Journal of Investment and Management
2016; 5(5): 82-92
http://www.sciencepublishinggroup.com/j/jim
doi: 10.11648/j.jim.20160505.16
ISSN: 2328-7713 (Print); ISSN: 2328-7721 (Online)

Effect of Inventory Control Strategies on Inventory Record Accuracy in Kenya Power Company, Nakuru

Lilian Tundura, Daniel Wanyoike

Department of Procurement and Logistics in the School of Entrepreneurship, Procurement and Management, Jomo Kenyatta University of Agriculture and Technology, Nakuru, Kenya

Email address:

ltundura@gmail.com (L. Tundura), danwanyoike@gmail.com (D. Wanyoike)

To cite this article:

Lilian Tundura, Daniel Wanyoike. Effect of Inventory Control Strategies on Inventory Record Accuracy in Kenya Power Company, Nakuru. *Journal of Investment and Management.* Vol. 5, No. 5, 2016, pp. 82-92. doi: 10.11648/j.jim.20160505.16

Received: August 22, 2016; **Accepted**: September 21, 2016; **Published**: September 29, 2016

Abstract: The purpose of this study was to determine the effect of inventory control strategies on inventory record accuracy in Kenya Power Nakuru. The study looked at three inventory control strategies; cycle counting, inventory coding and computerized inventory accuracy. The three variables were individually and collectively related with inventory records accuracy. The study adopted a descriptive survey. The target populations for the study were the employees in Kenya Power Nakuru working in procurement, stores and finance departments. Since there are only 42 employees in the departments, all the employees were involved in the study as respondents. The researcher conducted a pilot study to test for validity and reliability of the research instruments before the actual study. Data was then collected through structured questionnaires that were self-administered by the researcher. Collected data was analyzed both descriptively and inferentially. Descriptive statistics was used to describe the study variables while correlation and regression analysis was used to relate the research variables. Single tailed t-test was used to test the hypotheses in the study. The study established that inventory control practices have significant positive influence on inventory records accuracy. The study recommends that public companies as well as private companies adopt inventory control practices as they are likely to experience enhanced efficiency and effectiveness in inventory records. The study suggests that further study is conducted to assess the role of management in implementing inventory control practices and whether inventory control practices can enhance operational performance of an organization.

Keywords: Inventory Control, Inventory Control Strategies, Inventory Record Accuracy

1. Introduction

Inventory control is one of the key management areas in organizations. This is because of the internal roles inventory control plays in the organizations such as facilitation of continuous production, smoothening of operations and enhancement of customer service (Singh, 2013). Other than the internal benefits, inventory management is considered by Chief Supply Chain Officer (CSCO) Insights as the core determinant of supply chain management excellence. Another reason why inventory control is considered critical in management is the costs involved its management. According to Service Corps of Retired Executives (2002), inventory management accounts for 45% to 90% of total organizations' expenses.

Organizations hold numerous types of inventories ranging from; raw materials, assembles, sub-assemblies, semi processed materials, finished products, and consumables (CSCOInsight, 2011). The type of inventory held by an organization depends on the nature of the organization; for service organizations, high percentage of inventory is composed of consumables, for processing and manufacturing, raw and semi processed inputs while for assembly organizations, sub-assemblies (Service Corps of Retired Executives, 2002; Zipkin, 2000). Inventories are held to ensure continuity in organizational processes, to help in production and to be sold in case of finished products (Kiisler, 2014). Based on the reasons why inventories are held, Zipkin (2000) categorized inventories into; cycle inventory; held to satisfy predicted demand between replenishments, safety inventory; held to take care of uncertainties, speculative demand; held to take advantage of some future situation in the

market and dead inventory; stock of obsolete items. However, whichever the reason an organization holds inventory, there must be in place an effective inventory management system and processes/strategies (Schreibfeder, 2014).

Globally, Inventory control is not a new concept. Inventory management can be traced from as early as between 1910 and 1920 when manufacturing firms used firms used to produce variety of inventory items in lots that were thought to give the best compromise between inventory costs and manufacturing requirements of the organizations. This is evidenced in the Raymond's book, 'Inventory Problems' in 1931. Since then inventory management have seen transformation with new concepts like supply chain management, operations management and procurement having a center stage in inventory control operations (Hadley, 1960).

In Africa, inventory control has undergone a lot of development. In South Africa for instance, the development of Red Beam Inventory Tracking, inventory control software designed to help control inventory levels and item movements in warehouse, distribution center, stock room or store has been developed to enhance inventory control (Drum Corps International, 2013). Report on warehouse and inventory management in Africa revealed that structured trade & commodity finance (STCF) has emerged as a crucial ingredient in commodity control especially with respect to quality and controls (AgriFin, 2013).

There are two main schools of thought about inventory. The first school of thought contends that having inventory is inevitable since the costs of not having inventory when customers want them outweigh the costs of carrying them. The other school of thought strongly believes that inventory is the root of all production evils; the presence of inventory means the firm is hiding behind inventory levels certain production inefficiencies (SME ToolKit, 2016).

Inventory control is the process of overseeing and controlling ordering, storage and use of components that an organization uses in the production as well as the overseeing and controlling of quantities of finished products for sale (Rossetti et al., 2000). Different organizations employ different methods in controlling inventory items. Majorly adopted inventory control strategies include; stock taking, computerized inventory control, coding, Just in Time and drop shipping. This study will focus on three strategies; stock taking, computerized inventory control, inventory coding.

Kenya Power has continually adopted emerging inventory control strategies in its store management. The company deployed enterprise software, Systems Applications Program (SAP) to manage business in 1995. The company also developed a supplier relationship management platform in an attempt to evaluate the performance of its suppliers, allow the company respond faster to suppliers, and to enable suppliers perform self-service for invoices and purchase orders (Kenya Power, 2015). This system is reported to have enhanced resources management and service delivery to customers. Since then, the company currently uses a computerized inventory control system (Wanjara, 2015).

