INFLUENCE OF INVENTORY MANAGEMENT PRACTICES ON PERFORMANCE OF RETAIL OUTLETS IN NAIROBI CITY COUNTY

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ABSTRACT

Many retail outlets have had a persistent problem in establishing the right inventory levels and they have thus turned to computerizing their systems so as to achieve a balance between responsiveness and efficiency. The main objective of this study was to investigate the influence of inventory management Practices on performance of retail outlets in Nairobi City County. The study was guided by the following objectives; to determine the influence of inventory categorization, inventory planning, inventory processes automation and inventory modeling on the performance of retail outlets in Nairobi City County. This study was guided by a number of theories including; theory of constraint, resource-based view theory, strategic choice theory and economic order quantity model. The study adopted a descriptive research design. A sample population of 198 was arrived at by calculating the target population of 407, with a 95% confidence level and an error of 0.05 using the formula taken from Kothari. This study adopted a stratified and simple random sampling technique. Primary data was obtained using self-administered questionnaires while secondary data was obtained using data collection sheet. The researcher personally administered the research instruments to the respondents. The qualitative data from the open-ended questions was analysed using conceptual content analysis and presented in prose. Inferential data analysis was done using regression analysis. The regression analysis was used to establish the relations between the independent and dependent variables.

Presentation of the data was in form of tables and graphs based on the major research questions. The study found that ABC Analysis which entails inventory categorization technique is adopted, that their firm practices Just in Time planning, that organization uses Periodic Ordering to manage inventory and that Electronic Data Interchange is used in inventory management and that their firm use Bar Coding in transaction. The study also found that firm don't have a Material Requirement Planning System. The study concluded that inventory categorization having the greatest effect on performance of retail outlets in Nairobi County followed by Inventory modeling then Inventory planning while Inventory processes automation having the least effect on performance of retail outlets in Nairobi County. The study recommends that the retail outlets should automate their inventory management systems so as to improve their customer delivery levels, that the retail outlets should make use of automation so as to reduce their operational costs, that the retail outlets invest technology that is most useful to their operations so as to avoid wasting a lot of capital on technology that will never be used and that management has to ensure that industry-specific requirements of some of the inventory management systems (as for the case of JIT) and the obtaining situation are considered before the adoption of the technology.

Key Words: *inventory management practices, performance, retail outlets, Nairobi City County*

INTRODUCTION

The current business climate of increasing competition implies that all companies need to be as efficient as possible at every level, which includes inventory management. We live in the age of the informed consumer, meaning that a retailer should be able to offer first class service in terms of the availability of its products, as consumers can very easily take their business elsewhere. The primary goal of inventory management, therefore, is to have adequate quantities of high quality inventory available to serve customer needs, while also minimizing the costs of carrying inventory (Brigham & Ehrhard, 2015). According to Chow, Dubelaar and Larson (2011), inventory management is critical to retail performance, since inventory tops the list of valuable physical assets on nearly every merchant's balance sheet. For many businesses, inventory is the largest asset on the balance sheet at any given time. Thus, purchasing too many units of a slow-selling item will increase storage costs and interest costs on the 'short-term borrowings that financed the purchases, which may also lead to losses if the merchandise cannot be sold at the normal price (Libby, Libby & Short, 2014).

Inventory management entails more than simply the forecasting and replenishment of inventory; it also demands the management of inventory to optimize services and profit. Quite often inventory management is merely regarded as an accountancy function, which concerns itself more with inventory valuation than with effective logistics. Many limitations of financial only performance measures are overcome by using the balanced scorecard system, forcing the organization to recognize those activities that contribute to the company's success (Lea, 2016). The purpose of inventory monitoring and measurement should be to provide management with the necessary information to improve operations and to reduce errors. If the monitoring and measurement process is disregarded or given less than its due consideration, the feedback information on which management depends to determine the effects of its dissensions will be unreliable and will give no indication of the actual quality of the inventory management (Bessant, Jones & Lamming, 2015).

In the area of inventory management, a choice between many existing forecasting and stock control packages is given, all of which rely on traditional mathematical, statistical and operational research theories. The effectiveness of an inventory management system depends on the quality of information it takes in and the capacity of the company's information technology (IT) (Chaffy & Wood, 2015).

Improvements in information systems over recent years mean that feedback can be much more frequent and, in some cases, can be almost instant, thus providing real-time control capabilities. Several operating systems are available for monitoring inventory levels and triggering fresh orders. Medium to small enterprises commonly use enterprise resources planning (ERP) systems based to precisely manage inventory levels within the enterprises. The application of these methods produces an overall inventory level which can be measured in terms of an inventory turnover ratio (annual sales! average inventory), as reported by Ballou (2011). According to

Nachtmann, Waller and Hunter (2011), much of a company's costs can be attributed to the amount it invests in inventory and associated holding, transportation, and management costs. Effective management of inventory is thus critical to an SME's profitability.

The goal of inventory Management is to generate the maximum profit from the least amount of inventory investment without hindering customer satisfaction levels or order fill rates. The competitive inventory management environment is one that is rapidly changing as globalization and technology force retail outlets to constantly seek ongoing improvement in all areas in terms of their knowledge, flexibility and performance. Inventory Management is receiving growing attention as an area in which efficiency and productivity can be made in order to improve customer service and lower costs. Inventory management aims to provide both internal and external customers with are required service levels in terms of quantity and order rate fill. It also seeks to ascertain present and future requirements for all types of inventory to avoid overstocking in production (Silver, 2010). Proper inventory management provide upstream and downstream inventory visibility in the supply chain and also keeps costs to a minimum by variety reductions, economical load sizes and analysis of costs incurred in obtaining and carrying inventory (Lysons & Farrington, 2011).

