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Inventory Challenges Facing the Performance of Logistic Firms in Kenya: A Case of Freight Forwarders Kenya Limited.

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ABSTRACT

The research was carried out to investigate inventory challenges facing the performance of logistics firms in Kenya, Freight Forwarders Kenya Limited a leading Logistical company in East and Central Africa was used as the case study. The general objective of the study was to investigate the inventory challenges facing logistic firms. The specific objectives were to analyze how inventory cost, lead time, technology and level of inventory affects the organizations performance. The researcher used relationship marketing theory, deterministic inventory model and Economic Order quantity theories in the course of the research to relate how the challenges are affecting the performance of firms. Sampling method was employed in the cause of data collection for analysis a target population of 68 employees of FFK was targeted and a sample size of 58 was used In the course of research. The researcher collected primary data from Freight forwarders Kenya Limited by means of questionnaire's those who gave their input were Top level managers, Middle level managers, supervisors and low level employees. Secondary data was also utilized from existing literature in analyzing and coming up with conclusions. Data was analyzed using descriptive analysis and inferential analysis using the SPSS Statistics to come up with sound conclusions regarding inventory challenges facing Logistical challenges in Kenya.

Introduction

Inventory constitutes the most significant part of the current assets held by most firms. Inventory management encompasses a wide range of activities that usually vary from firm to firm. According to Lysons and Farrington (2010), inventory management comprises of such activities as: demand management; forecasting future demand requirements; implementing lean inventory policies such as JIT contracts; variety reduction and standardization of inventory; developing cost-effective systems and procedures relating to the ordering, procurement and budgeting of supplies; reviewing safety stock levels and controlling minimum and maximum amounts of inventory in terms of both quantity and value; and appropriate disposal of scrap, surplus, and obsolete items. According to Baily, Farmer, Jessop and Jones (2014), inventory management is a very important function that determines the health of the supply chain as well as impacts the financial health of the balance sheet. Thus, every organization constantly strives to maintain optimum inventory to be able to meet its requirements and avoid over or under inventory that can impact the financial figures. According to Kumar and Bahl (2014), the principal goal of inventory management involves establishing and holding optimal inventory levels. Inventory problems of too great or too small quantities on hand can cause business failures such as interruptions in production and product stock-outs. For example, if a manufacturer experiences stock-out of a critical inventory item, production halts could result. Moreover, a shopper expects the retailer to carry the item wanted.

If an item is not stocked when the customer thinks it should be the retailer loses a customer not only on that item but also on many other items in the future. The conclusion one might draw is that effective inventory management can make a significant contribution to company's profit as well as increase its return on total assets.

In existing literature the question of how much inventory a firm should keep has been extensively studied. According to Koumanakos (2008), too much inventory consumes physical space, locks up capital, and increases the possibility of damage, spoilage and loss. Further, excessive inventory frequently compensates for inefficient management, poor forecasting, haphazard scheduling, and inadequate attention to process and procedures.

On the other hand, too little inventory often disrupts manufacturing operations, and increases the likelihood of poor customer service. In the United States of America, Huson and Nanda (1995) proved that the improvement of inventory turnover (following JIT adoption) by a sample of 55 firms led to an increase in earnings per share. In Europe, Deloof (2003) documented a significant negative relation between gross operating income and the number of inventories days for a sample of non-financial Belgian firms during the period 1992-1996, suggesting that managers can create value for their shareholders by reducing the number of inventories days to a reasonable minimum. Additional evidence from Europe is provided by Boute, Lambrecht and Lambrecht (2004), who found no overall decrease of inventory ratios despite any increased focus on inventory reduction.

Shin and Soenen (1998) also reported a strong negative relation between the cash conversion cycle and corporate profitability for a large sample of public American firms. Still in the USA, Chen, Murray and Owen (2005), by examining how the market values the firms with respect to their various inventories policies, reported that firms with abnormally high inventories have abnormally poor stock returns, firms with abnormally low inventories have ordinary stock returns while firms with slightly lower than average inventories perform best over time. Notably, Vastag and Whybark (2005) by means of an international group of manufacturing companies found no significant relationship between inventory turnover and performance. In the African context, Lwiki, Ojera, Mugenda and Wachira (2013) study of the relationship of inventory management practices and financial performance amongst 8 Kenyan sugar manufacturers revealed a strong positive correlation relationship.