Kenya Power is a public company mandated to distribute electricity throughout the country. The company's sales stood at over 3.6 million customers (as at June 2015). The Company's key mandate is to plan for sufficient electricity generation and transmission capacity to meet demand; building and maintaining the power distribution and transmission network and retailing of electricity to its customers. Kenya Power is majorly service oriented, however, due to the nature of its services; the company handles a lot of inventory items used as either consumables or operational inventory or infrastructural inventory (Kenya Power, 2016).

According to Rossetti et al. (2000), an inventory record should consist of stock number, location, quantity on hand and coding system. Inventory Record Accuracy (IRA) is a measure of how closely official inventory records match the physical inventory (Strategos, Inc., 2014). In the current business environment, most organizations have adopted automated inventory management systems to enhance inventory records accuracy and rely on information provided by such information system to make decisions (Kang, 2004).

There are a number of reasons for keeping accurate records of inventory. The reasons are categorized into financial reasons and operational reasons. Financial reasons the requirements from investors, lenders, tax agencies and internal budget requirements. Operational reasons on the other hand include; the need to protect the organization from interruptions due to wrong inventory forecasts, the need to safeguard inventory items from loss and spoilage, need to protect the organization from stock outs, the need to maintain the correct inventory level and the need to enhance operational efficiency and effectiveness through continuous supply of inventory items (Strategos, Inc., 2014). In Geothermal Development Company (GDC), SAP system has been deployed in management of inventory. Through the use of SAP, the company achieved improved inventory records accuracy by 30% between the year 2013 and 2015. This was revealed by stock counting report that showed remarkable reduction in stock variance (Geothermal Development Company).

1.1. Statement of the Problem

Inventory control has been used by organizations not just to achieve organizational economy but also to enhance customer service. Organizations use various strategies to manage inventory with the aim of achieving economy, efficiency and better customer service. While organizations invest heavily on the strategies, some do not necessarily experience the expected outcomes. The problem was therefore that most organizations adopt these strategies with limited information as whether adoption of these strategies could directly lead to improved performance or the expected organizational benefits. In particular, there was very limited literature on the relationship between inventory control strategies and inventory record accuracy. Limited literature was as a result of limited research that has been conducted to link the two variables. There was therefore need to conduct further research and build literature on the relationship between inventory control strategies and inventory record accuracy.

This study intended to bridge this gap by providing empirical literature on the effect of inventory control strategies on inventory record accuracy.

1.2. Objectives of the Study

The overall objective of the study was to establish the effect of Inventory Control Strategies on Inventory Record Accuracy. The objective was brocken down into three specific objectives;

i. To determine the effect of cycle counting on inventory record accuracy in Kenya Power Company, Nakuru
ii. To establish the effect of Inventory Coding on inventory record accuracy in Kenya Power Company, Nakuru
iii. To find out the effect of Computerized Inventory Management on inventory record accuracy in Kenya Power Company, Nakuru

2. Literature Review

2.1. Theoretical Review

2.1.1. Theory of Constraints

In practical business operating environment, shortages occur when shipments are delivered late relative to promised dates and when materials miss from constraints and shipment buffers. Organizations consider inventory as a liability as opposed to asset. This is because, a lot of money is tied to inventory, a lot of cost is incurred in holding the inventory, a lot of wastages is experienced due to inventory becoming obsolete or expired in store. However, organizations must appreciate the fact that there is direct relationship between affective inventory management and cash flow and return on investments (Woeppel, 2000). As such, there is need to management inventory in a way that the organization maximizes on benefits of inventory without incurring excessive costs and wastages.

The 'Theory of Constraints' is a methodology for identifying the most important limiting factor that stands in the way of achieving a goal and then systematically improving that constraint until it is no longer the limiting factor. Looking at an organization as a system, system's constraint is that part of the system that constrains the objective of the system. According to theory of constraints, management should follow the following steps; firstly, identify the system's constraints. Once the constraints are identified, the next decision is how to exploit the system's constraint or how to operate within the organization such that the constraints do not have adverse effects on the operations of the organization. Owing to the importance the organization attaches to the constraints, the organization my need to subordinate everything else to the exploiting the company constraints so as to alleviate the system's constraints if possible or break down the constraints. If the constraints are already broken, the organization may need to go back to step 1, and do not allow inertia to cause a system's constraint (Rand, 2000).

Inventory control requires understanding that the organization operates in an environment and has departments that operate as a system. It is equally important to appreciate the role each and every stakeholder in the system play towards that organization achieving its inventory requirements. Some of the stakeholders may present opportunities while others may actually be constraints towards achievement of organizational inventory goals. Constraint theory is instrumental in understanding how the relationships between the functional areas are players in business environment can influence the organization's ability to meet its objectives (Institute of Management Accountants, 1999). In inventory management, theory of constraints aims at identifying the inventory level that needs to be held such that the organization operated without experiencing shortages as a result of market fluctuations. In this study, the theory will be used to test if cycle counting, inventory recording and computerized inventory control are bottlenecks in inventory record accuracy.

2.1.2. Stock Diffusion Theory

The stock diffusion theory models stock consumption as a Markov process with a slow diffusion term and the Fokker Planck equation is used to derive the probability distribution of the stock consumption and that of the reorder time. The theory stresses on the knowledge supply chain distributions makes it possible to manage the inventory in a dynamical way and to keep the safety stock to a minimum level (Bragilia, 2013). This theory also takes into account the fluctuations in market that makes it important to ensure accuracy in inventory forecasting and inventory records management. 'Stock diffusion concept can also be applied in inventory control environment with random and controllable demand and continuous input flow with fixed uncontrollable rate under finite storage capacity' to reduce inventory variability.

