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**Effects of Inventory Management on The Performance of State
Corporations in Kenya**

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Effects of Inventory Management on The Performance of State Corporations in Kenya

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Abstract

Purpose: The purpose of the study was to determine the effects of inventory management on the performance of state corporations in Kenya with an aim of making recommendations.

Methodology: The study employed a descriptive research design. The researcher preferred this method because it allows an in-depth study of the subject. Data was collected using self-administered questionnaires. The study employed stratified random sampling technique in coming up with a sample size. Pilot study was carried out to establish the validity and reliability of the research instruments. The instruments were designed appropriately according to the study objectives. The data collected was analyzed by use of descriptive and inferential statistics. The study used multiple regression and correlation analysis to show the relationship between the dependent variable and the independent variables. The data generated was keyed in and analyzed by use of Statistical Package of Social Sciences (SPSS) version 24 to generate information which was presented using charts, frequencies and percentages

Results and conclusion: The regression equation above has established that taking all factors into account (inventory categorization, inventory control techniques, information technology integration and demand and supply forecasting) constant at zero, performance of state corporations in Kenya will be an index of 0.817. The findings presented also shows that taking all other independent variables at zero, a unit increase in inventory categorization will lead to a 0.537 increase in performance of state corporations in Kenya. The P-value was 0.000 which is less 0.05 and thus the relationship was significant. The study also found that a unit increase in inventory control techniques will lead to a 0.097 increase in performance of state corporations in Kenya. The P-value was 0.002 and thus the relationship was significant. In addition, the study found that a unit increase in information technology integration will lead to a 0.067 increase in the performance of state corporations in Kenya. The P-value was 0.000 and thus the relationship was significant. Lastly, the study found that a unit increase in demand and supply forecasting will lead to a 0.08 increase in the performance of state corporations in Kenya. The P-value was 0.001 and hence the relationship was significant since the p-value was lower than 0.05. The findings of the study show that, inventory categorization contributed most to the performance of state corporations in Kenya.

The findings of the study indicated that; safety stock management, inventory control techniques, information technology integration and demand and supply forecasting have a positive relationship with performance of state corporations.

Unique contribution to theory, policy and practice: Finally, the study recommended that public institutions should embrace inventory optimization practices so as to improve their performance and further researches should be carried out in other public entities to find out if the same results can be obtained.

Keywords: *Demand and supply forecasting, inventory categorization, information technology integration and inventory control techniques.*

1.0 INTRODUCTION

The study sets out to examine the effects of inventory management on the performance of state corporations in Kenya. To this end, this chapter builds the case by introducing the problem warranting the study. This chapter presents; the background of the study, problem statement, objectives, research questions, importance of the study, the scope of the study and limitations of the study.

Inventory control is the operation of continuously arranging receipts and issues to ensure that inventory balances are adequate to support the current rate of consumption. It involves recording details of inventory movements and balances in value, full particulars of individual receipts, issues and balance of inventory, physical verification of the quantities and conditions of goods; also review of obsolete and surplus inventory, stores coding, materials pricing and costing (Lyson, 2016).

Material inventory control is the activity of determining the range and quantities of materials which should be inventory and the regulation of receipts and issues of these materials (Lamming, 2015). Hence, effective inventory control ensures that materials for use on building projects are made available at the right place, at the right time and in the correct quantity and quality according to a bill of quantities, schedule of materials, specification and construction program, so as to reduce materials shortage and wastage on construction sites as opined in (Lamming, 2015).

To achieve these goals, necessary process of inventory control must be put in place. The inventory controller or inventory control manager's responsibilities should be made known to all concerned; he must be given proper authority and duly motivated for effective functioning. Furthermore, Lyson (2016) documented that there are many methods/systems meant for the control of inventory, both manual and automatic; also, there are really only two basic approaches on which the method/systems are based.

These two approaches are commonly called the Action level and the Periodic Review approaches. Under the Action level method, the balance of inventory on hand is checked after every issue and as soon as the balance falls below the reorder level. The basic method of controlling inventory by quantity is by means of fixing for each commodity, inventory levels which are recorded in the inventory control system and subsequently used as a means of indicating when some action is necessary (Farrington, 2010).

1.1 Problem Statement

Demand for better quality, faster delivery and better overall value increase is increasing; which has led to visionary leaders to consciously differentiate between the things that create value and those that do not (World Bank, 2013). This has led to adoption of inventory management in all areas that seek to help organizations in the public sector to have a competitive advantage over rivals and position themselves for future success (KPMG, 2012).

The Vision 2030 stipulates that the state corporations should account for 20% of GDP by 2030, achieving this ambitious goal largely depends on a competitive inventory management (GoK, 2015). However, the sector's contribution to the GDP has stagnated at an average of 10% for more than 10 years with a growth of 3.1%, significantly lower than the overall economic growth of 5% (WB, 2014).

