

Effects of Inventory Management System on Firm Performance – An Empirical Study

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Abstract:- The study was guided by the following objectives: to find out how the systematic application production in data processing (SAP), just in time system and economic order quantity affect the organization performance. Literature review indicated that previous studies have brought out both positive relations and weak relations between the inventory management practices and the operational performance of firms. The researcher used an empirical evidence to analyze the findings. The study established that systematic application and production in data processing affect performance of organization. The study concluded that Economic order quantity should be continuously reviewed were by inventory control system is closely monitored at all time to make it more effective. On recommendations, the first recommendation made was that since SAP was found to be significantly affects firm performance, organizations should appropriately use the SAP technology in managing their procurement for an efficient operations. The second recommendation was based on EOQ. Since EOQ was found to be an important technique in inventory management, firms should ensure to order the recommended lot size as determined by the EOQ.

Keywords:- *Economic Order Quantity, Operational Efficiency, Systematic Application Production in Data Processing.*

I. INTRODUCTION

Blanks (2014) research on the concept of leadership in Europe discovered that inventory control was not seen as an indicator of wealth as needed surplus inventories. Management was then taken into account in terms of storage. However, today companies have begun to take over efficient inventory control (Susan & Michael, 2015). In order to decrease cost and stay competitive (Closs, 2012), managers now need reliable and efficient inventory control more than ever before. Inventory alone accounts for up to 30 per cent of the investing capital of Dobleer and Burn (2014) in the company. This is why Europe (2013) has established processes and methods for adequate inventory control through its Supplies Manual.

Colling, (2015) argues that productivity enhancement has been accomplished in the United States of America and other western countries by decreasing labour cost per unit of

production. The elevated workforce levels in many produced products have justified this approach. In latest years, however, the labour unit cost ratio has reduced steadily. Even big production companies, such as US automotive assemblers, buy up to 60% of the product value. This means that the management of inventories of raw materials is an area where productivity can be greatly improved.

Mangolo, (2016), has suggested that inventory management improves its activities for many organisations in Africa. High quality manufacturers can deliver a variety of products and create fast delivery from their backyards to clients (Stanton, 2014). (Stanton, 2014). The management of companies in Africa was asked about the effectiveness of stock management processes in place as a consequence of inconsistency of stock rates leading to different flaws, such as losses arising from over-extended stocking, under-inventory, expiry of inventories, inability to achieve the business members ' objectives and low morality. These overcrowded businesses make it hard to obtain late, departmental products from a warehouse keeper, resulting in bad stock service delivery (Wood, 2014).

The Effect of Inventory Management on Profitability of Cement Manufacturing Companies in Kenya, study done by Edwin and Florence (2015), the research results establish an adverse connection with the business ' profitability between inventory turnover, stock conversion and storage costs. Furthermore, the inventory level has been discovered to be directly linked to company size and storage costs and suggested that companies in Kenya strive to guarantee that the appropriate stock in their stores is kept safe from excessive expense of holding and inventories.

➤ *Concept of Inventory Management*

Inventory is a dormant inventory of physical objects containing economic value that are kept under different custody by an organization waiting in time in the future to be packaged, processed, converted, used or sold (Selleemi, 2014). In order to satisfy customer service demands and expectations, the choice concerning the quantity of inventory that a business should take and its place within the company's network is extremely important. Inventory management is the choice and control of operations to get the correct stock in the correct location and at the correct moment at the correct price, (Lyson & Farrington, 2014).

Inventory management is a key task that determines both the health of the supply chain and the impact of the balance sheet on economic health. Every company strives constantly to preserve the best stock in order to satisfy its demands and to prevent an inventory which may have an effect on its finances. Continuous and careful evaluation, planning and evaluation, and control over inventory management require external and internal considerations. Most organizations have separate departmental functions or jobs called inventory planners which track the stock and interface with manufacturing, procurement and finance departments, continually and continually (Saleemi, 2014).

Chandra, (2014) has indicated that inventory management is likely to comprised activities such as demand management which ensured that required operation and maintenance of supplies are available at the right time in the right quantity. Reviewing safety stock levels and controlling minimum and maximum amount of inventory in terms of both quantity and value ,implementing lean inventory policies such as JIT contract to minimized investment in inventory liaising with purchasing to ensure that supplies are replenish in accordance with cooperate and procurement policies, developing cost effective system and procedure relating to the ordering, procurement budgeting of supplies, controlling the receipt inspection ,recording location and issue of supplier to the user (Chandra, 2014).

II. STATEMENT OF THE PROBLEM

Inventory is a key business consideration in the attempt to achieve supply chain optimization. In this complex and dynamic market a firm should be able to come up with varies techniques of having efficient inventory levels that would be economical to the firm if they were to hold stock (Chandra, 2014). Poor inventory management brought about capital being tied up as stock and hence impact negative on the firm by having to incur storage and carrying cost which prove to be very expensive to the organization at large (Mwangi, 2015). The store department is also faced with some challenges of inaccurate forecasting whereby they are unable to anticipate future changes in external or internal forces that affect the inventory level of the firm (Nguni, 2014).