The system proposes that control of inventory in such an uncertain environment requires internal inventory control systems that allows direct and real time flow of information on materials; information flow between suppliers (Nyariki & Wanyoike, 2016). In this study, this theory helps in understanding of uncertainties in inventory control environment and how such uncertainties create the need for accuracy in inventory records and how such needs inform selection of inventory control strategies.

2.2. Empirical Review

The empirical literature in this study was reviewed on cycle counting and inventory record accuracy, computerized inventory system and inventory records accuracy and inventory coding and inventory records accuracy.

2.2.1. Inventory Control Strategies

Different scholars have looked at inventory control strategies differently. Ou &Jiang (1997) discussed the push, pull and hybrid inventory control strategies. Push strategy depends on the forecasting ability of the organization to be in a position to project expected demand and the projected inventory control related costs. Pull strategy on the other hand

relies on the ability to make orders available as they are required by customers. Hybrid push-pull inventory control strategy relies on continuous demand forecasting and adjustment of inventory levels based on actual demand. Pull, push and hybrid strategies are however recommended for manufacturing organizations (Teunter, 2002).

According to Singh (2013), Just in Time (JIT), a concept that strikes balance between optimal inventory quantity and inventory cost is a strategy that can be adopted by organizations to manage inventory (Jihong, 1997). Other inventory control strategies that have gained popularity in the recent past are; cycle counting, inventory coding, computerized inventory control, drop shipping, cross-docking and bulk shipments (Schreibfeder, 2014). In this study, three inventory control strategies will be considered; cycle counting, inventory coding and computerized inventory control.

2.2.2. Inventory Record Accuracy

An inventory stock record is accurate when the information on the stock record is in agreement with the actual physical situation (Schrady, 2006). Inventory items are considered accurate when the actual on-hand quantity matches the perpetual inventory quantity, within the following tolerances using ABC classification system; class A items, plus or minus 1% quantity variance from perpetual balance, class B items, plus or minus 3% quantity variance from perpetual balance and C items, plus or minus 5% quantity variance from perpetual balance (Supply Chain Metric, 2016).

Inventory records can be achieved through the following strategies proposed by Lee (2006); selection and installation of inventory tracking software, revision of layout to allow for optimal storage, creation of rack location codes and assigning unique identifying number, locking warehouse and storage areas to limit unauthorized removal or movement of inventory. In addition, an organization may consolidate parts, so that the same items are kept in one place, assign unique part numbers to the parts, establish units of measure for the parts and embark on continuous and consistent inventory counting (Supply Chain Metric, 2016).

In this study, inventory accuracy will be measured through the six indicators suggested by Strategos, Inc (2014). The indicators are; accurate forecasts for inventory items, accurate inventory counts, accurate coding system, accurate and efficient tracking system, minimum redundancy and minimum errors in inventory records. The questionnaire will have research items on the six indicators that will be used to collect data from the respondents on the inventory records accuracy.

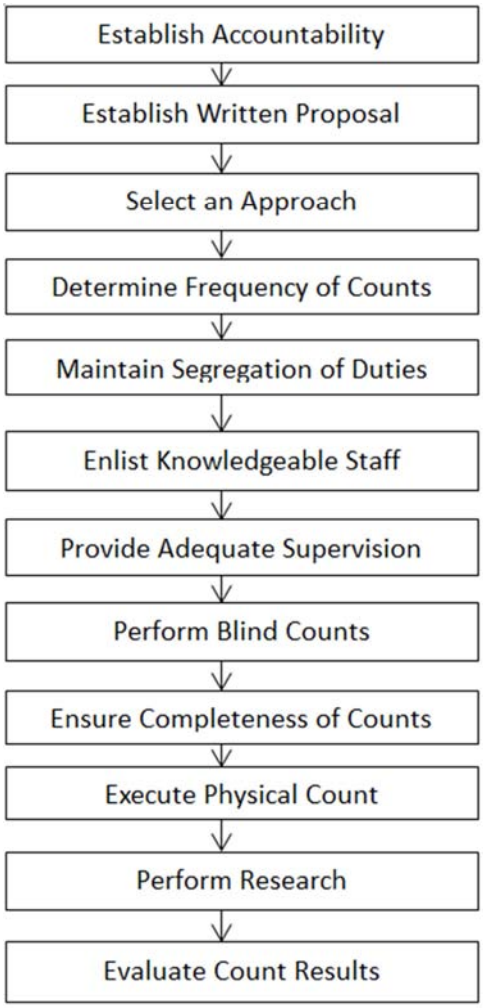
2.2.3. Effect of Cycle Counting on Inventory Record Accuracy

Cycle counting can be defined as an inventory auditing procedure which falls under inventory management where a small subset of inventory in a specific location is counted on a specified day. The main purpose of inventory counting includes; identification of causes of errors in order to correct the conditions that cause the errors, to maintain high level of inventory record accuracy and to provide the correct account of inventory (Rossetti, 2000). It is the process of counting inventory items throughout the year on a schedule so that all items are counted at least once a year with the primary focus is on items that move more frequently and less attention given to items that move less frequently (REM Associates of Princeton, 1999).

An organization can adopt a number of inventory cycle counting strategies based on their needs and inventory types. Such inventory cycle counting strategies include; random sample cycle counting conducted randomly on the stock items, ABC inventory cycle counting based on stratified classes of inventory depending on the level of importance and inventory costs and location based cycle counting where the record count has no discretion with respect to ease of counting (Piasecki, 2015). The forth inventory cycle counting is opportunity based inventory cycle counting which is based on opportunity costs associated with inventory. The fifth system is the transaction based inventory cycle counting based on the inventory related transactions as they are recorded in the stores. The other strategies include the process control cycle counting, location based inventory cycle counting based on multiple locations listing of stock items and opportunity based inventory cycle counting based on special particular events in the organization (Rossetti et al., 2000).

