

INFLUENCE OF INVENTORY MANAGEMENT PRACTICES ON ORGANIZATIONAL COMPETITIVENESS: A CASE OF SAFARICOM KENYA LTD

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ABSTRACT

In order for an organization to survive and be effective in meeting their market demand, the organization must be cognizant of its supply chain management for better performance and sustained survival. The reason of carrying inventory management practices is to ensure regular supply of materials as and when required. A robust inventory management is required to be in place to ensure timely delivery and quality standards are observed. For organizations to survive they need to embrace the changing competitive trends in the market. The general objective of the study was to assess the influence of inventory management on organizational competitiveness, with particular focus on Safaricom Ltd Kenya. The specific objectives of the study were to determine the effects of inventory shrinkage, inventory investment and inventory turnover on competitiveness of Safaricom Ltd. A descriptive research design was used in this study. The target population comprised of Safaricom Kenya Ltd senior personnel in the following departments; Finance division, customer care, supply and administration, commercial (sales and marketing) department. The study targeted personnel in those departments as they are better placed to answer questions relating to inventory control and the company's competitiveness. The target respondents included the 103 management staffs from the Company's Head Offices in Nairobi. Stratified random sampling was applied where a sample was calculated using Fishers Formula. This generated a sample of 80 respondents. The study collected primary data using a

questionnaire with both open ended and closed ended questions and administered using drop and pick later method. The quantitative data that was obtained from the questionnaires were coded and keyed into statistical package of social science (SPSS) analysis software. Both descriptive and inferential statistics were utilized to analyze the results interpreted in terms of percentages and means score and presented in tables and figures. The study found that inventory shrinkage, inventory investment and inventory turnover affects the competitiveness of Safaricom Ltd. The study concludes that inventory management practices are very vital to the competitiveness of organizations. As such, inventory management practices affect profit maximization, customer satisfaction, market share growth and product quality targeting return on investment, Inventory shrinkage, inventory investment and inventory turnover affects the competitiveness of Safaricom. To avoid carrying of excess inventory that might be a risk to the Company, accurate forecast, (supply & demand) should be in place. The management of Safaricom Ltd needs to modernize its inventory management system to increase efficiency. To curb various challenges in the Company, Safaricom should consider implementation of a vendor managed inventory to lower incidences of stock-out situations, increase the levels of customer services and reduce costs due to an increase in inventory turnovers and a decrease in the levels of safety stock and greater transparency in supply chain management.

Key Words: *inventory shrinkage, inventory competitiveness, inventory management investment and inventory turnover, practices*

INTRODUCTION

Organizations are keen to managing inventory as a step towards minimizing operational costs. In order for an organization to survive and be effective in meeting their market demand, the organization must be cognizant of its supply chain management for better performance and sustained survival. Inventory management aims at efficient purchasing, storage and use of the materials. Inventory management practices play a major role in the operation of many businesses and manufacturing companies. In manufacturing, inventories of raw materials allow companies to operate independently of their sources of supplies.

The optimum inventory level lies between the inadequate inventories and the excessive inventories. Competitiveness is a strategy that defines the set of customer needs that it seeks to satisfy through its products and services. Competitive strategy targets one or more customer segments and aims to provide products and services that will satisfy these customers' needs. Inventory management involves ensuring a constant supply of stock to avoid stock out and have uninterrupted sales and efficient customer service, maintaining sufficient stock, controlling investment in inventories by keeping at an optimum level of production while minimizing carrying costs and time. The objective of inventory management is to ensure sufficient level of stock which maintains an acceptable level of available demand while minimizing the related holding, administrative and stock out cost. Several activities are undertaken within the sphere of inventory management, these include purchasing, classification, inspection, codification, store keeping and stock taking which include stock control. Kenya mobile phone service providers are facing competition in the current markets which has led to the need for coming up with better methods of managing and measuring how resources are utilized by various jobs or products, and therefore eliminate any wastage in the supply chain.

STATEMENT OF THE PROBLEM

Inventory constitutes the most significant part of current assets in any organization and because of the relative largeness of inventories maintained by most organizations; a considerable sum of an organization's fund is being committed to them. According to Dimitrios, (2008) inventory management practices have come to be recognized as a vital problem area needing top priority. For tangible results on sustained basis, the basic cause at the root of the problem needs to be identified and tackled with efficiency. Inventory management practices thus deserve utmost attention. The reason of carrying inventory management practices is to ensure regular supply of materials as and when required. Insufficient inventories hamper production process and mitigate sales volume. On the other hand, Rajeev (2010) denotes that excessive inventories tie up working capital and boost up carrying costs.

In most organizations, direct materials represent up to 50% of the total product cost, as a result of the money entrusted on inventory, thereby affecting the profitability of the organization. According to Sander, Matthias and Geoff (2010), historically, however organizations have ignored the potential savings from proper inventory management, treating inventory as a necessary evil and not as an asset requiring management. As a result, many inventory systems are based on arbitrary rules. Inventory management according to Onyango (2013) is a fundamental pillar in an organization and it should be taken seriously. Some of the goods and services required may not be readily available within the country thus global sourcing may have to be applied. Due to this, a robust inventory management is required to be in place to ensure timely delivery and quality standards are observed.

Today Safaricom finds itself operating in a turbulent and changing environment thus the need to use new strategies to overcome the new threats in terms of competition on its customer base and assault on its bottom line. In order to fight off the competition the Company strengthens its competitive position by investing in inventory function. It thus becomes absolutely imperative to manage inventories effectively so as to avoid unnecessary cost and ensure high level of return. For Safaricom to enhance its competitiveness it needs to embrace the changing competitive trends in the market by improving the inventory management practices. Based on the foregoing, therefore this study sought to investigate the influence of inventory management on organizational competitiveness in the service industry in Kenya especially in the mobile phone service providers.

OBJECTIVES OF THE STUDY

The general objective of the study was to assess the influence of inventory management on organizational competitiveness, with particular focus on Safaricom Ltd Kenya.

SPECIFIC OBJECTIVES

1. To assess the effects of inventory shrinkage on competitiveness of Safaricom Ltd.
2. To determine the influence of inventory investment on competitiveness of Safaricom Ltd.
3. To explore the effect of inventory turnover on competitiveness of Safaricom Ltd.

THEORETICAL FRAMEWORK

Different theories have been employed to help bring clarity to the study of the effects of inventory management practices on organizational competitiveness. The study borrowed from the theory of constraints, contingency theory and lean theory to build the critical concerns on effects of inventory management practices on organizational competitiveness in telecommunication firms.

Theory of Constraints

The theory of constraints is a management philosophy that seeks to increase manufacturing throughput efficiency or system performance measured by sales through the identification of those processes that are constraining the manufacturing system (Goldratt, 2004). Kazim, (2008), argues that theory of constraints is based on the principle that a chain is only as strong as the weakest link or constraint and to elevate and manage the constraint as necessary. The difficulties in the theory of constraints are: very long lead times, large number of unfulfilled orders or they are executed with much extra effort (overtimes), high level of unnecessary inventories or lack of relevant inventories, wrong materials order, large number of emergency orders and expedition levels, high levels of devolution, lack of key customers engagement, frequent changes or absence of control related to priority orders, which implies on schedule conflicts of the resources (Goldratt, 2004). These are the bottlenecks Telecom firms are likely to face warranting their application of inventory management practices in order to enhance their operations to meet the projected organizational competitiveness. The theory is founded on the belief that an organization that maximizes the output of every machine will not perform as well as one that ensures optimization of the flow of materials and value created through its organizational competitiveness.