Logistic firms in Kenya

Kenya is globally known and recognized as a major hub for the East and Central African countries. This is due to its long coastal strip and highly connects road, rail and airways networks. According to the World Bank Report (2005) the location of Kenya as a gateway and a hub within region into the interior and remote places of Eastern and Central Africa, has enabled development of logistic firms both local and international firms. This has improved the operations of the logistic firms in Kenya making Kenya amongst the top countries embracing international trade. Gichuru(2012 cited in Atieno. 2014 p. 5)

Logistics firms are faced with a lot of challenges raging from planning to financial sustainability. Among the top challenges include escalating fuel prices, environmental degradation from waste produced by their machinery, green movement lobby groups that advocate for mandatory participation in environmental initiatives and Government regulations enforced via National Environmental Management Authority (NEMA).Additionally, major challenges faced by most of these logistic firms in Kenya are lack of well-maintained road and rail networks.However, the government of Kenya has embarked on major projects to facilitate cheap and affordable transportation within the country. This has seen the government of Kenya collaboration with China and Japan commissioning the construction of standard gauge railway lines and LAPSET projects to provide and facilitate fast and affordable transportation within the country. (Atieno. 2014, Garcia, 2013)

Freight Forwarders Kenya Limited

Freight Forwarders Kenya Limited was incorporated in 1973, following the amalgamations of three local forwarders. The primary shareholder, Kenya General Agency, has been involved in the logistics industry since 1932. The firm has concentrated on developing a regional network of offices and infrastructure throughout East and Central Africa. The firm's main emphasis is on handling Specialized Projects and their subsidiary companies to provide Transportation and Materials Handling / Storage services. Freight Forwarders Kenya Ltd specializes in providing Logistics services to the humanitarian, mining, oil & gas and infrastructure industries. Project Management works through a network of specially selected associated partners. Internationally, the firm works through a network of specially selected agency partners.

These agents are selected on the basis of their ability to provide international freight forwarding, as well as specialized Project Logistics services under Freight Forwarders Kenya Limited central management, thus providing quality services to its clients all over the world(Freight Forwarders, 2010)

The organization's Mission objective isto be a market leader in the Clearing and Forwarding Industry, the mission is to maintain a reputation for excellence by providing superior logistics services in a professional and competitive manner, thereby promoting and enhancing regional and international tradeFreight Forwarders Kenya Limited services are delivered in the most regions of East Africa, including remote areas of Tanzania, Kenya, Uganda, Eastern D.R.C., Rwanda, Burundi and South Sudan. The organization is well positioned regionally to meet various demands from different clients. The firm has been able to provide specialized services in areas lacking basic infrastructure. Using specialized equipment, Freight Forwarders Kenya Limited often provide the initial supply chain to make a project possible despite the lack of infrastructure. Freight Forwarders Kenya Limited prepare cargo for shipment in an efficient manner, they charter vessels and aircrafts; draft road surveys and access sites; setup logistic platforms and load optimization plans to transport, haul, lift, move, carry and deliver cargo within deadlines. (Freight forwarders, 2010)

Inventory challenges in organizations are a factor that has seen many organizations failing to achieve their goals. Good inventory management practices enable a firm to reduce and control costs, reduce lead time and improve service delivery. To continue meeting the ever changing demands of customers within organizations, organizations need to have proper inventory management practices with good plans. To successfully manage inventory, top management and the employees should be actively involved in key decisions on supply of goods and services (Drurry, 2011).According to Lapide (2010) and Eckert, (2012) an organization that provides enough and appropriate resource planning for inventory management as well as invest in modern technologies and research, improves on their performance and efficiency. In their study, Bhausaheb&Routroy, (2010) shows that companies are keen in managing their inventory so as to reduce costs, improve the quality of service, enhance product availability and ultimately ensure customer satisfaction. Today's customer focused business environments are facing the challenge of creating processes that are responsive to the demands of the customers. It is through the process of inventory management that an organization can maintain continuity of production operations by maintaining a smooth flow of raw materials without shortages. (Christopher, 2011, Shapiro, 2009).

Logistic firms in Kenya have faced numerous challenges pertaining management of inventories. According to Sheila andMutua(2010, cited in Thogori andGathenya 2014, p 109) Kenya have been accused of poor inventory management techniques and this has greatly affected their ability to satisfy their customers. The main challenge today among firms in Kenya is the need to enhance efficiency while at the same time achieving effectiveness thus improving customer satisfaction (heikilla, 2002).

Due to these challenges therefore many firms fail to determine how to control the inventory flows effectively to obtain the best overall inventory performance.

Since inventory control manages to cover a wide range of aspects, its main aim is to ensure inventory monitoring and ordering Inventorycost, inventory lead time, control limits, and replenishment decisions. It is therefore for this reason that the researcher proposes to find out the inventory challenges facing performance of logistic firms at FFK.