According to SME Tool Kit (2016), cycle counting involves a continuing audit of inventory items based on the classification of inventory items from the ABC analysis. The inventory cycle counting involves; count the inventory items, verification of the records, documentation of the inaccuracies, tracing the causes of the inaccuracies and taking remedial actions. Procedures adopted in cycle counting are therefore dependent on the class the inventory item falls. Class A items are counted once a month, class B items are counted four times a year while class C items are counted twice a year.

To ensure consistency and accuracy in cycle counts of physical inventories, inventory counting process must be made an integral component of an organization‘s internal control environment and management‘s commitment must be there to establish effective and reliable internal controls. Top management commitment can be can be seen in terms of; management advocacy for change and empowerment of employees to make changes, management measurement of performance aligned with corporate goals, management investment in technology and systems and realization of returns, management develops human and retains capital and management communicates goals and results (Steinhoff, 2002). Figure 1 presents the requirements for consistent and accurate stock count



Source: Steinhoff (2002)

Figure 1. *Key factors in consistent and accurate counts.*

As pointed out by Strategos Inc (2014), cycle counting is done for a number of reasons. These reasons include need to achieve accuracy in inventory records, need to keep optimal inventory levels in the organization, need to monitor inventory on continuous basis, need to ensure continuous and uninterrupted business operations, need to facilitate process improvements and need to achieve optimal operational costs. On the other hand, REM Associates of Princeton (1999) points out that failing to carry out cycle counting or having inaccurate records is associated with adverse effects of the organization too. The first effect is having unnecessary excess inventory levels which may result into prohibitive inventory costs and excessive inventory wastes and spoilage. The second challenge is lower productivity levels due to time wastage in tracing inventory and acquiring inventory when out of stock. The third effect is the problem of expediting orders which may take a lot of time if there are no accurate inventory records. The last problem is lost sales that may occur as a result of stock out.

While inventory cycle counting is popularly used in inventory management, there are a number of challenges faced by organizations. Strategos Inc (2014) discussed five challenges faced by organizations in cycle counting. The first challenge is inefficient staffing that usually results from underestimation of counts required within a given operating period. The second challenge is diversion of attention and effort to other operational areas in the organization giving very little attention to inventory counting. The third challenge is ignoring error creation in the system thereby leading to build up of errors in the stock counts. This challenge can be tackled through employee training. The last challenge is poor motivation among staff involved in stock counting. Stock counting is a very intensive and boring activity that requires that employees are well motivated in order to succeed.

According to REM Associates of Princeton (1999), physical inventory counting process has certain drawbacks. Firstly, the process is largely unautomated and is prone to errors due to the amount of paperwork involved. Secondly, it may require that the operations of the organization stop for a physical inventory counting to be done. Thirdly, the process requires adequate training among employees, a requirement that is a challenge to most organizations which in turn leads to erroneous inventory counts. Lastly, the process is intensive and sometimes may require additional staff in order to get the physical inventory count completed within a specific time frame.

Report compiled on inventory accuracy through cycle counting revealed that the main factors for cycle counting and current inventory accuracy include accountant and auditor criteria. The report further pointed out that criteria set by the Accounting department or external auditors and current inventory accuracy have the greatest impact on cycle count with both rating of 3.8 on a scale of 1-5. Unit dollar value, locations in close proximity, same cycle counting and emptying of a pick location had rating of 3.1. Annual dollar turnover of an item, annual unit volume, pilferage risk and external regulations had ratings of 2.8, 2.7, 2.7 and 1.8 respectively on a scale of 1-5. The report also identified the distinct processes to consider when recording cycle counts against a slot in a warehouse. The processes are proactive and scheduled cycle counts, optimistic counts during normal operations of the organization and slot verifications to confirm stock counting discrepancies (Tompkins, 2012). Inventory cycle counting results into enhance operational and financial performance. Study conducted by revealed that proper inventory can reduce lead time and lead time variability by up to 69 %, cycle times by up to 66%, due-date performance by up to 60 %, and optimize inventory levels by up to 50% (Wild, 2011).

Munyao & Omulo (2015) conucted a study on the role of inventory management practices on performance of production department' a case of manufacturing firms in Kenya. Test. The study found out that manufacturing firms in Kenya used various inventory management techniques such as the action level methods, just-in-time, periodic review technique, material requirement planning 1 and economic order quantity. The study revealed that stock taking one of the popularly used inventory control practice and can be used to enhance inventory records accuracy. It was established from

the findings of the study that the more frequently inventory counting is done, the more accurate the inventory records are likely to be.

2.2.4. Effect of Inventory Coding on Inventory Records Accuracy

Inventory coding is defined as a way of identifying and categorizing related inventory items by use of numbers, digits or symbols. Codes consist of a stock-keeping unit (SKU) number for bar coding or radio frequency identification (RFID) for computerized coding purposes. The codes help to identify where each unit is located, other products that may be used in conjunction with a given item, possible alternative products that may serve a similar purpose. Coding also allows a warehouse tracking system to monitor the quantity of items in inventory and their status. Services may also have an item code assigned for invoicing purposes (Federation Highway Administration, 1995).