The effect of inventory management on organisational performance was assessed in local research. Ogbo and Onekanma (2014) noted that organisations, by attaining lowered operating costs and enhanced sales efficiency, benefitted from inventory control management. The study also established that there exists a relationship between operational feasibility, utility of inventory management in customer related issues and the cost effectiveness technique used to enhance the return on investment of the company. The study recommended further research on the impact of personnel training and use of advanced technology to firm's inventory control success.

In Kenya, a case study of Safaricom on influence of inventory management practices on organization's competitiveness has been carried out by Kamau and Kagiri, (2015). The research found that stock management practices impact a company's profit maximisation, satisfaction of its customers and development in market share and consequently impact its competitiveness. In particular, Safaricom Ltd's performance was impacted by inventory shrinkage, stock investment and turnover. The study recommended that increasing forecast accuracy and use of a vendor managed inventory system would lead to lower out of stock incidences, lower costs and increased customer service levels. The study recommended use of an inventory management practice that tackles issues of information management such as the Systematic Application and Production software (Kamau & Kagiri, 2015). It however did not explore the impact of these systems on organization performance.

Naliaka and Namusonge, (2015) explored inventory management and its role on competitive advantage of manufacturing firms. The study also identified IT, inventory control systems and inventory management practices as key factors impacting a manufacturing firm's competitiveness. The sole focus of this study was manufacturing firms hence the findings cannot be generalized to the retail sector. Therefore this study intends to bridge this gap by establishing the effect of inventory management practices on firm performance.

III. THE GENERAL OBJECTIVE

The general objective of this study was to determine the effect of inventory management systems on firm performance.

A. Specific Objective

- To find out how Systematic Application and Production software of inventory management system affects the firm performance, an empirical review.
- To assess the effect of economic order quantity of inventory management on the firm performance, an empirical review.
- To determine the effect of Just in time inventory control system on the firm performance, an empirical review.

B. Research Questions

- Does Systematic Application and Production Software of inventory management system affects firm performance?
- Do Economic Order Quantity of inventory management affects firm performance?
- Does Just in Time Inventory control system of inventory management affects firm performance?

IV. LITERATURE REVIEW

Anichebe & Agu (2013) performed in chosen organisations in Enugu, Nigeria, the impact of inventory management on organisation's effectiveness. Data was produced by means of surveys, oral interviews, comments, books, newsagents and the Internet. From the analyzes, it was found that, whatever the fact that companies studied, they painted the picture that they applied the principles of good inventory management, they occasionally found that inventory problems were inadequate. The result was that the manufacturing of one brand of its goods was scarce and thus negatively impacted their profitability and consequential efficiency. The management of stocks has an important impact on the productivity of organization. The relationship between excellent stock management and corporate profitability is extremely positive. The Anichebe and Agu research (2013) found that inventory management is very important for organizational achievement and development. The full profits of an organisation are linked to the volumes of products sold, which relate directly to the quality of the product. The research suggested that organizations diversify their inventory systems to meet particular requirements of manufacturing and manage their inventory system carefully to preserve manufacturing consistency.

A case study of the listed cement companies in Kenya, Edwin and Florence, 2015: The impact of inventory management on the profitability of Cement manufacturing companies in Kenya. Given Kenya's milestone contribution to the Kenyan economy, this study is needed to assess the impacts of inventory management on Kenyan cement companies' profitability. An assessment of the annual accounts for the three sampled companies listed on the Nairobi Securities Exchange (NSE) was completed using cross-sectional data from 1999 to 2014. In order to create a connection between inventory conversion, inventory concentrations, inventory costs, company size, gross profit margin and return on investments and development, the common lower squares (OLS) were employed in information analyzing as multi-regression modelling. The findings provide a adverse relation with the profitability of the business between inventory sales, stock conversion period and storage costs. Moreover, stock levels were directly linked to the size and storage costs of the company. The study by Edwin and Florence (2015) suggested that cement companies in Kenya try to guarantee that they maintain the correct inventory in their stocks to protect themselves from excessive expense of holding and supplies.

Koin, Cheruiyotand Mwangangi, (2014) carried out a survey on the impact of stock management on the performance of an organization. The study will also employ a descriptive research design that will make the study population 459 and will guarantee that the available population sampled is considered significant to inform the scientist of the research targets formulated. The results show

that e inventory management and suppliers relationships have excellent implications for supply chain efficiency in the manufacturing sector while order management and warehouse management have a mild effect. This study shows that the suggested strategy is practically and effectively harmonised through this study, decision makers be presented with procurement performance and valid solutions for harmonization of inventory management (Koin, Cheruiyot & Mwangangi, 2014).