In a global economy, competitive and dynamic environment, inventory managements is an important strategic factor for increasing competitiveness (Roman, Parlina & Veronika, 2013). The significance of inventory management in retail outlets had evolved from a more passive and cost minimization-oriented activity to a key success factor for firm competitiveness (Spillin, Mcginnis & Liu, 2013). There was therefore an emerging consensus about the need for retail outlets to handle inventory issues together with economic and business issues (Tuttle & Heap, 2015). The performance of inventory systems was typically related to delivery service, inventory cost and tied up capital. Customers increasingly expected shorter delivery times and more accurate services and inventory management was perhaps most easily conceptualized in manufacturing, since there was a physical flow of goods. Inventory management in retail outlet plays a key role in the economy, and the market volume of inventory had already reached a substantial level in many economies as a result. Retail outlets that were successful worldwide had long recognized the critical role inventory management played in creating added value (Spillin et al., 2013).

Nasir, Mohamad, Suraidi,, Nabihah and Raja (2016) postulates in inventory management at a textile chain store in Malaysia that that company had a few inventory problems such as unorganized inventory arrangement, large amount of inventory days / no cycle counting and no accurate records balance due to unskilled workers. Inventory management is therefore a critical contributor to the competitiveness of country retail outlets. The demand for products could only be satisfied through the proper and cost-effective delivery of goods and services (Ittmenn & King, 2010). In the years ahead, the significance of global inventory markets could continue to increase in response to economic and social conditions. More recently a World Bank report on inventory performance states that a competitive network of global inventory would be the

backbone of international trade and the importance of efficient inventory for trade and growth would be widely acknowledged: Better inventory performance is strongly associated with trade expansion, export diversification, ability to attract foreign direct investments and economic growth, in other words, trade inventory matter (World Bank, 2010). The World Bank acknowledged the importance of inventory performance in retail outlets and initiated a study to measure the inventory competitiveness of countries.

Africa continent was not performing well in inventory compared to other continents as the Shippers Council of Eastern Africa report confirmed that the top four countries were from Europe, the fifth one was from Asia however, the bottom five were all from Africa. The top five inventory performers in 2010 were (in order): Germany (4.11), Singapore (4.09), Sweden (4.08), the Netherlands (4.07) and Luxembourg (3.98), and the bottom five were Somalia (1.34), Eritrea (1.70), Sierra Leone (1.97), Namibia (2.02) and Rwanda (2.04) this indicates that African continent is performing poorly in inventory management practices. Shippers Council of Eastern Africa (SCEA) in their Annual Publication of 2013 confirmed that, a country's ability to trade globally could highly depend on the extent to which its international traders have access to competent and high quality inventory services. Majority of the international trader's respondents ranked the quality of inventory services in eastern Africa as average (SCEA, 2013).

A survey done by SCEA in 2012, revealed an array of factors that were responsible for the efficiency and cost structure of Kenya inventory chain. They included: inventory cost and efficiency indicator; time indictors related to deliver goods; truck turnaround time; complexity indictors which measured the level of complexity in undertaking trade transactions and customer perception indicators. Comparing the year 2010/2011with 2012, they came up with the following findings: Increase of 35.2 percent in shipping freight rates was realized in 2012; Aircraft operating costs increased from an average of USD 3.00 per kilogram in 2010/2011 to an average of USD 4.90 per kilogram in 2012; which reduced types of goods transported by air in the year (SCEA, 2013).

The growing importance of inventory arose from companies becoming globalized to gain access to new markets, realize greater production efficiencies, and tap technological competencies beyond their own geographical borders (Kilasi, Juma & Mathooko, 2013). In today's highly competitive environment, every company aimed at gaining a share of the global market and to take advantage of higher production and sourcing efficiencies. A key determinant of firm's performance then was the role of the inventory function‖ in ensuring the smooth flow of materials, products and information throughout a company's supply chains (Kilasi at el., 2013). This was why in most recently, inventory had become more prominent and was recognized as a critical factor in competitive advantage. Nyabwanga and Ojera (2012) also observed that too much inventory consumes physical space, creates a financial burden, and increases the possibility of damage, spoilage and loss.

In Kenya, the importance of inventory management continued to grow with Fast Moving Consumer Goods Companies opting for this mode to deliver their products across the country and beyond and not so much on other manufacturing sectors (Njambi & Katuse, 2013). More so, majority of those firms adopted third part inventory (3PL) in their business and did not care much to have improved inter inventory management. According to Njambi and Katuse (2013), then, in an era of shrinking product life cycles, proliferation of product lines, shifting distribution chains and rapidly changing technological advancement, use of inventory had become an essential ingredient for organizations in gaining competitive advantage. This was so since inventory management balances two basic objectives: Quality of Service and Low Cost of doing business as every other firms objective lies on quality service and minimum production cost.

Retail outlets are stores that sell smaller quantities of products to the general Public for own consumption with an aim of making profit. These stores or outlets buys goods directly from manufacturers or wholesale suppliers at a volume discount and then mark them up in price for sale to end consumers. According to Wamugunda (2014), retail outlet are very important as they aid the development of local economy by creating employment as well as ensuring availability of goods to the public at the right time, form , place and quantities. The retail stores are also important to the manufactures as a marketing platform since they are increasingly becoming popular venues used by marketers to build relationships with consumers (Kozinets & Sherry, 2012). Organized retail sector is growing rapidly and consumers are shifting to shopping in organized stores especially supermarkets thus, understanding of their behavior and need is the key to success for the retail outlets (Sandviker & Katole, 2012).