A number of reports appearing in the print media reveal operational constraints in areas of operations management, fleet management, management information, and aspects which include uncertainty of customer demands, long supplier leads times, and inaccurate procurement needs estimation (Rotich, 2013). In warehouse management, the cost of materials accounts for nearly two thirds of the total costs. In both production and construction, the determining factor is obvious the efficiency of the materials' management and apparently this factor has given rise to need of inventory control (PPOA, 2014).

Increasing size of business establishment is the other factor, it could have been possible for an enterprise in the past to maintain a reasonable margin of profits even if there had been a poor control practice (KIPPRA, 2015). But the increasing business and industrial activities call for an effective inventory control practice system. Moreover, the big size, itself calls for more economic operation so as to affect savings thereby driving the advantage of large-scale business. The wide variety and complexity of modern requirement is also a factor which gives rise to the need of inventory control (Kipchilat, 2012).

A number of studies have been conducted on inventory management globally. For instance, Cousins (2015) conducted a survey on 121 energy firms in the UK and found out that though 92% claimed inventory control seemed to have reduced transaction costs. The studies found that the investigated energy firms looked at inventory control instead of focusing on streamlining the inter-organizational processes. This study was however, conducted in a developed country and not in Kenya.

Several studies have been done locally; Kioko and Were (2014) did a study on factors affecting efficiency in inventory management of the procurement function at the private sector in Kenya. These studies however, did not look at effects of inventory management on the performance of state corporations. It is against this back drop that this study seeks to examine the effects of inventory management on the performance of state corporations in Kenya.

1.2 Objectives of the Study

- i. To assess the effect of demand and supply forecasting on the performance of state corporations in Kenya.
- ii. To establish the effect of inventory categorization on the performance of state corporations in Kenya.
- iii. To determine the effect of information technology integration on the performance of state corporations in Kenya.
- iv. To evaluate the effect of inventory control techniques on the performance of state corporations in Kenya.

2.0 LITERATURE REVIEW

2.1 Resource Based Theory

Resource based theory is the study of how the exterior resources of an organization affect the performance of the organization. The procurement of exterior resources such as production scheduling software's is a significant tenet of both the strategic and tactical management of any company, an implication in the procurement efficiency of the buying firms especially in tapping into the connection with suppliers as their important and dependable associates through resources such as just in times systems of delivery (Frahm, 2013).

Thus, this theory props up the concept of supply chain management, resource-based theory proposes that actors lacking in crucial resources will seek to create relationships with (i.e., be dependent upon) others in order to acquire required resources such as sales scheduling resources. Just like sellers on buyers for precious markets and buyer will depend on suppliers for external resources. Also, organizations endeavour to alter their reliance relationships by lessening their own reliance or by increasing the dependence of other organizations on them (Georgiadis, Vlachos & Iakovu, 2005).

This theory of the study resource-based view emphasizes the firm's resources as the fundamental determinants of competitive advantage through forecasting the span of life cycle for a product and its management. It adopts two assumptions in analyzing sources of competitive advantage (Aitken, 2013). First this model assumes that firms within an industry may be heterogeneous with respect to the bundle of resources that they control. Second, it assumes that resources heterogeneity may persist over time because the resources used to implement firm's strategies are not perfectly mobile across firms.

The argument goes if all firms in a market have the same stocks of resources; no strategy is available to one firm that would not also be available to all other firms in the market. Aitken (2013) explains that organizational performance is attributed to resources such as demand and supply forecasting techniques having intrinsically different levels of efficiency in the sense that they enable the firms to deliver to their customers at different performance levels. This theory is relevant to the study because one thing depends on another thing to be effective hence for effective

performance of state corporations effective demand and supply forecasting practices are put in place in the department.

2.2 Inventory Management

2.2.1 Demand and Supply Forecasting

The attributes of demand and supply forecasting which will be taken into consideration in this study are: production scheduling, sales scheduling and product life cycle. The Global Supply Chain Forum identified demand management as one of the eight key business processes that consists the supply chain management function in a firm (Axsater, 2016). A forecasting is the fundamental step of demand management that optimizes the customer satisfaction through capabilities of supply chain (Rotich, 2013). Researchers focused on the most of the aspects of supply chain management, after then forecasting is still need to be addressed in research field of supply chain. Forecasting is a prediction or an estimation of an actual value in a future time period or for another situation.

2.2.2 Inventory Categorization

The rule was formulated by the Italian economist Vilfred Pareto (1848-1923). It is also called the ABC analysis (Handfield, 2009). The proposition of the rule is that in any series of elements to be controlled, a selected small factor in terms of number of elements (20%) almost always accounts for a large factor in terms of effort (80%). The Pareto principle is very useful tool in inventory categorization as it helps leverage the buyer's time, effort and resources for the biggest benefits (CIPS, 2012).