Theory of constraints emphasizes focus on effectively managing the capacity and capability of these constraints if they are to improve the organizational competitiveness of their organization. This can be achieved by telecommunication firms applying appropriate inventory management practices. Companies have struggled to invest in the technology and organizational structures needed to achieve to-date systems synchronization that enable coordinated inventory flows (Fawcett, Ogden, Mangan, & Cooper, 2006). The Theory of Constraints methodology proposes that organizational competitiveness is dependent on the application of inventory management practices in telecommunication firm. Theory of constraints is a methodology whose basis is applied to production for the minimization of the inventory. In reality, it is difficult for a tea firm to forecast with precision the consumption of its specific product at a specific region with sometime prior to production and supply of the same product.

Under Theory of Constraints, performance measurements are based on the principles of throughput, inventory dollar days and operating expenses (Umble, Umble, & Murakami, 2006). Theory of Constraints measurements are based on a simple relationship that highlights the effect of inventory control system on progress toward the organizational competitiveness. The proof of effectiveness for any inventory control system is the degree to which it improves organizational competitiveness of business firms. For telecommunication firms to ensure that the bottlenecks on their operations run smoothly they have to embrace the use of inventory management practices that can facilitate operational efficiency. This may result in the acquisition of additional capacity or new technology of inventory management practices that lift or break the constraints. Improving the performance of the constraint leads to improvement in the organizational

competitiveness of the entire system. The telecommunication firms depend on inventory as a resource in their operations. The theory of constraints contributes a lot to the building of literature in this study. Boyd and Gupta, (2004) in their studies introduced a theoretical model for Theory of Constraints.

Manufacturing Resource Planning and Just-In-Time in manufacturing firms, they suggest that a positive relationship between each of the three Constraints principles and ideas can be used to improve organizational competitiveness of telecommunication firm in Kenya. Mahesh, Gupta and Boyd (2008) in their research on 'theory of constraints can serve as a general theory in operations' revealed that theory of constraints provides approaches to operations that avoid pitfalls of local optimization by reaching a cross functional boundaries in organizations. They also noted that while the theory appears to meet the criteria of a good theory, it has not been empirically tested for the most part. Criticism that has been leveled against theory of constraints includes its sub optimality. Trietsch, (2005), argues that the theory is inferior to competing approach. The theory to establishing an optimal product mix that is likely not to yield optimum results. According to Theory of Constraints Problems are likely to raise when inventory is not tracked properly, inefficiency and additional costs mount. Supplies get lost, shrinkage can go unchecked, stock-outs occur, critical equipment locations are uncertain, billing is inefficient since supplies are used without being associated to work's record, and on-hand inventory can balloon unnecessarily. All of this leads to inefficiency and additional costs (Linhares, 2009).

Lean Theory

Lean theory is an extension of ideas of just in time. Kros, Falasca, and Nadler, (2006), elaborate just in time as a pull-based system designed to align the production and business processes throughout the supply chain. Green and Inman (2005) assessed the impact of lean theory on financial performance. They say that theory may eliminate buffer stock and minimize waste in production process. Eroglu and Hofer (2011) found that leanness positively affects profitability of a business firm. They argue that inventory leanness is the best inventory control tool. The theory elaborates on how manufacturers gain flexibility in their ordering decisions, reduce the stocks of inventory held on site and eliminate inventory carrying costs. At the aggregate level, the empirical strength of the lean explanation lies both in the timing and the magnitude of the adoption. However in the theory, inventory constrains a firm's ability to respond to fluctuations in demand. Scholarly studies indicate that companies successfully optimize inventory through lean supply chain practices and systems to achieve higher levels of asset utilization and customer satisfaction leading to improved organizational growth, profitability and market share (Green & Inman, 2005).

Another study suggesting a positive relationship between inventory management and performance was that of Eroglu and Hofer, (2011) in which their study focused on US manufacturing firms covering the period of 2003-2008. They found that leanness positively affects profit margins. According to Eroglu and Hofer, (2011) firms that are leaner than the

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industry average generally see positive returns to leanness. They used empirical leanness indicator as a measurement for inventory management. Contrary to the present study, their study focused on assessing the relationship between inventory performance and overall firm performance. Criticism leveled against the theory is that it can only be applicable when there is a close and long-term collaboration and sharing of information between a firm and its trading partners.

According to Lean Theory, inventory management act as a major component of any supply chain irrespective of whether it is product or service supply chain. Inventory management plays an important role in matching demand and supply within the each and every partner in the entire supply chain, ultimately providing flexibility in coping up with external and internal events of the today's uncertain, globalized business environment (Floyd et al. 2010). Ineffective inventory control is a major problem faced by industries in developing countries and that even the very basic inventory control concepts and techniques are not used by the majority of the companies studied. Due to the heavy reliance on imported industrial raw materials and parts, and the endemic bureaucratic delays and associated communication problems in developing countries, order lead times cannot be computed with any degree of accuracy (Chen, Frank, & Wu, 2007). Therefore, the Lean theory is of essence to the effectiveness of inventory management of Safaricom inventories which will result to increased profitability, productivity and customer satisfaction.

Contingency Theory on Organizational competitiveness Management

Most management research focuses on the determinants of performance. The present study will adopt contingency theory on management of tasks in different operational settings. The essence of contingency theory is that best practices depend on the contingencies of situation. According to Halldorsson, Herbert and Tage (2003) the changes in dependent measures are considered to represent performance caused by variations in the independent measures. Following Carton's hypothesized relationship, inventory management practices are determinants of changes in organizational competitiveness of telecommunication firms. In this respect changes in inventory management practices will represent organizational competitiveness. The essence of organizational competitiveness is creation of value.

Value creation may be a combination of financial and non financial objectives (Ketchen& Hult, 2007). Successful organizational competitiveness of a firm can be equated with successful value addition. Organizations' performance can be judged by many perspectives. Each telecommunication firm has a unique set of circumstances making operational performance measurement inherently situational. The contribution of inventory control system in operational performance of the organization is focused on financial and non financial benefits, efficiency of procedures and effectiveness of procurement activities.

According to this theory, the importance of inventory management includes ascertaining the present and future requirements for all types of inventory to avoid overstocking while avoiding “bottleneck” in production and ensuring the safety, security of supplies, the avoidance of deterioration, theft, waste and obsolescence. Coyle, Bardi and Langley (2003) argue that the amount of the inventory held by the organization may therefore be a pointer towards the effectiveness of the inventory management practices. Inventory management is not limited to documenting the delivery of raw materials and the movement of those materials into operational process. The movement of those materials as they go through the various stages of the operation is also important. Typically known as a goods or work in progress inventory, tracking materials as they are used to create finished goods also helps to identify the need to adjust ordering amounts before the raw materials inventory gets dangerously low or is inflated to an unfavorable level.