An organization can adopt various coding strategies. The first strategy is the arbitrary codification approach that does not use any design for codification. Coding is purely based on when an item is received by Stores in its receiving bay, a running and unique serial number is assigned to it. The second strategy is symbolic approach/intelligent code system. This approach assigns code in a manner that the same item is not allotted two different codes and also a code. The code design can be used to tell many things about an item. The system uses either a numeric codification system or an alphanumeric or mnemonic system. Under the numeric system, a set of numeric code is assigned to each item where different parts of the code describe of an item. The third approach is the use of drawing numbers. This involves use of complex drawings through which part numbers are drawn and used as codes to identify an item. Since the drawing number for a firm remains unique, assigning a code on this basis assumes a unique code for that item and hence confirms the requirement of unique identification for the item (Financial Accounting Foundation, 2011).

While codes are popularly used to categorize and control inventory records, product codes have certain challenges. The first challenge is the use of multiple product codes. Some organizations often don't use the same coding for incoming orders and subsequent invoices. This may cause waste of time in purchase order reconciliation and delayed bill payments because codes on orders do not match those on packing slips and invoices. Secondly, products may have multiple codes in non-standard formats which contribute to scanning errors and may lead to incorrect inventory reports. Lastly, some products have no codes at all which makes it completely impossible to keep record of such products. For products that use category codes, category codes are not universally provided by suppliers which may lead to inconsistency in product classification thereby leading to unreliable inventory records (Financial Accounting Foundation, 2011).

Mwangi (2013) conducted study on inventory management and supply chain performance of non-governmental organizations in the agricultural sector in Kenya. He considered inventory coding as one of the strategies and established that inventory coding among other practices enhances assessment of inventory quantity, aids in accurate forecasting of inventory requirements thereby enhancing procurement performance. A similar study was conducted by Lwiki et al. (2013) on the Impact of Inventory Management Practices on Financial Performance of Sugar Manufacturing Firms in Kenya established that there is strong correlation between inventory control practices, inventory records and performance of the organization. The study further recommended that sugar manufacturing firms develop a policy framework to facilitate faster implementation of the best inventory management practices such as JIT and MRP. In addition, the firms should consider investing in modern technology and implement EDI. This will reduce inventory costs and improve on inventory accuracy.

Effective inventory coding is crucial for overall supply-chain efficiency. Firstly, proper standardized coding provides tools for forecasting, ordering, product performance analysis and evaluation. Secondly, proper and accurate coding supports new industry collaborative initiatives. Lastly, proper coding enhances automated ordering, receiving, and transaction reconciliation. Appropriate product coding is critical in efficient retail operations, communication and interaction between trading partners. Product coding saves time and money in business-to-business purchasing transactions and creates visibility for data analysis and cooperative initiatives that lead to better sales and profitability (Christian Resources Industry's Supply Chain Management Committee, 2005).

2.2.5. Effect of Computerized Inventory System on Inventory Records Accuracy

While many organizations still rely on manual inventory systems, Opeyemi et al. (2013) points out that manual inventory system is characterized by a number of challenges. The first challenge is time consumption as the system is updated manually after daily business operations. The second problem is associated with communication. In manual system, the inventory records are taken manually hence hindering information flow between stores and related departments. Other challenges include difficult stock counting, difficulty in keeping track of daily inventory movements and inconsistency in ordering of materials. Because of the above challenges, many organizations are adopting computerized inventory system.

Study conducted by Opeyemi et al. (2013) on computerized inventory control system for supermarkets revealed that majority of the supermarkets use computerized inventory control system to ascertain stock level of a supermarket, when to order for more products, keep status and updates of transactions, thereby helping managerial decisions, progress level and stock taking. The study further pointed out that there is need for improvement in any software no matter how efficient the system may be so that the system can be flexible enough for future modifications. These findings concur with the findings of Arshed et al. (2000) that computerized

inventory management system can help improve the efficiency of the store department. Computerized inventory management system is timeliness, accurate, reliable, consistent, faster, efficient and easy to use. The system removes redundancy/duplication and irrelevance and can easily be tailored for multi-user environment with minor modifications. The system in addition is associated with enhanced efficiency, accuracy, user friendliness and conciseness.

Study conducted by Nyariki & Wanyoike (2016) on influence of inventory control practices on procurement performance of agrochemicals distributors in Nakuru Central Sub-County revealed that computerized inventory control system has significant positive influence on records accuracy and procurement performance. The study recommended that further study should be conducted to assess how internal inventory security procedural practices can be adopted by public institutions and whether such practices can be incorporated in the public procurement regulations. It also recommended further studies to be done to establish the integrated role of internal and external audit in inventory control especially in manufacturing and distributing organizations and to determine the influence of computerized inventory management on supplier and customer relationship management in manufacturing and distributing organizations.

2.3. Conceptual Framework

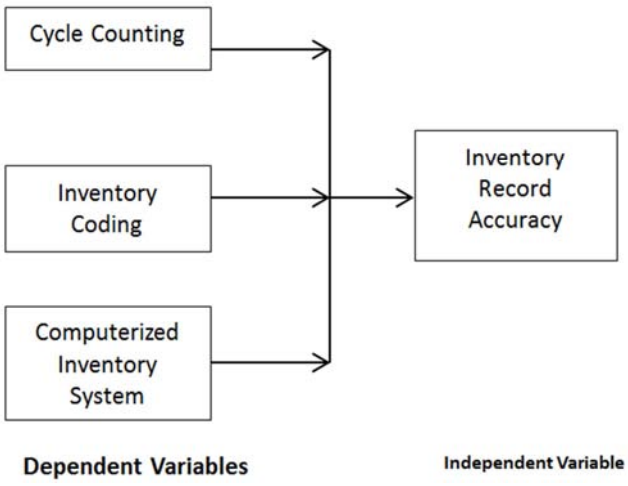


Figure 2. *Conceptual Framework.*

3. Research Methodology

The study adopted a descriptive survey research design. Descriptive research design determines the relationship between independent variables and a dependent variable (Krueger et al., 2000). According to Babbie (2008), survey design helped in investigating the underlying relationships between variables. It this study, it was used to establish the relationship between Cycle Counting, Inventory Coding and Computerized Inventory System and dependent variable; Inventory Record Accuracy.