Objectives of the study.

1. To investigate the extent to which inventory cost is a challenge to the performance of Freight Forwarders Kenya Limited.
2. To establish how lead is a challenge to the performance of Freight Forwarders Kenya Limited.
3. To determine the extent to which technology is a challenge to the performanceofFreight Forwarders Kenya Limited
4. To determine how inventory levels is a challenge to the performance of Freight Forwarders Kenya Limited.

Related Literature

Theoretical Framework

Economic order quantity (EOQ) Theory

According to Aberdeen Group (2004) the classical economic order quantity (EOQ) model seeks to find the balance between ordering cost and carrying cost with a view of obtaining the most economic quantity to procure by the distributor. Kotleba (2006) contend that the economic order-quantity model considers the tradeoff between ordering cost and storage cost in choosing the quantity to use in replenishing inventories items. A larger order quantity reduces ordering frequency, and, hence ordering cost per month this helps in mitigating costs but requires holding a larger average inventory, which increases storage (holding) cost per month. The relevance of this theory is that a smaller order-quantity reduces average inventory but requires more frequent ordering and higher ordering cost per month. This is most applicable to small firms that deal with perishable goods and services seeking to mitigate inventory management costs. Dai et al. (2001) explain that the cost of minimizing order-quantity is called the Economic Order Quantity (EOQ). Beamon et al (2006) posit that one of the advantages often explored to cushion the burden of net inventory cost and to enjoy substantial savings is the benefit from procuring large enough quantity that reduces the unit price of the item. This results to reduction of aggregate costs which enhances supply chain performance. This improves delivery of goods and services to the final consumer while minimizing holding stock to the firm. A lean system provides the organization with a well-defined system to manage inventory effectively and efficiently. Fawcett et al. (2008) notes that firms that use lean inventory management systems benefit from improved productivity that allow employees to spend more time on value adding activities. Lysons (2006) posit that marginal analysis is a technique used to control the optimal levels of perishable goods whose value declines with time. Marginal analysis is used by firms to allocate their scarce resources to maximize on their output. For instance organizations ensure that perishable goods are sold within their expiry period to prevent loss (Eckert, 2012). The periodic demand for the items is uncertain. Too much supplies results in wastage while too little leads to shortages.

Relationship Marketing Theory

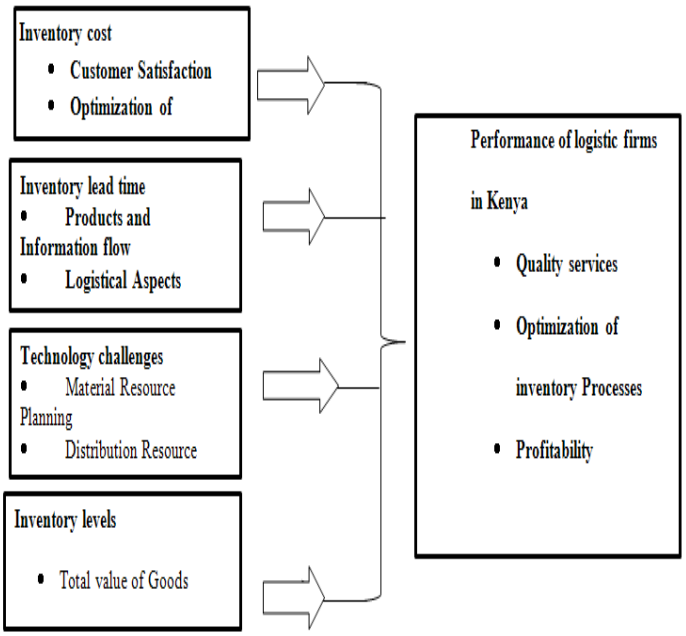
This is a dynamic theory commonly used in various fields such as supply chain management, international marketing, relationships, networks, databases, information as well as transactional analysis (Jraisat, 2010).

This theory offers various dimensions such as commitment and cooperation that are useful in studying the various relationships that exists between different phenomenon that are related to the relationship between the buyer and the seller especially in aspects of information sharing (Wilson, 1995). The relationship marketing theory explains the various buyer-supplier relationships and its information sharing (Toften& Olsen, 2003) as well as offers explanation of the various streams in the said relationships, the various dimensions in the relationship as well as the rationale or the justification for the relationship such as the structure and the process of the relationship.

