

**INVENTORY MANAGEMENT PRACTICES AND
ORGANIZATIONAL PRODUCTIVITY IN PARASTATALS IN
KENYA.**

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DECLARATION

Declaration by the Candidate

This research project is my original work and has not been presented for award of degree in any other University or institution. No part of this project may be reproduced without the prior permission of the author and/or University of Nairobi.

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Supervisor's Declaration

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ABBREVIATIONS AND ACRONYMS

BOM	Bill of Materials
BOT	Board of Trustees
EOQ	Economic Order Quantity
E-POS	Electronic Point of Sale
JIT	Just-In-Time
MRP	Materials Requirement Planning
NHIF	National Health Insurance Fund
POS	Point of Sale
RFID	Radio Frequency Identification
ToC	Theory of Constraints
VMI	Vendor Managed Inventory

OPERATIONAL DEFINITION OF TERMS

Inventory	Refers to a complete listing of merchandise or stock on hand, work in progress, raw materials, finished goods on hand, etc
Inventory Management	Refers to the activities employed in maintaining the optimum number or amount of each inventory item.
Organizational Productivity	Refers to a summary measure of the quantity and quality of work performance, with resources utilization taken into account.
ABC Analysis	An analysis of a range of items that have different levels of significance and should be handled or controlled differently
Economic Order Quantity	Refers to the order quantity that minimizes the total inventory holding costs and ordering costs.
Vendor Managed Inventory	A means of optimizing Supply Chain performance in which the manufacturer is responsible for maintaining the distributor's inventory levels
Just-In Time	It is a production and inventory control system in which materials are purchased and units are produced only as needed to meet actual customer demand.

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ABSTRACT

The purpose of this study was to investigate inventory management practices and organizational productivity in Parastatals in Kenya. The research objectives were: to determine the effects of inventory management on organizational productivity in parastatals in Kenya, to determine the relationship between inventory management practices and organizational productivity in parastatals in Kenya and to establish the challenges faced by parastatals in Kenya in the implementation of inventory management practices on organizational productivity. A descriptive research design was used in this study. The target population was all the parastatals in Kenya. The latest government list of parastatals was that by December, 2015, the number of parastatal corporations stood at 103 and is classified as Agriculture, Service, Industry, Banking and Finance and Education. Stratified sampling was used to sample the parastatals within Nairobi County. Census sampling was used to select the respondents from each parastatal. The sample size was 53 respondents. This study established that a unit increase in Automatic Replenishment would lead to 0.578 increase in the organizational productivity in Parastatals in Kenya. A unit increase in ABC Inventory Model would lead to 0.642 increase in the organizational productivity in Parastatals in Kenya. A unit increase in Just-In Time (JIT) Inventory would lead to 0.784 increase in organizational productivity in Parastatals in Kenya. A unit increase in Economic Order Quantity (EOQ) would lead to 0.811 increase in organizational productivity in Parastatals in Kenya and A unit increase in Vendor Managed Inventory would lead to 0.612 increase in organizational productivity in Parastatals in Kenya. This study concluded that Economic Order Quantity (EOQ) practices have enabled Kenyan Parastatals to estimate how much of an item should be ordered and when it should be ordered. The Parastatals orders that optimal quantity for an item of stock that minimizes cost. Parastatals in Kenya use Vendor Managed Inventory (VMI) for supplier partnership and to maintain good working relations between customers and suppliers. Vendor Managed Inventory relieved the Parastatals of much of the expense of ordering, shipping the materials, counting inventory and stocking low-value items. This study recommended that long term relationships with suppliers should be sought by the Parastatals in Kenya. The Parastatals should also enhance their communication with suppliers by adopting VMI which will ultimately shift the responsibility of inventory management from the procurement function to the suppliers thus improving the organizational productivity. The Parastatals in Kenya should adopt information technology in inventory management. Parastatals in Kenya need to modernize its inventory management system to increase efficiency. Improving inventory practices calls for a high degree of collaboration and visibility across all parties as well as utilizing sophisticated technologies. The study recommends that the management should constantly expose its staff to training in order to improve their skills on inventory management and enable the employees to understand the current inventory systems which when used will help the organization reduce on costs associated with holding inventory.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Inventory control is the supply of goods and offerings at the proper time with the right time and amount (Ogbo, 2011). It is a reliable approach in which organizations are being controlled to make sure that customers are satisfied and corporation stays in operations via minimization of losses. Stock management has been a trouble to many enterprise organizations in Kenya. Inventories offer a good sized link between manufacturing and income of product, and represent a big percent of the cost of manufacturing. It is one of the maximum high-priced and critical belongings of many agencies representing a massive percent of the entire invested capital (Ogbo, 2011).

According to Buffa and Sarin (2007) there are several reasons for preserving inventory. Too much stock may result in funds being tied down, growth in protecting price, deterioration of substances, obsolescence and robbery. On the other hand, shortage of materials can cause interruption of products for sales; poor consumer relations and underutilized machines and equipments. Inventories might also include unused materials, work-in-progress, spare parts/consumables, and completed goods. It is not essential that a company has these kinds of inventory categories. But, something may be, the stock gadgets, need control as, generally, a huge percentage of an organisation's price range is invested in them (Buffa & Sarin, 2007).

1.1.1 Inventory Management Practices

Inventory management in regards to Miller (2010) includes all activities kept in place to make certain that consumer have the expected service or product. It coordinates the purchase, production and distribution functions to satisfy the advertising and marketing expectations and organizational wishes of availing the product to the clients. Inventory control is broadly speaking worried with specifying the scale and site of stocked items. Stock control is needed at one-of-a-kind locations inside a facility or inside multiple places of a supply network to defend the normal and deliberate path of production in opposition to the random disturbance of walking out of materials. Stock control is the art and science of preserving inventory stages of a given organization of gadgets incurring the least fee steady with other relevant objectives and objectives set through management

(Jessop, 2009). It is essential that managers group that offers with stock, to have in mind, the objective of gratifying purchaser expectations and keeping inventory costs at a minimal stage. The number one aim of stock control, consequently, is to have good enough quantities of excessive satisfactory objects available to serve customer wishes, at the same time as also minimized the charges of carrying inventory (Adeyemi & Salami, 2010).

Peacock's research (2013) observed that effective utility of stock optimization fashions and practice is applicable to attaining pleasant and green operations. Further, Adeyemi and Salami (2010) found that the overall purpose of inventory management is to have what is needed, and to reduce the quantity of instances production and services operations are interrupted by using issues of stock outages. In addition, Bloomberg et al. (2012) mentioned that effective management of stock has huge potentials for improving the efficiency of corporations, and firms that use scientific stock control practices have a great aggressive advantage within the market.

Chase et al. (2009) explained the idea of inventory management brings inside the total systems technique to coping with the whole drift of facts, substances and services from raw materials suppliers through factories and warehouses to the final consumer. The study similarly confirmed that a company's fulfillment depends on how they control their materials successfully. Chase et al. (2009) additionally indicated that it is vital to display stock at every stage as it ties up sources. Consequently, successful stock management is essential to the survival of business, industry and economy. Many practices are available for effectively managing inventories. There are traditional inventory management practices such as Automatic Replenishment, ABC Inventory Model, Just-In Time (JIT) Inventory, Economic Order Quantity (EOQ), Vendor Managed Inventory etc. The management of inventories has an important bearing on the financial strength and competitiveness of organizations due to the reason that it directly affects the working capital, production and customer services (Vergin, 2012).

1.1.2 Organizational Productivity

Organizational productivity according to Dawson (2010) is a summary measure of the quantity and pleasant of labor overall performance, with sources utilization taken into

consideration. It may be measured on the individual, organization, or organizations degree, productivity can be expressed as success into dimensions of groups performance, effectiveness and efficiency. Company has been collective so one can achieve organization or man or woman objectives. They function the manner by using which goods and offerings are supplied beyond the bounds of any man or woman or small organization's capacity of self-sufficiency (Dawson, 2010). Productivity concerns each effectiveness and efficiency. According to Peter (2011) effectiveness is a minimum circumstance for survival after success has been accomplished. Performance is worried with doing things right and effectiveness is doing the proper matters.

Organizational productivity refers to how well a business enterprise achieves its marketplace-orientated goals as well as its financial goals (Holmberg, 2009). The short-time period goals of stock control are usually to increase productivity and decrease stock and cycle time, whilst lengthy-time period targets are to increase marketplace percentage and profits for all contributors of the supply chain. Economic metrics have served as a tool for evaluating agencies and comparing an organization's behavior over time. Any organizational initiative, including inventory control, should in the end lead to better organizational productiveness (Holmberg, 2009).

Organizations are keen to coping with stock as a step towards minimizing operational charges. In order for an organisation to continue to exist and be effective in assembly their marketplaces call for, the corporation should be cognizant of its deliver chain management for better performance and sustained survival. Inventory control pursuits at green purchasing, garage and use of the substances. Inventory control practices play a main role within the operation of many businesses (Kimaiyo & Ochiri, 2014).

Lazaridis and Dimitrios (2005) highlighted the importance of companies maintaining their stock at an most effective degree by using reading the relationship between operating capital control and corporate profitability and confused that its mismanagement will lead to immoderate tying up of capital on the price of profitable operations. Parastatals in Kenya use stock manipulate no longer most effective to make sure substances and merchandise timely availability but additionally to make certain advanced customer support and to reap competitive benefit. At the same time as many

organizations use internal stock practices as a way to attain organizational targets which includes stronger performance and progressed procurement operations, adoption of effective inner inventory control practices were a undertaking to many (Peter, 2011).

