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INFLUENCE OF INVENTORY MANAGEMENT SYSTEMS ON SERVICE DELIVERY IN PUBLIC HOSPITALS IN NAIROBI CITY COUNTY, KENYA

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ABSTRACT

This study examined the influence of inventory management systems on the service delivery in the public hospitals in Nairobi City County, Kenya. The study used 80 respondents who were involved in the inventory management activities in the public hospitals in Nairobi City County. It was established that, R was the correlation coefficient there existed strong positive relationship between the independent variables and dependent variable as shown by R value (0.788). The coefficient of determination (R^2) explained the extent to which changes in the dependent variable explained by the change in the independent variables or the percentage of variation in the dependent variable and the four independent variables that were studied explained 62.10% of the service delivery in the public hospitals as represented by the R^2. This therefore meant that other factors not studied in this research contributed 37.90% to the service delivery in the public hospitals in Kenya. This implied that these variables were very significant therefore needed to be considered in any effort to boost service delivery in the public hospitals in the study area. The study therefore identified the variables as critical factors of inventory management systems to enhance service delivery in the public hospitals in the study area.The study recommended for the Vendor Managed Inventory (VMI) systems in the hospitals that had a stock management system to minimize the total holding and ordering costs annually thus leading reduction of stock out costs. The organizations should have optimal stock levels; the employees get involved in the quality planning and labour requirements planning. The study recommended for a Radio Frequency Identification (RFID) system which ensured that there was a reduced machine setup time for the reduction of stock out costs. The study recommended for firms to put in place RFID systems to ensure that there is planning for inventory to improve decision making for the timely delivery of goods. The study recommended JIT systems in the public hospitals is an important element in its supply chain. The JIT system can be done through digitalization of information and data, rationalization to improve efficiency in administration process. The success of JIT systems will depend on the increase of bidders (suppliers) that participate to procurement auctions to enhance service delivery in the public hospitals in Kenya.

Key Words: *Vendor Managed Inventory systems, Enterprise Resource Planning Systems, Radio Frequency Identification Systems, JIT systems*

INTRODUCTION

In the world today, every organization wants not only to mitigate the system wide cost, but also to maintain minimum inventories along the supply chain while maximizing the service level requirements of the customer (Sexton, 2007). This has led to reduced costs, increased efficiency and thus boosted performance of firms. In some organizations it has led to demand variability and thus strengthened the need to maintain proper inventory for improved supply chain performance. Dryden and Brownell (2012) posit excess inventory in the supply chain blocks the cash flow and this might negatively affect organizational performance.

In traditional settings, inventories of raw material spare parts work in progress, components and finished goods were kept as a buffer of a possibility of running out of needed items. However, large buffer inventories consumed valuable resources and generated inventory costs. Consequently, many companies have changed their approach to production and inventory management systems. Since early 1980s, inventory management systems which leads to inventory reduction has become the primary target, as is often the case in just-in-time (JIT) systems where raw materials and parts are purchased or produced just-in-time to be used at each although evidence of improved firm performance is mixed (Nabwanga & Ojera, 2012).

Inventories are the stocks of raw materials, work in progress, finished goods and supplies held by a business organization to facilitate operations in the production process (Lwiki, Ojer,Mugend,& Wachira, 2013).Inventories can either be assets as well as items held in the ordinary course of business or they can be goods that will be consumed or used in the production of goods to be sold Inventory is considered to have originated from the military's need to supply themselves with arms, ammunition, and rations as they moved from their base to a forward position. Inventory as a business concept evolved only in the 1950‟s mainly due to the increasing complexity of supplying one's business with materials and slipping out products in an increasing globalized supply chain and inventory management systems (Cecil & Robert, 2006).

The health care system in the developing countries faces many problems, inventory management being one of the majors. The system is structurally and systemically fragile and weak to provide effective service where it is most needed. Understocking and overstocking appears to have complicated the situation and made matters worse (Oyelere, 2007). In deed the availability of drugs in the public hospitals in Africa is considerably worse than in other regions of the world and it is one of the major stumbling blocks to the delivery of adequate healthcare (Chankova , 2006).Public hospitals have a procurement department that is responsible for the provision of goods services to the hospitals with the aim of providing quality health care services in order to achieve customer satisfaction. They maintain inventory management system which is aimed at ensuring that facilities and equipment are supplied and delivered at the right time. The hospitals should consider implementing inventory management practices for reduced costs and improved supply chain performance. This has a positive impact on reduction of mortality rate to the patients especially in responding to emergency cases.

According to the available studies, most of them focus on the American firms in the manufacturing sector because of the many revolutions in inventory policies in 1970s and 1980s. Chet et al (2005) observed that the extent of emphasis on inventories among American firms reached the financial markets where there were rules that would reward firm that controlled inventories and punish those that did not do so. This is because,

during the 1970s, Japanese manufacturing Companies made substantial market share gains in the US markets in a range of industries including most notably the automobile industry. In recent years, a number of firms have faced numerous challenges especially in Inventory management systems or material control, thus affecting the performance of manufacturing companies. There have been cases of materials overstocking which eventually get expired or out dated, under stocking, lack of stock-taking, theft of materials by workers and delays in deliveries of materials into the organizations among others.

As with many other western countries, there have being a relative decline in performance of the manufacturing industry in Australia and as a result, its contribution to the total Australian GDP is less than half what it was four decades ago. This was attributed to poor strategic inventory management systems leading to increased cost of production resulting to the gross operating profit margin for the manufacturing firms to fall from 9.5% in the year 2013 to 7.8% in the year 2014 (Anthony, 2014). Similarly, in most of Africa, performance in the manufacturing industry has been poor over the last decades. Decline in performance of the manufacturing firms in Nigeria resulted to a decline in GDP from 9.6% in the year 2006 to 5.0% in the year 2013. This was attributed to high cost of production especially in the oil and gas sector and inappropriate investment in equipment and machinery due to poor strategic inventory management systems, Nigerian Manufacturing Enterprises Survey, (NMES,2013).

On a global perspective, Vikram et al (2012) conducted a study on inventory management systems and supply chain collaboration that assumes supply side. The researcher finding concluded that inventory management departments were more willing to have vendor managed inventory system to maintain consistent supply and collaboration amongst stakeholders. A related study by Adeyemi et al (2010) focused on inventory management optimization tool in Coca-Cola Bottling industry in Nigeria. The researcher concluded that right quantity, quality and timing of inventory is achieved by use appropriate inventory management systems.