Deterministic Inventory Model

Deterministic inventory model is one of the fundamental techniques used by firms to develop inventory reserve estimates. Deterministic models of inventory control are used to determine the optimal inventory of a single item when demand is mostly largely obscure. Under this model inventory, inventory is built up at a constant rate to meet a determined or accepted demand. Deterministic circumstance is one in which the system parameters can be ascertained precisely. This is also known as a situation of sureness since it is realized that whatever is ascertained, things are sure to occur the same way. (Dai and Kauffman, 2001, Croom and Jones, 2010)Croom and Jones, (2010) and Beamon et al (2006) indicate that such models are used when demand is not known. Stochastic models are more realistic and thus more relevant. This is because they regard the cost of shortfalls, the cost of arranging and the cost of stacking away, and attempt to formulate an optimal inventory plan.

Conceptual Framework



Dependent variable **Independent variable**

Fig 2.1. Conceptual framework .

Review of inventory challenges facing Logistic firms in Kenya.

This part reviews the inventory challenges facing logistics firms in Kenya these includes Inventory Cost, inventory lead time, Technological challenges and inventory levels.

Inventory cost

Inventory costs in an organization comprises of inventory carrying costs (opportunity costs, insurance, rent), ordering costs (transport charges, insurance on goods in transit, inspection of goods inwards) as well as the shortage costs

(idle machines, labor, loss of sales). Members of the supply chain should find an optimum balance between supply chain inventory costs and customer satisfaction (Bertrand, Poutre&Luin, 2006).

A study by Narkoty (2012) among the Ghana health services found out that inventory is one of the largest assets in the organizations and hence the need to manage it. Results of a study carried out by Nordin (2002) shows that inventory costs can be reduced by implementation of reordering points as well as appropriate Economic Order Quantities (EOQ).

Studies by Lee and Centinkaya (1998) show that companies increasingly employ strategies such as Vendor Management Inventory (VMI) in an effort to control inventory carrying costs. According to Small Business resource (2013), organizations cash flows can only be improved through the reduction of excess inventory and the optimization of inventory levels.

Inventory Lead Time

Today's customer focused business environments are facing the challenge of creating processes that are responsive to the demands of the customers (Christopher, 2011). These demands for example include product diversification as well as pricing which must be considered in order to remain competitive (Patel&Tirtiroglu, 2001).

In addition, among these demands also is the need for shorter lead-times especially among the customers who want to receive the products as soon as they order them (Da Cunha, Agard&Kusiak, 2007). Reduction in lead times means that products and information flow in a seamless manner which allow all the supply chain members to respond to the customers' needs quickly while maintaining inventory to a minimum (Brewer, 2000). The increase in the distance from the suppliers premises and the complexity in the logistical aspects often results in longer lead times and higher levels of inventory (Ohno&Mae, 2012). However, it is often a challenge for companies that strive to achieve cost reduction through lower lead-times and reduced inventory levels since it is difficult for logistics to achieve both goals (Rushton et al, 2006).

Eckert (2007) asserts that better management of inventory is directly proportional to customer satisfaction. Customers are said to be more satisfied if their suppliers are able to meet and fulfill their orders within the required time (Widing, 2003). The desire to satisfy the customers according to (Wang, 2007) makes the supply chain members to keep buffer (safety) stocks. The suppliers also enter into long-term relationships (which require trust and commitment) with their suppliers to secure sustainability in supplies.

A research carried out by Sheila (2010) in Uganda shows that manufacturing firms such as Bata Shoe Company, East African Breweries (EABL), and British American Tobacco (BAT) have a problem of inaccurate forecasts mainly because they lack real time inventory information on customers demand. This has in turn led to late deliveries, inadequate deliveries and lack of consistency in the delivery of products and thus leading to lack of customer satisfaction and non-responsiveness to the market signals

Brigham and Gapenski (2013) argue that inventory management is important because firms will ensure assets and stock are well managed and accurate demand forecasting is maintained to avoid unplanned procurement processes. This will assist the firm in executing successful procurement processes that match demand and supply forces.

Agus and Noor (2010) points out that demand forecasting helps the organization to minimize operational costs, increased efficiency and on time delivery of goods and services. This enables the organization to plan for the future demand by meeting the growing needs of customers. This highly contributes to improved customer satisfaction due to quality of goods and services offered.