CONCEPTUAL FRAMEWORK

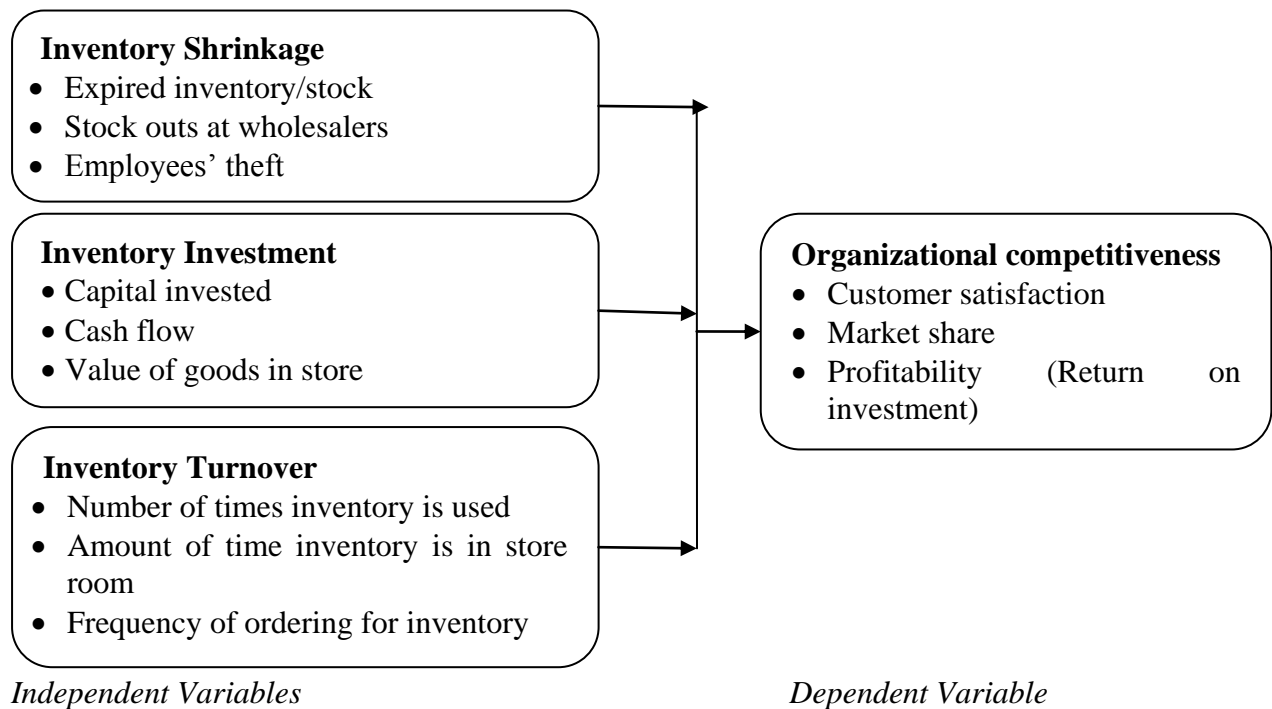


Figure 1: Conceptual Framework Diagram

Inventory Management Practices and Organizational Competitiveness

Inventory management is very crucial to any organization that is improving on its performance and attaining high levels of customer satisfaction. According to Nzuzza (2015) the material held by an organization makes up for most of the organization assets. Most organization invests so much money in materials and it is important for the organization to put in place a good material management system in order to manage the stock properly. Poor inventory management system

can negatively affect the profitability of an organization. The management has very devastating effects on the performance of the organization about the material management system put in place to determine the performance of the said material and the general performance of the organization.

In most cases where inventory management decisions have been effective, inventory planning models have been developed and implemented focusing especially on the twin problems of inventory size and timing (Tumuhairwe, 2012). Usually inventory management models are designed to achieve a balance between the costs of acquiring and holding inventory and in so doing it makes it possible to know whether companies are earning profits or not. Variability of inventory majorly results due to firms not applying the inventory control systems in accordance with the baseline principles. According to Ogbo (2011) the information flow between leaf collection centres and factories is inadequate contributing significantly to high operational costs. Inventory of tea leaves is a requirement for the efficient operational performance; hence inventory needs proper control as it is one of the largest assets of the factory. To excel in competitive environment, companies have to design and operate materials management and product distribution functions effectively.

Inventory control systems enable a business to determine and maintain an optimum level of investment in inventory in order to achieve required operational performance. Sila, Ebrahimpour, & Birkholz (2006), expressed that the aim of inventory control is to meet customer demand. Further, Fawcett, Ogden, Magnan, and Cooper, (2006) argue that to meet customer demand, firms have to ensure that stock-outs are avoided without incurring high inventory costs. Stocking level variability is caused by factors such as deficient information sharing and deficient forecasts. He found out that variability of inventory majorly results due to firms not applying the inventory control systems. He enumerated the effects of inventory variability as inaccurate forecasting leading to periods of not having enough capacity leading to inadequate customer service and high inventory costs.

Inventory Shrinkage

Ogbo and Onekanma (2014) agree that having inventory in your store has an added advantage for the organization since customers will be satisfied instantly leading to improved performance rating. With inventory in your warehouse, an organization has the advantage of timely delivery and stock out are not experienced. Organizations carry inventories for a variety of reasons. Inventories perform significant functions in the total production system and since “it is physically impossible and economically impracticable for each stock of item to arrive exactly where and when it is needed”, there is need to keep some amount of inventory at any point in time. Transparency in inventory management techniques is absolutely important because it eliminate corruption, biased procurement process, procuring substandard good for the organization that proof to be extremely costly (Githui, 2012). The government found itself

practicing unethical supply chain management practices as well as lacking in transparency and fairness.

Thus, inventory management techniques in organizations need ethical practices that promote good corporate governance among procurement managers (Miller, 2010). Also, virtue ethics promotes integrity, utilitarian principle appreciates happiness promotion and reverse of wrong doing, Kantian theory on the other hand states that an individual doesn't benefit personally but promotes the goodwill of the organization and the Kantian theory promoted moral agents for supply chain management. The gap Githui, (2012) identified was analysis of government procurement officers on integrity and therefore the study did not cover the knowledge and application of inventory management technique by procurement officers to gauge supply chain performance. The cardinal objective of inventory management is the maintenance of an optimum level of inventory necessary to support the production system at any time and at the least cost possible. The attainment of this objective entails taking decisions with respect to the determination of an appropriate order quantity, when to place the order and how much inventory to carry per unit of time. These various decision variables will, at any time, dictate the behaviour of any inventory system. Inventory ordering systems reflect part of the strategies available to an organization in meeting its inventory management objectives.

Stock shortages are a headache for most organizations as expressed by Mazanai (2012) and it leads to customer's dissatisfaction which eventually leads to low performance of a firm. Organizations ought to ensure that their inventory is monitored from time to time to avoid stock outs. Due to the manual system of checking and validating, the stochastic nature of demand and lead time is not achieved. Also, lack of automated systems, stock outs are experienced often and replenishment is done hurriedly leading to costly inventory management and likewise low performance standards. Firms that have centralized stock holding have an advantage because they are able to control the stocks and avoid stock duplication in their subsidiaries. Since high value stocks are held, there are instances where the organization will have too much stock in their warehouse implying a huge part of their cash is tied down with stocks. Also, a proper inventory management system is lacking causing frequent stock outs for the organization. The study did not address inventory management techniques that enhance service levels ensuring stocks are distributed on time and at the right place meeting customer's demands.

Inventory Investment

The objectives of inventory management practices are to minimize inventory investments and to maximize customer service. It is a plan to see that, the goals can be inconsistent or even indirect conflicts the role of the materials management is thus to balance the objective in relation to the existing conditions and environmental limitations (Thummalapalli, 2010). The basic object of inventory management is to maximize customer service through maintaining appropriate amount of inventory with minimum possible cost. Inventory costs are costs associated with the operation of an inventory system. In the inventory management decision encompasses the principles

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procures and techniques for deciding what to order, how much to order, when it is needed and how and where to store if their decisions at each of these levels should be consistent with decision at the other level and should support the company objective by achieving desired level of customer service and achieving inventory objective.