Inventory management is an area that covers a wide variety of activities ranging from planning, acquisition, receiving, storage, packaging etc. These activities vary from one organization to another depending on the organizations industry, the processes involved and type of business (Barnes, 2013). Inventory management has been defined as a process by which organizations oversee the purchase, receipt, storage, packaging and issuing of goods and components that satisfy the demand levels of the organization in an effective and efficient manner (Lai & Cheng, 2009). Every business organization needs to hold and manage the right level of inventory that will enable it satisfy the needs of its customers. Inventory management is a way of buffering against mismatches in supply and demand. It is an approach in which inventory is kept at a very low level to meet immediate production demand and additional supplies are delivered as they are needed. This is achieved by application of inventory management practices such as planning, categorization, automation and inventory modeling (Alan & Remco, 2012). Higher levels of inventories preserved by a firm, lowers its rate of returns conversely, failure to hold enough stocks to satisfy customers, demand affects the customer s loyalty, this means that organizations need to plan for their inventory to ensure they hold the right quantities (Sngviker & katole, 2012).

The retailing market in Nairobi City County has continued to experience considerable growth overtime. This attributed to increased purchasing power of the middle-class population and

improved infrastructure that has allowed for ease of movement of goods (Njoroge, 2016). This growth has also been attributed by key factors such as improved infrastructure that has allowed for ease of movement of goods, therefore better products at cheaper rates for consumers, as well as promoted rapid retail expansion to untapped rural and peri-urban markets and an enduring property boom allowing retailers to take up prime locations near residential areas for customer convenience. Increased investment by leading adding national retails firms in Nairobi City County has further boosted consumer confidence, encouraging spending and growth international brand demand. Kenya has been ranked as having the second most develop retail sector in Africa as increased urbanization duels investment of billions of shillings worth of modern shopping malls.

Uchumi Company has entered into contracts with various suppliers where they have been observed to supply directly from the shelves (Uchumi, 2011). In this case, the company has been observed to face new challenges ranging from overstocking to stock run-outs. Uchumi supermarket assets have in the past years been observed to grow. In the year 2008/2009, Uchumi supermarket assets grew from 764 million (in 2008/2009) to 900 million and to 1,062 million by the year 2010/2011 (Uchumi, 2011). By June 2014, the company's assets were about US$78.8 million (KES: 6.885 billion), with shareholder equity of approximately US$38.4 million (KES: 3.357 billion) (Uchumi, 2014). Uchumi supermarket is still struggling to improve its performance and it is doubted whether it will manage unless it is able to embrace effective inventory management practices that will lead to reduction of inventory cost (Githendu, Nyamwange & Akelo, 2015). Nakumatt and Tuskys have however shown great improvement as a result of embracing inventory management techniques that involves collaboration with suppliers to manage inventory cost (Mwaniki, 2013). This has however not helped in the recent past hence a gap still exists on the role inventory management practices play in the performance of the retail outlets in Nairobi City County.

STATEMENT OF THE PROBLEM

Performance of retail outlets is of paramount importance to world economy as well as the Kenyan economy as they ensure availability of goods to the general public as and when it is needed therefore fulfilling time, place, and possession and form utility (Ellickson, 2014). Despite the establishment of re-order levels order, quantities are still determined somewhat based on past usage (Bonney & Jaber, 2011). Yet, there is no specific policy to facilitate the determination of the quantities to be ordered. Improper quantities ordered occasionally leads to unexpected situations of stock out and overstocking (Oballah et al., 2015). Shortages of stock are occasionally attributed to long procurement procedures, occasional shortages in the market, lack of sufficient funds with which to purchase new supplies, unwillingness of suppliers to supply retail outlets due to delayed payments, inadequately trained staff in the inventory management section and the inadequacies of the retail outlets stock management system (KNBS, 2012). Poor performance of the retail outlets in Kenya contributed to a decline in GDP to 1.5 percent in the year 2008 from 7.0 percent achieved in the year 2007. The GDP rose to 2.7 percent in the year

2009 and a further increase of 5.8 percent in the year 2010. However, this growth declined to 4.4 percent in the year 2011. Performance of retail outlets in Nairobi City County has been poor where local suppliers produced a stinging report. The retailer has also slammed brakes on expansion, closed down underperforming branches in Kenya and Uganda and frozen hiring of workers. Uchumi, another Kenyan retailer exited Uganda and Tanzania and closed down several branches in Kenya due to debt and losses (KNBS, 2012). Several studies have been done on inventory management such as Oballah, Waiganjo and Wachiuri (2015) studied effect of inventory management practices on organizational performance in public health institutions in Kenya: a case study of Kenyatta National Hospital. Mwangangi (2016) studied influence of logistics management on performance of manufacturing firms in Kenya while Kariuki and Shale (2015) established moderating effect of vendor management system integration on supply chain performance in manufacturing sector in Kenya: a case of Uchumi Supermarket. However, none of the studies focused on influence of inventory management practices on performance of retail outlets in Nairobi City County. Therefore, it is against this background that this study sought to establish the influence of inventory management practices on performance of retail outlets in Nairobi City County.

GENERAL OBJECTIVE

The main objective of this study was to establish the influence of inventory management Practices on performance of retail outlets in Nairobi City County.