1.1.3 Inventory Management Practices and Organizational Productivity

Chalotra (2013) argue that stock management is identified as an essential tool in enhancing asset productivity and inventory turns, concentrated on customers and positioning merchandise in various markets, improving intra and inter-organizational networks, enriching technological abilities to produce pleasant merchandise thereby presenting effectiveness in inter-company relationships. right inventory control even effects in enhancing aggressive capacity and market percentage of small manufacturing devices (Chalotra, 2013). control of inventory consistent with Anichebe and Agu (2013) is also fundamental to the success and boom of agency because the entire profitability of an organisation is tied to the quantity of merchandise sold which has a direct relationship with the pleasant of the product.

Organizational productiveness refers to how nicely a company achieves its market-oriented dreams as well as its financial desires (Holmberg, 2009). The short-time period goals of stock management are mostly to boom productivity and reduce inventory and cycle time, at the same time as lengthy-term targets are to increase marketplace share and earnings for all participants of the deliver chain. Economic metrics have served as a device for comparing companies and evaluating a company's conduct over time. Any organizational initiative, consisting of stock management, need to ultimately result in more suitable organizational productivity (Holmberg, 2009).

Powerful inventory management practice is crucial inside the operation of any commercial enterprise (Bassin, 2014). It is consequently very essential for the procurement characteristic in a corporation to efficiently manipulate their inventory and use all strategies that they see match for his or her sort of enterprise. Through doing this they could decrease overhead fees and growth their purchaser pleasure by way of having goods available when the consumer demands them hence enhancing the organizational productiveness. bodily and Logical inventory wishes to be assessed and controlled in a manner wherein the records is real and correct so that there is no overstocking and

minimal shortages are found out. Onwubolu and Dube (2006) be aware that proper stock management with the aid of the procurement characteristic also way having correct forecasting and correctly timed replenishments. In most companies, inventories constitute up to 50% of the full product fee, the money entrusted on stock, thereby affecting the performance of the procurement characteristic and the overall productiveness of the organization.

1.1.4 Parastatals in Kenya

Kenya Parastatals additionally called state businesses have been established via the nation organisation Act, CAP 446 of 1986. The Act made provision for the established order of state agencies; for manage and regulation of nation corporations. The Act sets out the regulatory framework under which the kingdom companies (parastatals) are governed. It additionally spells out their respective features or purpose in their existence. These Parastatals are commonly positioned under certain ministries for control and direction geared closer to achievement of the general strategic objective of the authorities of Kenya. They are managed under the various ministries by using Board of Trustees (BOT) who are empowered with the aid of individual Acts of Parliament which offers specific obligations and obligation.

On account that inception in 1986, Parastatals have done plenty in providing important offerings to the Kenyan populace. some of these services include; provision of water, strength, roads, security to our wildlife geared towards curbing poaching, enlisting help in conservation and setting up infrastructure and human ability improvement. Those offerings have immensely contributed to the continued boom and development of our country Kenya. The operations of the numerous Parastatals are also impacted and guided by means of other overarching policy and criminal frameworks. Because of globalization, competitiveness, and streamlining, those parastatals are left and not using a desire however to execute business strategies by handling obligations thru initiatives and decorate first-rate of merchandise and service, optimize assets inside limited budgets, and whole them inside quick timelines and budgets. Beyond regular time, of their undertaking to satisfy the mandate enshrined within the state organization Act and individual Acts, kingdom businesses had been accomplishing diverse initiatives.

1.2 Research Problem

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

Studies have been undertaken in the area of organizations procurement practices, both internationally and locally. Internationally, Gonzalez and Gonzalez (2010) noted that management and staff have minimal knowledge on how to apply the economic order quantity which negates the success of an organization. According to Sander, Matthias and Geoff (2010), organizations have ignored the potential savings from proper inventory management, treating inventory as a necessary evil and not as an asset requiring management. As a result, many inventory systems are based on arbitrary rules. Locally, Ondiek and Odera (2012) examined inventory management and the role it plays in improving customer service levels in National Health Insurance Fund (NHIF). He found a positive relationship between inventory management practices and customer satisfaction due to reduced number of stock-outs. Mwingi (2012) found out that the performance of the Oil firms to fulfill various customer demands or to improve the efficiency of a firm itself can be affected by regulations and there is need to develop a more robust customer relationship that help in reducing the lead times. The study failed to address the need to assess the inventory management practices and organizational productivity in the public sector.

Based on above studies, it is evident that though studies have been done on inventory management practices, limited studies have been done on the effect of inventory management practices on productivity of parastatals in Kenya. Therefore, this study

addressed the following research question: what is the influence of inventory management practices on organizational productivity in parastatals in Kenya?

1.3 Research Objectives

- i. To determine the effects of inventory management on organizational productivity in parastatals in Kenya.
- ii. To determine the relationship between inventory management practices and organizational productivity in parastatals in Kenya.
- iii. To establish the challenges faced by parastatals in Kenya in the implementation of inventory management practices on organizational productivity.

1.4 Value of the Study

This study would be significant as it would help the parastatals identify areas where costs can be reduced while ensuring overall efficiencies in the organization is maintained. The findings of the study would also enable the management of various public sector institutions to identify the key factors to consider in inventory management in achieving optimal utilization of public funds and resources.

The findings of this study would give policy makers a sight of how public inventory management practices can be harnessed by the government to achieve improved productivity of public sector organizations which is a critical blue print for the economic growth and development in Kenya.

The study would also act as a source of reference material for future researchers on other related topics. Further, it would help other academicians who will undertake the same topic in their studies. Apart from this, it would also emphasize on other significant relationships that require further research. This may be in the area of relationships between inventory management practices and organizational productivity.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter provides information on topics related to the research objectives. The chapter examines the theoretical review, conceptual framework and what various scholars and authors have said about the inventory management practices on organizational productivity, challenges in the implementation of inventory management practices and summary.

2.2 Theoretical Review

Theoretical review compares how different theories address an issue. The theories are strategic Theory of Constraints (ToC) and Transactional Cost Analysis (TCA). These are discussed as under:

2.2.1 Theory of Constraints

The theory of Constraints (ToC) is a management philosophy that seeks to growth production throughput performance or system overall performance measured by means of income through the identification of those techniques that are constraining the manufacturing device (Goldratt, 2004). Kazim (2008) argues that principle of constraints is based totally on the precept that a chain is only as sturdy as the weakest link or constraint and to raise and control the constraint as necessary. The difficulties in the concept of constraints are: very lengthy lead instances, large range of unfulfilled orders or they're completed with a whole lot extra attempt (overtimes), high stage of pointless inventories or loss of applicable inventories, incorrect materials order, massive quantity of emergency orders and excursion degrees, high tiers of devolution, loss of key clients engagement, common changes or absence of manipulate related to priority orders, which suggests on schedule conflicts of the sources (Goldratt, 2004).

Underneath concept of Constraints (ToC), overall performance measurements are based on the concepts of throughput, inventory dollar days and operating prices (Kazim, 2008). theory of Constraints measurements are based on an easy courting that highlights the impact of stock manipulate device on development towards the organizational competitiveness. The proof of effectiveness for any stock control device is the diploma to

which it improves organizational competitiveness of commercial enterprise corporations. The concept of Constraints (ToC) methodology proposes that organizational productivity is dependent on the software of inventory management practices in the public zone. For the parastatals to make sure that the bottlenecks on their operations run smoothly they must embrace the usage of inventory control practices that could facilitate operational performance. This may bring about the purchase of additional ability or new generation of stock management practices that raises or ruin the limitations. Improving the performance of the constraint leads to development within the organizational productiveness.

2.2.2 Transaction Cost Analysis (TCA)

In keeping with Halldorsson (2007), Transaction value evaluation (TCA) is a theory that ensures that charges across the supply chain are stored at a minimum. Transaction fee technique has been broadly used in one of a kind region, especially in economics and organizational studies. Inside the early 1970s, the mathematical economist, Williamson, included TCA into the overall equilibrium version and installation his transaction cost economics inside the new concept of the firm. Halldorsson (2007) suggests that businesses can reduce their transaction expenses by using vertical integration and growing the extent of believe on the same time. This kind of integration can reduce the costs of stock management whilst increasing the service stage of both inner and external clients even as liberating capital to be used in other areas of the employer.

Organizational supply chain can but lessen transaction no longer handiest via vertical integration and increasing the level of agree with amongst supply chain participants, however also although horizontal integration and economy of scale won from the aggregation of supply and/or call for. The take a look at of stock control requires a corporation to make sure all fees are saved at a minimum as a result the want to use the principle of Transaction fee evaluation (TCA).

2.3 Inventory Management Practices

Inventory management is a pivotal in effective and efficient organization. It is also vital in the control of materials and goods that have to be held (or stored) for later use in the case of production or later exchange activities in the case of services. The inventory

management practices discussed are Automatic Replenishment, ABC Inventory Model, Just-In Time (JIT) Inventory, Economic Order Quantity (EOQ) and Vendor Managed Inventory.