A significant amount of investment can be saved when organizations have no obsolete and excessive inventory. Any decrease in these numbers can reduce the operational costs and most importantly taxes paid due to inventory stored in the warehouse will also decrease (Van Weele & Van Raaij, 2014). Many business owners have difficulty throwing away products they paid good money for. But holding on to obsolete products just burns up even more investments. Eliminating obsolete stock promptly, and use the cash and space you save for something more profitable. Naude and Badenhorst-Weiss (2011) argues that once these items have diminished in value, the company must discount the product or discard them, which can cause large losses for a company. A number of organizations collapse due to poor planning and corruption which drives firms to close down their operations. This can be stopped if proper inventory management is practiced and the technique thoroughly utilized for the benefit of the firm.

Liu et al., (2010) noted that management and staff have minimal knowledge on how to apply the economic order quantity which negates the success of an organization. Organizations buy and sell their inventory; there always arises balance at the end of the year which ought to be carried over to the next year. Once an organization realizes this, it can develop online inventory management tool to monitor its inventory information by breaking it down into groups by correlating the categories with its customers. Since organizations operate differently in different fields, the inventory can be classified by either seasons or economic year end of your most significant customers hence, demand forecasting need to be employed to have an efficient supply chain.

Relational resources are the relationships that exist between an organization and any outside party, both with key individuals and other organizations (Anichebe & Agu, 2013). These can include customers, intermediaries, employees, suppliers, alliance partners, regulators, pressure groups, communities, creditors or investors. Relationships tend to fall into two categories – those that are formalized through, for example, contractual obligations with major customers and partners, and those that are more informal. In today's integrated economy and just-in-time supply chains, relationships with trading partners and suppliers are crucial. The resources are not productive on their own and an organizational capability/core competences/ is required to deploy resources for a desired end results. The core competencies, which involve collective learning and which are based on knowledge, will enhance them. By applying the RBV, a firm can determine its uniqueness for exploiting differences. To exploit the uniqueness a firm has to formulate strategies based on the availability of resources and capabilities within the firms. Firm's value chain analysis capability is among the core competencies. The concept of value chains reflects the value-added, natural sequence of operations or stages in a chain of supply.

Inventory Turnover

Stock control plays a critical role in the success of any organization that is towards meeting its objectives (Thummalapalli, 2010). In order for the organization to manage stocks effectively and realize high levels of production optimization there is need of carrying out proper practices like keeping the amount of stock, making door to door delivery services, forecasting and establish the function material needs of the organization hence establishment of proper demand can also be over a longer period or demand study. Kimaiyo and Ochiri (2014) state that long term forecast used by telecommunication industry should be more accurate than short term forecasts because the forecast is aggregated over a segment of the operations. Holding the right levels of telecommunication stock is one of the most difficult challenges to most organizations. According to Cachon and Olivares (2010) obsolete inventory has become a prominent phenomenon in most of the organizations. Many organizations are striving to avoid obsolete inventory and are also trying to avoid excessive inventory. The items when become obsolete are unusable and it does not yield any value to the services and in turn they consume valuable storage space in the warehouses, added are the taxes. These excessive costs may yield to increase in the overall facility costs.

The organizations must implement steps and methods that can help inventory managers identify the excessive inventory and make use of the excessive inventory before it turns out to be obsolete (Thummalapalli, 2010). According to Ashok (2013) the decision of how much stock to acquire and when, logically follow classification of what is required. The natural is to say buy as much as you need when you need it which is mostly used by many organization for them the decision of how much to purchase and this is made more important by the close relationship between purchase quantity and scheduled use .therefore for inventory management practices to be effective enough the following techniques should followed. The just-in-time (JIT) inventory method is an approach where materials, parts, and other goods are ordered only in quantities required to meet immediate production needs. These items are then carefully scheduled to be received at precisely the time they are needed. This increases efficiency, reduces waste, and ultimately minimizes inventory management costs and lead time costs.

JIT was developed in Japan and is also known as the Toyota Production System. A contrasting approach to JIT is called just-in-case (JIC). With JIC, telecommunication companies that have difficulty with forecasting large inventories to minimize the risk of shortages. JIT helps telecommunication retailers. According to Salawati et al., (2012) Economic order quantity is the order quantity that minimizes total inventory holding costs and ordering costs. It is one of the oldest classical production scheduling models. The framework used to determine this order quantity is also known as Barabas EOQ Model or Barabas Formula. The stock management formula is normally successful where inventory requirement for the whole year is able to be established by the company.

Mandal, (2012) states that EOQ applies only when demand for a product is constant over the year and each new order is delivered in full when inventory reaches zero. There is a fixed cost for each order placed, regardless of the number of units ordered. There is also a cost for each unit held in storage, sometimes expressed as a percentage of the purchase cost of the item. The economic order quantity, commonly referred to as EOQ, seeks to find a balance between holding too much or too little inventory. The EOQ formula gets quite complex, and to make use of it, a company must know the following information ; annual usage in units, ordering cost in dollars per order, annual carrying cost rate as a decimal of a percentage, unit cost in dollars and the order quantity in units. The EOQ method seeks to find the order quantity that has the lowest total cost of carrying the inventory.

Some reasons for using safety stock as an inventory management method include supplier performance problems, long lead times and material uncertainty. Naude and Badenhorst-Weiss (2011) warns that calculating safety stock quantities involves another complex formula, but most large companies have software that automatically calculates safety stock values. For the small business that works on a very tight budget, carrying additional inventory in the form of safety stock may do more harm financially than the benefits gained from carrying the inventory. According to Buzzlle (2011) it is best suited for the sort of enterprises that usually keep a high inventory and have a high turnover. It is also well suited for the type of industries where there isn't much processing to do, so the inventory exists at only one level (for sale) rather than at three levels (raw materials, work in progress and for sale). It is well suited for the fact that inventory checking is an important part of the operations of this industry.

RESEARCH METHODOLOGY

Research Design

A descriptive research design was used in this study. This design was appropriate for this research because it is concerned with clearly defined problems with definite objectives.

Population of the Study

It comprised of Safaricom Kenya Ltd senior personnel in the following departments; finance division, customer care, supply and administration, commercial (sales and marketing) department. The study targeted the personnel in those departments as they are better placed to answer questions relating to inventory control and the company's competitiveness. The structure in the Company put staffs in three categories; top management level consisted of the executives (head of departments and the deputy heads of departments); middle management comprises functional heads (tactical level of management and comprised all the senior and middle level officers in all departments of the company who are tasked with the responsibility of implementing policies made) while low level management is mainly unionisable staff (accounting and customer attendant officers whose main duty is performing daily tasks which are routine and repetitive in the Company). The target respondents included the 103 management

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staffs from the Company's Head Offices in Nairobi. For purpose of this study the target population was stratified through top level, middle level and low level management.

The study took 103 participants of the population of the Safaricom Kenya Ltd Employees as the sample size and this was arrived at using stratified random sampling. Sample of responding staff was drawn from 103 top, middle and lower level staffs from the staff working in the Safaricom Ltd Offices in Nairobi. Stratified random sampling method was used to sample respondent top, middle and lower level staffs from the Head Offices of Safaricom in Nairobi Kenya.