SPECIFIC OBJECTIVES

1. To determine the influence of inventory categorization on the performance of retail outlets in Nairobi City County.
2. To evaluate the influence of inventory planning on the performance of retail outlets in Nairobi City County.
3. To establish the influence of inventory processes automation on the performance of retail outlets in Nairobi City County.
4. To assess the influence of inventory modeling on the performance of retail outlets in Nairobi City County.

THEORETICAL FRAMEWORK

A theory is a set of statements or principles devised to explain a group of facts or phenomena especially one that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena. Theories are the analytical tools for understanding, explaining and making predictions about a given subject matter. Theories may be expressed mathematically, symbolically or in common language but are generally expected to follow principles of rational thought or logic (Dempsey, 2013). This study was guided by a number of theories including; theory of constraint, resource-based view theory, strategic choice theory and economic order quantity model.

Theory of Constraints

The theory of constraints (TOC) had been widely known as a management philosophy coined by Goldratt, Cyplik, Hadaś and Domański (2009) that aimed to initiate and implement breakthrough improvement through focusing on a constraint that prevented a system from achieving a higher level of performance. The TOC paradigm essentially stated that every firm should have at least one constraint (Simatupang, Wright & Sridharan, 2014). As pointed by Simatupang, et al. (2014), collaborating firms shared responsibilities and benefits with their upstream and downstream partners in order to create competitive advantage. When all the supply chain's (SC's) partners were integrated and act as a homogenous entity, profit and performance was enhanced throughout the (SC), as a combination of supply and demand (Santos, Marins, Alves & Moellmann, 2010). Flores and Primo (2015) affirmed that, with the crescent requirement of the market, the logistic process became more and more complex and with much higher levels of demands, especially when related to achieving a competitive advantage (Santos et al., 2010).

By then, the competition was not among companies but among the SCs, which belonged to (Santos, et al., 2010). The main goal of the SCM was therefore to reach a solution with optimized profit for all SC's partners; this could only be realized with the help of inventory management since there was often a great disparity between potential benefits and the practice (Simatupang et al., 2014).

The situation occurred because there were several difficulties regarding inventory which needed to be solved by an efficient inventory management. Some of these difficulties were: very long lead times, large number of unfulfilled orders and/or they were executed with much extra effort (overtimes), high level of unnecessary inventories and/or lack of relevant inventories, wrong materials orders, large number of emergency orders and expedition levels, high levels of devolution, lack of key customers engagement, frequent changes and/ or absence of control related to priority orders, which implied on schedule conflicts of the resources, among many others (Santos et al., 2010). The owner of a system was assumed to establish its goal. The fundamental goal of most business entities was to make money then and in the future (Simatupang et al., 2014).

Other stakeholders may have developed necessary conditions that should have been met to allow the system to continue operating. The TOC thus encouraged managers' to identify what was preventing them from moving towards their goals as well as necessary conditions and find solutions to overcome the limitation (Cyplik et al., 2009). Despite the noticeable worldwide performance improvement of the logistics, the main problem observed was that logistics' activities had not been achieving better results related to profitability and efficiency, because most of the time, each one of them just considered its local constraints (own problems), when they should have been considering all capabilities constraints related to inventory as a whole (Santos et al., 2010). The theory of constraints is relevant to this study as it helps in understanding inventory planning in line with aiming to initiate and implement breakthrough

improvement through focusing on a constraint that prevented a system from achieving a higher level of performance.

Resource Based View Theory

Resource based view aspired to explain the internal sources of a firm's sustained competitive advantage (Kraaijenbrink, Spender & Groen, 2010). The Resource Based View (RBV) of the firm postulated that, resources internal to the firm were sources of competitive advantage (Tukamuhabwa, Eyaa & Derek, 2011). Such resources were valuable, rare, unique and difficult to substitute. Resources believed to be valuable were those that were capable of facilitating conception or implementation of strategies that improved performance, exploited market opportunities or neutralized impending threats (Barney & Clark, 2010).

The two assumptions for RBV theory were, resources and capabilities were heterogeneously distributed among firms; and resources and capabilities were imperfectly mobile, which made firms' differences remained stable over time (Ganotakis & Love, 2010). Every firm was different (heterogeneous) from other firms in terms of the resources and capabilities a firm possesses or accesses. These differences differentiated one firm from another and a firm's success was due to its firm-specific (idiosyncratic) resources (Karia & Wong, 2011). Accordingly, individual resources, competencies and capabilities of the organization were a bundle of the firm's resources or the essence of the resource-based view (Barney & Clark, 2010). For instance, in inventory business, a resource is described as a basic element or a prerequisite for the development and operation of logistics; and it is required for building up a firm's capabilities (Stadtler, 2015). The resource-based view (RBV) of firms mainly emphasized their internal strengths and weaknesses, in contrast to industrial organization economics which focused on firms' external opportunities and threats Shang & Marlow (2015), because when the external environment is unstable, a firm's own resources and capabilities may be easier to control (Shang & Marlow, 2015).

The resource focused perspective contends that a firm was a collection of tangible and intangible resources (Kraaijenbrink et al., 2010). This collection was unique to each firm so that each firm could be considered different (heterogeneous) from each other within the same industry i.e. no two companies possess the same experiences, or had acquired the same assets or skills or built the same organizational culture (Barney & Clark, 2010). Such differential endowment of resources among firms was the ultimate determinant of strategic decisions (Shang & Marlow, 2015). Ganotakis and Love (2010) used the RBV to explain the importance of inventory management to a firm. According to Ganorakis and Love, (2010), inventory flexibility and efficiency was considered to be a source of competitive advantage for entrepreneurial firms. Ownership of firm-specific assets enabled a company to develop a competitive advantage. They also found out that a company's competitive advantage was derived from the company's ability to assemble and exploit an appropriate combination of resources (Ganotakis & Love, 2010). In their study, Wong and Karia, (2010), confirmed that, RBV focused on the idea of costly-to-copy

attributes of the firm as sources of business returns and the means to achieve superior performance and competitive advantage. This theory is important in grounding the inventory categorization in understanding its influence on retail outlet internal resources as the firm sources of competitive advantage.