A 2010 review (NCAPD, KNBS&ICF, 2011) of the health situation in Kenya, performed by the Ministry of Medical Services and the Ministry of Public Health and Sanitation, reveals that improvements in health status have been marginal in the past few decades and certain indicators have worsened. Maternal Mortality Rate (MMR) and Neonatal Mortality Rate (NMR) have worsened over the past few decades, while Infant Mortality Rate (IMR) has only marginally improved. The review shows that disease burden as a result of malaria, tuberculosis and HIV/AIDS, which together account for almost 50 percent of all deaths in the country, have received the most attention GOK (2010) with the government and donors focusing on prevention, treatment and eradication efforts. While infectious diseases continue to be a burden to the Kenyan healthcare system, the incidence of non-infectious diseases such as diabetes, cancer, cardiovascular disease and high blood pressure are on the rise.

The Government of Kenya is committed to the improvement of the health and welfare of all its citizens. Strengthening the health system is at the core of the Government of Kenya's reform agenda. Over the years, the government has taken important steps towards the fulfillment of this goal by providing health services within easy reach of Kenyans. The "beyond zero mobile clinics" is one such initiative of bringing health services close to the citizens. It has also placed considerable emphasis on preventive, promotive and rehabilitative health services without ignoring curative services. Among the initiatives/actions taken is the development of the Kenya

Statement of the Problem

Development and implementation of service delivery in the public hospitals has been marred with challenges. A greater proportion of inventory management systems have not been fully implemented (Berman, Pallas, Smith, Curry, & Bradley, 2011). Lack of Inventory management systems contribute to 50% of the expenses in the public hospitals (Choy, 2012). The service delivery in the public hospitals has been affected by use of obsolete inventory management systems and technologies (ROK, 2012). Decline in service delivery in the public hospitals is as a result of poor inventory control and reduced consumer effective demand due to poor strategies in managing inventories(RoK, 2015). Further, this has led to poor inventory control, reduced consumer effective demand, delays in fulfilling customer's orders and inappropriate technology application due to lack of proper strategic inventory management systems in the hospitals. Public hospitals in Kenya face problems of fluctuating inventories, inaccurate forecast, poor responsiveness to customer's needs and lack of proper ICT application systems resulting to poor service delivery (Mathuva, 2013).

Similarly, Awino (2012) observed that New KCC faced problems of erratic deliveries, reduced consumer effective demand and high cost of production due to poor strategic inventory management systems techniques leading to poor performance. Kagira (2012) also noted that Kenya Tea Development Agency managed factories faced problems of fluctuating inventory levels, poor forecasting and lack of proper inventory control systems due to poor strategic inventory management systems techniques leading to declined performance. The situation in many public hospitals as per Ministry of Health report (2063) affirms this by indicating multiple problems such inadequate implementation of inventory management systems leading to declined service delivery. It is on this premise that this study sought to establish the influence of inventory management systems on service delivery in the public hospitals in Kenya.

Objectives of the Study

The purpose of the study was to establish the influence of inventory management systems on service delivery in public hospitals in Nairobi City County, Kenya. The s**pecific objectives were:-**

The specific objectives of the study included the following;

- To determine how Vendor Managed Inventory systems influence service delivery in public hospitals in Nairobi City County, Kenya
- To find out how Enterprise Resource Planning systems influence service delivery in public hospitals in Nairobi City County, Kenya
- To establish how Radio Frequency Identification systems influence service delivery in public hospitals in Nairobi City County, Kenya
- To examine how Just-In-Time systems influence service delivery in public hospitals in Nairobi City County, Kenya

LITERATURE REVIEW

Theoretical Review

Economic Order Quantity (EOQ) Model

The economic order quantity also known as the Wilson EQQ model is a model that defines the optimal quantity to order that minimizes total variable costs required to order and hold inventory (Lee, 2002). EOQ refers to the optimal ordering quantity for an item of stock that aids in the minimization of costs. This inventory management systems technique assumes that the demand for the item is known with certainty, the lead time is known and fixed, the receipt of the order occurs in single instant, quantity discounts are not calculated as part of the model and shortages of inventory or stock out do not occur.

Aberdeen Group (2004) the classical economic order quantity (EOQ) model seeks to find the balance between ordering cost and carrying cost with a view of obtaining the most economic quantity to procure by the distributor. Kotleba (2006) contend that the economic order-quantity model considers the tradeoff between ordering cost and storage cost in choosing the quantity to use in replenishing inventories items. A larger order quantity reduces ordering frequency, and, hence ordering cost per month this helps in mitigating costs but requires holding a larger average inventory, which increases storage (holding) cost per month.

The relevance of this model is that a smaller order-quantity reduces average inventory but requires more frequent ordering and higher ordering cost per month. This is most applicable to small firms that deal with perishable goods and services seeking to mitigate inventory management systems costs. Dai *et al.* (2001) explain that the cost of minimizing order-quantity is called the Economic Order Quantity (EOQ). Beamon *et al* (2006) posit that one of the advantages often explored to cushion the burden of net inventory cost and to enjoy substantial savings is the benefit from procuring large enough quantity that reduces the unit price of the item. This results to reduction of aggregate costs which enhances performance of the firm. Muckstadt et al., (2010) discussed that EOQ model was determined by minimizing the total annual cost incurred by the company by virtue of its ordering cost and carrying cost. The expression for total annual cost is:TC= q/2 h +D/Q s Where,

TC=total annual cost

Q=order quantity

D=annual demand

S=ordering cost

H=annual carrying cost per unit

Muckstadt et al., (2010) also said that the first component of this equation represented the inventory management systems costs and the second component represents the ordering cost. EOQ minimizes the sum of holding and setup costs. Differentiating with respect to order quantity, the expression for EOQ was obtained as indicated in the equation below.

Q = 2DCo/Ch

D = annual demand

Co= ordering/setup costs

Ch= cost of holding one unit of inventory

Just In Time (JIT) Model

This is an inventory management systems method whose goal is to maintain just enough material in just the right place at just the right time to make first the right amount of the product (Carlson, 2002). This was pioneered by the Japanese manufacturing firms where inventory is acquired only when required in business for production process and this aimed at improving the return on investment of the business by reducing in-process inventory and its associated costs (Schonsleben, 2000).In this system, the supplier has the responsibility of delivering the components and part to the production line "Just in Time" to be assembled. Other names for just in time system is Zero stock inventory and production (Lazaridis & Dimitrios , 2005).For the just in time method to work successfully the quality of the parts must be very high because defective materials could up halt the operations of the assembly line, there must be dependable relationships and smooth co-operation with suppliers, ideally this implies that the supplier should be located near to the company with dependable transportation available (Konke, 2003).

Just in time inventory management systems system helps in reducing inventory costs by avoiding carriages of excess inventories and mishandling of raw materials. According to Kortz(2003), Just in time purchasing recognizes high costs associated

with holding high inventory level and as such it has become important in most organizations to order inventory just in time of production so as to cut costs of holding inventory like storage lighting, heating, security, insurance and staffing (Dimitrios, 2008).