A research on the impact of an efficient stock management scheme on organizational performance of the seven-up bottling business, Nile Mile Enugu was conducted by Ogbo, Onekanma and Wilfred (2014). The researchers were encouraged to undertake this research to show the significance of an efficient organisational performance inventory control scheme in the bottling company. The sample for the research consists of a total of 83 respondents. It was discovered, by simple storage and recuperation of material, increased sales efficiency and decreased operating cost, that organisations benefit from inventory management. The research also discovered that there is a link between operational feasibility, the utility of inventory control leadership in organization-related client questions and cost-effectiveness techniques to improve the company's return on investment. Effective inventory management should be acknowledged as one area for managing an organisation. Organizations were advised to embrace the highest inventory technique of their activities (Ogbo, Onekanma & Wilfred, 2014).

V. THEORETICAL FRAMEWORK

➤ *Technology Diffusion Theory*

Rogers' Innovation Theory is intended by proposing five innovation characteristics that are "observability, compatibility, capacity to test, comparative benefit and complexity" in the theory, which explain how innovation was adopted for fresh concepts as well as for innovations (Rogers, 1965). There is a comparative benefit to an attribute when it is seen that fresh inventions are better than the prior concept that they replace. The theory of Rogers points out that it is simpler for innovations to be implemented, which demonstrate an increased benefit over the one before and facilitate adoption. In addition, Greenhalgh et al., (2014) states that consumers do not embrace innovations with no comparative benefit. An innovation's capacity to be accepted readily is that it must be consistent with a prior concept, satisfy its past experience and fulfil current values. This means that if it is more consistent, an innovation can be taken more likely. An innovation which is considered difficult to use and comprehend is said to be complicated. New innovations, which define the significance of users, are classified from simple to intricate and readily implemented (Greenhalgh, 2014). It is called testing capabilities if the user is able to experiment with an innovation in a minimum period of time, and if the user can check the item in full

before its implementation saves them resources, energy and valuable time. The visibility of the results of innovation as seen by adopters is called observability, where innovation becomes better acceptable if the findings are positive.

➤ *Economic Order Theory*

The role of the Model Economic Order for the reduction of costs of inventory of raw materials in a dairy farm project was evaluated by Kisaka (2016). The project-employed method compared the total cost of the raw material inventory with the total costs of the inventory of raw materials that the application for EOQ could have induced. Kisaka, (2016) discovered that cost savings could be achieved by using the EOQ model. Wisner, Tanand Leong, (2014) poised that inventory administration includes adjustments between customer service, or item accessibility, and cost of stock. Wisner, Tanand Leong, (2014) indicated further that there are factors influencing the uncertainty of the quantity of inventory to be kept in the store at a particular time; cost factors and the uncertainty factor, which incorporates demand uncertainty and time uncertainty. Tayur (2012) discovered that procurement efficiencies can be improved by controlling stock purchases and stock storage so that the flow of products is even and excessive investment in stock can at the same moment be maintained. Theory linked to improving the balance or balance between the expenses of maintaining stock versus the advantages of holding inventory in chambers, Lacey, (2015), when evaluating EOQ within a service company. The advantage of an inventory is that products are accessible as necessary. Chambers & Lacey 2015 The main cost of a stock is the capital chance cost used for financing the stock, ordering expenses and the storage charges. Similarly, as indicated by Brigham and Daves, (2014) inventory management seeks to maximize on the net benefit Brigham and Daves, (2014) has indicated further that financial managers have an obligation both for raising the capital expected to convey inventory and for the organizations performance. The concept of EOQ guarantees the inventory administration a balance between the inventories expected to manage activities are and on the same hand holding the expenses of ordering and conveying inventories to the least conceivable level. Since inventory is emphatically identified with customer service, it is worth close consideration (Rakesh, 2016). Rakesh, (2016) analyzed EOQ inventory as a feature of association's general cost regulation systems and several organizations used it as a strategy to manage a balance in cost element on the inventory. KuoHsien(2015) while analyzing EOQ, indicted that the optimal order size and optimal backorder level for each order cycle can be minimized by administering JIT concept and the lot size calculated by EOQ model. EOQ will

be used to illustrate the relationship between JIT lot sizing and the cost related to determine the procurement performance in an organization.

➤ *Lean Theory*

Heizer and Render (2014) indicate that “inventory management or “inventory planning and control” refers to the on-going provision of standard items with independent demand, where some speculative quantity should always be on hand. Therefore, lean theory concentrates on cost optimization in stock systems. Decisions on production, storage and overall supply chain matters can be accelerated by this theory (Tempelmeier, 2015). It is suggested. The theory is based on the financial quantity (EOQ) model, which seeks to optimize the amount of each ordered product.

Choice of Lean Theory for this study was informed by the need to examine how inventory management influences organizational performance thereby calling for a prudent approach to inventory management. The theory therefore brings to the fore, the possibility of diversity in operating systems used to monitor levels of stock, and the difference in items that may and Nadler, (2014), elaborates just in time as a pull-based scheme to align manufacturing and business processes across the supply chain in a timely way. The effect of lean theory on economic performance was evaluated by Green and Inman (2005). Theory is that buffer stocks may be eliminated and waste in manufacturing processes reduced to a minimum. Eroglu and Hofer (2011) discovered that leanness has a positive impact on a company's profitability. You claim that lean inventory is the best instrument for controlling inventory. The theory examines how producers can achieve flexibility in ordering choices, decrease inventory stocks retained on site and eliminate carrying expenses in inventory. On the overall level, both the timing and the magnitude of adoption are the empirical strength of the lean account. In theory, however, inventory restricts the capacity of a company to react to demand changes. Studies show that businesses are effectively optimizing stock via lean supply chain methods and technologies in order to attain greater rates of asset use and client satisfaction that lead to enhanced business development, profitability, and market share (Green & Inman 2015).