Strategic Choice Theory (SCT)

Strategic choice theory shows the relationship between top management choices and organization performance as well as interaction of the internal and external organization. The theory stresses the importance of management decisions on organizational performance (Child, 2009). Campling and Michelson (2015) established a strategic choice model that depicts the interdependence among the environment and organizations, actions and overall firm performance. The model aim at achieving high performance standards in order to increase efficiency where there are a limited resource, the theory failed to give much importance contextual factors like environment, technology and scale of operation into consideration and only considered how organizational structure aid in performance of organization.

Any organization with managers given power and responsibilities to direct and make decision regarding factors like inventory investment and the amount of inventory to carry have significant effects on organizational outcomes as well as performance SCT argues that the right management choice will depend on environmental factors like suppliers, purchasing and inventory management decision made by the management (Child, 2009).

Ketchen and Hult (2010) suggest that SCT views managers as personnel who are downstream decision makers directing decision and changing process in organization. Change or variations can be caused by contextual factors including environmental conditions and technology. Using new technology in inventory management such as RFID, bar codes and ERP systems are some technological changes that require decision making at corporate level with support from both business and functional level. Strategic choice theory is relevant to this study through understanding inventory processes as it shows the relationship between top management choices and organization performance as well as interaction of the internal and external organization.

Economic Order Quantity (EOQ) Model

Haris is among authors within operation management who have developed models to determine optimal inventory levels that should be kept by organization. Blackburn (2010), is among authors who agree that EOQ is one of the models widely used to manage inventory in many industries. EOQ model was developed by Haris in 1913 and is also known as Wilson EOQ model, who critically analyzed the model in detailed, that is according to Arsham (2013). The use of the model has shown increase in some costs as other costs decline, an example of ordering costs decline with the inventory holdings, while holding costs rise and the total inventory associated costs curve have a minimum point. It is also known as the point where total inventory

costs are minimized. EOQ is the level of inventory that minimizes the total of inventory holding costs and ordering costs.

This Tmodel as one that order quantities which minimize the balance of cost between inventories holding costs and re-order costs. Ogbo (2011) describes the basic EOQ, assumptions that are necessary to calculate EOQ as follows: That stock holding costs are known, and constant; there is a known, constant ordering costs; the rate of demand are known and constant; lead time cycle is known and constant; the price per unit constant; the replenishment is made instantaneously, the whole batch is delivered at once and no stock-outs are allowed. One disadvantage of EOQ is that it ignores the need to have buffer stocks, which are maintained to cater for variations in lead-time and demand making it difficult to be observed in practice. The EOQ model requires that for every item stocked in the stores, there is need to determine the point of order and that of the most cost effective quantity to order. The model assumes that all other variables are constant even though uncertainties are common and regular all business. For example uncertainty includes change in demand, damage during transportation and delay in delivery. Uncertainty in demand, will therefore force EOQ to be adjusted to buffer against uncertain business atmosphere.

Due to uncertainties experienced in business environment adjusted economic order quantity is an EOQ model that can be used where fluctuation in demand is a common occurrence. Especially in healthcare industry where demand cannot be accurately forecasted since it depends on several external factors. Regarding hospital pharmacy, there are several key factors, both internal and external, that affect inventory level in the pharmacy store. These factors can influence fluctuation in drug consumption rate in hospital pharmacy, some internal factor, for instance, prescribers preference, can be controlled, but it is impossible to control some external factors such as war. As previously noted regarding the restrictive assumptions of simple EOQ model, the situation that would meet all the assumptions is an ideal. The fact that uncertainty in demand seems to be encountered in most situations, EOQ model should be fixed to cope with this uncertainty.

Inventory management need to be organized in a logical way so that the organization can be able to know when to order and how much to order. This can only be achieved through the Economic Order Quantity (EOQ) computation. The EOQ model is the method that provides the company with an order quantity. This order quantity figure is where the record holding costs and ordering costs are minimized. By using this model, the companies can minimize the costs associated with the ordering and inventory holding (Bachetti, Plebani, Saccani & Syntetos, 2010). In 1913, Ford W. Harris developed this formula whereas R. H. Wilson is given credit for the application and in-depth analysis on this model (Edward, 2010). The EOQ is a model that is used to calculate the optimal quantity that can be purchased or produced to minimize the cost of both the carrying inventory and the processing of purchase orders or production setups (Edward, 2010).

A larger order-quantity reduces ordering frequency, and, hence ordering cost per month, but requires holding a larger average inventory, which increases storage (holding) cost per month. On the other hand, a smaller order-quantity reduces average inventory but requires more frequent

ordering and higher ordering cost per month (Edward, 2010). EOQ model is a very important tool that organizations can also use to ensure that inventory supply does not hit a stock out as explained by Gonzalez and Gonzalez (2010). The EOQ model helps organizations to reduce inventory management costs by reducing the cost of ordering and holding stock. The study thus used this theory to find out the effect of inventory modeling a management Practices on the Performance of Retail outlet through optimal inventory levels that should be kept by organization.