Stochastic Inventory Theory

According to Zheng (2002), for most order quantity/reorder point inventory systems, the stochastic model, which specifies the demands as stochastic processes, is often more accurate than its deterministic counterpart the EOQ model. However, the application of the stochastic model has been limited because of the absence of insightful analytical results on the model. This paper analyzes the stochastic order quantity reorder point model in comparison with a corresponding deterministic EOQ model. Based on simple optimality conditions for the control variables derived in the paper, a sensitivity analysis is carried out, and a number of basic qualitative properties are established for the optimal control parameters. The main results include the following: in contrast to the deterministic EOQ model, the controllable costs of the stochastic model due to selection of the order quantity (assuming the reorder point is chosen optimally for every order quantity) are actually smaller, while the total costs are clearly larger; the optimal order quantity is larger, but the difference is relatively small when the quantity is large; the cost performance is even less sensitive to choices of the order quantity; the relative increase of the costs incurred by using the quantity determined by the EOQ instead of the optimal from the stochastic model is no more than 1/8, and vanishes when the ordering costs are significant relative to other costs (Donaldson, 2001).

Deterministic Inventory Model

According to Croom and Jones (2010) deterministic inventory model is one of the fundamental techniques used by firms to develop inventory reserve estimates. Deterministic models of inventory control are used to determine the optimal inventory of a single item when demand is mostly largely obscure. Under this model inventory, inventory is built up at a constant rate to meet a determined or accepted demand. Dai and Kauffman (2001) argue that a deterministic circumstance is one in which the system parameters can be ascertained precisely. This is also known as a situation of sureness since it is realized that whatever is ascertained, things are sure to occur the same way. Kotleba (2006) contend that the deterministic inventory model considers the tradeoff between ordering cost and storage cost in choosing the quantity to use in replenishing inventories items. A larger order quantity reduces ordering frequency, and, hence ordering cost per month this helps in mitigating costs but requires holding a larger average inventory, which increases storage (holding) cost per month.

The relevance of this theory is that a smaller order-quantity reduces average inventory but requires more frequent ordering and higher ordering cost per month. This is most applicable to small firms that deal with perishable goods and services seeking to mitigate inventory management costs. Dai et al. (2001) explain that the cost of minimizing order-quantity is called the Economic Order Quantity (EOQ). Beamon et al (2006) posit that one of the advantages often explored to cushion the burden of net inventory cost and to enjoy substantial savings is the benefit from procuring large enough quantity that reduces the unit price of the item. This results to reduction of aggregate costs which enhances supply chain performance thus service delivery. This enables the distributor to maintain stock making the retailer secure. This improves delivery of goods and services to the final consumer while minimizing holding stock to the firm. A lean system provides the organization with a

well-defined system to manage inventory effectively and efficiently. Fawcett et al. (2008) notes that firms that use lean inventory management systems benefit from improved productivity that allow employees to spend more time on value adding activities.

Conceptual Framework

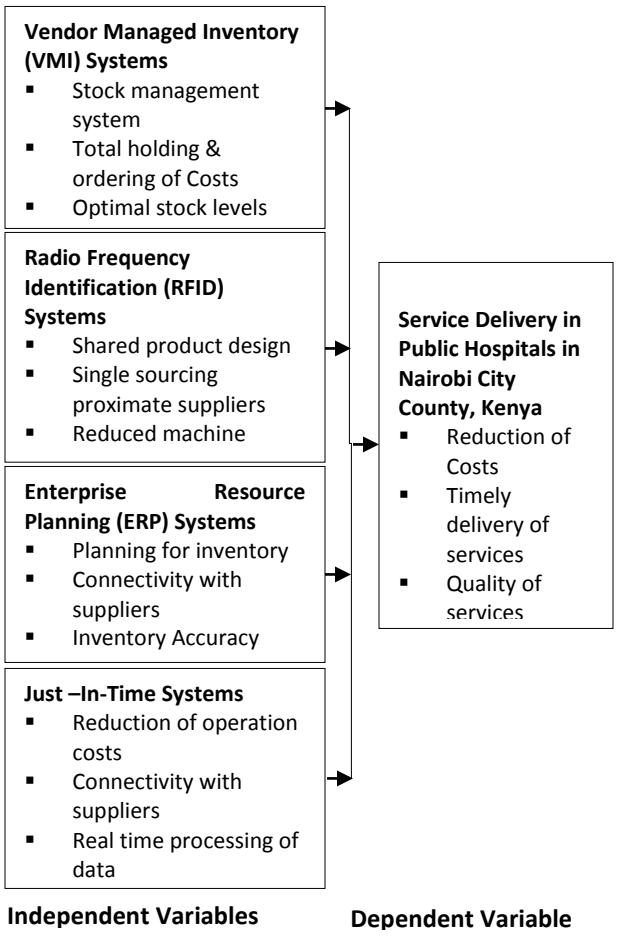

Figure 1: Conceptual Framework

Vendor Managed Inventory (VMI) Systems

This is a new concept that has been made popular by the Bose Corporation. It is now widely used in the industry with encouraging results. In VMI, the supplier takes charge of the inventory management of products and manages the replenishment process based on the consumption pattern of the consumer (Sople, 2010). They use EDI or other inter-organizational software packages or place the supplier's representative at the customer's place. Therefore in VMI, the manufacturer is given the responsibility for monitoring and controlling inventory at the retailer's distribution centre and in some instances at the retail store level as well. Specific inventory targets are agreed and it is the responsibility of the manufacturer to ensure that suitable inventory is always available. Such arrangements depend on accurate and timely information, and suitable computerized systems have only become available in recent years. The main advantage for the retailer lies in the reduction of the operating costs and also the delay in the payment for the products in question (Lysons & Farrigngton, 2006).

For manufacturers, it is suggested that running a VMI system for a retailer provides the opportunity to develop a much closer and hopefully more binding relationship with the retailer as well as giving much better visibility of real demand. This can make the planning of production much easier and can lead to significant reductions in inventory holding right through the supply chain (Allan et al, 2006).Using the right technology a firm would tend to offer better services to its customers as well as reducing the operational costs because in VMI systems, there will be real time sharing of information among the customers, the firm and the suppliers (Simchi-Levi et al., 2009).

Enterprise Resource Planning (ERP) Systems

Lambert (2011) puts forth that enterprise resources planning (ERP) system is part of the integrated supply chain management system of an organization that integrates all the supply chain partners. Watson and Zhang (2005) argue that an enterprise resources planning package is a database allowing a company to develop data to be used in all the applications. Such data base together with equipment for developing and extracting can ensure effective information movement in the

organization. This improves decision making process since the supply chain partners can share information. This minimizes communication costs in the supply chain leading to supply chain performance (Song & Zipkin, 2011).