2.3.1 Vendor Managed Inventory

Vendor Managed Inventory (VMI) is a supply chain method whereby the vendor or supplier is given the duty of managing the purchaser's inventory (Smaros et al., 2003). The vendor is given access to its purchaser's inventory and demand statistics for reasons of tracking the customer's stock level. Moreover, the vendor has the authority and the obligation to replenish the purchaser's inventory according to collectively agreed inventory control concepts and targets (Smaros et al., 2003). Carriers generate buy orders on an as-wished foundation consistent with a longtime inventory degree plan and shared forecast records, intake records and historic income facts. As soon as the purchase order is made, an boost transport observe informs the customer of substances in- transit. The merchandize is then shipped, delivered and "logged", in line with the shipment method.

Even though companies Vendor Managed Inventory (VMI) at the store's shelves, today the concept is normally applied to replenishment of inventories at retailer's distribution middle (Potilen & Goldsby, 2003). "Stock at the purchaser website online can be owned by way of the dealer and purchased by the patron handiest while used or owned by way of the client and genuinely monitored by way of the provider for alternative. Wailer et al. (2009), posit that Vendor Managed Inventory (VMI) is one of the maximum extensively discussed partnering tasks for improving multi-company deliver chain performance and that it is also referred to as continuous replenishment or supplier-managed inventory (SMI). However in Potilen and Goldsby (2003) perspectives, this is incorrect. They claim that VMI entails the coordination of control of finished goods inventories outbound from a manufacturer, distributor or reseller to a retailer whilst SMI entails the flow of uncooked materials and issue parts inbound to a production process.

Management of inventory determines the way an organization will thrust itself to excessive overall performance. A few agencies have resulted to dealer controlled inventory (VMI) structures which aid the provider to reveal consumer's inventory usage. Via this VMI system, customers will avoid stock outs due to the fact the suppliers may

have already replenished their inventory. The important thing here is communication which ought to be deliberate properly from the beginning of commercial enterprise members of the family between the provider and the patron (Frahm, 2003).

2.3.2 Economic Order Quantity (EOQ)

The economic Order quantity (EOQ) has been defined Ogbo (2011) as the ordering quantities which minimizes the stability of cost between inventory preserving prices and re-order charges. Ogbo (2011) pressured further that with the intention to calculate a basic EOQ, positive assumptions are essential that there is a known, regular, stock conserving costs, steady ordering prices; the price of call for are recognized, there is a known regular charge according to unit, replenishment is made straight away, this is, the whole batch is delivered straight away, no stock-outs are allowed etc. The rationale of EOQ ignores buffer shares that are maintained to cater for versions in lead-time and call for (Ogbo, 2011).

in line with Salawati et al. (2012) economic order quantity is the order amount that minimizes overall inventory holding prices and ordering fees. It's far one of the oldest classical manufacturing scheduling models. The framework used to decide this order amount is also known as Barabas EOQ version or Barabas formulation. The inventory control formulation is normally a success wherein stock requirement for the complete year is able to be mounted by way of the company. Economic order amount allows businesses to plan their stock replenishment on a well timed foundation including monthly, quarterly, 1/2 every year or yearly foundation. by so doing, it allows firms to have minimal garage prices or 0 within their warehouses due to the fact stock is coming in and going out immediately (Schonberger, 2008).

Mandal (2012) states that monetary Order amount (EOQ) applies simplest while demand for a product is regular over the year and each new order is added in complete when inventory reaches zero. There is a set cost for each order located, no matter the range of units ordered. There's also a cost for each unit held in garage, occasionally expressed as a percent of the purchase price of the item. The EOQ, seeks to find a stability among preserving an excessive amount of or too little stock. The EOQ method receives pretty complicated, and to utilize it, an agency have to recognise the subsequent records ; annual

usage in units, ordering value in greenbacks according to order, annual sporting cost fee as a decimal of a percent, unit value in dollars and the order amount in gadgets. The EOQ method seeks to locate the order quantity that has the lowest overall price of carrying the stock (Mandal, 2012).

2.3.3 Just-In Time (JIT) Inventory

Mazanai (2012) state that the Just-In-Time (JIT) inventory technique is an method wherein materials, parts, and different items are ordered handiest in portions required to fulfill on the spot manufacturing desires. these gadgets are then cautiously scheduled to be acquired at exactly the time they're needed. This will increase performance, reduces waste, and ultimately minimizes inventory management costs and lead time expenses. Just-In-Time refers to a group of practices that cast off waste. These business enterprise huge practices encompass the whole deliver chain. The elements of JIT include shared product design with suppliers and clients, movement in the direction of unmarried sourcing proximate suppliers, reduced machine set- up times and overall preventive protection. Its miles an inventory approach that is carried out to enhance the return on funding of a commercial enterprise by decreasing inventory and its related wearing fees (Mazanai, 2012).

In an effort to achieve JIT, Bicheno (2014) argue that the process have to have indicators of what is going on everywhere inside the system. JIT can result in dramatic enhancements in a manufacturing agency's go back on investments, best and performance. It emphasizes that manufacturing ought to create gadgets that arrive whilst wished, neither in advance nor later. Short conversation of the intake of old stock, which triggers new inventory to be ordered, is prime to JIT and inventory discount. This protects warehouse space and charges. The basic philosophy of JIT is that inventory is defined as waste. JIT emphasizes discount in waste, shortening of lead times, development and ease. Those are also the goals of strategic dealer partnerships (Bicheno, 2014).

Chase et al. (2009) argue that a just-in-time inventory system maintains stock tiers low via handiest generating for specific patron orders. The result is a massive discount within the stock investment and scrap expenses, though a excessive degree of coordination is

needed. This technique differs from the extra commonplace opportunity of producing to a forecast of what patron orders is probably. By the use of simply-in-time concepts, there's a substantially decreased need for raw materials and work-in-system, at the same time as completed goods inventories should be near non-existent (Chase et al., 2009). Farzaneh (2012) concludes that JIT can take away the garage, capital, insurance, ordering, and transportation charges. However, it depends on sure situations. Below the perfect situation, wherein all of the conditions meet, it's miles economically better off to pick JIT over EOQ as it consequences in a simultaneous reduction in purchase price, protecting fee and ordering fee.

2.3.4 ABC Inventory Model

Mandal (2012) display that the ABC stock control method is based totally on the principle that a small part of the items may typically constitute the bulk of cash price of the overall inventory used within the production manner, while a notably big number of items may from a small a part of the cash price of stores. The money price is ascertained by multiplying the quantity of fabric of every item by using its unit charge. In line with this technique to stock manage Ng (2007) observes that high value gadgets are more closely controlled than low cost items. Every item of stock is given A, B or C denomination depending upon the quantity spent for that precise item. "A" or the highest fee gadgets need to be under the tight control and beneath responsibility of the most experienced personnel, even as "C" or the bottom price can be below simple physical manage.

Lyson 2006) observe that ABC evaluation is a nicely-set up categorization method based at the Pareto precept for determining which objects have to get priority in the management of a corporation's stock. ABC analysis is a way for prioritizing the management of inventory. Inventories are categorized into 3 instructions-A, B, and C. maximum management efforts and oversights are expended on coping with A objects. C objects get the least attention and B items are in-among (Lyson, 2006).

2.3.5 Automatic Replenishment

Vijay (2004) defines automation as a generation dealing with the application of mechatronics and computer systems for the production of products and offerings.

Automation is broadly classified into production and service automation. The main motives why many corporations automate is to scale down the issues of scarcity of labour, high fee of labour, want to growth productiveness and to reduce the producing lead-times. All this put together, it means that automation ends in lower operational charges and advanced customer support. Stock can appear in many locations within the deliver chain, and in several paperwork such as uncooked substances inventory, work- in-process (WIP) or finished goods inventory (Ken, 2010).

The primary undertaking faced by many supply chain managers is establishing an efficient and effective inventory management device for his or her businesses (Brason, 2005). On the way to effectively automate stock management, several structures had been advanced with a view to make sure that companies maintain the right quantities of inventory with the intention to strike a stability among the fees concerned and purchaser satisfaction. Such structures encompass materials Requirement making plans (MRP), vendor managed stock (VMI), Radio Frequency identity (RFID), corporation resource planning (ERP), electronic point of Sale (E-POS), and E- Procurement (Simchi-Levi, 2009).

The most important systems that have been put in region to automate stock control include substances Requirement planning (MRP) and electronic point of Sale (E-POS). MRP is typically applied to manipulate inbound cloth movement in the organization and is primarily based on the manufacturing requirements and scheduling (Simchi-Levi, 2009). A substances requirement plan is derived from the master production agenda (MPS), stock data and the product structure. The product structure refers to a diagram or a list of materials and their quantities; usually referred to as a bill of materials (BOM) had to produce one item of output (Brason, 2005). Actual time MRP is available in handy to lessen the effects of forecasting errors which are a first-rate supply of problems to any company's overall performance. Real time MRP technique has been changed via using direction lead-time to estimate the customers' order lead-time which could be less cumbersome.

The point of Sale (POS) gadget connects scanning device and the store's stock management structures. Goods marked with a barcode are scanned by means of a reader,

which in flip recognizes the goods. It notes the object, tallies the fee and statistics the transaction. POS affords an on the spot file of transactions at the POS. accordingly, replenishment of products may be coordinated in actual time to ensure that inventory-outs within the retail shop are avoided. With EPOS generation, corporations can be capable of settle bills, use electronic printouts and clever sense coupons, respond to on-line indicators and records and take a more patron targeted approach (Ken, 2010).