2.2.3 Information Technology Integration

The attributes of information technology which were taken into consideration in this study are: vendor managed inventory systems, electronic data interchange and material requirement planning. Gavirneni (2012) assert that information is the life blood of all organizations. Inventory manager needs information technology in order to succeed in his work. Computers can assist stock control in calculating the optimum amount of stocks to hold and dispatch in order to satisfy the users requirements. The computer can do this by comparing inventory variables (stock levels, demand and delivery dates). The Electronic Data interchange, EDI is a system which enables direct communication between organizations without there being any human intervention. This technology has revolutionized inventory management (Gunasekaran, 2013).

2.2.4 Inventory Control Techniques

The attributes of inventory control techniques which were taken into consideration in this study are: just in time technique, contingency planning and economic order quantity. Lean production principle was pioneered by McLaren (2014). This principle was linked with reduced inventories. The argument is that as inventory is reduced there will be profit improvement due to interest savings as well as a reduction in storage fees, handling and waste. These savings have been estimated by literature to be in the range of 20 -30 percent (Nikosia & Moore, 2016). Lean management is getting more and more attention in today's highly competitive environment. The

proponents of lean inventory system argue that excess inventory will adversely affect the net cash flows of a firm.

2.2 Conceptual Framework

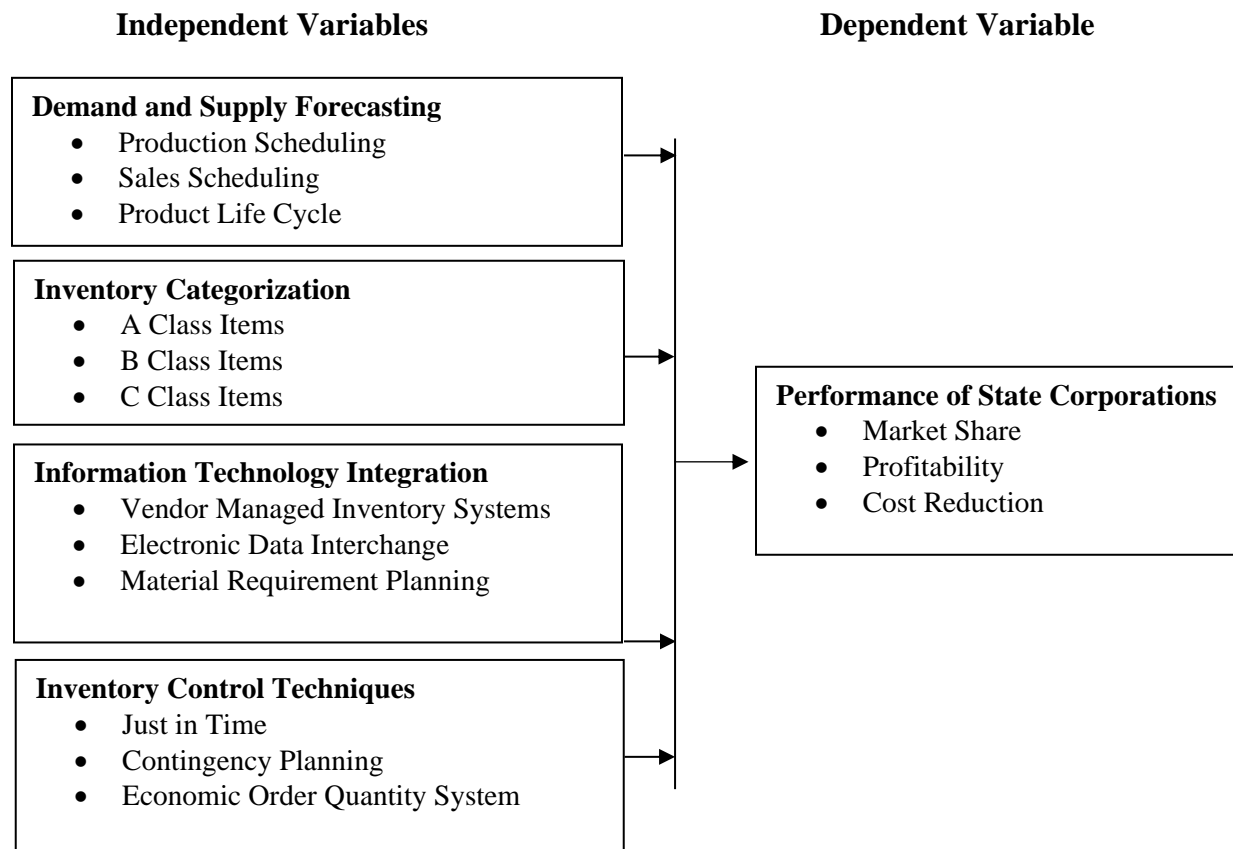


Figure 1: Conceptual framework

3.0 METHODOLOGY

The study employed a descriptive research design. The researcher preferred this method because it allows an in-depth study of the subject. Data was collected using self-administered questionnaires. The study employed stratified random sampling technique in coming up with a sample size. Pilot study was carried out to establish the validity and reliability of the research instruments. The instruments were designed appropriately according to the study objectives. The data collected was analyzed by use of descriptive and inferential statistics. The study used multiple regression and correlation analysis to show the relationship between the dependent variable and the independent variables. The data generated was keyed in and analyzed by use of Statistical Package of Social Sciences (SPSS) version 24 to generate information which was presented using charts, frequencies and percentages.