The purpose of ERP is to facilitate the flow of information between all business functions inside the boundaries of the organization and manage the connections to outside stakeholders. This software, used by many enterprises, particularly by multinational corporations, has a critical role in ensuring increased efficiency. Zhao and Fan (2007) suggested that new generation ERP systems should be developed based on the principles of low cost, high quality and efficiency. In the recent years, ERP software have become widely used in almost all sectors such as production, services, finance, transportation and public utilities (Genoulaz & Millet, 2006). To give a few examples, Berchet and Habchi (2005) used an ERP system to arrange the supply chain activities of the telecommunications company

Alcatel; Olson (2007) compared alternative ERP optionsand procurement of ERP systems as package programs and made a list of the advantages and disadvantages of both methods; Yan (2008) conducted a study aiming at identifying and proposing solutions to problems encountered in ERP applications in the Chinese retail sector; KarsakandÖzoğul (2009) conducted a study on how to select the appropriate ERP software in decision making processes; Chou and Chang (2008) examined the effects of ERP applications on performance increase; Vandai (2008)studied the critical success factors in ERP application; Chang (2008) analyzed the performance effects of ERP on supply chain; Bose et. al. (2008) conducted a study on application of ERP systems in the supply chain management and inventory management systems of a company in the Chinese production sector; and Mabert (2003) studied the main differences between the ERP application approaches of companies.

Enterprise Resource Planning is an enterprise -wide information system that facilitates the flow of information and coordinates all resources and activities within the business organization. According to Loundon (2009), ERP is a packaged business software system that lets an organization automate and integrate the majority of its business processes, share common data and across the enterprise and produce and access information in a real-time environment. The various functions typically supported by the system include manufacturing, inventory, shipping, logistics, distribution, invoicing, and accounting. Some solutions now embed customer relationship management functionality. A wide variety of business activities that includes sales, marketing, billing, production, inventory management systems, human resource management, and quality control depend on these systems. The ERP system assists in managing the connections to outside stakeholders as well as enhancing performance management. It uses a centralized It provides the user with a unified, consistent, and uniform environment. According to the research that was done by Michael Burns (2009), ERP enables companies to break down traditional organization's silos, replacing them with a tightly integrated horizontal structure in which strategy, organizational structure, process and technology are closely aligned.

Radio Frequency Identification (RFID) Systems

The RFID systems provide a powerful technology for tracking the movement of goods throughout the supply chain. RFID systems use tiny tags with embedded microchips containing data about an item and its location to transmit radio signals over a short distance to special RFID readers then pass the data over a network to a computer for processing. The RFID tag is electronically programmed with

information that can uniquely identify an item plus other information about the item such as its location, where and when it was made and its status during production. Embedded in the tag is a microchip for storing the data. The rest of the tag is an antenna that transmits data to the reader (Ken et al, 2010).

In inventory control, RFID systems capture and manage more detailed information about items in the warehouse or in production. If a large number of items are shipped together, RFID systems
truck each pallet, lot or even unit item in the shipment. This helps the firm to improve their bility to see exactly what stock is stored in warehouses or on retail store shelves. Of course, the largest benefit can be achieved from implementing RFID at the product level. For example, with RFID, you can store information in your data base about when particular package of beef was packed,
which cow it came from, which firm it was from and where it was slaughtered. Such data could be provided in real time across the supply chain as pallets role into the warehouse or items roll of
the shelves (Simchi-Levi, et al, 2009). Manufacturers are expected to be the main beneficiaries of RFID implementation. Researchers have found that manufacturers will mainly benefit in three primary areas: reduced inventories, store and warehouse labour reduction, and reduction in stock out.

Just In Time Systems

Mehra and Inman (2010) define just-in-time (JIT) as an operating concept designed to eliminate waste Krajewski and Ritzman, 2016). The goal for just in time is to produce goods and service without waste. This is achieved by testing each step in a process to determine if it adds value to the product or to the service. The implementation of a JIT system yields minimum inventories by having each part delivered when it is needed, where it is needed, and in the quantity needed to produce the product. A JIT system enables companies to operate efficiently with the least amount of resources, and thus, improves quality, reduces inventory levels, and provides maximum motivation to solve problems as soon as they occur.

Eckert (2012) argues that JIT systems yields the standard operating procedures (SOPs) for inventory control consists of a step-by-step process that is easy follow and understand by the employees. These steps are inventory receiving, storage and product rotation and warehouse and inventory security. These steps also serve to hold employees accountable for adhering to inventory control policy expectations. Creating and following an SOP is essential to managing inventory and controlling inventory costs. Even small organizations should not underestimate the power of an inventory-control SOP.

Service Delivery

Service delivery is an essential function in the relationship between government and citizens (Abe & Monisola, 2014). Government performance is measured service delivery to the people (Eigema, 2007). Improving service delivery through increased accountability has been a significant implicit motivation behind the trend towards decentralization in developing countries (Hasnain, 2010). The standard theoretical argument for the transfer of responsibilities to lower tier of the government is that the closer proximity of local policymakers to citizens increases the flow of information and better enables the public to monitor, and to hold to account, government officials. Conversely, elected local policy makers, responding to this greater citizen vigilance, focus on improving service delivery in order to get re-elected (Hasnain, 2010).

A government is expected to deliver better services to its people, and the indices of measuring service delivery to the people include low inflation, better education, provision of improved health care at affordable rates, provision of clean water, provision of good roads and good road networks to the rural areas for the transport of agricultural products and raw materials (Abe & Monisola, 2014). Elsewhere, Carlson et al. (2005) depicted service delivery as the relationship between policy makers, service providers and poor people. The researchers used accessibility, availability, reliability and quality of services as a measure of service delivery. Majority of previous decentralization research focused on one measure of service delivery that is, service accessibility. There is paucity of research on the influence of decentralized governance on service delivery measured from multiple dimensions (citizen's satisfaction, quality of the service and service accessibility). In this study, service delivery is conceptualized as accessibility of services, efficiency of services, quality of services and citizen satisfaction

Empirical Review

Vendor Managed Inventory (VMI) Systems

Leading supermarkets in Kenya have moved towards the use of more centralized procurement systems for FFV. More recently, however, Kenyan supermarkets are focusing on offering a one stop shopping service by providing everything that a customer wants, all under one roof and it is quite difficult to achieve this using manual inventory management systems (Neven and Reardon,
2004). However, the use of automated inventory management systems has had little application in most organizations. This has resulted in problems that come as a result of stock-outs and stoppage in inventory flow. This in turn leads to dead inventory and the firms end up incurring huge losses in terms of opportunity costs associated with holding inventory (Wolcott, 2000).