RESEARCH METHODOLOGY

Research Design

The study adopted a descriptive research design. This design was adopted because it describes the state of affairs, as it exists at present in the study (Babbie, 2010). The researcher intended to apply this design to evaluate the influence of inventory management practices on performance of retail outlets in Nairobi City County. This design is very useful in studying the inter-relations between the variables already mentioned in the conceptual framework Ngechu (2014). It is analytical and often singles out a variable factor or individual subject and goes into details and describing them.

Target Population

A target population is classified as all the members of a given group to which the investigation is related, whereas the accessible population is looked at in terms of those elements in the target population within the reach of the study. Based on the recommendations of Flick (2015) in defining the unit of analysis for a study, the target population for this study was 407 management staff in retail outlets in Nairobi City County; which included 55 top level managers, 121 middle level and 231 lower level management staff in selected retail outlets in Nairobi City County.

Sampling Frame

Sampling frame has been defined as the source from which the sample is drawn being the list of all the elements in the population (Noor, 2014). Sampling frame was drawn from the management staff in retail outlets in Nairobi City County

Sample Size and Sampling Technique

Sampling describes the sampling unit, sampling frame, sampling procedures and the sample size for the study. The sampling depicts the list of all populace units from which the specimen was chosen (Jankowicz, 2010). As indicated by Gay (2009), sampling includes selecting a given number of subjects from a characterized population in order to represent to the whole population. Sampling is a deliberate choice of a number of people who are to provide the data from which a study drew conclusions about some larger group whom these people represent (Onabanjo, 2010). The sample size is a subset of the population that is taken to be representatives of the entire

population. A sample population of 198 was arrived at by calculating the target population of 407 with a 95% confidence level and an error of 0.05 using the below formula taken from Kothari (2004).

$$n = \frac{z^2 . N . \partial_p^2}{(N-1)e^2 + z^2 \partial_p^2}$$

Where: n = Size of the sample; N = Size of the population and given as 407; e = Acceptable error and given as 0.05; ∂p = The standard deviation of the population and given as 0.5 where not known; Z = Standard variance at a confidence level given as 1.96 at 95% confidence level.

This study adopted a stratified and simple random sampling technique. Stratified random sampling is unbiased sampling method of grouping heterogeneous population into homogenous subsets then selecting within the individual subset to ensure representativeness. In the determination of the sample size in this study, Sekaran and Bougie's (2011) criterion on selection of sample size was considered by taking 55% of the total population in each case.

Data Collection Instruments

Primary data was obtained using self-administered questionnaires while secondary data was obtained using data collection sheet. The questionnaire is made up of both open ended and closed ended questions covering issues associated to inventory management practices on retail outlet performance. The open-ended questions were used so as to encourage the respondent to give an in-depth and felt response without feeling held back in illuminating of any information and the closed ended questions allow respondent to respond from limited options that had been stated. According to Saunders, Lewis and Thornhill (2012), the open ended or unstructured questions allow profound response from the respondents while the closed or structured questions are generally easier to evaluate. The questionnaires were used in an effort to conserve time and money as well as to facilitate an easier analysis as they are in immediate usable form.

Data Collection Procedures

The researcher used drop and pick method is preferred for questionnaire administration so as to give respondents enough time to give well thought out responses. The researcher booked appointment with respondent organizations at least two days before visiting to administer questionnaires. The researcher personally administered the research instruments to the respondents. This enables the researcher to establish rapport, explain the purpose of the study and the meaning of items that may not be clear as observed by Sekaran and Bougie (2010).

Pilot Study

Pilot testing refers to putting of the research questions into test to a different study population but with similar characteristics as the study population to be studied (Kumar, 2015). Pilot testing of the research instruments were conducted using staff from retail outlets in Nairobi City County. A total of 19 questionnaires were administered to the pilot survey respondents who was chosen at random. After one day the same participants were requested to respond to the same questionnaires but without prior notification in order to ascertain any variation in responses of the first and the second test. This helped to improve on the efficiency of the instrument. This process was repeated until the researcher is satisfied that the instrument does not have variations or vagueness.

Validity Testing

Validity refers to the goodness of data, accuracy, relevance and richness. Face validity exist when the researcher produces the kind of information wanted or expected (Kruger, 2012). Internal validity refers to the internal coherence of the findings and means checking out the responses for consistency, and ruling out ambiguity and contradiction (Robson, 2012). The researcher used content validity through expert and supervisor's opinion.

Reliability Testing

Reliability is the degree of consistency in assignment of similar words, phrases or other kinds of data to the same pattern or theme by different researchers (Hussey & Collis, 2009). It also means the degree of consistency that the same researcher assigns similar observations and interpretations at different points in time. The researcher used the Cronbach's Alpha that is widely used to assess internal consistency reliability and is used for three, four, or five point Likert scale items with 0.7 being the cut-off point (Malhotra, 2015).

Data Processing Analysis and Presentation

Data was analysed using Statistical Package for Social Sciences (24.0). Descriptive statistics such as frequencies, percentages, mean score and standard deviation was estimated for all the quantitative variables and information presented inform of frequency tables and graphs. The qualitative data from the open-ended questions was analysed using conceptual content analysis and presented in prose. Inferential data analysis was done using regression analysis. The regression analysis was used to establish the relations between the independent and dependent variables. Presentation of the data was in form of tables and graphs based on the major research questions. A regression was used because the procedure uses two or more independent variables to predict a dependent variable. Since there are four independent variables in this study the regression model generally assumed the following equation;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where: Y= Performance of retail outlets in Nairobi City County; β_0=Constant; β_1, β_2, β_3 and β_4 = regression coefficients; X_1= Inventory categorization; X_2= Inventory planning; X_3= Inventory processes automation; X_4= Inventory modeling; ε=Error Term

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Reliability Analysis

Cronbach alpha coefficients were used to test internal consistency of items on a scale and the variables were considered reliable if the results showed that their Cronbach Alpha was above 0.70 threshold as recommended by Malhotra (2008) who asserted that Cronbach Alpha's should be in excess of 0.70 for the measurement intervals. The results of the reliability analysis are presented in the table 4.2 below.