Cassidy (2014) cites the blessings of EPOS as together with decreased take a look at out time and mistakes, improvements in inventory management through decreased stock outs, stock ranges, shrinkage and compelled markdowns, and an ability to track fees at once to specific products. David and Alex (2014) contend that EPOS era permits sizeable value savings and offers more real time statistics on income of products, patterns of stores visitors, and the recognition and profitability of each line carried. It additionally allows the income of any item to be calculated at any time in addition to growing customer service (David & Alex, 2014).

2.4 Inventory Management Practices and Organizational Productivity

in step with David (2009), stock is a totally high priced asset that can be changed with information that's a much less expensive asset but to do this, the facts has to be correct, well timed, reliable and regular. While this happens, you bring fewer inventories, lessen cost and get merchandise to clients quicker. This consequently implies that stock management could be very crucial if a company wants to reap a balance among performance and responsiveness. David (2009) explains the following targets of stock management: maximizing customer service, maximizing the efficiency of purchasing and production, maximizing stock funding and maximizing earnings. it is well worth noting that assembly these goals requires balancing quick-term in addition to long-time period goals. Whether or not used to provide customer service or to reap efficiencies, the want to hold inventories conflicts with the management's desire to limit inventory investments.

Stock management systems and stock manage techniques offer information to effectively control the go with the flow of materials, effectively utilize people and equipment,

coordinate internal activities and speak with customers (Wolcott, 2010). Efficiency implies minimization of overall machine extensive charges from transportation and distribution to inventories of raw substances, paintings in manner and finished items. To be green, companies should utilize techniques aimed at creating highest cost efficiency and for such efficiencies to be performed, non-cost including sports should be eliminated, economies of scale pursued and optimization techniques deployed a good way to get the great usage potential (Wolcott, 2010).

Powerful stock control determined how earnings of an agency can be maximized. Maximizing of earnings rely upon minimizing cost and maximizing revenue. Maximization is a good concept which requires growing income without growing the sources used (Hugo et al., 2009). The import of stock management in corporation is to make certain that at any point in time the capital of the business is not necessarily tied down in shape of fabric in the store, which may additionally offer possibility for fraud and theft. In different word the management desires to place at minimal charge inventory losses, which emanate from store operation (Letinkaya & Lee, 2010). As a result, as commercial enterprise business enterprise inventory is of paramount crucial likewise the earnings of the commercial enterprise.

2.5 Challenges in the Implementation of Inventory Management Practices

In keeping with Dobler and Burt (2008), finances can be a constraining element to effective stock manages when price range allotted cannot cater absolutely for the organizations cloth requirements in the price range length. Sources lead to a higher organizational dedication and also conquer organizational obstacles. Sufficient resources additionally result in organizational implementation success and challenge implementation achievement the stature of financial management inside the organization can affect adversely its effectiveness and in the finance useful resource software in various sports. due to the relative largeness of inventories maintained by the groups substantial sum of an agency's fund is being committed to them. It for that reason will become actually imperative to control inventories efficiently for you to avoid

unnecessary price and make sure high high-quality product to clients (Dobler & Burt, 2008).

For stock control function to gain a advanced overall performance, Bailey and Farmer (2012) imply that it's far important to recruit, educate and broaden personnel with the capability and motivation to do better process. Education of staff is vital if full use is to be made from their abilities and talents. For a business enterprise to be triumphant, qualification is therefore a prerequisite and need to be matched with process requirement, for this reason the need to rent and develop bold employees. If workforce worried in inventory management isn't always qualified and able, then there can be ineffectiveness in inventory management.

Accuracy of inventory information is essential to provide first-class customer service, decide replenishment of character gadgets; ensure that material availability meets restore or undertaking demand, analyze stock levels and take away extra inventory as indicated with the aid of (power, 2005). Inventory information also provides the management with the facts that is used to make certain responsibility through stocktaking and inventory audit workout. Consistent with power (2005), developing incorporated inventory systems is one of the challenges that groups face as they develop stock systems. Similarly, complex structures are expensive to expand and hence discourage organizations from growing them.

Paperwork expects conformity in behaviour as opposed to overall performance considering employees are dealt with impersonality and they're predicted to rely upon rules and regulations, they're unwilling to enjoy character judgment and keep away from risks (Kenneth & Keneth, 2008). Inventory management systems are advanced with the goal of decreasing charges associated with inventory management. Stock control systems are but described as complicated structures to expand (Jones & Riley, 2009). This is attributed to the reality that stock management spans via maximum of the departments inside an institution each having its own heterogeneous features.

Inventory troubles of too splendid or too small quantities available can reason business disasters. If a small business stories inventory-out of a vital inventory object, production

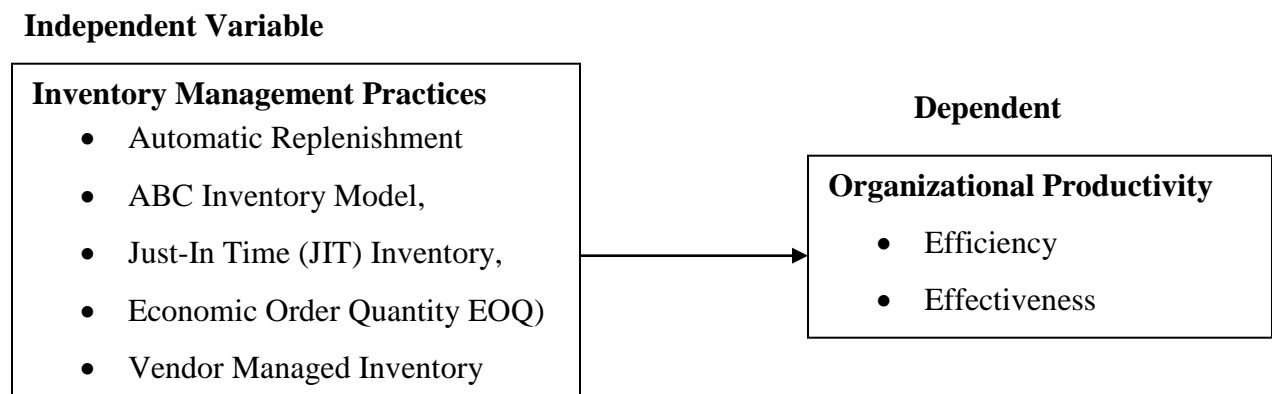
halts ought to result (Whitin, 2009). It is as a consequence the management of this economics of stockholding, this is accurately being refers to as inventory management. Consequently it should be correctly looked after as it has to do with income of the commercial enterprise. A nicely planned and powerful stock management can make contributions significantly to a company annual turnover (Dess & Robinson, 2014).

2.6 Summary

The literature reveal showed that there was a great influence of inventory management practices on the organizational productivity. It is important to have a good inventory system as it helps in preventing stock outs, overstocking, deterioration, obsolescence and high carrying cost. According to the review, Bureaucratic Procurement Procedures, Documentation /Stores Record, Funding, employee skills etc are some of the factors that limit inventory management thus influencing the organizational productivity

Lyson (2006) states that inventory serves as an insurance policy against the unexpected breakthrough, delays and other disturbance that could disrupt ongoing activities. A sound inventory management system is therefore vital for decision making in the procurement function and the company as a whole Automatic Replenishment, ABC Inventory Model, Just-In Time (JIT) Inventory, Economic Order Quantity (EOQ), Inventory Management Practices and Vendor Managed Inventory are important to a company which expects to operate efficiently and effectively and offer quality services.

2.7 Conceptual Framework



Source: Researcher (2016)

Figure 2.1: Conceptual Framework

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter comprises of the research design, target population, sampling procedures and sample size, research instrument, pilot study, data collection techniques, data analysis and ethical issues.

3.2 Research Design

A descriptive research design was used in this study. According to Churchill (2009), a descriptive research design is appropriate since it describes the elements of the study variables. This design was appropriate for this research because it is concerned with clearly defined problems with definite objectives.

3.3 Target Population

Mugenda and Mugenda (2003) define population as all members of some defined group. The target population was all the parastatals in Kenya. The latest government list of parastatals was that by December, 2015, the number of parastatal corporations stood at 103 and is classified as Agriculture, Service, Industry, Banking and Finance, Education as shown in Table 3.1.

Table 3.1: Target Population

Category	Target Population
Agriculture	16
Service	19
Industry	32
Banking and Finance	11
Education	25
Total	103

Source: Researcher (2016)

3.4 Sampling Design

According to Kombo and Tromp (2006), sampling procedures refers to how cases are to be selected for observation. Stratified sampling was used to sample the parastatals within Nairobi County. Stratified sampling is best suited because it minimizes biasness as

observed by Cooper and Schindler (2011). Census sampling was used to select the respondents from each parastatal.

3.5 Sample Size

According to Mugenda and Mugenda (2003), a sample is a small group obtained from the accessible population. In a descriptive research, a sample size of 10-50% is accepted (Mugenda & Mugenda, 2003). The researcher worked with a sample size of 50% to select the respondents. Therefore, the sample size was 53 respondents (See Appendix III). This is shown in table 3.2.