Allan and Remko (2002) researched on how to establish inventory levels of gifts and decorative accessories in beauty shops and established that companies that make good use of Electronic Data Interchange (EDI) are far much better equipped to succeed than those which rely on outdated methods of inventory control. The research however fails to explain how using such a powerful system would assist the firms increase their profits, improve their service delivery levels and reduce the total operation costs for the firms.

Godwin (2003) also did a research on the performance driven in production planning and inventory control to process choice, and established that inventory tracking system might constitute a wasteful use of financial resources. But for the other firms operating in industries, it can result in effective inventory management. It has been established that there are many benefits that accrue from efficient utilization of computerized inventory control systems, the major one being meeting anticipated customer requirements. However, many gas manufacturing firms are not aware of the systems that can assist them in managing inventory (Eskow, 2005).

Enterprise Resource Planning (ERP) Systems

Momanyi and Lelei (2014) did a study on the Enterprise Resource Planning System and adoption and organizational perfomance of manufacturing firms in Kenya This study had two objectives. First to determine drivers for ERP adoption by manufacturing firms in Kenya. Second was to determine the relationship between ERP system adoption and organizational performance for manufacturing firms in Kenya. This was largely motivated by the need to understand the relationship between adopting the system and

organizational performance by manufacturing firms in Kenya where no conclusive research has been done before. In undertaking the study, manufacturing firms in Kenya were targeted. The primary data was collected using questionnaire from Finance, ICT team, supply chain, Factory and production team and top management. The analysis was done by using frequencies average, standard deviations and regression analysis and the findings were presented using tables, frequencies, charts and narratives. Through the study, the findings stipulated that the majority of the respondents agreed to a very great extent that the firm‟s competition from other companies; cost saving and other financial reasons, business innovations, business strategic positioning were the major drivers that motivated the organization to adopt the ERP system as indicated by scores. The findings on organizational performance also deduced that the majority of the respondents agreed to a very great extent that the firms have better return on investment, improved data security, improved decision making process and reduced cost of production. The study also concludes on adoption of the system, the study concludes that most manufacturing Firms have adopted the ERP System with virtually all modules implemented

Radio Frequency Identification (RFID) Systems

Khaliq and Rehmam (2014) did a study on the effect of RFID on organizational performance: The mediating role of supply chain perfomance.The aim of this paper is to examine the influence of radio frequency identification (RFID) deployment on firms manufacturing effectiveness and efficiency, and ultimately its impact on organizational performance via supply chain performance. The data was collected from 104 middle level and front-line managerial employees of three organizations. Structural Equation Modeling (SEM) technique was used to analyze the data in order to test the hypotheses. Findings point out that deployment of RFID leads toward enhanced manufacturing effectiveness and efficiency, enhancement in effectiveness lead the organization toward better supply chain. Findings suggest that firms can adopt RFID technology to boost up their performance in terms of manufacturing effectiveness and efficiency and supply.

Just-In-Time Systems

Kros et al (2006) empirical study sought to analyze the impact of just in time an inventory management system. The study suggests a connection between just in time inventory management system and process improvements that lead to inventory reduction. The empirical study used sampling method to select sector to examine measures of inventory management performance. The researcher findings concluded that suppliers from three sectors indicated mixed results in the impact just in time implementation on the inventory performance measures. The suggest consistency with other paper conducted on just in time as practice to enhance productivity and minimizing cost. From Management perspective the finding were very important because very little research had been done on how JIT systems can be modified in order to meet the needs of different industries. Since the study was conducted in the United States of America, the same would need to be evaluated in the Kenyan health service sector context.

Service Delivery in Public Hospitals

Key performance indicators in public hospitals in Kenya, Financial Management Act (2006) and Treasury Instructions (TI)904 requires the department of Health to present annual indicators of effectiveness and efficiency to Parliament. The key effectiveness indicators report how well the department achieves its outcomes while efficiency indicators show accountability for funds spent on delivery of the services. he Kenya Health Policy (2014-2030) indicates that the government under

the Ministry of Health works closely with public hospitals to ensure that goods and services are delivered on time in order to provide quality health care services to the citizens. According to the Kenya Constitution (2010) the Mandate of the Ministry of Health is to formulate policies, set standards, provide health services, create an enabling environment and regulate the provision of health service delivery. The Government is responsible for government health services, pharmacies and ambulance services

METHODOLOGY

The researcher used descriptive research design to determine the influence of inventory management systems on the service delivery in the public hospitals in Nairobi City County, Kenya. A descriptive research design is concerned with determining the frequency with which something occurs or the relationship between variables (Bryman & Bell, 2003). There were 80 health public facilities in Nairobi City County as per December, 2017(NCC, 2017. The Multiple Regression model that was developed on the analysis of the variable relationships were as follows: $Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$,

Where,

Y_i= Service Delivery in Public Hospitals;

β_0= constant (coefficient of intercept), $\beta 1 \ldots \beta_4$= regression coefficient of four variables.

X_1= Vendor Managed Inventory Systems;

X_2= Enterprise Resource Planning;

X_3= Radio Frequency Identification Systems;

X_4= JIT Systems;

ε = Error term;

FINDINGS AND DISCUSSIONS

Vendor Managed Inventory (VMI) Systems

The first objective of the study was to establish the influence of vendor managed inventory (VMI) systems on service delivery in the public hospitals in Nairobi City County, Kenya. Respondents were thus asked to indicate the extent to which they agreed with various statements relating to vendor managed inventory (VMI) systems on service delivery in the public hospitals. Responses were given on a five-point scale where: 1= Very small extent; 2= Small extent 3= Moderate extent; 4 = Great extent; 5= Very great extent. The scores of 'Very small extent' and 'Small extent' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Moderate extent' has been taken to represent a statement agreed upon moderately, equivalent to a mean score of 2.6 to 3.4. The score of 'Great extent' and 'Very great extent' have been taken to represent a statement great extent upon equivalent to a mean score of 3.5 to 5.0.

Table 1 below presented the findings. With a grand mean of 4.232, a majority of respondents can be said to have stated to great extent with most statements posed as regards influence of inventory management systems on the service delivery in the public hospitals in the study area. Majority particularly highly agreed that the stock management system in the hospital minimizes the total holding and ordering costs annually thus leading reduction of stock out costs (4.764); the hospital ensures that there is optimal stock levels to reduce stock out costs (4.213); the employees get involved in the quality planning and labour requirements planning (4.235); The hospital ensures that the replenishment of inventory minimizes the lead time for the timely delivery of goods (4.751); the firm ensures that there is a working stock

management system to reduce lead cycle time for effective reduction of wastes (4.237); the hospital ensures that there is adequate optimal stock levels for the reduction of wastes (4.573); the stock management system in the hospital minimizes the total holding and ordering costs annually thus leading reduction of stock out costs (4.252).