From the above population, a sample of 30% was selected from within each group in proportions that each group bears to the study population. For stratified random sampling, the sample size was determined using the Fisher Formula on the basis of those variables in the sample that were likely to have the greatest variability. The sample size was given by:

$$n = p \times q \left[\frac{z}{e} \right]^2$$

Where: n = is minimum sample size required; p = the proportion belonging to the specified category; q = the proportion not belonging to the specified category; z = the value corresponding to the level of confidence required (90% certain=1.65, 95% certain= 1.96 and 99% certain=2.57); $e\%$ = the margin of error required. The calculation generated a sample of 80 respondents from which the study sought information from.

Research Instruments

The study collected both primary and secondary data for the purpose of assessing the influence of inventory management on organizational competitiveness in Safaricom Ltd Kenya. Primary data was collected using a questionnaire while secondary data were obtained from annual reports of the Company, industry analysis, journals and articles on the organizational performance of Safaricom. Secondary data was obtained from Company annual reports of the Institutions and government authorities where possible. Data collection was via a questionnaire as this is an efficient and convenient way of gathering the data within the resources and time constraints. The structure of the questionnaire included structured and semi-structured questions as this provided the flexibility for specific and unique responses to some of the questions.

Data Analysis and Presentation

Before processing the responses, the completed questionnaires were edited for completeness and consistency. The raw primary data collected was coded prior to being input into SPSS statistical analysis software. Once coded, the data was then cleaned to ensure accuracy and completeness of the information obtained. In analyzing the data collected, both descriptive and inferential statistics was utilized. The quantitative data that was obtained from the questionnaires was coded and keyed into statistical package of social science (SPSS) analysis software. SPSS is computer software that makes it easy to analyze the distribution and frequency of data. Data was presented in the form of frequency distribution tables, graphs and pie charts to facilitate description and

explanation of the study findings. Tables and figures were used to summarize responses for further analysis and facilitate comparison. This generated quantitative reports through tabulations, percentages, and measure of central tendency. In addition, to quantify the strength of the relationship between the variables, the researcher conducted a multiple regression analysis. The regression equation was:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon: \text{ Whereby}$$

Y = Organizational competitiveness; X1 = inventory records accuracy; X2 = inventory shrinkage; X3 = inventory investment and X4 = inventory turnover. β_1 , β_2 , β_3 and β_4 = Regression Coefficients and ε = Error term normally distributed about a mean of 0 and for purposes of computation ε is assumed to be 0. The equation was solved by the use of statistical model where SPSS was applied. This offered a quantitative and qualitative description of the objectives of the study.

RESEARCH RESULTS

Inventory Management and Firm Competitiveness

The main objective of this study was to assess the influence of inventory management practices on organizational competitiveness of Safaricom Ltd Kenya. Accordingly, the respondents were requested to rate the effectiveness of the inventory management practices on the competitiveness of Safaricom Ltd Kenya. According to the results depicted, majority of the respondents (comprising 38.5% of the population studied) rated the inventory management practices on competitiveness of Safaricom Ltd Kenya to be very much effective, another 38.5% of them rated the inventory management practices on competitiveness of Safaricom Ltd Kenya to be much effective, while 23.1% of them rated the inventory management practices on competitiveness of Safaricom Ltd Kenya to be moderate effective. These results imply that the inventory management practices to be much effective in influencing the competitiveness of Safaricom Ltd Kenya. These results concur with those of Monczka et al., (2010) who established that modern firms have embraced effective inventory management. The objective of inventory management is to ensure sufficient level of stock which maintains an acceptable level of available demand while minimizing the related holding, administrative and stock out cost.

The study also sought to establish the extent to which inventory management practices affect the competitiveness of Safaricom Ltd. From the study, 56.9% of the respondents indicated that inventory management practices affect the competitiveness of Safaricom to a moderate extent, 29.4% of the respondents indicated to a great extent, 8.8% of the respondents indicated that inventory management practices affect the competitiveness of Safaricom to a little extent, while 4.9% of the respondents indicated that inventory management practices affect the competitiveness of Safaricom to a very great extent. These results imply that inventory management practices have a significant influence on the competitiveness of Safaricom Ltd. Inventory management act as a major component of any supply chain irrespective of whether it

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is product or service supply chain. In accordance with Ogbo (2011), inventory of tea leaves is a requirement for the efficient operational performance; hence inventory needs proper control as it is one of the largest assets of the factory. To excel in competitive environment, companies have to design and operate materials management and product distribution functions effectively.

The respondents were further required to rate the extent to which the inventory management practices affect the various aspects of competitiveness of Safaricom Ltd Kenya. Majority of the respondents agreed that inventory management practices affect profit maximization as shown by mean scores of 4.0962, customer satisfaction as shown by mean scores of 3.9615, market share growth as shown by mean scores of 3.5962 and product quality as shown by mean scores of 3.5769. On the other hand the respondents indicated neutrality on that the inventory management practices affect targeting return on investment as shown by mean scores of 3.0385 and survival of the firms as shown by mean scores of 2.8846. These results reflect the previous findings by Mogere et al., (2013) who found that proper operational performance in tea factories leads to increased level of profitability, level of output, competitive advantage and cost efficiency. Thogori and Gathenya (2014) also found that inventory management plays a vital role in enhancing customer satisfaction among the manufacturing firms in Kenya.

The study further sought to ascertain the extent to which Safaricom Company makes use of various inventory management practices. From the study, majority of the respondents reiterated that Safaricom carries Regular review of inventory levels at different times of the year to a great extent as shown by a mean score of 3.606, it engages in keeping the proper amount of stock to a great extent as shown by a mean score of 3.582 and studying demand pattern, movement patterns and cycles to build suitable inventory norms for different categories of inventory to a great extent as shown by a mean score of 3.500. On the other hand they recapped that the Company makes use of updating the purchase order information in accordance with the customers' requirements, implementation and utilization of quality control systems and inventory budgeting for total demand to moderate extents as shown by mean scores of 3.483, 3.409 and 3.401 respectively. From the findings by established by Ashok (2013) revealed the same views that to meet customer demand, firms have to ensure that stock-outs are avoided without incurring high inventory costs. Inventory management practices play a major role in the operation of many businesses and manufacturing companies. According to Ashok (2013) inventory management ascertains present and future requirements for all types of inventory to avoid overstocking or under-stocking. This involves ensuring a constant supply of stock to avoid stock out and have uninterrupted sales and efficient customer service, maintaining sufficient stock, controlling investment in inventories by keeping at an optimum level of production while minimizing

Inventory Shrinkage

The first specific objective of the study was to assess the effects of inventory shrinkage on competitiveness of Safaricom Ltd. From the study, 42.3% of the respondents indicated that inventory shrinkage affect the competitiveness of Safaricom Ltd to a great extent, 38.5% of them

indicated to a very great extent, while 19.2% of the respondents opined that inventory shrinkage affect the competitiveness of Safaricom Ltd to a moderate extent. The results imply that inventory shrinkage has a significant role in determining the competitiveness of Safaricom Ltd. The results concur with Mazanai (2012) who posited that inventory ordering systems reflect part of the strategies available to an organization in meeting its inventory management objectives. As such, stock shortages lead to most the hardships for most organizations and leads to low competitiveness and overall performance of a firm.

