both contribute to and benefit from the development of such general theories. For instance, it is clear that questions about how people coordinate their activities are central to parts of organization theory, sociology, social psychology, anthropology, linguistics, law, and political science. Important parts of economics and management science also analyze how people can coordinate their work with a special focus on rational ways of allocating resources Miller et. al., (1988).

## 2.3 Review of Variables

This section gives a comprehensive review of literature on the independent variable, logistics management. It clearly explains how logistics management affects the performance of shipping firms. Literature on the dependent variable (organizational performance) is also critically reviewed and its explained how the performance of

the shipping firms is affected by each measure of the independent variable.

### 2.4.1 Warehousing Management

Warehousing is an important part of a firm's logistics system that stores products (raw materials, parts, goods-in-process and finished goods) at and between points of origin and points of consumption. Warehousing can be provided by either warehouses or distribution centres Murphy et. al., (2008). An important decision for many firms is the criteria for locating the warehouse facilities. Cost factors are prevalent in the decision making models. Resources such as skilled labour are also emphasized in some of the models. Another dominant factor is what might be named as accessibility, meaning infrastructure and availability of transportation modes Melachrinoudis et. al, (2000). Alberto (2000) also emphasizes time and reliability related considerations. This includes the proximity of customers manufacturing facilities and suppliers. Sarkis and Saundaraj (2002) identify strategic considerations as a criterion, operationalized as competition, current facilities, market size and penetration as well as expansion capabilities.

### 2.4.2 Inventory Management

Besides the various activities associated with a lean supply chain, many firms across the world are always finding different methods and techniques to reduce their investments in inventory, because it is indirectly taxing on the profitability of the firm. Inventory management is a strategic area in logistics operation and has an impact of efficiency and effectiveness of the overall supply chain system.

### 2.4.3 Transport Management

Transportation management is the buying and controlling of transportation services by either a shipper or a consignee. Today, more than ever before, organizations are concerned about transportation management because transportation represents a major expense item. Transportation is the most costly logistics activity for many organizations and is pivotal to the successful operation of any supply chain Murphy et. al., (2008). Sople (2010) explains that the movement of goods from the point of production to the point of consumption is done through various modes of transportation. Depending on the transportation load, number of delivery points, existing distribution centres, product value, frequency of delivery, urgency and the cost economics, different types of networks are used.

#### 2.4.4 Reverse Logistics Management

Reverse logistics is the process of planning, implementing and controlling the efficient, cost-effective flow of raw materials, in process inventory, finished goods and related information from the points of consumption to the point of origin for the purpose of recapturing value or proper disposal. The logistics activity corresponding to green marketing is referred to as reverse logistics. Reverse logistics includes product returns, source reduction, recycling, materials substitution, reuse of materials, waste disposal, and refurbishing, repair, and remanufacturing. When viewed from a business logistics perspective, the relevant issues are those of cost, customer service, profitability, partnerships/alliances, and competitive advantage Allan et. al., (2006).

#### 2.4.5 Performance of the Shipping Firms

The performance of the shipping firms can be broadly classified into customer service delivery levels and the operational costs of the firm. These two aspects if well monitored can ensure responsiveness and efficiency.

### 3.1 Research Design

A research design is an arrangement of conditions for collection, measurement and analysis of data in a manner that aims to combine relevance to the research purpose with economy and procedure (Kothari, 2010). This study will use a descriptive survey design as it will seek to explain the relationship between the study variables. The descriptive survey design will be the most appropriate because the study will be concerned with finding out what relationship exists between the independent and dependent variables by collecting quantifiable data Mugenda and Mugenda, (2003). The data will collected from the target population in order determine the current status with regard to logistics management and the shipping firms' performance.

### 3.2 Target Population

The study will be a census study since it will focus on all the shipping lines that are operational in Mombasa County. Data will be collected from the export, import, finance and procurement managers of all the shipping lines. A list of the operational shipping lines in Mombasa town (Appendix 2) obtained from the Kenya Maritime Authority indicated that they are sixteen (16) in number.

### 3.3 Sample frame

The study shall cover a list of the operational shipping lines in Mombasa town (Appendix 2)

obtained from the Kenya Maritime Authority which comprises of sixteen (16) shipping lines.