The study findings were in agreement with literature review by Lysons & Farrington(2016) who established that in VMI, the manufacturer is given the responsibility for monitoring and controlling inventory at the retailer's distribution centre and in some instances at the retail store level as well. Specific inventory targets are agreed and it is the responsibility of the manufacturer to ensure that suitable inventory is always available. Such arrangements enhance accurate and timely information, and suitable computerized systems have only become available leading to the reduction of the operating costs and timely delivery for the products hence improved performance of the organization.

Table 1: Vendor Managed Inventory (VMI) Systems

Statements	Mean	Std. Dev
The stock management system in the hospital minimizes the total holding and ordering costs annually thus leading reduction of stock out costs	4.764	1.432
The hospital ensures that there is optimal stock levels to reduce stock out costs	4.213	1.022
The hospital ensures that the replenishment of inventory minimizes the lead time for the timely delivery of goods	4.235	1.123
The hospital ensures that there is a working stock management system to reduce lead cycle time for effective reduction of wastes	4.751	1.675
The hospital ensures that there is adequate optimal stock levels for the reduction of wastes	4.237	1.341
The stock management system in the hospital minimizes the total holding and ordering costs annually thus leading to reduction of stock out costs	4.252	1.093
Composite mean	**4.233**	

Enterprise Resource Planning (ERP) Systems

The second objective of the study was to establish the influence of Enterprise Resource Planning (ERP) systems on service delivery in the public hospitals in Nairobi City County, Kenya. Respondents were thus asked to indicate the extent to which they agreed with various statements relating to Enterprise Resource Planning systems on service delivery in the public hospitals. Responses were given on a five-point scale where: 1= Very small extent; 2= Small extent 3= Moderate extent; 4 = Great extent; 5= Very great extent. The scores of 'Very small extent' and 'Small extent' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Moderate extent' has been taken to represent a statement agreed upon moderately, equivalent to a mean score of 2.6 to 3.4. The score of 'Great extent' and 'Very great extent' have been taken to represent a

statement great extent upon equivalent to a mean score of 3.5 to 5.0.

Table 2 presented the findings of a grand mean of 4.111, a majority of respondents indicated to great extent with most statements posed as regards to influence of Enterprise Resource Planning (ERP) on the service delivery in the hospitals in the study area. Majority particularly highly agreed that the organization ensures that there is planning for inventory to improve decision making for the timely delivery of goods (4.334); the connectivity with the suppliers of the organization enhances reduction of stock out costs (4.219); Inventory accuracy facilitates flow of information for timely delivery of goods (4.228); the organization ensures that there is planning of inventory that coordinates all resources and activities for the reduction of wastes (4.190); the ERP systems assists in managing the connections with the outside stakeholders as well as enhancing reduction of stock out costs (4.248). The study findings corroborates with literature review by Panda, Sahu & Gupta (2010) who found that Enterprise Resource Planning System and adoption and organizational service delivery in the organizations in Kenya enhance firm's competition from other companies; cost saving and other financial reasons, business innovations, business strategic positioning. This leads to better return on investment, improved data security, improved decision making process and reduced cost of production.

Table 2: Enterprise Resource Planning (ERP) Systems

Statements	Mean	Std. Dev
The organization ensures that there is planning for inventory to improve decision making for the timely delivery of goods	4.334	1.238
The connectivity with the suppliers of the firms enhances reduction of stock out costs	4.219	1.458
Inventory accuracy facilitates flow of information for timely delivery of goods	4.228	1.380
The organization ensures that there is planning of inventory that coordinates all resources and activities for the reduction of wastes	4.190	1.348
The ERP systems assists in managing the connections with the outside stakeholders as well as enhancing reduction of stock out costs	4.248	1.328
Composite mean	**4.111**	

Radio Frequency Identification (RFID) Systems

The third objective of the study was to establish the influence of Radio Frequency Identification (RFID) systems on service delivery in the public hospitals in Nairobi City County, Kenya. Respondents were thus asked to indicate the extent to which they agreed with various statements relating to Radio Frequency Identification (RFID) systems on service delivery in the public hospitals. Responses were given on a five-point scale where: 1= Very small extent; 2= Small extent 3= Moderate extent; 4 = Great extent; 5= Very great extent. The scores of 'Very small extent' and 'Small extent' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Moderate extent' has been taken to represent a statement agreed upon moderately, equivalent to a mean

score of 2.6 to 3.4. The score of 'Great extent' and 'Very great extent' have been taken to represent a statement great extent upon equivalent to a mean score of 3.5 to 5.0.

Table 3 presented the findings. With a grand mean of 3.876, a majority of respondents posed to great extent with most statements posed as regards influence of Radio Frequency Identification (RFID) Systems on the service delivery in the public hospitals in the study area. Majority particularly highly agreed that the organization ensures that there is shared product design with the suppliers and customers to enhance timely delivery of goods (4.789); the organization ensures that there is movement towards single sourcing proximate suppliers to enhance timely delivery of goods (3.876); the organization has ensured that there is reduced machine setup times for the reduction of stock out costs (3.998); the RFID system has led to dramatic improvements in the organization return on investments, quality and efficiency (4.112); the organization has ensured that there is total preventive maintenance that emphasizes that production create items that arrive when needed to reduce wastes (4.870). The implementation of RFID system has yielded minimum inventories (3.876); the implementation of RFID system has led to improved quality, least amount of resources and provided maximum motivation to solve problems as soon as they occur (3.678). The study findings are in tandem with literature review by Thomson (2009) who established that deployment of RFID leads toward enhanced manufacturing effectiveness and efficiency, enhancement in effectiveness leads the organization toward better supply chain. Findings suggest that firms can adopt RFID technology to boost up their performance in terms of service delivery effectiveness and efficiency and supply.