Table 1: Reliability of Measurement Scales

	Cronbach's Alpha	Decision
Inventory categorization	.818	Reliable
Inventory planning	.772	Reliable
Inventory processes automation	.802	Reliable
Inventory modeling	.862	Reliable

From the table it was found that inventory modeling (Cronbach's Alpha =.862) was the most reliable followed by Inventory categorization (Cronbach's Alpha= .818) then Inventory processes automation (Cronbach's Alpha =.802) while the Inventory planning (Cronbach's Alpha = .772) was the least.

Multiple Regression Analysis

In addition, the researcher conducted a multiple regression analysis so as to test relationship among variables (independent) on influence of inventory management practices on performance of retail outlets in Nairobi County. The researcher applied the statistical package for social sciences (SPSS V 24.0) to code, enter and compute the measurements of the multiple regressions for the study.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.834	0.696	0.687	0.989

The adjusted R^2 was found to be 0.687 inferring that variations on influence of inventory management practices on performance of retail outlets in Nairobi County which are explained by inventory categorization, inventory planning, inventory processes automation and inventory

modeling were 68.7%. These findings conform to Fellows and Rottger (2015) who claims that ABC Analysis is an inventory categorization technique that divides inventory into categories where it suggests that inventories of an organization are not of equal value. Thus, the inventory is grouped into three categories in order of their estimated importance.

Table 3: ANOVA results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	302.34	4	75.585	75.516	3.55E-33
	Residual	132.12	132	1.001		
	Total	434.46	136			

In predicting the effects of inventory categorization, inventory planning, inventory processes automation and inventory modeling on performance of retail outlets in Nairobi county, the regression model test was found to be significant since p-value was less than 0.005 and The calculated F (75.516) was larger than the critical value of F=2.345. This is similar to Hutchins (1999) who argued that the prime goal of just-in-time technique is the accomplishment of zero catalogues, not just within the confines of a single firm but ultimately on the whole supply chain.

Table 4: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.904	0.223		4.054	8.56E-05
Inventory categorization	0.864	0.302	0.606	2.323	2.17E-02
Inventory planning	0.684	0.116	0.445	5.897	2.94E-08
Inventory processes automation	0.616	0.217	0.543	2.839	5.25E-03
Inventory modeling	0.754	0.236	0.531	3.195	1.75E-03

The established model for the study was:

$$Y = 0.904 + 0.864X_1 + 0.684X_2 + 0.616X_3 + 0.754X_4$$

The results reveal that performance of retail outlets in Nairobi County will be 0.904 if all other factors are held constant. The study results also show that an increase in inventory categorization will lead to a 0.864 increase the performance of retail outlets in Nairobi County if all other factors are held constant. Again, as shown by r=0.684, the study reveals that increase in inventory planning would lead to an increase in the performance of retail outlets in Nairobi County if all other factors are held constant. Further the study showed that if there was a unit change in inventory processes automation, a 0.616 increase in the performance of retail outlets in Nairobi County would be realized if all other factors are held constant. Also, a unit change in inventory modeling would lead to 0.754 increases in the performance of retail outlets in Nairobi County if other factors were constant. These conform to Disney and Towill (2008) who noted

that in USA and Canada retail outlets such as Wallmart, Safeways, Foodex among others complained of facing 12% additional inventory management costs that resulted to over 13% decline in profit margin due to challenges associated with implementation of Inventory management practices.

In summary all variables were significant since p-values were less than 0.005 with inventory categorization having the greatest effect and Inventory processes automation having the least effect on performance of retail outlets in Nairobi County.

DISCUSIONS OF FINDINGS

Inventory Categorization

The study sought to determine the influence of inventory categorization on the performance of retail outlets in Nairobi County. From the findings, the study revealed that ABC Analysis which entails inventory categorization technique is adopted. These findings conform to Fellows and Rottger (2015) who claims that ABC Analysis is an inventory categorization technique that divides inventory into categories where it suggests that inventories of an organization are not of equal value. Thus, the inventory is grouped into three categories in order of their estimated importance.

The study also found that FSN Analysis involves the separation of Fast Moving, Slow moving and Non Moving Items and that the firm uses SOS Analysis which separate seasonal items from Off Seasonal Items. This is in line with Shapiro (2009) who argues that primary focus of inventory controllers is to maintain optimum inventory levels and determine order/replenishment schedules and quantities. This resource-based view theory is important in grounding the inventory categorization in understanding its influence on retail outlet internal resources as the firm sources of competitive advantage.

Inventory Planning

The study further sought to evaluate the influence of inventory planning on the performance of retail outlets in Nairobi County. These correspond to Donald (2006) who argue that the less you spend to store and carry catalogue, the less desuetude you have to write off, and the better you can enhance your carriage and logistics 13 maneuvers. The theory of constraints is relevant to this study as it helps in understanding inventory planning in line with aiming to initiate and implement breakthrough improvement through focusing on a constraint that prevented a system from achieving a higher level of performance.