The respondents were also required to indicate the extent to which various aspects of inventory shrinkage affect the competitiveness of Safaricom Ltd. Majority of the respondents reiterated that stock outs at wholesalers affects the competitiveness of Safaricom Ltd to a great extent as shown by a mean score of 3.5656 and Employees' theft affects the competitiveness of Safaricom Ltd to a great extent as shown by a mean score of 3.5656 while expired inventory/stock affects the competitiveness of Safaricom Ltd to a great extent as shown by a mean score of 3.4754. These results imply that Inventories perform significant functions in the total production system. In the same line of study, Githui (2012) observed that transparency in inventory management techniques is important because it eliminate corruption, biased procurement process, procuring substandard good for the organization that proof to be extremely costly. Miller (2010) also added that virtue ethics promotes integrity, utilitarian principle appreciates happiness promotion and reverse of wrong doing promotes the goodwill of the organization.

The respondents were further requested to rate their level of agreement with the various statements provided regarding to inventory shrinkage in Safaricom Ltd. According to the results, majority of the respondents agreed that the Company finds it difficult to establish the sequence that the goods should be dispatched from the stores as shown by a mean of 3.5656 as well as that Safaricom Ltd uses an approach where materials, parts and other goods are ordered only in quantities required to meet immediate production needs shown by a mean of 3.5656. In addition, the respondents agreed that the Firm ensures that daily and weekly processes are in place to continually review and revalidate the accuracy of inventory data as shown by a mean of 3.516. On the other hand they remained neutral on that an effective inventory control systems ensures that the company hold just enough inventories, not excessive, not too little and the cost is minimized as shown by a mean of 3.4672, there is proper authorization of stock issuance in the Company as shown by a mean of 3.3607 and the Firm has put systems in place to allow for nightly demand re forecasting and inventory projections in the business as shown by a mean of 3.249. The prime objective of inventory management is the maintenance of an optimum level of inventory necessary to support the production system at any time and at the least cost possible. Organizations ought to ensure that their inventory is monitored from time to time to avoid stock outs. Mazanai (2012) argued that since high value stocks are held, there are instances where the organization will have too much stock in their warehouse implying a huge part of their cash is tied down with stocks. A proper inventory management system is lacking causing frequent stock outs for the organization. Lack of automated systems, stock outs are experienced often and

replenishment is done hurriedly leading to costly inventory management and likewise low performance standards. Firms that have centralized stock holding have an advantage because they are able to control the stocks and avoid stock duplication in their subsidiaries.

Inventory Investment

In its second specific objective, the study sought to determine the influence of inventory investment on competitiveness of Safaricom Ltd. In this regard the respondents were required to indicate the extent to which inventory investment affects the competitiveness of Safaricom Ltd. From the study, 49.2% of the respondents indicated that inventory investment affects the competitiveness of Safaricom to a great extent, 38.5% of them indicated to a moderate extent, while 12.3% of the respondents indicated that inventory investment affects the competitiveness of Safaricom Ltd to a little extent. This is a clear indication that inventory investment has a significant influence on the competitiveness of Safaricom Ltd. A significant amount of investment can be saved when organizations have no obsolete and excessive inventory. According to Salawati, Tinggi, and Kadri (2012), the process of control and management of inventory is a very important factor in the success or failure of any business for example; little stock will result in stock out which will disrupt the production distribution cycle that is crucial to the survival of all manufacturing companies while too much stock will tie down the resources of a company. According to Van Weele and Van Raaij (2014) the optimum inventory level lies between the inadequate inventories and the excessive inventories.

On the extent to which various aspects of inventory investment affect the competitiveness of Safaricom Ltd, majority of the respondents indicated that cash flow affect the competitiveness of Safaricom Ltd to a great extent as shown by a mean of 3.615 as well as value of goods in store shown by a mean of 3.533 and capital invested shown by a mean of 3.525. These findings concur with Ogbo et al, (2013) who found that a relationship between operational feasibility, utility of inventory control management in the customer related issues of the organization and cost effectiveness technique are implemented to enhance the return on investment in the organization.

The study also required the respondents' level of agreement with various statements regarding to inventory investment in Safaricom Ltd. Most of the respondents agreed that maintaining inventory perpetually requires time and financial investment as shown by mean scores of 3.606 and that lack of adequate funding hinders inventory management techniques implementation as shown by mean scores of 3.582. However the respondents were undecided on that the organization is unable to move it quickly enough and this causes anxiety as shown by mean scores of 3.483, the firm requires significant amount of capital, since money is needed to buy up the product when quantities reach certain levels as shown by mean scores of 3.409, the firm requires huge amounts of money to buy goods in buffer stock schemes as shown by mean scores of 3.401 and the firm faces difficulty on determining lean production while still meet the customers requirement as shown by mean scores of 3.401. Liu et al., (2010) noted that management and staff have minimal knowledge on how to apply the economic order quantity

which negates the success of an organization. Anichebe & Agu (2013) also confirmed that relational resources are the relationships that exist between an organization and any outside party, both with key individuals and other organizations.

Inventory Turnover

To explore the effect of inventory turnover on competitiveness of Safaricom Ltd, the study required the respondents to indicate the extent to which inventory turnover affects the competitiveness of Safaricom Ltd. 60.7% of the respondents recapped that inventory turnover affects the competitiveness of Safaricom Ltd to a great extent, 35.2% of them indicated to a moderate extent, 2.5% of the respondents indicated to a little extent, while 1.6% of them reported that inventory turnover affects the competitiveness of Safaricom Ltd to a very great extent. According to these results, inventory turnover has a significant influence on the competitiveness of Safaricom Ltd. From these results, it is evident that Economic order quantity is the order quantity that minimizes total inventory holding costs and ordering costs as observed by Salawati et al., (2012).

The study also sought to establish the extent to which various aspects of inventory turnover affect the competitiveness of Safaricom Ltd. Majority of the respondents recapped that number of times inventory is used to a great extent as shown by a mean score of 3.5656, frequency of ordering for inventory to a great extent as shown by a mean score of 3.5656 and amount of time inventory is in store room to a great extent as shown by a mean score of 3.516. The results obtain in this study confirms that the sort of enterprises that usually keep a high inventory and have a high turnover. According to Mandal, (2012) in order for the organization to manage stocks effectively and realize high levels of production optimization there is need of carrying out proper practices like keeping the amount of stock, making door to door delivery services, forecasting and establish the function material needs of the organization hence establishment of proper demand can also be over a longer period or demand study.

The respondents were also required to indicate their level of agreement with various statements on inventory turnover and their effects on the competitiveness of Safaricom Ltd. According to the study, majority of the respondents indicated agreement that some products get spoilt in the store due to time taken as shown by mean scores of 3.864, sometimes the company holds excessive inventory of raw materials as shown by mean scores of 3.583, sometimes the company produces excessive products as shown by mean scores of 3.540 and inventory management advocates for neither overstocking nor under-stocking because either of the above affects the competitive level of the firm as shown by mean scores of 3.532. On the other hand they remained neutral on that it is never clear when some products should be recorded as shown by mean scores of 3.498 and the Company runs out of stock when needed as shown by mean scores of 3.148. Salawati, Tinggi, and Kadri (2012), the process of control and management of inventory is a very important factor in the success or failure of any business for example; little stock will result in stock out which will disrupt the production distribution cycle that is crucial to

the survival of all manufacturing companies while too much stock will tie down the resources of a company.

On the other information to share about the influence of inventory management on organizational competitiveness of Safaricom Ltd Kenya, the respondents opined that completeness of information, up to date records, stock position/number of stock and inventory records accuracy affect the competitiveness of Safaricom Ltd. The respondents also added that the right documents are in use in managing inventory, there are proper records of stock in the inventory management department, lack of inventory management techniques has contributed to poor supply chain performance, inventory planning helps organizations achieve optimal supply chain performance in simulation both financially and on service delivery, the firm uses an order quantity that minimizes total inventory holding and ordering costs, the firm holds an additional amount of stock carried over the normal stocking level requirements as buffer against uncertainty, the organization uses inventory costing that enables it to determine valuation of the amount of inventory left at the end of financial year, the firm uses maximum and minimum methods where stock levels are well known and through perpetual stock method the firm is able keep record of inventory with high turnover.