Table 3: Radio Frequency Identification (RFID) Systems

Statements	Mean	Std. Dev
The organization ensures that there is shared product design with the suppliers and customers to enhance timely delivery of goods	4.789	1.098
The organization ensures that there is movement towards single sourcing proximate suppliers to enhance timely delivery of goods	4.327	1.312
The organization has ensured that there is reduced machine setup times for the reduction of stock out costs	3.998	1.412
The RFID system has led to dramatic improvements in the firms return on investments, quality and efficiency	4.112	1.218
The organization has ensured that there is total preventive maintenance that emphasizes that production create items that arrive when needed to reduce wastes	4.870	1.431
The implementation of RFID system has yielded minimum inventories	3.876	1.111
The implementation of RFID system has led to improved quality, least amount of resources and provided maximum motivation to supply chain solve problems as soon as they occur	3.678	1.239
Composite mean	**3.786**	

Just In Time Systems

The fourth objective of the study was to establish the influence of Just In Time (JIT) systems on service delivery in the public hospitals in Nairobi City County, Kenya. Respondents were thus asked to indicate the extent to which they agreed with various statements relating to Just In Time (JIT) systems on service delivery in the public hospitals. Responses were given on a five-point scale where: 1= Very small extent; 2= Small extent 3= Moderate extent; 4 = Great extent; 5= Very great extent. The scores of 'Very small extent' and 'Small extent' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Moderate extent' has been taken to represent a statement agreed upon moderately, equivalent to a mean score of 2.6 to 3.4. The score of 'Great extent' and 'Very great extent' have been taken to represent a statement great extent upon equivalent to a mean score of 3.5 to 5.0.

Table 4 below presents the findings. With a grand mean of 3.886, a majority of respondents can be said to agree to great extent with most statements posed as regards influence of JIT systems on the service delivery in the public hospitals in Kenya. Majority particularly highly agreed that the firm has organization has adopted connectivity with suppliers as an important element in its supply chain (3.768); The organization incorporates tracking systems as a key factor in its operations (3.908); The organization takes into account the use of emergence of internet technologies (4.218); There is digitalization of information and data, rationalization and improved efficiency in administration process (3.872); The traditional paper documents disappear and are replaced by digital information that easily can be stolen(copied), changed, deleted among others (4.218). For procurement officers, development will mean the need for further training, amended procurement methods & IT based in procurement tools (3.899). For procurement officers, development will mean the need for further training, amended procurement methods & IT based in procurement tools (4.321). The success of connectivity to suppliers mostly depends on the increase of bidders(suppliers) that participate to procurement auctions (4.321).

The study findings are in agreement with literature review by Smith (2009) who established that JIT systems enhance performance an organization. Mehra and Inman (2010) define just-in-time (JIT) as an operating concept designed to eliminate waste Krajewski and Ritzman, 2016). The goal for just in time is to produce goods and service without waste. This is achieved by testing each step in a process to determine if it adds value to the product or to the service. The implementation of a JIT system yields minimum inventories by having each part delivered when it is needed, where it is needed, and in the quantity needed to produce the product. A JIT system enables companies to operate efficiently with the least amount of resources, and thus, improves quality, reduces inventory levels, and provides maximum motivation to solve problems as soon as they occur.

Table 4: Just In Time (JIT) Systems

Statements	Mean	Std. Dev
The organization has adopted connectivity with suppliers as an important element in its supply chain	3.768	1.213

The organization incorporates tracking systems as a key factor in its operations	3.908	1.221
The organization takes into account the use of emergence of internet technologies	4.218	1.110
There is digitalization of information and data, rationalization and improved efficiency in administration process	3.872	1.421
The traditional paper documents disappear and are replaced by digital information that easily can be stolen(copied), changed, deleted among others	4.218	1.312
For procurement officers, development will mean the need for further training, amended procurement methods & IT based in procurement tools	3.899	1.006
The success of connectivity to suppliers mostly depends on the increase of bidders(suppliers) that participate to procurement auctions	4.321	1.106
Composite mean	**3.886**	

Service Delivery

The study sought to determine the influence of inventory management systems on the service deliver in public hospitals, attributed to the influence of VMI, ERP, RFID and JIT systems. The study was particularly interested in three key indicators, namely reduction of costs, timely delivery and quality of services, with all the three studied over a 5 year period, running from 2013 to 2017.

Findings in Table 5 above revealed improved increase of profits across the 5 year period running from the year 2013 to 2017. Cost of reduction recorded positive improvement with a majority affirming to less than 10% in 2013 (42.3%) and 2014 (37.7%), to 10% in 2015 (36.1%) then more than 10% in 2016 (41.1%) and 2017 (37.5%). A similar trend was recorded in timely delivery of services, improving from less than 10% (44.1%) in 2013, to more than 10% in 2014 (36.4%), 2015 (40.4%) and 2016 (37.3%). Quality of services further recorded positive improvement with a majority affirming to less than 10% in 2013 (37.9%) and 2014 (35.9%), to 10% in 2015 (35.9%) and 2016 (35.3%) then by more than 10% in 2017 (36.2%).

It can be deduced from the findings that key service delivery indicators have considerably improved as influenced by among other inventory management systems on the service deliver in public hospitals the influence of VMI, ERP, RFID and JIT systems. Quality and Timely delivey of services have particularly improved by at least 10 percent across the public hospitals pointing to the significance of inventory management systems in the supply chain process in the hospitals in Kenya.

Table 5: Service Delivery

Reduction of Costs	**2013**	**2014**	**2015**	**2016**	**2017**
Improved by less than 10%	42.3	37.7	31.6	30.7	29.5
Improved by 10%	31.8	32.9	36.1	28.2	33
Improved by more than 10%	25.9	29.4	32.3	41.1	37.5
Timely Delivery of Services	**2013**	**2014**	**2015**	**2016**	**2017**
Improved by less than 10%	44.1	35.2	33.4	25.7	27.1

Improved by 10%	31.7	32.6	30.2	33.9	35.6
Improved by more than 10%	23.5	32.2	36.4	40.4	37.3
Quality of Services	**2013**	**2014**	**2015**	**2016**	**2017**
Improved by less than 10%	37.9	35.9	31.2	25.7	33.1
Improved by 10%	36.2	31.3	35.9	35.3	30.7
Improved by more than 10%	25.9	32.8	32.9	39	36.2

Multiple Regression Analysis

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.788	.621	.598	.011

Table 7: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	45.885	4	11.4712	35.220	.001
	Residual	17.890	65	.3257		
	Total	63.775	69			

NB: F-critical Value = 13.875; **Predictors: (Constant):** VMI, ERP, RFID, JIT systems

Multiple regression analysis was conducted as to determine the relationship between the service delivery in the public hospitals and the four independent variables. As per the SPSS generated, the model equation would be ($\mathbf{Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon}$) becomes: $Y= 13.256+ 0.872X_1+ 0.788X_2+ 0.762X_3 + 0.756X_4$. This indicates that the service delivery in the public hospitals = 13.256 + 0.872(VMI) + 0.788(ERP) + 0.762(RFID) + 0.756(JIT). According to the regression equation established, taking all factors into account (VMI, ERP, RFID, JIT) constant at zero the service delivery in the public hospitals was 13.256. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in VMI will lead to a 0.872 increase in the service delivery in the public hospitals.; a unit increase in ERP will lead to a 0.788 increase in the service delivery in the public hospitals, a unit increase in RFID will lead to 0.762 increase in the service delivery in the public hospitals and a unit increase in JIT systems will lead to 0.756 increase in the service delivery in the public hospitals. This infers that VMI contributed most to the service delivery in the public hospitals. At 5% level of significance, VMI had a 0.000 level of significance; ERP showed a 0.001 level of significance, RFID showed a 0.004 level of significance and JIT showed a 0.005 level of significance hence the most significant factor was VMI.