The target population for the study was the employees of Kenya Power Nakuru working in Procurement, Stores, Finance, Transport and Projects Departments. The five departments were purposively selected because of their direct involvement in inventory control and records management operations.

For the purpose of this study, primary data was gathered by use of structured questionnaire for the purpose of the study. Collecting data by questionnaire has the advantage of flexibility and obtaining data more efficiently in terms of time, energy, and costs (Bryman & Bell, 2011). The questionnaires had adequate research items on Cycle Counting, Inventory Coding, Computerized Inventory System and Inventory Record Accuracy. The respondents were requested to take their time, go through the questionnaires and fill the questionnaires objectively as the research findings could be useful to various stakeholders. The researcher took contacts of the respondents and followed up on the filling of the questionnaires.

The study used both descriptive and inferential statistics. Descriptive statistics; mean and standard deviation were used to study the four research variables; Cycle Counting, Inventory Coding, Computerized Inventory System and Inventory Record Accuracy. Inferential statistics; correlation analysis was then be used to establish relationship between the study variables. The study hypotheses were tested using single tailed t-test at 0. 1significance level where significance values less than 0.1 meant statistically significant relationship. The results and findings of the study presented through tables that were accompanied with explanations using APA format

4. Research Findings, Conclusions and Recommendations

4.1. Correlation Analysis

Pearson correlation was used to establish the relationship between Cycle Counting, Inventory Coding, Computerized Inventory Control System and Inventory Records Accuracy. Pearson correlation coefficients present the relationship between the variables while the significance values show the statistical significance of the relationships. The research findings were as presented in table 1.

Table 1. *Correlation Analysis.*

		Inventory Records Accuracy
Cycle Counting	Pearson Correlation	.908**
	Sig. (p) (1-tailed)	.000
	N	30
Inventory Coding	Pearson Correlation	.939**
	Sig. (p) (1-tailed)	.000
	N	30
Computerized Inventory Control System	Pearson Correlation	.794**
	Sig. (p) (1-tailed)	.000
	N	30

Correlation analysis results in table 1; R=0.908; p=0.000 (<0.01) imply statistically significant strong positive relationship between Cycle Counting and Inventory Records Accuracy. This implies that cycle counting is a significant determinant of inventory records accuracy. R=0.939 and p=0.000 (<0.01) imply statistically significant positive relationship between Inventory Coding and Inventory Records Accuracy. The results therefore indicate significant positive influence of Inventory Coding on Inventory Records Accuracy. R=0.794 and p=0.000 (<0.01) imply statistically significant positive relationship between Computerized Inventory Control System and Inventory Records Accuracy. These findings reveal that Computerized Inventory Control System has significant positive influence on Inventory Records Accuracy.

4.2. Hypotheses Testing

The study had three objectives. Consequently three hypotheses were formulated and tested using t-statistic. The results of hypotheses were as presented in table 2.

Table 2. *Coefficients Table.*

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig. (p)
		B	Std. Error	Beta		
1	(Constant)	2.001	.300		6.673	.000
	Cycle Counting	.860	.172	.451	5.012	.000
	Inventory Coding	1.025	.144	.716	7.112	.000
	Computerized Inventory Control System	.295	.143	.188	2.060	.007

a. Dependent Variable: Inventory Records Accuracy

The first objective of the study was; H_0: Cycle Counting does not have significant effect on inventory record accuracy in Kenya Power Company, Nakuru. t=5.012 and p=0.000 (<0.01) imply that the relationship between cycle counting and inventory records accuracy is statistically significant. The null hypothesis was therefore rejected and conclusion made that Cycle Counting has significant effect on inventory record accuracy in Kenya Power Company, Nakuru. The findings of this study are consistent with those of Tompkins (2012) that cycle counting strategies such as opportunity based, transaction based, process based and location based inventory cycle counting are likely to enhance inventory records verification and update thereby enhancing inventory records accuracy.

The second hypothesis was; H_0: Inventory Coding does not have significant effect on inventory record accuracy in Kenya Power Company, Nakuru. t=7.112 and p=0.000 (<0.000) imply statistically significant influence of Inventory Coding on Inventory Records Accuracy. The second null hypothesis was therefore rejected and the study concluded that Inventory Coding has significant effect on inventory record accuracy in Kenya Power Company, Nakuru. These finding agree with those of Lwiki et al. (2013) that inventory coding enhances assessment of inventory quantity, aids in accurate forecasting of inventory requirements. Standardized coding provides tools for forecasting, ordering, product performance analysis and evaluation and in addition enhances automated ordering, receiving, and transaction reconciliation (Opeyemi et al., 2013)

The third hypothesis was; H_0: Computerized Inventory Management does not have significant effect on inventory record accuracy in Kenya Power Company, Nakuru. t=2.060 and p=0.007imply statistically significant relationship. The third null hypothesis was therefore rejected and it was concluded that Computerized Inventory Management has significant effect on inventory record accuracy in Kenya Power Company, Nakuru. These findings are consistent with the findings of Nyariki & Wanyoike (2016) that established that computerized inventory control system has significant positive influence on records accuracy and procurement performance.

The last hypothesis was; H_0: Inventory Control Practices collectively do not have significant effect on inventory record accuracy in Kenya Power Company, Nakuru. R^2=0.933in table 4.6 and p=0.000 in table 2 reveal that Cycle Counting, Inventory Coding and Computerized Inventory Control System collectively have significant influence on Inventory Records Accuracy. The study therefore concluded that inventory control practices significantly influence inventory records accuracy in Kenya Power Company, Nakuru.