VI. CONCEPTUAL FRAMEWORK

In this section, the conceptual framework is presented in a schematic interpretation as shown in figure 1 below. It identifies the variables that when put together explain the issue of concern. It is formulated from the reflection of ideas.

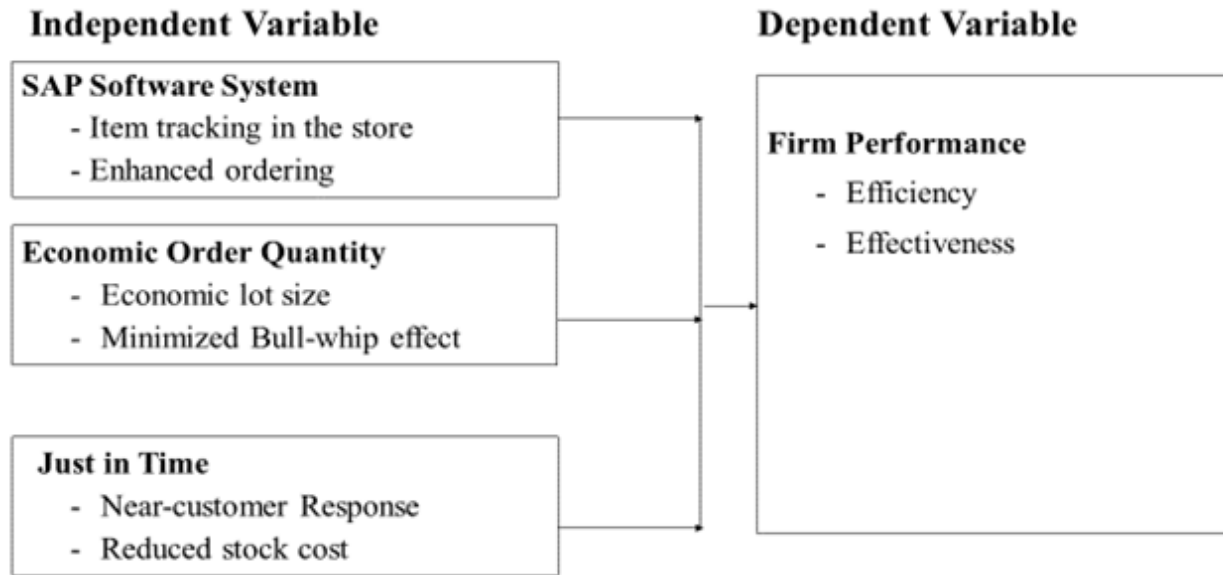


Fig 1:- Conceptual Framework

A. System Application and Product Software (SAP)

Effect of SAP to the organization is Balance transparency because of integration among procurement and back –office application such as budget execution one can earmark funds for specific purchases. When a buyer makes a purchase, the system check the budget to ensure that funds are available for this item prevent preventing budget overruns and update the budget with the new expenditure Role base approval this is where by one can tie procurement related approvals and release to organizational roles and automate the review and sign off process (Eroglu& Hofer, 2015). The process considers all require legal provision and administration.one can accelerate approval using integration specific work flow process. Decreased error, increase saving in addition to generating saving with basic inventory management functionality one can use the material management functionality of SAP for public sector to reduce purchasing cost. Vendor evaluation and selection outline agreement, and price comparison for example can be standardizing using foundation document and process workload (Eroglu& Hofer, 2015).

Successfully managing inventory is critical to success in the modern business environment. Profit margins are extremely thin and there is little room for waste or inefficient processes. SAP provides an inventory management system that builds collaborative, agile and therefore cost-effective supply chains that companies need to increase competitive advantage (Lyson, & Farrington, 2014). SAP helps organization to records goods receipts and goods issues in the inventory. By integrating individual item prices or price lists, one can simultaneously update inventory valuation. SAP system are used in transparently integrates inventory and accounting transactions. As a result, stock levels are adjusted, inventory accounts credited or debited, and applicable

inventory variances accounted for as soon as a stock movement is posted in SAP software system. Inventory transfer functionality allows one to readily move items from one location to another (Lyson& Farrington, 2014).