INFERENCE ANALYSIS

Inferential analysis is utilized in this study to determine if there is a relationship between an intervention and an outcome, as well as the strength of that relationship. The study conducted inferential analysis to establish the relationship between the independent variables and the dependent variable of which involved a coefficient of determination and a multiple regression analysis. The coefficient of determination is a measure of how well a statistical model is likely to predict future outcomes. The coefficient of determination, r^2 is the square of the sample correlation coefficient between outcomes and predicted values. As such it explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (competitiveness of Safaricom Ltd) that is explained by all the three independent variables (inventory shrinkage, inventory investment and inventory turnover). The three independent variables that were studied, explain 82.5% of the competitiveness of Safaricom Ltd as represented by the R^2 . This therefore means the three independent variables only contribute about 82.5% to the competitiveness of Safaricom Ltd while other factors not studied in this research contributes 17.5% of the competitiveness of Safaricom Ltd.

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.908 ^a	.825	.789	.65323

a Predictors: (Constant), inventory shrinkage, inventory investment and inventory turnover

The researcher conducted a multiple regression analysis so as to determine the relationship between the parameters of competitiveness of Safaricom Ltd and the three variables of inventory management practices. As per the SPSS generated table, the equation ($Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \epsilon$) becomes:

$$Y = 1.112 + 0.396X_1 + 0.220X_2 + 0.260X_3$$

According to the regression equation established, taking all factors (inventory shrinkage, inventory investment and inventory turnover) constant at zero, competitiveness of Safaricom Ltd would be 1.112. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in inventory shrinkage will lead to a 0.396 increase in competitiveness of Safaricom Ltd; a unit increase in inventory turnover will lead to a 0.260 increase in competitiveness of Safaricom Ltd, while a unit increase in inventory investment will lead to a 0.220 increase in competitiveness of Safaricom Ltd.

These results infer that inventory shrinkage contributes more to competitiveness of Safaricom Ltd, followed by inventory turnover, while inventory investment contributes the least to competitiveness of Safaricom Ltd. At 5% level of significance and 95% level of confidence, inventory investment had a 0.0182 level of significance and inventory turnover had a 0.0167 level of significance, while inventory shrinkage had a 0.0158 level of significance hence the most significant aspect of inventory management practices in influencing the competitiveness of Safaricom Ltd.

Table 2: Coefficient of determination

Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error			
1	(Constant)	1.112	1.223		0.917	0.000
	Inventory shrinkage	0.396	0.204	0.155	2.560	.0158
	Inventory investment	0.220	0.096	0.215	1.922	.0182
	Inventory turnover	0.260	0.056	0.453	1.967	.0167

a Dependent Variable: Competitiveness of Safaricom Ltd

CONCLUSIONS

Based on the study findings, the study concludes that inventory management practices are very vital to the competitiveness of organizations. The study concludes that inventory management practices affect profit maximization, customer satisfaction, market share growth and product quality targeting return on investment. From the study that having a competitive positioning generally suggests that firms can have one or more of the following capabilities compared to their competitors in line with the parameters of: lower prices, higher quality, higher dependability, and shorter delivery time. The Company holds in excess of inventory especially

when supply prices are favorable. According to the findings Safaricom carries Regular review of inventory levels at different times of the year, it engages in keeping the proper amount of stock and studying demand pattern, movement patterns and cycles to build suitable inventory norms for different categories of inventory.

This study concludes that inventory shrinkage in Safaricom Ltd has a significant influence on affect the competitiveness of Safaricom Ltd, saves the organization from poor quality production, disappointment of seasoned customers, loss of profit and good social responsibility. This is done by ensuring timely delivery of raw materials to the service Company, in order of production to the warehouse. If inventory management is not adequately maintained, production cannot meet the aspirations of customers which are loss of revenue to the organization. Right from procurement to the time of processing, quality of raw material is the chief determinant of the productive efficiency of any service concern. This varies from organization to organization.

The study also concludes that inventory investment affect competitiveness of Safaricom Limited. The results showed that policies and procedures are in place to guide inventory investment in the Organization. There are procedures and policies which regard warehouse maintenance and cleaning, inventory quality control, record keeping and reporting. Management policies in the inventory department define the general conduct of the warehouse operation. They also concern themselves with return of goods and exit strategy in the event of downscaling or shutting down operations, disposal of obsolete and damaged goods. The policies also define how the activities in the warehouse should be carried out and clearly defines the processes to be adopted as well as streamlining the business processes and providing checks and balances.

The study deduces that inventory turnover affects the competitiveness of Safaricom Limited. There are proper records of stock in the inventory management department. Proper records determine the proper level of providing proper services while minimizing the costs of carrying inventory. The desired inventory is usually held down to a reasonable figure, but large enough to permit the company to effectively merchandise the products and services it offers. Competitiveness, particularly of the service companies and telecommunication companies is important to the Kenyan economy.

RECOMMENDATIONS

To curb various challenges of inventory shrinkage in the Company, Safaricom should consider implementation of a vendor managed inventory to lower incidences of stock-out situations, increase the levels of customer services and reduce costs due to an increase in inventory turns and a decrease in the levels of safety stock and greater transparency in supply chain management. Inventory management practices also help in the establishment of a long trustworthy relationship between the supplier and customer resulting in more loyal customers and thus secured sales.

Inventory replenishment techniques were major concern raised in the study. To avoid carrying of excess inventory that might be a risk to the Company, accurate forecast, (supply & demand) should be in place. This will help in reducing stock outs/lost sales and carrying of excess inventory. The Company also needs embrace just in time principle (JIT). Inventory management practices need to be put in place that address issues of information management processes, variation in demand and lead time, employee skills and employee attitudes. It is therefore important to note that inventory management process, inventory management, lead time, technology and innovation have a significant influence on the competitiveness of companies in Kenya and it is important to address them as the success of such companies depends on the effective management of these issues.

The management of Safaricom Ltd needs to modernize its inventory management system to increase efficiency. Improving inventory practices calls for a high degree of collaboration and visibility across all parties as well as utilizing sophisticated technologies. Use of technologies such as barcode scanners, point-of-sale/use scanners, and web-based technologies in the pharmacy and stores should be adopted. The researcher recommends that the management should constantly expose its staff to training in order to improve their skills on inventory management. The research recommends that the management of Safaricom Ltd invest in training of its staff to enable the employees to understand the current inventory systems which when used will help the organization reduce on costs associated with holding inventory.

REFERNCES

- Anichebe, N. & Agu, O. (2013). Effect of Inventory Management on Organisational Effectiveness. *Information and Knowledge Management*, 3(8), 92-101.
- Ashok, K. P. (2013). Relationship Between Inventory Management And Profitability: An Empirical Analysis Of Indian Cement Companies. *Asia Pacific Journal of Marketing & Management Review*, 2 (7),
- Bavarsad, B., Azizi, A. D., & Alesadi, F. J. (2013). Study of Relationship between Supply Chain Management Strategy with Logistics Performance and Organizational Performance. *Interdisciplinary Journal of Contemporary Research in Business*, 4(9).
- Cachon, G.P., Olivares, M. (2010), Drivers of finished-goods inventory in the US automobile industry, *Management Science*, Vol. 56 No.1, pp.202-16.
- Dimitrios, P. (2008). The effect of inventory management on firm performance. *International journal of productivity and performance management*, 57.
- Eroglu, C., and Hofer, C. (2011). Lean, leaner, too lean? The inventory-performance link revisited. *Journal of Operations Management*, 29, 356–369.