Table 8: Regression Coefficients

Model	Unstandardized	Standardized	t	Sig.

		Coefficients		Coefficients		
		β	Std. Error	β		
1	(Constant)	13.256	2.497		5.309	.001
	VMI	.872	.252	.502	3.455	.000
	ERP	.788	.348	.455	2.266	.001
	RFID	.762	.378	.305	2.011	.004
	JIT	.756	.384	.259	1.969	.005

CONCLUSIONS AND RECOMMENDATIONS

From the descriptive analysis, the study results revealed that majority of the respondents indicated that majority particularly indicated that the inventory management system in the organization minimizes the total holding and ordering costs annually thus leading reduction of stock out costs. The organization ensures that there are optimal stock levels to reduce stock out costs. The employees get involved in the quality planning and labour requirements planning. The organization ensures that the replenishment of inventory minimizes the lead time for the timely delivery of goods. The organization ensures that there is a working stock management system to reduce lead cycle time for effective reduction of wastes .The firms ensures that there is adequate optimal stock levels for the reduction of wastes and the stock management system in the firm minimizes the total holding and ordering costs annually thus leading reduction of stock out costs.

From the descriptive analysis, the study results showed that the respondents stated that organization ensure that there is planning for inventory to improve decision making for the timely delivery of goods. The connectivity with the suppliers of the organization enhances reduction of stock out costs and inventory accuracy facilitates flow of information for timely delivery of goods. Further, the organization ensures that there is planning of inventory that coordinates all resources and activities for the reduction of wastes. The ERP systems assist in managing the connections with the outside stakeholders as well as enhancing reduction of stock out costs.

From the descriptive analysis, the respondents stated that organization ensures that there is shared product design with the suppliers and customers to enhance timely delivery of goods. The organization ensure that there is movement towards single sourcing proximate suppliers to enhance timely delivery of goods. The organization has ensured that there is a reduced machine setup time for the reduction of stock out costs. The RFID system has led to dramatic improvements in the firms return on investments, quality and efficiency. The organization has ensured that there is total preventive maintenance that emphasizes that production create items that arrive when needed to reduce wastes. The implementation of RFID system has yielded minimum inventories. The implementation of RFID system has led to improved quality, least amount of resources and provided maximum motivation to solve problems as soon as they occur.

The study findings indicated that the organizations have adopted connectivity with suppliers as an important element in its supply chain. The organization incorporates tracking systems as a key factor in its operations. The organization takes into account the use of emergence of internet

technologies. There is digitalization of information and data, rationalization and improved efficiency in administration process. The traditional paper documents disappear and are replaced by digital information that easily can be stolen (copied), changed, deleted among others. For procurement officers, development will mean the need for further training, amended procurement methods & IT based in procurement tools. For procurement officers, development will mean the need for further training, amended procurement methods & IT based in procurement tools. The success of connectivity to suppliers mostly depends on the increase of bidders (suppliers) that participate to procurement auctions.

Conclusions of the Study

Based on the study findings, the study concludes that service delivery in the public hospitals in Nairobi, Kenya is influenced by Vendor Managed Inventory (VMI) systems, Radio Frequency Identification (RFID) systems, Enterprise Resource Planning (ERP) systems and JIT Systems. The study results conclude that Vendor Managed Inventory (VMI) systems are an important factor which can service delivery in the public hospitals. The regression coefficients of the study show that a Vendor Managed Inventory (VMI) system has a significant and positive influence on service delivery in the public hospitals.

The study concludes that a Radio Frequency Identification (RFID) system also is an important factor which can service delivery in the public hospitals. The regression coefficients of the study show that a Radio Frequency Identification (RFID) system has a significant and positive influence on service delivery in the public hospitals.

Further, the study concludes that Enterprise Resource Planning (RFID) system is an important factor which can service delivery in the public hospitals. The regression coefficients of the study show that Enterprise Resource Planning (RFID) system has a significant and positive influence on service delivery in the public hospitals.

Further the study concludes that Just In Time (JIT) system is an important factor which can service delivery in the public hospitals. The regression coefficients of the study show that Just In Time systems (JIT) has a significant and positive influence on service delivery in the public hospitals.

Recommendations

The study recommends for the Vendor Managed Inventory (VMI) systems in the hospitalsg that has a stock management system to minimize the total holding and ordering costs annually thus leading reduction of stock out costs. The hospitals should have optimal stock levels; the employees get involved in the quality planning and labour requirements planning. The hospitals should also ensure that the replenishment of inventory minimizes the lead time for the timely delivery of goods.

The study recommends for a Radio Frequency Identification (RFID) system which ensure that there is a reduced machine setup time for the reduction of stock out costs. The RFID system can lead to the firms return on investments, quality and efficiency. The firms should ensure that they have a total preventive maintenance that emphasizes that production creates items that arrive when needed to reduce wastes, yielded minimum inventories, lead to improved quality, least amount of resources and provide maximum motivation to source problems as soon as they occur.

The study recommends for firms to put in place ERP systems to ensure that there is planning for inventory to improve decision making for the timely delivery of goods.The connectivity with the suppliers of the firms is important as it enhances reduction of stock out costs and inventory accuracy

facilitates flow of information for timely delivery of goods. Further, the firm should ensure that there is planning of inventory that coordinates all resources and activities for the reduction of wastes and connections with the outside stakeholders to reduce of stock out costs.

The study recommends JIT systems in the public hospitals is an important element in its supply chain. The JIT system can be done through digitalization of information and data, rationalization to improve efficiency in administration process. The success of JIT systems will depend on the increase of bidders (suppliers) that participate to procurement auctions to enhance service delivery in the public hospitals in Kenya.

Further Areas For Research

A review of literature indicated that there has been limited amount of research on influence of inventory management systems on service delivery in the public hospitals in Kenya. Thus, the findings of this study serve as a basis for future studies on service delivery in the public hospitals. The four independent variables that were studied explain 62.10% of the service delivery in the public hospitals. This therefore means that other factors not studied in this study contributed 37.90% to the service delivery in the public hospitals. There is need to carry out further study on other factors that influence service delivery in the public hospitals.

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