4.3. Regression Analysis

Multiple regression analysis was conducted to establish the combined influence of Cycle Counting, Inventory Coding and Computerized Inventory Control System on Inventory Records Accuracy. The findings were as presented in table 3

Table 3. *Multiple Regression Analysis.*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.966[a]	.933	.927	.312

a. Predictors: (Constant), Computerized Inventory Control System, Cycle Counting, Inventory Coding

In table 3 above, R square presents the explanatory effect of Inventory Coding, Cycle Counting and Computerized Inventory Control System on Inventory Records Accuracy. R^2=0.933 implies that Inventory Coding, Cycle Counting and Computerized Inventory Control System collectively explain 93.3% of Inventory Records Accuracy.

To test the significance of the relationship established in table 4. ANOVA test was conducted. The findings were as presented in table 4.

Table 4. *ANOVA Results.*

Model		Sum of Squares	Df	Mean Square	F	Sig. (p)
1	Regression	45.679	3	15.226	156.700	.000[a]
	Residual	3.304	26	.097		
	Total	48.983	29			

a. Predictors: (Constant), Computerized Inventory Control System, Cycle Counting, Inventory Coding
b. Dependent Variable: Inventory Records Accuracy

From table 4, p=0.000 (<0.01) implies that the combined influence of Computerized Inventory Control System, Cycle Counting and Inventory Coding on Inventory Records Accuracy is statistically significant. From the research findings, the following multiple regression model was developed;

$Y = 2.001 + 0.860\ X_1 + 1.025\ X_2 + 0.295X_3 + e$

Where; Y – Inventory Records Accuracy

X_1- Cycle Counting

X_2 – Inventory Coding

X_3 – Computerized Inventory Control

e-error term

The above model presents the linear relationship of the research variables. The coefficients; implies that change in cycle counting by one unit leads to change in inventory records accuracy by 0.860, change in inventory coding increases inventory records accuracy by 1.025 and change in computerized inventory control by one unit leads to change in inventory records accuracy by 0.295 present the magnitude of influence of Inventory Counting, Inventory Coding and Computerized Inventory Control on Computerized Inventory Control. The constant 2.001 in the model is the level of inventory records accuracy achieved if the three inventory records are not practiced. These findings are consistent with the findings of Oballa et al. (2015) that investment in inventory control practices positively influence inventory records accuracy have a positive influence and by extension, organizational performance. Similarly, study by Ahmed et al. (2015) revealed positive relationship between internal inventory control and inventory records accuracy.

4.4. Conclusions

This study sought to assess the influence of Cycle Counting on Inventory Records Accuracy in Kenya Power, Nakuru. From the findings of the study, it was established that Cycle Counting has significant positive influence on Inventory Records Accuracy. The study therefore concluded that Cycle Counting is a significant determinant of Inventory Records Accuracy.

The second objective of this study was to assess the influence of Inventory Coding on Inventory Records Accuracy. From the findings of the study, it was established that Inventory Coding has significant positive influence on Inventory Records Accuracy. The study therefore concluded that inventory coding is a significant determinant of inventory records accuracy.

The study investigated the influence of Computerized Inventory Management System on Inventory Records Accuracy. From analysis, finding revealed that Computerized Inventory Management System has significant positive influence on Inventory Records Accuracy. From these findings, the study concluded that Computerized Inventory Management System is significant determinant of Inventory Records Accuracy.

The last objective of this study was to establish the combined influence of inventory control practices on inventory records accuracy. Findings of correlation, regression and ANOVA tests revealed that inventory control practices have significant positive influence on inventory records accuracy. The study therefore concluded that cycle counting, inventory coding and computerized inventory management significant determinants of inventory records accuracy both individually and collectively.

4.5. Recommendations of the Study

This study established that cycle counting is significant determinant of inventory records accuracy. The study recommends that public organizations like Kenya Power should develop or align internal inventory control policies to accommodate cycle counting strategies such as opportunity based, transaction based, process based and location based inventory cycle counting as these strategies are likely to enhance inventory records accuracy.

The study established that in inventory coding has significant positive influence on inventory records accuracy. The study therefore recommends that public organizations adopt numeric or alphabetic codes in classification, identification and location of inventory items.

Computerized inventory control was also established to significantly influence inventory records accuracy. The study recommends that procurement practitioners and procurement policy formulators should propose development of computerized procurement and control of inventory. Management must make available the critical resources needed for adoption of such systems and must create culture that supports use of the system.

4.6. Suggestions for Further Studies

Based on the findings and conclusions of this study, the following areas are suggested for further research.

Further research should be conducted to assess the role of management in adoption of internal inventory control practices, especially the adoption of computerized inventory control system.

Study should also be conducted to assess whether adoption of inventory control practices can lead to improved operational performance in performance of procurement activities.

References

[1] AgriFin (2013). Trade Finance: Warehouse and Inventory Management in Africa. Retrieved March 28, 2016, from AgriFin: http://agrifinfacility.org/trade-finance-warehouse-and-inventory-management-africa

[2] Ahmed, F., Daas, R., Asaad, M. M. & Zien, R, (2015). The Influence of Inventory Management Practices Towards Inventory Management Performance in Malaysian Public Hospitals. International Academic Research Journal of Business and Technology 1 (2), 142-148

[3] Braglia, M., & Bevilacqua, M. (2013). Fuzzy modelling and analytical hierarchy processing as a means of quantifying risk levels associated with failure modes in production systems. Production Planning & Control, 10 (4), 340-358

[4] Christian Resources Industry's Supply Chain Management Committee. (2005). Product Coding Best Practices: A guide to product coding for the Christian-resources industry. New York: Christian Resources Industry's Supply Chain Management Committee.