Technological challenges

Technology is popularly known to help enrich jobs and increasing job satisfaction. For example, the introduction of IT involves cross training of all employees in all aspects of work including the running of technical infrastructure, which eliminates paper-based task assignments and free employees from routine activities. Consequently, employees with higher skills and knowledge of the work find greater job satisfaction and henceforth enhancing the quality of work. Also, this process will break the departmental silos and result in internal integration

Sum and Teo (1999) observe heavy usage of IT in the most profitable logistics services providers and identify the importance of technology as a key impact agent for the future. They further classify IT into high-cost and revolutionary technology, medium-cost, medium revolutionary technology and low-cost, incremental technology. High-cost and revolutionary technology includes robotics, automated material handling equipment and automated storage and retrieval equipment. Medium-cost medium revolutionary technology includes data handling hardware (barcodes, optical scanners, local area network and hand-held data entry devices) and software such as EDI, direct product profitability, material resource planning and distribution resource planning. Low-cost, incremental technology includes software applied to inventory control (in process, raw materials, finished goods) and warehousing (order selection, short-interval scheduling) (Germain et al., 1994)

Utilizing methods including automatic data capture and barcode scanning to track inventory levels allows your employees, customers and vendors to effectively sort, view and manage information flow, providing a real-time window into your warehouse operation.

Inventory is essentially like cash sitting on a shelf because you are paying for those items and that storage space. The longer it sits there, the more it depreciates in value. When you use technology to group tens of thousands of goods within any given warehouse, the software solutions will analyze data sequences and track the historical demand of each product to ensure the most optimal on-hand availability, order replenishment and efficient processes of your merchandise.

In addition to tracking the supply activity and shelf life of your inventory, IT solutions will also sequence the data in order to provide the most efficient layout and product placement plans within the warehouse. That way, the most high-demand products are closest to your organization's pick-and-pack operation, supporting workflow agility, lowering staff requirements and limiting job redundancies. It is quite literally a physical and mental impossibility for a human to perform these functions. Technology dramatically increases and enhances warehouse productivity, utilization and profitability.

Inventory Levels

Wisner and Leong (2011) define inventory management is the process of efficiently overseeing the constant flow of

units into and out of an existing inventory. This process usually involves controlling the transfer in of units in order to prevent the inventory from becoming too high, or dwindling to levels that could put the operation of the company into jeopardy. Agus and Noor (2010) explains that proper inventory management also seeks to control the costs associated with the inventory, both from the perspective of the total value of goods included and the tax burden generated by the cumulative value of the inventory.

Lazaridis&Dimitrios (2005) highlighted the importance of firms keeping their inventory at an optimum level by analyzing the relationship between working capital management and corporate profitability and stressed that its mismanagement will lead to excessive tying up of capital at the expense of profitable operations. A similar study by Rehman (2006) empirically established a strong negative relationship between the inventory turnover in days and the profitability of firms. When it comes to managing inventory, organizations need to maintain enough stock to meet demand without investing in more than they require. Inventory management systems track the quantity of each item a company maintains, triggering an order of additional stock when the quantities fall below a pre-determined amount

High levels of inventory increases the probability that the customers are likely to get what they want, increases sales and service levels (Cachon&Terwiesch, 2006). High inventory levels however lead to both stock holding costs and in-store logistics errors. This is because it becomes difficult for the employees to perform shelving and replenishment which makes goods physically available in the store but the employees cannot trace those (phantom products) (Ton & Raman, 2005).

Maintaining optimum levels of inventory is important in an organization because excess inventory results in stock holding costs (rental charges, opportunity costs, obsolescence costs, breakages, pilferage) and inadequate inventory (stock outs) is also costly as customers may leave to competitors (Berling, 2011). For each sale that an organization does loose as a result of stock outs, the company not only loses profits but also customers who may be dissatisfied and source for an alternative reliable supplier (Knights, 2008). When inventory management (maintaining adequate inventory levels) is carried out efficiently, it ensures that the materials needed in an organization are available in the right quality, quantity thus avoiding issues of overstocking and under stocking and ultimately guaranteeing customer satisfaction and increased profits (Ewuolo, et al, 2005).

A study by Narkoty (2012) among the Ghana health services found out that inventory is one of the largest assets in the organizations and hence the need to manage it. Results of a study carried out by Nordin (2002) shows that inventory costs can be reduced by implementation of reordering points as well as appropriate Economic Order Quantities (EOQ).

Studies by Lee and Centinkaya (1998) show that companies increasingly employ strategies such as Vendor Management Inventory (VMI) in an effort to control inventory carrying costs. According to Small Business resource (2013), organizations cash flows can only be improved through the reduction of excess inventory and the optimization of inventory levels.

According to Toomey (2000), the ultimate aim of inventory is to serve the customer. As explained by Viale (1991) inventory is a very expensive asset in an organization; however, this expensive asset can be replaced by inventory information which is less expensive. Some of the problems facing manufacturing companies today are the ability to provide quality services to the customers whose root cause lies in poor inventory management (Manjrekar, Bhonsale&Kamath, 2008).