Table 3.2: Sample Size

Category	Target Population	Sample Size (50%)
Agriculture	16	8
Service	19	10
Industry	32	16
Banking and Finance	11	6
Education	25	13
Total	103	53

Source: Researcher (2016)

3.6 Data Collection

Data collection was done through a questionnaire as this is an efficient and convenient way of gathering the data within the resources and time constraints. Questionnaires were also preferred because they enable the study obtain more up to date information as well as elicit information which might not be captured in the other data collection techniques (Borg & Gall, 1989). This study used a questionnaire containing both open and close-ended questions so as to be able to capture more information from the respondents. The close-ended question was on 5-point likert scale. Likert scale is the most widely used approach to scaling responses in survey research (Borg & Gall, 1989).

3.7 Data Analysis

Before processing the responses, the completed questionnaires were edited for completeness and consistency. In analyzing the data collected, both descriptive and

inferential statistics were utilized. The quantitative data that was obtained from the questionnaires was coded and keyed into statistical package of social science (SPSS) analysis software version 20.0. Data was presented in the form of frequency distribution tables, graphs and pie charts to facilitate description and explanation of the study findings. Tables and figures were used to summarize responses for further analysis and facilitate comparison. This generated quantitative reports through tabulations, percentages, and measure of central tendency (Mean and standard deviation). In addition, to quantify the strength of the relationship between the variables, the researcher conducted a multiple regression analysis.

The regression equation was : $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \varepsilon$

Whereby Y= Organizational Productivity

X₁= Automatic Replenishment

X₂= ABC Inventory Model,

X₃= Just-In Time (JIT) Inventory,

X₄ = Economic Order Quantity (EOQ)

X₅ = Vendor Managed Inventory

$\beta_1, \beta_2, \beta_3$ and β_4 = coefficients of determination

ε = error term.

3.8 Ethical Issues

The researcher obtained an authorization letter from the University. The researcher undertook to keep private any information given by the respondents that touched on their persons or their private life. The researcher assured the respondents that no private information will be divulged to a third party. The nature and the purpose of the research were explained to the respondents by the researcher.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter shows the findings, presentation, interpretation and discussion of the findings obtained from the field. The chapter presents the background information of the respondents, findings of the analysis based on the objectives of the study. Descriptive and inferential statistics have been used to discuss the findings of the study.

The research objectives were:-

- i. To determine the effects of inventory management on organizational productivity in parastatals in Kenya.
- ii. To determine the relationship between inventory management practices and organizational productivity in parastatals in Kenya.
- iii. To establish the challenges faced by parastatals in Kenya in the implementation of inventory management practices on organizational productivity

Quantitative data was analysed using Statistical Package for Social Sciences (SPSS) version 20.0. Frequency tables, graphs, pie-charts, mean and standard deviation were used to present the findings as per the research objectives upon which data interpretations were made.

4.2 Response Rate

To ascertain in-depth of data collected, stating response rate of respondents is essential. The study targeted a sample size of 53 respondents from 5 categories of parastatals namely: Agriculture, Service, Industry, Banking and Finance, and education. This is shown in Table 4.1.

Table 4.1: Response Rate

Category	Administered	Respondent	Percentage
Agriculture	8	7	87.5
Service	10	8	80.0
Industry	16	11	68.8
Banking and Finance	6	6	100
Education	13	10	76.9
Total	53	42	79.2

Research Data (2016)

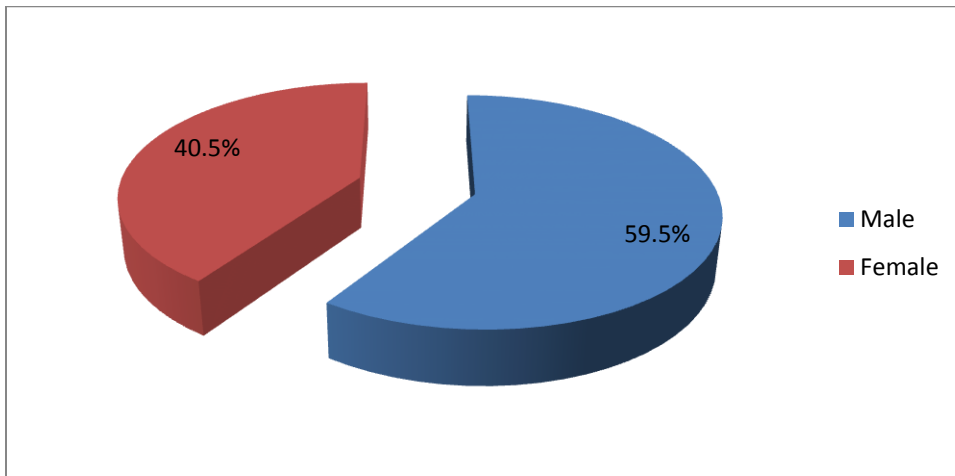
Table 4.1 shows that all the respondents from Banking and Finance returned their questionnaires making a response of 100%, this was followed by Agriculture (87.5%), Service (80.0%), Education (76.9%) and Industry (68.8%). The overall response rate was 79.2%. Berg (2004) states that response rate of 70% and above is good. Therefore the questionnaire return rate was commendable at 79.2% percent mainly because the researcher had established direct contact between the respondents.

4.3 Background Information

4.3.1 Gender

The study sought to establish the gender of the respondents. The research findings were indicated in the Figure 4.1.

Figure 4.1: Respondents' Gender



Research Data (2016)

Figure 4.1 shows that majority (59.5%) of the respondents were male and 40.5% female. Though the findings show that majority of the respondents were male all the genders were well represented.

4.3.2 Age

The researcher further sought to establish the ages of the respondents. The findings were indicated in the Table 4.2.

Table 4.2: Respondents' Age

Years	Frequency	Percentage
>25	5	11.9
25 – 35	12	28.6
36 – 45	16	38.1
<45	9	21.4
Total	42	100

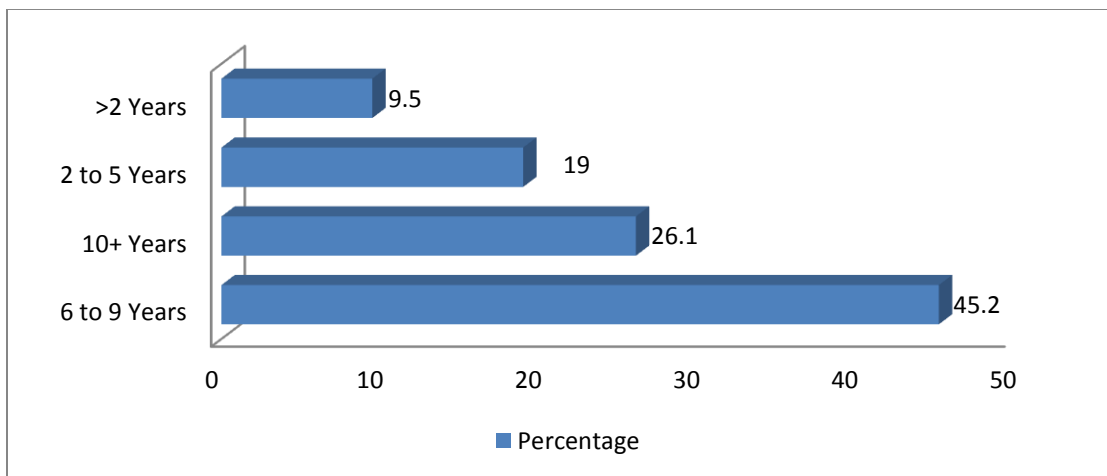
Research Data (2016)

Table 4.2 shows that majority (38.1%) of the respondents were aged between 36 and 45 years, 28.6% between 25 and 35 years, 21.4% aged over 45 years and 11.9% aged below 25 years old. The age of the respondents was important as different age groups have different perception and experience in work place.

4.3.3 Work Experience

The study sought to establish the period of work of the respondents in the current station. The research findings were indicated in the Figure 4.2.

Figure 4.2: Respondents' Work Experience



Research Data (2016)

Figure 4.2 shows that majority (45.2%) of the respondents had worked in the current station for a period of between 6 and 9 years, 26.1% for 10 years and more, 19% between

2 and 5 years and 9.5% for less than 2 years. These findings imply that majority of the respondents had worked for long periods, which shows that they had enough experience to contribute to the study effectively.

4.3.4 Level of Education

The study sought to establish the level of education of the respondents. The research findings were indicated in the Table 4.3.

Table 4.3: Level of Education

Category	Frequency	Percentage
Diploma/College	8	19.0
Post Graduate Diploma	3	7.1
University Degree	20	47.6
MBA/MA	11	26.2
Total	42	100

Research Data (2016)

Table 4.3 shows that majority (47.6%) of the respondents had attained a university degree level of education, 26.2% MBA/MA, 19.0% Diploma/College and 7.1% Post graduate diploma. This is an indicator that all the respondents had attained high levels of education and would therefore have the necessary qualifications to participate in the study.

4.4 Inventory Management Practices

The first research objective sought to determine the effects of inventory management on organizational productivity in parastatals in Kenya. The respondents were given a list of inventory management practices to indicate the extent to which they use. The findings are shown in table 4.4.