B. Economic Order Quantity (EOQ)

The effective management of inventory control is very crucial for successful companies. Therefore, the quantity of economic order is an inventory strategy designed to identify and retain the ideal balance between holding cost of a stock and the ordering cost associated with the inventory. The efficiency gains in inventory management can significantly improve the company's total financial performance. It was created for the first time by F.W in early 20th century. The Wilson EOQ Model, or merely Wilson Formula, is often referred to as the economic order quantity. This recognizes that the use of this approach by R.H has expanded aggressively. In several cases Wilson has worked with his customers to implement his strategy (Philip & Peter, 2014). His clients were also Wilson's advisor. Regardless of the scheme of inventory checks, the risk of being out of stock, and the procurement costs will also be lowered if big amounts are ordered on an uncommon basis, will also be offset by the higher average investment in stocks which leads to higher stock holding costs (Doll and Torzkadeh, 2016). If little is taken into consideration, then the holding cost of stocks is decreased, while the costs of purchasing or purchasing increase. There may also be higher opportunities for stocks to be exhausted (Jessop and Marrison, 2015). The technique used to estimate the highest amount of inventory order by equalizing stock and reclassification conflicts, is the optimal ordering amount of an item that minimizes expense in brief financial order quantities (Lyson & Farrington, 2014).

The Economic order quantity helps the organization to recognize the smallest possible point in ordering expenses and transporting expenses related to an inventory. The strategy is simultaneously to guarantee that client orders are carried out promptly by the proprietor of the inventory. The formula uses a few fundamental assumptions to define this perfect balance (Lyson, 2015). Some of the assumptions related to the economic order quantity formula are as follows:-the order costs remain continuous. The rate of demand is also presumed to stay continuous, which enables the seller to buy inventory products in recurrent amounts. Moreover, the supplier's ability to fill and ship the order to the vendor inconsistent time does not change the lead time; the lead-time is not only valid for the customer's demand for delivery within a specific amount of time. Finally the purchase price is not modified and the complete order will be received in batches or segments at the same time (Ruston, 2014).

The optimal condition for the seller is, according to Johnston, (2015), to be capable of creating an inventory to fill out pending client orders without staying for long periods of time in the stock. Assuming that the materials necessary to produce inventory products arrive promptly, are effectively processed and stored within an acceptable timeframe in a complete stock of products, inventory costs can be considerably lowered. The finished goods are taken from the inventory, ordered and dispatched before much time has elapsed to assess taxes on the total value of the existing inventory. Maintaining the inventory near zero not only helps to keep tax debt low, but also enables the seller to work in warehouses for a bigger inventory without having to rent, lease them or otherwise function (Jessop 2014). The inventory management system ensures that the current amount of material is procured from time to time and that waste is eliminated completely in terms of resources idle time not put into productive work .the performance of the organization can be enhance through a number of ways such as administrative cost (Johnston, 2015).

The performance can also be enhance through availability of materials if goods are brought to the organization within the correct and stipulated time this reduce lead time or waiting time that eliminate so many so many bottleneck (Nerea, 2014). Increase quality, when an item has improved quality either by using different supplier or negotiating with existing supplier the improvement will be reflected in a reduction of waste. purchasing improve performance of the organization in that the method use in purchasing department improves supplier satisfaction and these include introduction of E-procurement, vendor management system and pay on receipt system (Johnston, 2015).

C. *Just in Time Control System (JIT)*

JIT is a philosophy of manufacturing based on planned elimination of all waste and continuous improvement of productivity. It encompasses the successful execution of all manufacturing activities required to produce a final product from design engineering to delivery and including all stages of conversion from raw materials onwards. The JIT idea was created by the Toyota Motor Company in Japan in an american variant of Kanban's scheme. Kanban relates to the informative signposts that are connected to carts that supply tiny quantities of necessary parts and other materials in Japanese crops. Each sign details exactly the required amounts of replenishment and the precise time of resupply. Effective application of the idea of JIT has been shown to significantly decrease the inventory of components and equipment, WIP and finished products. The Kanban and JIT concepts also depend strongly on the quality of the products and parts produced and an adequate and accurate logistics scheme in order to handle equipment and physique delivery (Coyle, 2013).

JIT is more than delivering an item where and when required and at the right time, JIT is both a production scheduling and inventory control technique and an aspect of TQM. As a production control technique, it is concerned with adding value and eliminating waste by ensuring that any resources needed for a production operation-whether raw materials, finished products or anything in between-are produced and available precisely when needed. This emphasis on waste elimination means that JIT is an essential element in lean production. JIT requires the provision of the necessary systems and methods of communication between purchasers and suppliers ranging from vehicle telephones to EDI, so problems will arise if there is inadequate communication both internally-from production to purchasing-and externally-from purchasing to suppliers and from suppliers to purchasing(Thompson, 2015).

JIT and its descendants (such as JIT II) refer to a set of channel activities designed to deliver products to the end-user just when they are needed, thus minimizing inventory holding costs in the channel. JIT methods are widely used in many manufacturing supply chain contexts as well as in the marketing channels for products such as apparel. The adoption of any of these methods increases business buyers demand for quick delivery (by their very definition), spatial convenience (products cannot be delivered quickly unless it is close), bulky-breaking (to minimize inventory holding), and assortment and variety (to ensure that the right product is always available at the right time (Coughlan, 2016).