Methodology

The study adopted a descriptive research design. A descriptive study is concerned with determining the frequency with which something occurs or the relationship between variables as stated by Sekaran, (2008). Kothari &Garg, (2014) explains that such study is undertaken in order to ascertain and describe the characteristics of variables in a situation. The study used stratified random sampling which is a probability sampling technique in which subjects are selected in such a way that existing subgroups in the population are more or less reproduced in the sample (Mugenda&Mugenda, 2013). According to Mugenda and Mugenda (2003) a sample size of between 10% and 30% is a good representative of the target population. Therefore, From the target group a representative sample size will be obtained by applying the formula by Glenn,D. (2012):

$n=N/[1+N(e)^2]$

Where: n is the sample size; N is the target population and e is the precision level (5%)

$n=68/ [1+68(0.05)^2]= 58$

Research Findings

Effect of inventory cost on the performance of Freight Forwarders Kenya Limited

The study sought to investigate the effect of inventory cost on the performance of Freight Forwarders Kenya Limited. To explore this, four issues were evaluated using a 5 point linker scale.

Table 4.3. Effect of inventory cost on the performance of Freight Forwarders Kenya Limited.

Indicators	Mean	Std. Deviation	Response Mode
There is an optimum balance between supply chain inventory costs and customer satisfaction	4.5	0.68	Strongly Agree
Inventory costs can be reduced by implementation of reordering points as well as appropriate Economic Order Quantities (EOQ).	3.82	1.00	Agree
Vendor Management Inventory (VMI) can control inventory carrying costs in an organization	3.83	0.75	Agree
Firm's cash flows can be improved through the reduction of excess inventory and the optimization of inventory levels.	3.64	0.9	Agree

It was established that majority of the participants strongly felt that there is an optimum balance between supply chain inventory costs and customer satisfaction (mean=4.50). Regarding respondents agreed that inventory costs can be reduced by implementation of reordering points as well as

appropriate Economic Order Quantities (EOQ) (mean=3.83).Respondents also agreed that Vendor Management Inventory (VMI) can control inventory carrying costs in an organization (mean=3.82).Respondents also agreed to the statement that Firm's cash flows can be improved through the reduction of excess inventory and the optimization of inventory levels.

Works of previous researchers suggests that Members of the supply chain should find an optimum balance between supply chain inventory costs and customer satisfaction (Bertrand, Poutre &Luin, 2006).

A study by Narkoty (2012) among the Ghana health services found out that inventory is one of the largest assets in the organizations and hence the need to manage it. Results of a study carried out by Nordin (2002) shows that inventory costs can be reduced by implementation of reordering points as well as appropriate Economic Order Quantities (EOQ).

Studies by Lee and Centinkaya (1998) show that companies increasingly employ strategies such as Vendor Management Inventory (VMI) in an effort to control inventory carrying costs. According to Small Business resource (2013), organizations cash flows can only be improved through the reduction of excess inventory and the optimization of inventory levels.

Table 4.4. Effect of Inventory lead time on the performance of Freight Forwarders Kenya Limited.

Indicators	Mean	Std. Deviation	Response Mode
Products and information flow is seamless and allow all the supply chain members to respond to the customers' needs quickly within the firm	3.13	1.04	Not sure
The firm achieves cost reduction through lower lead-times and reduced inventory levels	3.95	0.6	Agree
The firm enters into long-term relationships with customers to secure sustainability in supplies	2.63	0.87	Not sure
The organization has real time inventory information on customers demand due to accurate demand forecasting	3.48	0.88	Agree

The perception of the participants regarding the statement products and information flow is seamless and allow all the supply chain members to respond to the customers' needs quickly within the firm gave a (mean=3.13) an indication that respondents were not sure. However it was general feeling among the participants that the firm achieves cost reduction through lower lead-times and reduced inventory levels (mean=3.95). On the other hand respondents were not sure that the firm enters into long-term relationships with customers to secure sustainability in supplies(mean=2.63).Respondents agreed that the organization has real time inventory information on customers demand due to accurate demand forecasting(mean=3.48) as is shown in table 4.4

These findings confirms previous research by Brigham and Gapenski (2013) who argue that inventory management is important because firms will ensure assets and stock are well managed and accurate demand forecasting is maintained to avoid unplanned procurement processes. This will assist the firm in executing successful procurement processes that match demand and supply forces.

Agus and Noor (2010) points out that demand forecasting helps the organization to minimize operational costs, increased efficiency and on time delivery of goods and services. This enables the organization to plan for the future demand by meeting the growing needs of customers. This highly contributes to improved customer satisfaction due to quality of goods and services offered.