### 3.4. Data Analysis and Processing

The data obtained shall be coded accordingly; thereafter frequency and percentage shall be applied to establish the frequency. The Statistical Package for Social Sciences (SPSS version 20) will be used to compute, analyze and present the research findings. Measures of central tendency will be calculated from the scores obtained from a likert scale such as Simple means; standard deviation. Regression and correlation analysis will be conducted to test the relationship of the independent variables with the performance of state corporations. The study shall assume a multivariate regression model of the following nature.

## RESEARCH FINDINGS AND DISCUSSIONS

### 4.3.4 Warehousing

From the table above the study established that transportation management is practiced by shipping companies in Mombasa County to a large extent as evidenced by an overall mean of ( $M= 4.16, SD= 0.869$ ). The statements the firm has made sufficient investment in warehousing infrastructure (assets) was represented to a large extent with the mean of ( $M=4.20, SD=0.63$ ). The statements logistics function has identified the best warehousing options for the firms including storage yards has registered a mean of ( $M= 4.20, SD= 0.79$ ), indicating it was also done at a large extent in each case. The layout of warehouses and yards has been properly planned for to facilitate easy movement of materials, vehicles and people to a large extent with a mean of ( $M= 4.10, SD= 0.88$ ),

### 4.4 Inventory Management

One of the objectives of the study was to examine how inventory management affects the organisational performance of shipping firms in Mombasa County. The analysis of the data was done using means and standard deviations. The means recorded were interpreted as follows: 1-1.49 = To a Very Low Extent; 1.5-2.49 = To a Low Extent; 2.5-3.49 = Moderate Extent; 3.5-4.49 = To Great Extent; 4.5-5.0 =To a Very great Extent.

#### 4.4.1 Effective Inventory Planning

From the table above the study shows that effective inventory planning is practiced by shipping companies in Mombasa County to a large extent as evidenced by an overall mean of ( $M= 4.16, SD= 0.869$ ). The statements the firm has made sufficient investment in warehousing infrastructure (assets)

was represented to a large extent with the mean of ( $M=4.20$ ,  $SD=0.63$ ). The statements logistics function has identified the best warehousing options for the firms including storage yards has registered a mean of ( $M= 4.20$ ,  $SD= 0.79$ ), indicating it was also done at a large extent in each case. The layout of warehouses and yards has been properly planned for to facilitate easy movement of materials, vehicles and people to a large extent with a mean of ( $M= 4.10$ ,  $SD= 0.88$ ), The logistics function has established adequate measures to measure the performance of the warehouses and storage yards to a large extent with a mean( $M=4.00$ ,  $SD=0.94$ ). The material handling system of the firm is in line with the current trends in the industry was shown with a mean ( $M=4.21$ ,  $SD = 0.98$ ). On The other hand the the firms have invested in Logistics information system to facilitate effective flow of information, this was shown by ( $M=4.21$  , $SD= 0.96$ ) and information from both suppliers and customers is well management to facilitate effective decision making in the warehouses, this was presented by a ( $M= 4.21$  , $SD= 0.89$ ).

#### 4.6 Reverse Logistics Management

In this section the study was to determine the effect of reverse logistics management on the organizational performance of shipping firms in Mombasa County. The analysis of the data was done using means and standard deviations. The means recorded were interpreted as follows: 1-1.49 = To a Very Low Extent; 1.5-2.49 = To a Low Extent; 2.5-3.49 = Moderate Extent; 3.5-4.49 = To Great Extent; 4.5-5.0 =To a Very great Extent. The result of the study were as shown in the table 4.6

#### 4.7 Organisation Performance

In this section the study was to determine the effect of transport management on the organisational performance of shipping firms in Mombasa County. The analysis of the data was done using means and standard deviations. The means recorded were interpreted as follows: 1-1.49 = Strongly disagree; 1.5-2.49 = Disagree; 2.5-3.49 = Fairly Agree; 3.5-4.49 = Agree; 4.5-5.0 =Strongly Agree.

From the data in the above table the established regression equation is ;

$$P = 1.543 + 0.481 WM + 0.469 IM + 0.434TM + 0.453 RL$$

Where: P= Performance of the shipping firm

$a$ ,  $b_1$ ,  $b_2$ ,  $b_3$  and  $b_4$  are constants

WM = Warehousing Management

IM = Inventory Management

TM = Transportation Management

RL = Reverse Logistics

From the table 4.6 above it is evident that at 95% confidence level, all the predictors have positive relationship on the firm performance and are statically significant. The predictors in the study also registered high values above the critical value of 3.182; this implies that the predictors have a positive and statistical significant relationship on the firm performance. Positive effect was reported for all the independent variables with warehouse management practices ( $t= 4.454$ ,  $p= 0.000$ ), inventory management practices ( $t= 4.239$ ,  $p= 0.001$ ) reverse logistics( $t= 4.038$ ,  $p = 0.011$ ), Transport Management ( $t = 4.274$ ,  $p= 0.003$ ). In this study, stochastic error term was assumed to be zero since the study captured the key logistics management practices.