When JIT's manufacturing and monitoring system is used by businesses, they buy equipment and only create units to satisfy the current requirement of clients. The inventories of production systems are reduced to a minimum in just a short period of time, and in some cases zero. In both manufacturing and marketing businesses, the JIT method can

be used. It does, however, have the most profound effect on manufacturing businesses which retain three classes of raw materials stock, WIP and finished products. Traditionally, manufacturing companies have maintained large amounts of all three types of inventories to act as buffers so that operations can proceed smoothly even if there are unanticipated disruptions. Raw materials inventories provide insurance in case of suppliers are late with deliveries. WIP inventories are maintained in case a workstation is unable to operate due to a breakdown or other reason. Finished goods inventories are maintained to accommodate unanticipated fluctuations in demand. While these inventories provide buffers against unforeseen events, they have a cost. In addition to the money tied up in the inventories, experts argue that the presence of inventories encourages inefficient and sloppy work, which results in too many defects and dramatically increase in the amount of the required time to complete a product (Baily, 2015).

A JIT inventory method entails understanding how much a certain product is necessary to keep manufacturing while ordering more of the same product. Two main factors are involved. First, it is essential to understand how long the product from the provider is to be delivered and to reach the factory. Secondly, it is necessary to determine the expected life or use of the product. With this knowledge, processes can be established to allow the item to be reorganized just in time to arrive and substitute the item worn out without getting an expanded storage replacement set (McConnell 2016).

D. Firm Performance

The firm's performance is a standard or indicator of effectiveness and efficiency in operations such as cycle time, productivity and regulatory compliance (Saleemi, 2016). In order to increase the firm performance, a firm has to measure both the input and the output side of the inventory management (Abdel, 2016). The major goal of organizations is to reduce costs associated with inventory management, which would impact positively the overall performance of the organization. The Systematic Application and Production software of inventory management, the economic order quantity and Just in time technique of management when properly handled, will enhance the firm's performance.

In inventory management, the question that has to be answered is always how much inventory a firm should keep at a given time. Too much inventory consumes physical space, creates a financial burden, and increases the possibility of damage, spoilage and loss (Rajagopalan, 2014). In addition, excessive inventories often compensate for slow and ineffective leadership, bad prediction, hazardous planning and insufficient attention to processes and processes. In this connection, even though the demand volatility may restrict the implementation of this principle, the pioneering lean production principle of Womack et al. (1990) had to do with a reduction in inventory level (Kumar, 2014). On the other side, too little stock often disturbs

production and increases the chances of bad client service. In many cases, if the desired product isn't readily accessible, excellent clients can become angry and take their company elsewhere (Hereret al., 2012).

Empirical evidence in the inventory management-performance relationship produced given out an evidence on the effects of inventory management on the firm performance. Milgrom and Roberts (2013) and Dudley and Lasserre (2014) specifically stated that information on prompt and informative demand for customers can improve corporate efficiency by reducing inventories. The improvements in stock turnover (after JIT implementation) for a sample of 55 companies have demonstrated that Huson and Nanda (2015) have resulted in a per share rise in income. Deloof (2013) records a substantially adverse relationship between gross operating revenue and the amount of day-inventory samples from non-financial belgian companies for 1992-1996, which suggest that executives can provide their shareholders with value by decreasing to a fair minimum the amount of days in inventories. Boute (2004) provides further proof from Belgium that, despite enhanced focus on inventory reduction and Bouteet (2016), there has not been a general decrease of inventories ratios, which concluded that businesses have more opportunities for poor economic performers with very elevated inventory levels. This reflects Shin and Soenen's (2015) results, which indicate that a big number of government American companies are strongly adverse in relation to the money conversion cycles and corporate profitability. By looking at the market values of companies in their different inventory strategies, Chen et al. (2015) indicated that companies with abnormal inventory yields abnormally bad; companies with abnormally small stock returns normal stocks while companies with slightly below average stocks perform best over time. Chen et al. (2015) recorded Furthermore, Shah and Shin (2017) examining three structures-inventory, IT investment and economic performance-empirical longitudinal data that span four decades concluding that inventory reductions relate to economic performance significantly and directly.

VII. RESEARCH METHODOLOGY

➤ *Research Design*

Research design is the pattern that the researcher intends to follow in conducting the research study (Mugenda&Mugenda, 2004). Since the study was based on determining the influence of inventory management techniques on procurement performance from literature review, a cross sectional research survey will be adopted. Oso, (2011) has stated that cross sectional research survey is best fitted for the population which are heterogeneous in nature but homogeneous in location. Thus a cross sectional research survey was based on single examination of a cross-section of population at one point in time for better results, in this case the research papers of inventory management. Additionally, high reliability is easy to obtain by presenting

all subjects with a standardized stimulus which ensures that observer subjectivity is greatly eliminated as reiterated by Mugenda and Mugenda, (2004).

➤ *Data Collection, Analysis and Presentation*

Data was collected by cross examination of the relevant research journals. The relevancy was based on topic, variables, research design and year of publication. After the collection, all the relevant research journals were analyzed and the findings presented on tables.