Table 4.4: Inventory Management Practices

Statement	5	4	3	2	1	M
	%	%	%	%	%	
SD						
Automatic Replenishment 0.805	52.0	36.0	0.0	0.0	12.0	4.2
ABC Inventory Model 0.763	28.0	60.0	4.0	8.0	0.0	3.4
Just-In Time (JIT) Inventory 0.846	64.0	36.0	0.0	0.0	0.0	4.8
Economic Order Quantity EOQ 0.766	44.0	48.0	0.0	8.0	0.0	4.1
Vendor Managed Inventory 0.679	56.0	28.0	4.0	8.0	4.0	3.9

Key: (1 – No extent, 2 – Little extent, 3 – Moderate, 4 – Great extent, 5 – Very great extent), M= Mean, SD=Standard Deviation

Source: Research Data (2016)

Table 4.4 shows that majority (52.0%) of the respondents indicated that they use Automatic Replenishment to a very great extent, 36.0% to a great extent, 12.0% no extent with a mean of 4.2 and a standard deviation of 0.805. Majority (60.0%) of the respondents indicated that they use ABC Inventory Model to a great extent, 28.0% to a very great extent, 8.0% to a little extent and 4.0% moderate with a mean of 3.4 and a standard deviation of 0.763. Majority (64.0%) used Just-In-Time (JIT) Inventory to a very great extent, 36.0% to a great extent with a mean of 4.8 and a standard deviation of 0.846. Majority (48.0%) used Economic Order Quantity (EOQ) to a great extent, 44.0% to a very great extent, 8.0% little extent with a mean of 4.1 and a standard deviation of 0.766 and majority (56.0%) of the respondents used Vendor Management Inventory to a very great extent, 28.0% to a great extent, 8.0% little extent, 4.0% moderate and to no extent respectively with a mean of 3.9 and a standard deviation of 0.679.

These findings are in line with the findings of Chase et al. (2009) argue that a just-in-time inventory system keeps inventory levels low by only producing for specific customer orders. The result is a large reduction in the inventory investment and scrap costs, though a high level of coordination is required. This approach differs from the

more common alternative of producing to a forecast of what customer orders might be. By using just-in-time concepts, there is a greatly reduced need for raw materials and work-in-process, while finished goods inventories should be close to non-existent (Chase et al., 2009).

Peacock's research (2013) found that effective application of inventory optimization models and practice is relevant to achieving quality and efficient operations. In addition, Adeyemi and Salami (2010) observed that the overall goal of inventory management is to have what is needed, and to minimize the number of times manufacturing and services operations are interrupted by problems of stock outages. Further, Bloomberg et al. (2012) reported that effective management of inventory has enormous potentials for improving the efficiency of organizations, and firms that use scientific inventory control practices have a significant competitive advantage in the market. Chase et al. (2009) explained the concept of inventory management brings in the total systems approach to managing the entire flow of information, materials and services from raw materials suppliers through factories and warehouses to the end user/customer. The study further confirmed that a firm's success depends on how they manage their materials effectively.

4.5 Relationship Between Inventory Management Practices and Organizational Productivity in Parastatals in Kenya

The second research objective sought to determine the relationship between inventory management practices and organizational productivity in parastatals in Kenya. The respondents were given a list of statement to indicate the extent to which they agreed or disagreed. The findings are shown in table 4.5.

Table 4.5: Relationship between Inventory Management Practices and Organizational Productivity

Statement	5	4	3	2	1	M
	%	%	%	%	%	
SD						
Enhances continuous production 0.568	48.0	40.0	4.0	0.0	8.0	3.8
Reduces production costs 0.642	52.0	36.0	0.0	12.0	0.0	3.5
Reduces resource wastages 0.761	60.0	40.0	0.0	0.0	0.0	4.1
Boosts employee work morale 0.465	28.0	48.0	4.0	0.0	2.0	2.8
Minimizes scrap and rejects 0.744	40.0	60.0	0.0	0.0	0.0	3.4
Prevents shortages and stock out costs 0.602	24.0	44.0	0.0	24.0	8.0	3.3
Reduces delivery lead time 0.745	68.0	32.0	0.0	0.0	0.0	4.3
Minimizes machine down time 0.822	44.0	56.0	0.0	0.0	0.0	3.7

Key: (1 – No extent, 2 – Little extent, 3 – Moderate, 4 – Great extent, 5 – Very great extent), **M**= Mean, **SD**=Standard Deviation

Source: Research Data (2016)

Table 4.5 shows that majority (48.0%) of the respondents indicated that inventory management practices enhances continuous production to a very great extent, 40.0% to a great extent, 8.0% no extent and 4.0% moderate with a mean of 3.8 and a standard deviation of 0.568. Majority (52.0%) indicated that inventory management practices reduces production costs to a very a great extent, 36.0% to a great extent, 12.0% little extent with a mean of 3.5 and a standard deviation of 0.642. Majority (60.0%) indicated that inventory management practice reduces resource wastages to a very great extent, 40.0% to a great extent with a mean of 4.1 and a standard deviation of 0.761. Majority (48.0%) indicated inventory management practices that boost employee work morale to a

great extent, 28.0% to a great extent, 4.0% moderate, 2.0% little extent with a mean of 2.8 and a standard deviation of 0.465.

Majority (60.0%) of the respondents indicated that inventory management practices minimizes scrap and rejects to a great extent, 40.0% to a very great extent with a mean of 3.4 and a standard deviation of 0.744. Majority (44.0%) indicated that inventory management practices prevents shortages and stock out costs to a great extent, 24.0% to a very great extent and little extent respectively, 8.0% to no extent with a mean of 3.3 and a standard deviation of 0.602. Majority (68.0%) reduces delivery lead time to a great extent, 32.0% to a great extent with a mean of 4.3 and a standard deviation of 0.745. Majority (56.0%) indicated that inventory management practices minimizes machine down time to great extent, 44.0% to a very great extent with a mean of 3.7 and a standard deviation of 0.822.

These findings concur with the findings of David (2009) who observed the following objectives of inventory management: maximizing customer service, maximizing the efficiency of purchasing and production, maximizing inventory investment and maximizing profit. It is worth noting that meeting these objectives requires balancing short-term as well as long-term objectives. Whether used to provide customer service or to achieve efficiencies, the need to carry inventories conflicts with the management's desire to minimize inventory investments. 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 (Wolcott, 2010).

Effective inventory management determined how profit of an organization can be maximized. Maximizing of profit depend on minimizing cost and maximizing revenue. Maximization is an efficient concept which requires increasing profit without increasing the resources used (Hugo et al., 2009). The import of inventory management in organization is to ensure that at any point in time the capital of the business is not necessarily tied down in form of material in the store, which may provide opportunity for fraud and theft. In other word the management wishes to put at minimal rate stock losses,

which emanate from store operation (Letinkaya & Lee, 2010). Thus, as business organization stock is of paramount important likewise the profit of the business.

4.6 Challenges in the Implementation of Inventory Management Practices

The third research objective sought to establish the challenges faced by parastatals in Kenya in the implementation of inventory management practices on organizational productivity. The respondents were given a list of statement to indicate the extent to which they agreed or disagreed. The findings are shown in table 4.6.

Table 4.6: Challenges in the Implementation of Inventory Practices

Statement	5	4	3	2	1	M
	%	%	%	%	%	
SD						
Procurement systems such as ERP are expensive to buy, install and maintain 0.578	64.0	32.0	0.0	4.0	0.0	3.6
Procurement systems are not locally available 0.645	28.0	52.0	0.0	0.0	20.0	4.3
The management doesn't recognize the benefits associated with procurement function 0.691	36.0	48.0	4.0	12.0	0.0	3.4
Suppliers, users are not willing to share information 0.800	56.0	36.0	0.0	8.0	0.0	3.9

Key: (1 – No extent, 2 – Little extent, 3 – Moderate, 4 – Great extent, 5 – Very great extent), **M**= Mean, **SD**=Standard Deviation

Source: Research Data (2016)

Table 4.6 shows that majority (64.0%) of the respondents indicated to a very extent that procurement systems such as ERP are expensive to buy, install and maintain as a challenge facing implementation of inventory management practices, 32.0% to a great extent, 4.0% little extent with a mean of 3.6 and a standard deviation of 0.578. Majority (52.0%) indicated to a great extent that procurement systems are not locally available, 28.0% to a very great extent, 20.0% to a little extent with a mean of 4.3 and a standard

deviation of 0.645. Majority (48.0%) indicated to a great extent that the management doesn't recognize the benefits associated with procurement function, 36.0% to a very great extent, 12.0% little extent, 4.0% moderate with a mean of 3.4 and a standard deviation of 0.691 and majority (56.0%) indicated to a very great extent that suppliers, users are not willing to share information, 36.0% to a great extent, 8.0% little extent with a mean of 3.9 and a standard deviation of 0.800.

These findings agree with the findings of Dobler and Burt (2008), funds can be a constraining factor to effective inventory control when funds allocated cannot cater wholly for the organizations material requirements within the budget period. Resources lead to a better organizational commitment and also overcome organizational obstacles. Sufficient resources also lead to organizational implementation success and project implementation success the stature of financial management in the organization can affect adversely its effectiveness and in the finance resource application in various activities. Because of the relative largeness of inventories maintained by the organizations considerable sum of an organization's fund is being committed to them. It thus becomes absolutely imperative to manage inventories efficiently so as to avoid unnecessary cost and ensure high quality product to customers (Dobler & Burt, 2008). For inventory management function to achieve a superior performance, Bailey and Farmer (2012) indicate that it is necessary to recruit, train and develop personnel with the capacity and motivation to do better job. Training of staff is vital if full use is to be made of their abilities and talents. For an organization to succeed, qualification is therefore a prerequisite and must be matched with job requirement, hence the need to hire and develop ambitious personnel.