- Githui M (2012). Responsible Purchasing and Supply Chain Management in Kenya: A Critical Analysis of the Ethical Considerations in Procurement Management. *European Journal of Business and Management*. Vol 4, No.3
- Harland, C.M. (2012) *Supply Chain Management, Purchasing and Supply Management, Logistics, Vertical Integration, Materials Management and Supply Chain Dynamics*. In: Slack, N (ed.) Blackwell Encyclopedic Dictionary of Operations Management. UK: Blackwell.
- Kazim, S. (2008). Inventory inaccuracy and performance of collaborative supply chain practices. *Industrial management and data systems*, 108, 495-509.
- Ketchen, G., & Hult, T. (2007). Bridging organization theory and supply chain management: The case of best value supply chains. *Journal of Operations Management*, 25(2) 573-580
- Kimaiyo, K. K. & Ochiri, G (2014). Role of Inventory Management on Performance of Manufacturing Firms in Kenya – A case of new Kenya Cooperative Creameries. *European Journal of Business Management*, 2 (1), 336-341.
- Kiplagat, K.K. (2014) The role of inventory management on performance of manufacturing firms in Kenya – A case of New Kenya Cooperative Creameries. *European Journal of Business Management* Vol.2, Issue 1, Pp. 1-12
- Kothari, C.R. (2011) *Research Methodology: Methods and Techniques*, New Delhi. New Age International Publishers
- Liu, C., Hung, F., & Een, D. (2010). A structural model of supply chain management on firm performance. *Intrnational journal of operations and production management*, 30, 526.
- Madishetti, S. & Kibona, D. (2013) Impact of Inventory Management on the Profitability of SMES in Tanzania. *IJRCM*, Vol 4, Issue 2.
- Mahesh C. Gupta, Lynn H. Boyd, (2008) Theory of constraints: a theory for operations management, *International Journal of Operations & Production Management*, Vol. 28 Iss: 10, pp.991 - 1012
- Mandal, S. (2012). An Empirical Investigation into Supply Chain Resilience. *The IUP Journal of Supply Chain Management*, 9(4), 46-61.

- Mazanai, M.N. (2012). Impact of just-in-time (JIT) inventory system on efficiency, quality and flexibility among manufacturing sector, small and medium enterprise (SMEs) in South Africa. *African Journal of Business Management*, 6(17), pp. 5786-5791
- Mogere, K., Oloko, M. and Okibo, W. (2013). Effect of Inventory management practices on Operational Performance of Tea Processing Firms: A Case Study of Gianchore Tea Factory, Nyamira County, Kenya. *The International Journal Of Business & Management*, 1 (5), 12-27.
- Mugenda, O. M. & Mugenda, A. G. (2012) Research methods dictionary, Nairobi, Arts Press
- Naude, M. J., & Badenhorst-Weiss, J. A. (2011). Supply Chain Management Problems at South African Automotive Component Manufacturers. *Southern African Business Review*, 15(1).
- Ng'ang'a, J.K. (2013) An Assessment of the Factors Influencing Effectiveness of Inventory Control; Ministry of State for Provincial Administration and Internal Security, Nairobi – Kenya. *International Journal of Business and Commerce* Vol. 3, No.1: Pp. 33-53
- Nyabwanga, R. N., & Ojera, P. (2012). Inventory management practices and business performance for small-scale enterprises in Kenya. *Journal of business management*, 4.
- Nzuza, Z, W. (2015). *Factors affecting the success of inventory control in the Stores Division of the eThekweni Municipality, Durban: A Case Study*. A Project for Masters of Technology in Cost and Management Accounting in the Faculty of Accounting and Informatics, Durban University of Technology, Durban, South Africa.
- Oballah, A., Waiganjo, J. & Wachiuri, P. (2015). Effect of inventory management practices on Organizational performance in public health institutions in Kenya: A Case of Kenyatta National Hospital. *International Journal of Education and Research*, 3 (3), 703-714.
- Ogbo, A.I. (2011). Production and Operations Management. Enugu: De-verge Agencies Ltd. *Supply Chain Management: An International Journal* 12/4 (2007) 284– 296
- Okello, J. & Were, S. (2014). Influence of supply chain management practices on performance of the Nairobi Securities Exchange's listed, food manufacturing companies in Nairobi. *International Journal of Social Sciences and Entrepreneurship*, 1 (11), 107-128.

- Ondiek, G. O., & Odera, O. (2012). Assessment of material management in Kenya manufacturing firms. *Journal of business studies quarterly*, 3, 40-49.
- Onyango R.M (2013) Lean Enterprise and Supply Chain Performance of Pharmaceutical Companies in Kenya. MBA Project. University of Nairobi.
- Oso, W. Y. & Onen, D. (2011) A general guide to writing research proposal and report; Handbook for beginning researchers, Nairobi, Jomo Kenyatta Foundation.
- Rajeev, N. P. (2010). Inventory management performance in machine tools SMEs: What factors do influence them? *International journal of industrial engineering and management*, 3, 542-560.
- Salawati, S., Tinggi, M., & Kadri, N. (2012). inventory management in Malaysian construction firms: impact on performance. *SIU Journal management*, 2, 59-60.
- Sander, L., Matthias, H., & Geoff, W. (2010). The impact of decentralized control on firm-level inventory evidence from the automotive industry. *international journal of physical distribution and logistics management*, 41, 435-456.
- Shafi, M.A. (2014). Management of Inventories in Textile Industry: A Cross Country Research Review. *Singaporean Journal of Business Economics, and Management Studies*, 2(7)
- Simchi-Levi, D., Kaminsky, P., Simchi-Levi, E. (2013) *Designing & Managing the Supply Chain: Concepts, Strategies & Case Studies*, Third Edition. NY, NY: McGraw-Hill, Irwin; 2013.
- Srinivas, M., & Deogratias, K. (2013). Impact of Inventory Management on the Profitability of SMEs in Tanzania. *International Journal of Research in Commerce & Management*,
- Thogori M. & Gathenya, J. (2014) Role of Inventory Management on Customer Satisfaction among the Manufacturing Firms in Kenya: A Case Study of Delmonte Kenya. *European Journal of Business and Management*. Vol.6, No.27, Pp. 209-217. Available Online-www.iiste.org.
- Thummalapalli, R (2010). A Methodology To evaluate obsolete Inventory In Health. University of Nebraska. Pp. 132-134
- Tinggi, and Kadri, (2012), Impact of Inventory Management on Performance of Construction Firms in Malaysia. *European Journal of Business and Management*. Vol 4, No.4. Pp. 76-91

Trietsch, D., (2005), The effect of systemic errors on optimal project buffers, *International Journal of Project Management*, 23, 267-274.

Tumuhairwe, S. (2012). Inventory Management and Profitability: A Case Study of Roofings Ltd Uganda. Research Project Masters of Science, Makerere University.

Van Weele, A. J., & Van Raaij, E. M. (2014). The Future of Purchasing and Supply Management Research: About Relevance and Rigor. *Journal of Supply Chain Management*, 50(1), 56-72. <http://dx.doi.org/10.1111/jscm.12042>