The study found that their firm practices Just in Time planning, that organization uses Periodic Ordering to manage inventory. The study also revealed that continuous Ordering is fairly used in the firm. These findings are similar to Wolcott (2011) who noted that inventory management systems and inventory control processes provide information to efficiently manage the flow of

materials, effectively utilize people and equipment, coordinate internal activities and communicate with customers. These findings are in line with Strategic choice theory which aim at achieving high performance standards in order to increase efficiency where there are a limited resource, the theory failed to give much importance contextual factors like environment, technology and scale The study also sought to establish the influence of inventory processes automation on the performance of retail outlets in Nairobi County. The study found that Electronic Data Interchange is used in inventory management and that their firm use Bar Coding in transaction. The study also found that firm don't have a Material Requirement Planning System.

Inventory Modeling

The study further sought to assess the influence of inventory modeling on the performance of retail outlets in Nairobi County. The study found that Deterministic Model is greatly used in the firm. This corresponds to Mazanai (2012) who noted that stock shortages are a headache for most organizations and it leads to customer's dissatisfaction which eventually leads to low performance of a firm. This study concurs with Economic Order Quantity (EOQ) Model as it helps to find out the effect of inventory modeling a management Practices on the Performance of Retail outlet through optimal inventory levels that should be kept by organization.

The study further revealed that Economic Production Lot Size has been adopted in the firm and that their firm fairly uses Probabilistic Model to manage inventory. This finding concurs with Wild (2012) who notes that the economic quantity is the level for inventory which minimizes the total inventory costs. It is the optimal level of inventories which satisfies the demand constraints and cost constraints.

CONCLUSIONS

The study concluded that inventory categorization influences performance of retail outlets in Nairobi County positively. The study revealed that ABC Analysis which entail inventory categorization technique is adopted. The study also found that FSN Analysis involves the separation of Fast Moving, slow moving and Non-Moving Items. The study also concluded that inventory planning influences performance of retail outlets in Nairobi County significantly. The study found that their firm practices Just in Time planning, that organization uses Periodic Ordering to manage inventory. The study further concluded that inventory processes automation influences performance of retail outlets in Nairobi County positively. The study found that Electronic Data Interchange is used in inventory management and that their firm use Bar Coding in transaction. The study finally concluded that inventory modeling influences the performance of retail outlets in Nairobi County positively and significantly. The study found that Deterministic Model is greatly used in the firm. The study further revealed that Economic Production Lot Size has been adopted in the firm. The study concludes that the findings assist in formulation of policies and regulations that can help improve efficiencies and effectiveness in

the sector and improved manufacturing sector could increase national GDP and by extension increase job creation. Improved inventory management possibly would boast flow of trade and reduction of cost in exports creating export incentives, improved prices of goods and services which boosts Kenyan economy.

RECOMMENDATIONS

The study recommends that the retail outlets should automate their inventory management systems so as to improve their customer delivery levels. This is because inventory management automation whether full or partial will help the retail outlets improve on their lead times and responsiveness to customer needs. This definitely will lead to customer satisfaction hence customer loyalty.

The study also recommends that the retail outlets should make use of automation so as to reduce their operational costs. The number of staff needed to operate an automated inventory management system will be lower than that of a manual system, there will be fewer errors committed by the staff, and fewer lost sales (reduced opportunity costs) as well as effective and cheaper communication with the suppliers and the customers. The retail outlets should also decentralize their management structures. A decentralized management structure will encourage faster decision making by the lower level manager and they will also own the decisions that they make. To encourage quality decision making, the supermarkets' Stop-level managers should also incorporate the lower level managers in planning and decision making because this will also reduce resistance to change.

It was also noted that specialization of labour increases the quality of output and the quality of services rendered. It is therefore recommended that the retail outlets should employ people with relevant educational qualifications and with some level of experience as far as inventory management is concerned. It is highly recommended that the retail outlets invest technology that is most useful to their operations so as to avoid wasting a lot of capital on technology that will never be used. A comprehensive research is therefore very necessary to identify any recent developments in inventory management automation.

There is a need for management to emphasize the importance of inventory management. Inventory management should not be the preserve of only the staffs of the warehouse, stores or logistics department. Each person in the retail outlets must appreciate the importance of inventory control and adhered to related processes, including documenting inventory movements and storing items where they belong not just where there is open space. Dedicating one individual to full-time inventory management provides continual attention to that function, while rotating various oversight responsibilities among other individuals broadens their understanding of inventory control processes. Such practices also promote accountability and ownership. It is therefore recommended that management has to ensure that industry-specific requirements of some of the inventory management systems (as for the case of JIT) and the obtaining situation

are considered before the adoption of the technology. Further, organizations should ensure that the practitioners have to assess the situation at hand prior to the choice of the system or approach. Before adopting any inventory management system, practitioners should assess it for suitability to the industry, for appropriateness and reliability

There should be the use of an integrated information system by retail outlets to connect and distribute projects related information particularly between staffs in the organization, or that links the company with its suppliers. To this end, the adoption of enabling technologies such as a Logistics Information System (LIS), often in the form of Electronic Data Interchange (EDI) or Value-Added Network (VAN) or the internet are desirable so that different parties in the supply chain can gain access to the needed information for decision making, thereby meeting the market requirements responsively.

There should be improvement of relationships with suppliers. The most important purchasing activity is to select and keep close relationships with several reliable and high-quality suppliers in order to reduce product cost, maintain good product quality and customer services. Retail outlets should improve their relation with their suppliers by paying them on time, ensuring early placement of orders, free flow of information, and also being honest with them. This is because, it was discovered from the study that some of the suppliers were reluctant to supply materials when orders are made in situations where the company is indebted to them.

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