VIII. RESEARCH FINDINGS

Several and relevant journals on the concept of inventory management systems on the firm performance were reviewed and analyzed based on the objectives. Findings was discussed as illustrated below.

A. *Findings on SAP System*

The research journals showed that there was a relationship between SAP system of inventory management and the firm performance. For instance, Lysons, (2013) indicated that SAP system is of inventory management functionality revolves around the movement of materials in and out of the storage facility and the physical count of those items at regular intervals. Inventory management is the process of efficiently monitoring the flow of products into and out of an existing inventory in the warehouse. This process involves controlling the receipt of products to prevent the inventory from becoming too high where items are stored at an unnecessary cost, or too low where it can cause a stock-out and production could be halted due to lack of raw materials.

Most of the papers reviewed showed that SAP systems control their inventory efficiently and effectively for a better performance. According to Lyson, (2013) the analysis result in the researcher identified inventory management and gross profit had a positive relationship, net profit had a negative relationship and inventory management significantly affect to gross profit margin and net profit margin. Hence organizations have to take a correct the decision regarding the inventory management administrative cost and another relevant cost to increase the performance of the organization (Onwubolu&Dube, 2016).

B. *Findings on the EOQ*

The relevant journals reviewed showed significant relationship between EOQ inventory and firm performance in the cases analyzed. For instance, Zhao, Wu and Yuan, (2016) found out that EOQ on the retail outlets brought a high efficiency in procurement function. Relevantly, Njura, (2015) an increase in revenue collection and stock efficiency when EOQ strategy is used. Wisner, Tan and Leong, (2014) found that the EOQ system can diminish the bullwhip effect that is linked up with incorrect forecast of demand, improve the set-up time of machines, help to better planning of production,

decrease administrative costs of customers, increase the service level, truckload rate and decrease risk of stock out. It is also able to reduce the time needed for managing the inventory level, set up the minimum order to optimize loading, improve plans to minimize costs or disruptions in the whole supply chain, detect deficiencies or surplus in the goal financial statements and give more trust in the relationship of both sides (Ross, 2016). Literature therefore showed an evidence that EOQ affects firm performance significantly.

C. *Findings on the JIT*

Literature reviewed has shown that JIT can often be found in managing inventory cases such as smaller retail stores, drug stores and grocery stores (Taylor, 2015). Whitin, (2014) indicated that periodic stock control approach considers lead time as a prescribed deterministic quantity or a random variable. Significantly, Saxena, (2013) poised that the application of the JIT ensures that by the time inventory reaches the minimum level the quantity ordered is received. On receipt of the ordered quantity of the material, the inventory, which had reached the minimum level, increases to the maximum level and consumption cycle restarts. On the JIT the customer demand is checked by keeping in view the lead time for obtaining the items and making the same available for use (Hadley &Whitin, 2014).Hadley and Whitin, (2014) has further indicated that the periodic review approach helps to avoid stock-outs with its costs and overstocking which again may tie-up working capital and may also lead to deterioration of stock and obsolescence in the stores. The findings therefore indicated a significant influence of JIT approach on firm performance.

D. *Findings on Firm Performance*

Van-Weele, (2014) identified firm performance as a measure of identifying the extent to which the operational functions in the organization is able to reach the objectives and goals on with minimum; literature has shown that the performance must be based on set measures as key indicators. Van-Weele (2014) noted that there are two main aspects of the firm performance: effectiveness and efficiency. Firm's effectiveness was defined by Van-Weele (2014) as the extent to which the previously stated goals and objectives are being met by all the departments in an organization. It refers to the relationship between actual and planned performance of any human activity in the firm. Additionally, literature by Hadley and Whitin, (2014) found out that firm's efficiency is the relationship between planned and actual resources required to realize the established goals and objectives and their related activities, referring to the planned and actual costs. As a result, inventory performance was found to be one of the most important actors in in the firm. Thus in ensuring an efficient and effectives in the firm, a proper inventory management systems such as use of SAP, EOQ and JIT has to be in place.

IX. CONCLUSIONS, RECOMMENDATIONS AND FUTURE RESEARCH

A. Conclusions

In reference to the study objectives, the conclusions was based on each objective. The first study objective was to determine the effects SAP system of inventory management on firm performance. Literature review showed a significant influence of SAP system on the efficiency and effectiveness of the firm. Based on the research question which was on whether SAP system affects firm performance, it was therefore concluded that that SAP system significantly affects the operational efficiency in the firm.

The second objective was to determine the effect of EOQ on the firm performance. A review of literature showed a significant influence of EOQ on firm performance. The research question was based on how does EOQ of inventory management affects firm performance based on empirical review. It was therefore concluded that EOQ significantly affects firm's operation ability. The third objective of the study was to determine the effects of JIT on the firm performance in the case of empirical review. Based on the research question which was on how does period review approach affects procurement performance. It was concluded that JIT affects the firm performance significantly.