Effect of technology on the performance of Freight Forwarders Kenya Limited

In order to determine the effect of technology on the performance of Freight Forwarders Kenya Limited, participant's opinion regarding technology and technology use within the organization was obtained using a likert table questionnaire

Table 4.5. Effect of technology on the performance of Freight Forwarders Kenya Limited.

Indicators	Mean	Std. Deviation	Response Mode
The firm uses material resource planning to manage materials supply	4.33	0.47	Strongly Agree
Technology increases and enhances warehouse productivity, utilization and profitability	3.00	1.28	Not Sure
Distribution resource planning facilitates smooth supply of products	4.65	0.58	Strongly Agree
The use of information technology leads to product profitability	4.00	0.91	Agree

There was a strong feeling that the firm uses material resource planning to manage materials supply (mean=4.33).Participants also agreed that technology increases and enhances warehouse productivity, utilization and profitability (mean=4.65). Further respondents strongly agreed that distribution resource planning facilitates smooth supply of products (mean=4.00). When asked whether or not the use of information technology leads to product profitability, respondents agreed to the statement with a (mean=3.00).

Sum and Teo (1999) observe heavy usage of IT in the most profitable logistics services providers and identify the importance of technology as a key impact agent for the future. They further classify IT into high-cost and revolutionary technology, medium-cost, medium revolutionary technology and low-cost, incremental technology. High-cost and revolutionary technology includes robotics, automated material handling equipment and automated storage and retrieval equipment. Medium-cost medium revolutionary technology includes data handling hardware (barcodes, optical scanners, local area network and hand-held data entry devices) and software such as EDI, direct product profitability, material resource planning and distribution resource planning. Low-cost, incremental technology includes software applied to inventory control (in process, raw materials, finished goods) and warehousing (order selection, short-interval scheduling) (Germain et al., 1994}

Effect of inventory levels on the performance of Freight Forwarders Kenya Limited

The study sought to identify the effect of inventory levels on the performance of logistic firms.

Table 4.6. Effect of inventory levels on the performance of Freight Forwarders Kenya Limited.

Indicators	Mean	Std. Deviation	Response Mode
Inventory management systems track the quantity of each item in the company	3.85	0.99	Agree
High inventory levels leads to both stock holding costs and in-store logistics errors	3.54	0.83	Not sure
Customer demand provides supply information	4.13	0.82	Agree

Respondents agreed that inventory management systems track the quantity of each item in the company (mean=3.45).Respondents further agreed that high inventory levels leads to both stock holding costs and in-store logistics errors mean (4.13). Respondents also agreed that customer demand provides supply information.

Wisner and Leong (2011) define inventory management is the process of efficiently overseeing the constant flow of units into and out of an existing inventory. This process usually involves controlling the transfer in of units in order to prevent the inventory from becoming too high, or dwindling to levels that could put the operation of the company into jeopardy. Agus and Noor (2010) explains that proper inventory management also seeks to control the costs associated with the inventory, both from the perspective of the total value of goods included and the tax burden generated by the cumulative value of the inventory.

Lazaridis&Dimitrios (2005) highlighted the importance of firms keeping their inventory at an optimum level by analyzing the relationship between working capital management and corporate profitability and stressed that its mismanagement will lead to excessive tying up of capital at the expense of profitable operations. A similar study by Rehman (2006) empirically established a strong negative relationship between the inventory turnover in days and the profitability of firms. When it comes to managing inventory, organizations need to maintain enough stock to meet demand without investing in more than they require. Inventory management systems track the quantity of each item a company maintains, triggering an order of additional stock when the quantities fall below a pre-determined amount

Performance of the organization

The study also sought to identify what influences performance in logistic firms.

Table 4.7. Performance of the organization.

Indicators	Mean	Std. Deviation	Response Mode	Interpretation
Good Inventory management leads to performance	3.45	0.99	Agree	Satisfactory
Management of supply chain inventory costs leads to optimization of inventory process	3.33	0.83	Not sure	Not Clear
Inventory management practices helps a firm to provide Quality services	4.13	0.82	Agree	Satisfactory

High levels of inventory increases the probability that the customers are likely to get what they want, increases sales and service levels (Cachon&Terwiesch, 2006). High inventory levels however lead to both stock holding costs and in-store logistics errors. This is because it becomes difficult for the employees to perform shelving and replenishment which makes goods physically available in the store but the employees cannot trace those (phantom products) (Ton & Raman, 2005).

Majority of respondents agreed to the statement that good Inventory management leads to performance (mean=3.45).Participants were not sure if management of supply chain inventory costs leads to optimization of inventory process, (mean=3.33).lastly, participants agreed that inventory management practices helps a firm to provide Quality services to its clients.