4.7 Organizational Productivity

Table 4.7: Organizational Productivity

Statement	5	4	3	2	1	M
	%	%	%	%	%	
SD						
Leads to operational efficiency 0.845	60.0	40.0	0.0	0.0	0.0	4.4

Leads to organizational effectiveness	68.0	32.0	0.0	0.0	0.0	4.6
0.791						
Reduced delivery lead time	36.0	48.0	4.0	12.0	0.0	3.6
0.806						
Boosts employee morale	56.0	44.0	0.0	0.0	0.0	3.9
0.777						

Key: (1 – No extent, 2 – Little extent, 3 – Moderate, 4 – Great extent, 5 – Very great extent), **M**= Mean, **SD**=Standard Deviation

Source: Research Data (2016)

Table 4.7 shows that majority (60.0%) indicated to a very great extent that inventory management practices leads to operational efficiency, 40.0% to a great extent with a mean of 4.4 and a standard deviation of 0.845. Majority (68.0%) indicated to a very great extent that it leads to organizational effectiveness, 32.0% to a great extent with a mean of 4.6 and a standard deviation of 0.791. Majority (48.0%) indicated to a great extent reduced delivery lead time, 36.0% to a very great extent, 12.0% to little extent, 4.0% moderate with a mean of 3.6 and a standard deviation of 0.806 and majority (56.0%) indicated to a very great extent that inventory management practices boosts employee morale, 44.0% to a great extent with a mean of 3.9 and a standard deviation of 0.777.

These findings are in line with the findings of Chalotra (2013) who argue that inventory management is recognized as a vital tool in improving asset productivity and inventory turns, targeting customers and positioning products in diverse markets, enhancing intra and inter-organizational networks, enriching technological capabilities to produce quality products thereby imparting effectiveness in inter-firm relationships. Proper inventory management even results in enhancing competitive ability and market share of small manufacturing units (Chalotra, 2013). Management of inventory according to Anichebe and Agu (2013) is also fundamental to the success and growth of organization as the entire profitability of an organization is tied to the volume of products sold which has a direct relationship with the quality of the product.

4.8 Regression Analysis

Regression analysis was used to model, examine, and explore the relationships between organizational productivity in parastatals in Kenya against the inventory management

practices (Automatic Replenishment, ABC Inventory Model, Just-In Time (JIT) Inventory, Economic Order Quantity and Vendor Managed Inventory) used for the study, this was important in measuring the extent to which changes in one or more variables jointly affected changes in another variable. Regression analysis was used to generate an equation applied to the independent variables in order to best predict the dependent variable in the model. Each independent variable is associated with a regression coefficient describing the strength and the sign of that variable's relationship to the dependent variable.

4.8.1 Model Summary

Table 4.8: Model Summary

Model	R	R Square	Adjusted R Square	St. Error of the Estimate
1	0.597 ^a	0.645	0.788	0.540

Research Data (2016)

The independent variables that were studied, explain only 78.8% of the dependent variable as represented by the adjusted R square. This therefore means that other factors not studied in this research contribute 21.2%. Therefore, further research should be conducted to assess effects of inventory management practices on organizational productivity in Parastatals in Kenya.

4.8.2 Analysis of Variance (ANOVA)

Table 4.9: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.442	2	0.213	4.53	0.002 ^b
	Residual	3.492	40	1.341		
	Total	4.934	42	1.554		

Research Data (2016)

The significance value is 0.002 which is less than 0.05 thus the model is statistically significant in predicting how Automatic Replenishment, ABC Inventory Model, Just-In Time (JIT) Inventory, Economic Order Quantity EOQ and Vendor Managed Inventory.

The F critical at 5% level of significance was 1.554. Since F calculated (value = 4.53) is greater than the F critical (value=1.554), this shows that the overall model was significant.

4.8.3 Significance of Coefficients

Table 4.10: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	0.601	0.072		.141	.005
Automatic Replenishment	0.578	0.075	.241	.567	.001
ABC Inventory Model	0.642	0.024	.493	.374	.005
Just-In Time (JIT) Inventory	0.784	0.064	.106	.643	.003
Economic Order Quantity (EOQ)	0.811	0.011	.178	.579	.002
Vendor Managed Inventory	0.612	0.015	.068	.243	.001

Research Data (2016)

Coefficient of determination explains the extent to which changes in the dependent variable (Organizational Productivity) can be explained by the change in the independent variables (Automatic Replenishment, ABC Inventory Model, Just-In Time (JIT) Inventory, Economic Order Quantity EOQ) or the percentage of variation in the dependent variable that is explained by all the three independent variables.

As per the SPSS generated table above, the equation ($Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \varepsilon$) became $Y = 0.601 + 0.578X_1 + 0.642X_2 + 0.784X_3 + 0.811X_4 + 0.612X_5 + \varepsilon$

Whereby

- Y= Organizational Productivity
- X₁= Automatic Replenishment
- X₂= ABC Inventory Model,
- X₃= Just-In Time (JIT) Inventory,
- X₄ = Economic Order Quantity (EOQ)
- X₅ = Vendor Managed Inventory

According to the regression equation established, taking all the independent into constant at zero, organizational productivity in Parastatals in Kenya will be 0.601 (60.1%). Organizational productivity refers to how well an organization achieves its market-oriented goals as well as its financial goals (Holmberg, 2009). The short-term objectives of inventory management are primarily to increase productivity and reduce inventory and cycle time, while long-term objectives are to increase market share and profits for all members of the supply chain. Financial metrics have served as a tool for comparing organizations and evaluating an organization's behavior over time. Any organizational initiative, including inventory management, should ultimately lead to enhanced organizational productivity (Holmberg, 2009).

The data findings show that a unit increase in Automatic Replenishment would lead to 0.578 increase in the organizational productivity in Parastatals in Kenya. Cassidy (2014) cites the benefits of EPOS as including reduced check out time and error, improvements in inventory management through reduced stock outs, inventory levels, shrinkage and forced markdowns, and an ability to track costs directly to specific products. David and Alex (2014) contend that EPOS technology allows substantial cost savings and gives more real time information on sales of goods, patterns of stores traffic, and the popularity and profitability of every line carried. It also enables the sales of any item to be calculated at any time as well as increasing customer service (David & Alex, 2014).

A unit increase in ABC Inventory Model would lead to 0.642 increase in the organizational productivity in Parastatals in Kenya. Mandal (2012) show that the ABC inventory control technique is based on the principle that a small portion of the items may typically represent the bulk of money value of the total inventory used in the production process, while a relatively large number of items may from a small part of the money value of stores. The money value is ascertained by multiplying the quantity of material of each item by its unit price.

A unit increase in Just-In Time (JIT) Inventory would lead to 0.784 increase in organizational productivity in Parastatals in Kenya. Mazanai (2012) state that the Just-In-Time (JIT) inventory method is an approach where materials, parts, and other goods are ordered only in quantities required to meet immediate production needs. These items are

then carefully scheduled to be received at precisely the time they are needed. This increases efficiency, reduces waste, and ultimately minimizes inventory management costs and lead time costs. Just-In-Time refers to a collection of practices that eliminate waste.

A unit increase in Economic Order Quantity (EOQ) would lead to 0.811 increase in organizational productivity in Parastatals in Kenya. According to Salawati et al. (2012) Economic order quantity is the order quantity that minimizes total inventory holding costs and ordering costs. It is one of the oldest classical production scheduling models. The framework used to determine this order quantity is also known as Barabas EOQ Model or Barabas Formula.

A unit increase in Vendor Managed Inventory would lead to 0.612 increase in organizational productivity in Parastatals in Kenya. Wailer et al. (2009), posit that Vendor Managed Inventory (VMI) is one of the most widely discussed partnering initiatives for improving multi-firm supply chain efficiency and that it is also known as continuous replenishment or Supplier-Managed Inventory (SMI). Management of inventory determines the way an organization will thrust itself to high performance efficiency. Some organizations have resulted to vendor managed inventory (VMI) systems which aid the supplier to monitor customer's inventory usage.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter provides the discussion of findings, gives the conclusions and recommendations of the study based on the objectives of the study.

5.2 Summary of the Findings

5.2.1 Inventory Management Practices

The study established that most of the respondents used Economic Order Quantity. Just-In Time (JIT) Inventory and Automatic Replenishment were used to a very great extent. It was also pointed that the respondents mostly used Economic Order Quantity (EOQ) and Vendor Management Inventory (VMI). ABC Inventory Model was also mostly used by the Parastatals in Kenya as inventory management practice.

5.2.2 Relationship between Inventory Management Practices and Organizational Productivity

The study revealed that that inventory management practices boosts employee work morale, enhances continuous production and reduces resource wastage, likewise, respondents agreed that inventory management practices minimizes scrap and rejects. The respondents agreed that inventory management practices reduces production costs and reduces delivery lead time. Finally, respondent agreed that inventory management practices prevents shortages and stock out costs and minimizes machine down time.