B. Recommendations

Recommendations was made based on the selected study objectives of the study. The first recommendation made was that since SAP was found to be significantly affects firm performance, organizations should appropriately use the SAP technology in managing their procurement for an efficient operations. The second recommendation was based on EOQ. Since EOQ was found to be an important technique in inventory management, firms should ensure to order the recommended lot size as determined by the EOQ. Lastly, since the study found out a significant effect of periodic review approach on procurement performance, organizations should adopt the period approach while managing inventory so as to ensure procurement efficiency.

C. Future Research

Future research could consider testing different variables of inventory management such as the ABC Technique or VMI to check on their impacts on firm performance. Further, future researchers may consider using the same variables but should adopt different methodology to see whether similar results may be achieved.

REFERENCES

- [1]. Anichebe, N. A. &Agu, O. A. (2013). Effect of Inventory Management on Organizational Effectiveness. *Information and Knowledge Management*, 3 (8), 92 – 100.
- [2]. Baker P., (2013) "An Exploratory Framework of the Role of Inventory and Warehousing in International Supply Chains", *International Journal of Logistics Management*.
- [3]. Balakrishnanet al., (2016), Financial benefits from JIT adoption: Effects of customer concentration and cost structure, *Accounting Review*, 71 (2) pp. 183–205.
- [4]. Barney, Jay, (2015) "Is the resource-based "view" a useful perspective for strategic management research? Yes", *Academy of Management Review*, Vol. 26, No. 1, 41-56.
- [5]. Bicheno, J. (2016). Supplier partnerships. *National institute for manufacturing management, London*.
- [6]. Brigham E, Gapenski L (2015). *Financial Management*. Dallas, Dryden Press.
- [7]. Brigham, E.F &Gapenski L.C (2013). *Intermediate Financial Management*. New York: Dryden Press.
- [8]. Brownell, J. (2015), Strengthening the Purchase Supplier Partnership. *A working paper Cornell University*.
- [9]. Carter, R.J., & Price, P.M. (2014). *Integrated material management, London: Pitman*. International data interchange association.
- [10]. Chalotra, V. (2013). Inventory Management and Small Firms Growth: An Analytical Study in Supply Chain. *Vision*, 17(3), 213–222
- [11]. Claycomb, C.; Droge, C. &Germain, R (2016).The effect of just-in-time with customers on organizational design and performance, *International Journal of Logistics Management*, 10 (1), 37-58.
- [12]. Coyle, J.J.; Bardi, E.J. and Langley, J.C. (2013). *The management of Business Logistics: A Supply Chain Perspective*. Canada. Thomsom South-Western.
- [13]. Cronbach L. (2015) Coefficient alpha and the internal structure of tests. *Psychometrika*; 16:297-334.
- [14]. Demeter, (2013). Manufacturing strategy and competitiveness. *International Journal of Production Economics*, 81-82 pp. 205–213
- [15]. Edwards, G. (2014). *The role of an effective inventory management system on performance*. Journal case study on Tata chemical HD Mombasa.
- [16]. Egberi,A, A. (2015) *Inventorycontrol and managements effective and efficiency tools in achieving organizational growth in Nigeria*. Journal procurement study.

- [17]. Hadfield, B. Patterson (2016) *Purchasing and Supply chain Management 4th edition*, USA.
- [18]. Kotler, P. (2012). *Marketing Management 2nd edition*. The millennium edition. New Delhi, prentice Hill of India.
- [19]. Lyson, K. and Farrington, B. (2015) *Purchasing and Supply chain Management 11th edition* Pearson Education limited company.
- [20]. Mazani, M. M. (2012) *Impact of JIT inventory system on efficiency, quality and flexibility among manufacturing sectors small and medium enterprise (SMEs)*. South Africa.
- [21]. Mclinden, I. (2012) *Procurement System for Governmental Purchasing*. International Journal for production economics, volume 90, pp79-102.
- [22]. Moozakis, C. (2016) *E-procurement gets priority internet week* volume 887 pp10-12 Prentice Hall. New York.
- [23]. Mugenda, M.O. and Mugenda, A (2014). *Research methods qualitative and quantitative approaches* Nairobi, Act press.
- [24]. Onyango, W. (2016) *Public Procurement: lesson from Kenya, Tanzania and Uganda* OECD development center working paper No208.
- [25]. Perreach, W. & Jeromo, M. (2015). *Essential of Marketing: global managerial approach's* McCarthy McGrawHill.
- [26]. Poorler, V. & Pooley, D. (2013) *Purchasing and Supply Management; creating the vision* New York.
- [27]. Rosenblatt, B.S. (2013) *Modern business. A system approach 2nd edition*, Boston: Houghton Mifflin Co.
- [28]. Saleemi, N.A. (2013). *Store Keeping and Stock Control 3rd edition* simplified Saleemi publication limited, Nairobi.
- [29]. Saunders, M., Lewis, P. & Thornhill, A. (2014) *Research methods for business students, 5th ed.*, Harlow, Pearson Education.
- [30]. Wisher, D. Leong K. and Tan C. (2016) *Principle of Supply Chain Management Balance approach 4th edition*, printed in India.
- [31]. Zipkin, P.H. (2016) *Foundation of Inventory Management*, New York; Irwin IMCG ISBN 9780070340039.