Regression Analysis

Table 4.8. Overall Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.849(a)	.710	.688	.27951

5.Predictors: (Constant), Inventory cost , **Inventory** lead time, **Technology**, Inventory levels

Multiple regression analysis was carried out to test the research objectives with the model equation being $Y = \beta_1X_1+ \beta_2X_2 +\ldots+ \beta_nX_n+ \varepsilon$. As is shown in table 4.8 below, 71.0% of the variations in the dependent variable were explained by the independent variable as measured by the goodness of fit (R-square). The model summary table 4.8 provides the R, R2, adjusted R2, and the standard error of the estimate, which can be used to determine how well a regression model, fits the data. From the table, R squared is the fraction of the variation in dependent variable which is performance of Freight Forwarders Kenya Limited that can be accounted for by the four independent variables used in the study.

ANOVA

Table 4.9 ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.041	4	1.760	22.531	.000(a)
	Residual	2.734	35	.078		
	Total	9.775	39			

a. Predictors: (Constant), Inventory cost, Inventory lead time, Technology, Inventory levels

b. Dependent Variable: Organization Performance

To test the fitness of the model in determining the inventory challenges facing the performance of logistic firms in Kenya, case of Freight Forwarders Kenya Limited, a two way ANOVA was carried out where the statistics (F(4)=22.531, p-value=0.000) was realized as is shown in table 4.9 below: implying that the model was significantly fit to be used in predicting the inventory challenges facing the performance of logistic firms in Kenya: A case of Freight Forwarders Kenya Limited

Coefficient of determination

The model revealed that the independent variables herein referred as the predictor: (constant), namely inventory cost, inventory lead time, technology and inventory levels, had significant effects on performance of logistic firms in Kenya. This was established from the significant results table 4.9. The study variable inventory cost (p=0.071), Inventory lead time (p=0.899) Technology (p=0.267) were not significant since the p value is >0.05. Inventory levels (p= 0.000) had a positive significant relationship with performance of organization.

Table 4.9 Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	-.904	.274		-3.295	.002
	Inventory cost	.416	.223	.673	1.863	.071
	Inventory lead time	-.029	.228	-.046	-.128	.899
	Technology	.081	.071	.133	1.128	.267
	Inventory levels	.184	.039	.431	4.694	.000

a. Dependent Variable: Performance

Conclusion

The study was successful in addressing its objectives. Given the foregoing, the study arrived at the following conclusions:

1. The study concludes that inventory costs directly affect the performance of Freight forwarders Kenya limited. Inventory costs should be kept at minimum by employing tools such as Economic Order Quantity {EOQ} AND Vendor Management Inventory (VMI) this will not only ensure unnecessary holding up of suppliers that translates into costs at the end of the day but also leads to customer satisfaction and efficiency.
2. Inventory lead-time affects the performance of Freight Forwarders Kenya Limited. Short lead time will translate to low holding costs of the inventory and also accurate demand forecasting thus being able to effectively serve the customers.
3. Additionally the study concludes that technology greatly affects the performance of Freight Forwarde3rs Kenya limited. It was found out that by employing modern technologies the organization enjoys a competitive advantage as its able to seamlessly manage the processes this it does by using tools such as Material Resource Planning {MRP}and Distribution Resource Planning{DRP} to ease management of material supply and smooth supply of materials respectively
4. Finally the study concludes that inventory level affects the performance of Freight forwarders Kenya Limited. From the analysis it was established that inventory management systems track the quantity of each item in the company, additionally the study revealed that customer demands provides info to be able to plan effectively on the supply the organization needs.

Recommendations

The study recommended the following:

1. The organization to utilize inventory management tools such as Economic Order Quantities (EOQ). And Vendor Management Inventory {VMI} to monitor the flow and demand of inventory so that just enough stock is kept so as to avoid holding costs, storage costs warehouse costs. In so doing operation costs will be cut drastically.
2. Build close relationship with the customers and suppliers to ensure constant communication and update on the state of inventory at their disposal so that accurate forecasting and proper planning is done on time.
3. Implement modern technology tools such as Material Resource Planning and Distribution Resource Planning to integrate all the process and bring closer {build the bridge} between the customer and suppliers.
4. Keep minimum inventory at any given time. As it unnecessarily holds up organization funds.

Suggestions for Further Study

The study focused on the inventory challenges facing the performance of Logistic firms in Kenya, The researcher further recommends research in related areas so as to unravel the real challenges facing Logistic firms as they are a major pillar in transforming Kenya into a middle level income country and towards the realization of vision 2030.

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