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents a summary of the key findings of the study as well as the conclusions, limitations of the study, and recommendations for further research.

#### 5.2 Summary of Findings and Discussions

The main intent of this research was to establish the effects of logistics management on the organization performance of shipping firms in Mombasa County. On the question of whether the firms had adopted various forms of logistics management practices such a warehousing infrastructure, all the respondents answered to the affirmative meaning that all the firms sampled had recognized the effect of warehousing infrastructure as a catalyst to improving performance of the Shipping firms in Mombasa.

From the findings the study established that the logistic functions of the Shipping companies researched had identified the best warehousing options for the firms including storage yards. That the warehouses and the yards have been properly planned for to facilitate easy movement of materials, vehicles and people. The study results further show that the logistics function has established adequate measures to gauge the performance of the warehouse and storage yards. This was evident by the fact that most Shipping companies alluded to having efficient material handling system to facilitate efficient movement of goods in the warehouses.

On application of Inventory management, the study found that Shipping firms have effective inventory planning models and control techniques. Most respondents agreed that to a very great extent inventory control levels have been set to control the various inventory related costs. These components are ensured by adequate policy guidelines within the firm to monitor the use of inventory items in the organization. The study further shows that most shipping firms have put in place enough security measures. These measures are meant to prevent theft and pilferage through automation processes. To a very great extent a big part of respondents agreed to their firms having adequate inventory documentation to facilitate effective management of inventory.

The study also established that to a large extent most firms considers the various regulations in selecting their transportation modes. Most Shipping firms in Mombasa County do their transportation network and route planning in consultation with the various stakeholders through adoption of containerization to facilitate easy movement of cargo and curb excessive transport costs. The results show that load planning is considered during transportation planning to reduce cost and most firms have transport managers fully involved in route planning and load planning decisions.

The study also confirmed that firms use reverse logistics for competitive advantage, to a great extent most shipping firms manage returns effectively to avoid environmental degradation. They have mostly invested in product recycling and use for better resource management. The logistics department staff are the ones specifically responsible for the reverse logistics to ensure its success.

Finally in this study the result brought to light the organization performance perspective, most shipping companies studied agreed that logistics management greatly influence the time taken between placement and delivery of an order, it affects the level of responsiveness to customer orders and inquiries and ensures customer satisfaction and repeat purchases. It further revealed that logistics management processes in most firms studies had greatly assisted the staff in improving operational processes within the firm and identifying problems quickly and systematically. The results of this study also showed that due to proper logistics management processes, there were fewer damages recorded in the warehouses of companies' studies.

### 5.3 Conclusions

The study established that there was an effect of logistics management on the organization performance of shipping firms in Mombasa county. It also confirmed that components such as warehouse management, inventory management,

transport management and reverse logistics are highly practiced in most of the firms studied and this had a positive impact on organization performance.

Based on regression analysis the study established positive beta coefficients with all variables, warehouse management (0.481), Inventory Management (0.467), reverse logistics(0.434) and transport management (0.453).

### 5.4 Recommendation

Based on this study finding, the researcher recommends enough measures to be put in place to ensure there is continuous improvement in organizational performance of shipping firms in Mombasa County.

The main challenge from this study is transportation management network which is mostly affected by poor road networks and long waiting processes in clearance of goods from the Kenya Ports Authority. The government need to expedite the process of ensuring efficiency and effectiveness in the customs clearance centers at the Kenya Ports Authority. The study further established that warehouse management and reverse logistics are crucial components in ensuring organization performance, firms need to adopt these practices in order to have a competitive edge.

### 5.5 Areas for Further Research

A research into the other factors influencing the organization performance of shipping companies in Mombasa County should be researched on since the logistics management practices used in this study could not account for all the changes in organization performance. Further, the study only focused on the Shipping industry, particularly the in Mombasa County. The findings of this study cannot be adequately extrapolated to generalize the status of logistics management in the other industries. A similar research should be done focusing on other industries.

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