[5] CSCOInsight (2011). Five Strategies for Improving Inventory Management Across Complex Supply Chain Networks. CSCOInsight.

[6] Drum Corps International. (2013). Redbeam Inventory Tracking Software. Retrieved March 28, 2016, from DCI Scanning: http://www.redbeamassetmanagement.co.za/RedbeamTrackingSoftware/InventoryTracking.aspx

[7] Federation Highway Administration (1995). Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges. USA: US. Department of Transportation-Federation Highway Administration.

[8] Financial Accounting Foundation (2011). Accounting Srtandards Codification. Norwalk: Financial Accounting Standards Board of the Financial Accounting Foundation.

[9] Geothermal Development Company (2010). Procurement. Retrieved Juna 6, 2016, from Geothermal Development Company: http://www.gdc.co.ke/procurement/index.html

[10] Hadley, G. (1960). A Family of Inventory Models. Management Science, 7 (1), 351-371.

[11] Institute of Management Accountants (1999). Theory of Constraints; Management System Fundamentals. Montvale: Institute of Management Accountants.

[12] Jihong, J. J. (1997). Yield comparison of push and pull control methods on production systems with unreliable machines. International Journal of Production Economics, 50 (1), 1-12.

[13] Kang, Y. (2004). Information Inaccuracy in Inventory Systems: Stock Loss and Stockout. Laboratory for Manufacturing, 1 (1)1-29.

[14] Kenya Power (2016). Kenya Power. Retrieved March 26, 2016, from About Kenya Power: http://www.kplc.co.ke/content/item/14/about-kenya-power

[15] Kiisler, K. (2014). Inventory management – basic concepts. L-Consult OÜ.

[16] Lee, Q. (2006). Strategic Guide to Cycle Counting & Inventory Accuracy. Kansas City: Strategos, Inc.

[17] Lwiki, T., Ojera, O., Mugenda, N., & Wachira, V. (2013). The Impact of Inventory Management Practices on Financial Performance of Sugar Manufacturing Firms in Kenya. International Journal of Business, Humanities and Technology. 3, (5), 76-85

[18] Munyao, M. M., & Omulo, C. O. (2015). Role of Inventory Management Practices on Performance of Production Department' A Case of Manufacturing Firms in Kenya. International Journal of Economics, Commerce and Management. 3 (5), 1625-1656

[19] Oballa, D., Waiganjo, E. & Wachiuri, E. (2015). Effect of Inventory Management Practices on Organizational Performance in Public Health Institutions in Kenya: A Case Study of Kenyatta National Hospital. International Journal of Education and Research, 3 (3), 707-715

[20] Onchoke, B. N., & Wanyoike, D. M. (2016). Influence of Inventory Control Practices on Procurement Performance of Agrochemicals Distributors in Nakuru Central Sub-County, Kenya. International Journal of Economics, Finance and Management Sciences. 4 (3), 117-126

[21] Opeyemi, A. (2013). Design of a Computerized Inventory Management System for Supermarkets. International Journal of Science and Research, 2 (9), 340-344.

[22] Piasecki, D. (2015). Cycle Counting and Physical Inventories. Kenosha: Inventory Operations Consulting LLC.

[23] Preston, C. C., & Colman, A. M. (2000). Optimal number of response categories in rating scales: reliability, validity, discriminating power, and respondent preferences. 104 ((2), 1-15).

[24] Rand, K. (2000). Critical chain: the theory of constraints applied to project management. International Journal of Project Management, 173-177.

[25] REM Associates of Princeton. (1999). Inventory Cycle Counting. Nassau: REM Associates of Princeton.

[26] Rossetti, M. D. (2000). Inventory Cycle Counting-A Review. Fayetteville: University of Arkansas.

[27] Schrady, D. A. (2006). Operational definitions of inventory record accuracy. Naval Research Logistics Quarterly, 17 (1), 133–142.

[28] Schreibfeder, J. (2014). The First Steps to Achieving Effective Inventory Control. Microsoft.

[29] Singh, D. K. (2013). JIT: A Strategic Tool of Inventory Management. International Journal of Engineering Research and Applications, 3 (2), 133-136.

[30] SME ToolKit. (2016). Managing Your Inventory. Retrieved March 28, 2016, from SME ToolKit South Africa: http://southafrica.smetoolkit.org/sa/en/content/en/587/Managing-Your-Inventory

[31] Steinhoff, C. J. (2002). Best Practices in Achieving Consistent, Accurate Physical Counts of Inventory and Related Property. USA: United States General Accounting Office.

[32] Strategos, Inc. (2014). Cycle Counting & Inventory Record Accuracy. Kansas City: Strategos, Inc.

[33] Supply Chain Metric. (2016). Inventory Record Accuracy. London: Supply Chain Metric.

[34] Teunter, T. L. (2002). Inventory Strategies For Systems With Fast Remanufacturing. Erasmus Research Instirute of Management.

[35] Tompkins, B. (2012). Cycle Counting Increase Inventory Accuracy & Eliminate Wall-to-Wall Physical Inventory. Japan: The Supply Chain Consortium.

[36] Wanjara, K. (2015). Influence of Internal Control System on the Financial Performance of Kenya Power. Nairobi: KCA University.

[37] Wild, T. (2011). Improving Inventory Record Accuracy. UK: Taylor & Francis.

[38] Woeppel, M. (2000). Manufacturer's Guide to Implementing the Theory of Constraints. Congo: CRC Press.

[39] Zipkin, P. H. (2000). Foundations of Inventory Management. New York: McGraw. Hill.