5.2.3 Challenges in the Implementation of Inventory Practices

The study found that most of the respondents agreed that management doesn't recognize the benefits associated with procurement function which is a challenge in the implementation of inventory management practices in parastatals in Kenya. Also respondents agreed that Procurement systems such as ERP are expensive to buy, install and maintain as major challenge. suppliers, users are not willing to share information was also indicated as a major challenge. The respondents agreed that procurement systems are not locally available as a challenge to the implementation of inventory management practices.

5.3 Conclusion

Based on the study findings, it is concluded that a significant and a positive relationship exists between inventory management practices and organizational productivity of Parastatals in Kenya. The study also concluded that inventory management practices affect the productivity of Parastatals in Kenya. In order to effectively automate inventory management, several systems have been developed so as to ensure that Parastatals hold the right quantities of stock so as to strike a balance between the costs involved and customer satisfaction. Economic Order Quantity (EOQ) practices have enabled Kenyan Parastatals to estimate how much of an item should be ordered and when it should be ordered. The Parastatals orders that optimal quantity for an item of stock that minimizes cost. The total inventory-associated cost curve has a minimum point and this is the point where total inventory costs have been successfully minimized. Parastatals in Kenya use Vendor Managed Inventory (VMI) for supplier partnership and to maintain good working relations between customers and suppliers. Vendor Managed Inventory relieved the Parastatals of much of the expense of ordering, shipping the materials, counting inventory and stocking low-value items. By passing these costs on the supplier, the Parastatals were able to reduce the overall cost of product and increase on margins. Use of Just-in-time inventory model allows the Parastatals to reduce overhead expenses while ensuring that parts are available.

5.4 Limitations of the study

Through the study major limitations were that respondents were not willing to respond at first but with on showing them the importance of the study the response to the study was accepted. Time factor was also a challenge as the study was done through questionnaire which are time consuming.

5.5 Recommendations

This study recommends that long term relationships with suppliers should be sought by the Parastatals in Kenya. The Parastatals should also enhance their communication with suppliers by adopting VMI which will ultimately shift the responsibility of inventory management from the procurement function to the suppliers thus improving the organizational productivity. Supplier appraisal by the procurement function should be a

key element in inventory management as this will help evaluate the suppliers and choose the best from the many and develop long term round table relationships with them. The Parastatals in Kenya should adopt information technology in inventory management. Automation can help the procurement function in stock control by setting stock control levels and calculating the amount of stocks to hold and dispatch thus improving the performance of the procurement function. Parastatals in Kenya need to modernize its inventory management system to increase efficiency. Improving inventory practices calls for a high degree of collaboration and visibility across all parties as well as utilizing sophisticated technologies. The study recommends that the management should constantly expose its staff to training in order to improve their skills on inventory management and enable the employees to understand the current inventory systems which when used will help the organization reduce on costs associated with holding inventory.

5.6 Suggestion for Further Studies

Based on the findings, the study suggests that further studies should be conducted on the effects of Inventory Management on the Performance of the Procurement Function in Parastatals in Kenya.

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APPENDICES

Appendix I: Letter of Transmittal

Roselyne Wanjiku Gitau

P.o Box 24512

Nairobi

The Manager

.....

Nairobi- Kenya

Dear Sir/Madam,

Re: Research Study

I am student from University of Nairobi, Pursuing a Master's in Business Administration Degree. Currently, I am in the process of undertaking research on the ***“Inventory Management Practices and Organizational Productivity in Parastatals in Kenya”***

I therefore request to be granted permission to carry out the study in the attached list of selected departments in your organization.

Yours Faithfully

Roselyne Wanjiku Gitau

MBA, Student

University of Nairobi – City Campus

Appendix II: Questionnaire

This research is meant for academic purpose. It will try to investigate on ***“Inventory Management Practices and Organizational Productivity in Parastatals in Kenya”***

Kindly you are requested to provide answers to these questions as honestly and precisely as possible. Responses to these questions will be treated as confidential.

Instructions:

- i. Do not write your name or that of your organization in anywhere on this questionnaire
- ii. Tick [] where appropriate or fill in the required information on the spaces provided

Section A: Background Information

1. Gender: Male [] Female []
2. Age:
 [] Less than 25 Years [] 25 – 35 Years
 [] 36 -45Years [] Over 45 Years
3. How long have you worked in the current station?
 Less than 2 years [] 2 – 5 years

 6– 9 years [] 10 and above []
4. What is your level of education?
 Diploma/College [] University Degree []
 MBA/MA [] Post-graduate Diploma []

Section B: Inventory Management Practices

Indicate the extent do you use the following listed inventory management practices?

Supplied also are five options corresponding to these statements:

Key: (1 – No extent 2 – Little extent 3 - Moderate 4 – Great extent 5 – Very great extent)

Statement	5	4	3	2	1
Automatic Replenishment					
ABC Inventory Model,					
Just-In Time (JIT) Inventory,					
Economic Order Quantity (EOQ)					
Vendor Managed Inventory					

Section C: Effects of inventory management on organizational productivity in parastatals in Kenya.

The statements below relate to the effects of inventory management practices on organizational productivity. Indicate the extent to which you agree or disagree. Please tick where appropriate. Supplied also are five options corresponding to these statements:

Key: (1 – No extent 2 – Little extent 3 - Moderate 4 – Great extent 5 – Very great extent)

Statement	5	4	3	2	1
The firm makes what the customers need, when it is needed and in the quantity needed using the minimum resources					
The firm uses Activity Based Costing as an inventory classification system to allocate time and money in inventory management					
The firm orders the optimal ordering quantity for an item of stock that minimizes cost					
The firm uses Vendor Managed Inventory practice for supplier partnerships					
The firm uses Materials Requirement Planning to control the flow of supplies to meet planned requirements					
The firm plans orders within a supply chain by using Distribution Requirements Planning					

Section D: Relationship between inventory management practices and organizational productivity in Parastatals in Kenya

The statements below relate to the relationship between inventory management practices on organizational productivity. Indicate the extent to which you agree or disagree. Please tick where appropriate. Supplied also are five options corresponding to these statements:

Key: (1 – No extent 2 – Little extent 3 - Moderate 4 – Great extent 5 – Very great extent)

Statement	5	4	3	2	1
Enhances continuous production					
Reduces production costs					
Reduced resource wastages					
Boosts employee work morale					
Minimizes scrap and rejects					
Prevents shortages and stock out costs					
Reduced delivery lead time					
Minimized machine down time					

Section E: Challenges in the Implementation of Inventory Practices

The statements below relate to challenges in the management of inventory management practices on organizational productivity. Indicate the extent to which you agree or disagree. Please tick where appropriate. Please tick where appropriate

Supplied also are five options corresponding to these statements:

Key: (1 – No extent 2 – Little extent 3 - Moderate 4 – Great extent 5 – Very great extent)

Statement	5	4	3	2	1
Procurement systems such as ERP are expensive to buy, install and maintain					
Procurement systems are not locally available					
The management doesn't recognize the benefits associated with procurement function					
Suppliers, users are not willing to share information					

Section D: Organizational Productivity

The statements below relate to organizational productivity. Indicate the extent to which you agree or disagree. Please tick where appropriate. Please tick where appropriate.

Supplied also are five options corresponding to these statements:

Key: (1 – No extent 2 – Little extent 3 - Moderate 4 – Great extent 5 – Very great extent)

Statement	5	4	3	2	1
Leads to operational efficiency					
Leads to organizational effectiveness					
Reduced delivery lead time					
Boosts employee morale					

Appendix III: List of Targeted Parastatals

Agriculture

1. Coffee Board of Kenya
2. Kenya Dairy Board
3. National Cereals and Produce Board
4. Agricultural Development Corporation
5. Agricultural Finance Corporation
6. Kenya Forestry Research Institute
7. Kenya Plant Health Inspectorate Services
8. New KCC

Service

1. National Hospital Insurance Fund
2. Kenya Revenue Authority
3. Communication Commission of Kenya
4. Kenya Bureau of Standards
5. Kenya Roads Board
6. National Social Security Fund
7. Public Procurement Oversight Authority
8. Sports Stadia Management Board
9. National Council For Law Reporting
10. National Irrigation Board

Industry

1. Kenya Industrial Estates
2. Postal Corporation of Kenya
3. Kenya Airports Authority
4. Export Processing Zone Authority
5. Kenya Pipeline Company
6. Telkom Kenya
7. Kenya Ferry Services Limited
8. Kenya Electricity Generating Company
9. Kenya Civil Aviation Authority

10. Industrial and Commercial Development Corporation
11. South Nyanza sugar Company
12. National Museums Of Kenya
13. National Oil Corporation Of Kenya
14. Kenya National Shipping Line
15. Kenya Ordinance Factories Corporation
16. Kenya Railways corporation

Banking and Finance

1. National Bank of Kenya
2. Kenya Commercial Bank
3. Capital Markets Authority
4. Kenya Bankers Association of Kenya
5. National housing Corporation
6. Insurance Regulatory Authority

Education

1. University Of Nairobi
2. Kenyatta University
3. Kenya National Library Services
4. Higher Education's Loans Board
5. Kenya Literature Bureau
6. Kenya College of Communication and Technology
7. Kenya institute of Administration
8. Egerton University
9. Teachers Service Commission
10. Commission For Higher Education
11. University Of Nairobi Enterprises & Services Ltd
12. Kenya Institute of Public Policy Research and Analysis
13. Moi University

Source: GOK (2015)