4.0 RESULTS FINDINGS

4.1 Introduction

4.2 Response Rate

A sample of respondents were interviewed using questionnaires that allowed the researcher to drop the questionnaire to the respondents and then collect them at a later date when they had filled the questionnaires. A total of 187 questionnaires were distributed to heads of procurement. Out of the population covered, 150 were responsive representing a response rate of 80%. This was above the 50% which is considered adequate in descriptive statistics according to (Mugenda & Mugenda, 2012).

Table 1: Response Rate of Respondents

Response	Frequency	Percentage
Actual Response	150	80
Non-Response	37	20
Total	187	100%

4.3 Pilot Study

The cronbach's alpha was computed in terms of the average inter-correlations among the items measuring the concepts. The rule of thumb for cronbach's alpha is that the closer the alpha is to 1 the higher the reliability (Serekan, 2012). A value of at least 0.7 is recommended. Cronbach's alpha is the most commonly used coefficient of internal consistency and stability. Consistency indicated how well the items measuring the concepts hang together as a set. Cronbach's alpha was used to measure realibility. This was done on the four objectives of the study. The higher the coefficient, the more reliable is the test.

Table 2: Reliability Results

Variable	No. of Items	Respondents	α=Alpha	Comment
Inventory Categorization	9	19	0.893	Reliable
Inventory Control Techniques	9	19	0.987	Reliable
Information Technology Integration	9	19	0.974	Reliable
Demand and Supply Forecasting	9	19	0.976	Reliable

4.4 Demographics Information

4.4.1 Distribution of Respondents by Gender

The study determined the gender distribution of the state corporations in average. The results summarized in the figure below. The result in figure 4.1 revealed that majority of the respondent (54%) indicated that they were female, while only (46%) of the respondent indicated that they were male.

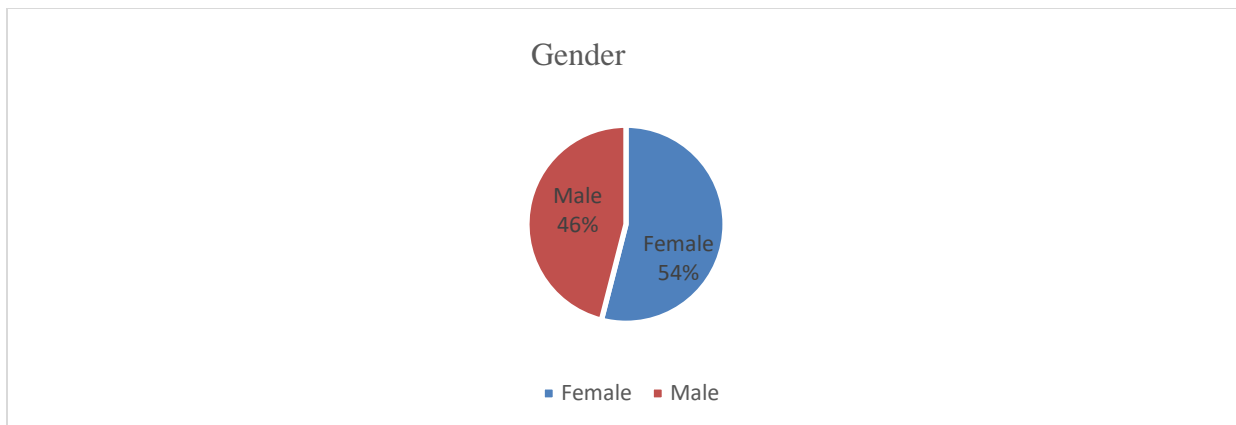


Figure 2: Distribution of Respondents by Gender

4.4.2 Distribution of Respondents by Age

The study determined the distribution of respondents by age. The results summarized in the table below. The results revealed that majority of the respondent (38%) were between 41-50 years, (32%) were 31- 40 years old, while (30%) were above 50 years. The findings are in agreement with those of Hall (2014) who established that there are two natural age peaks of the early 30s and mid 40s which correlated to employee performance.

Table 3: Distribution of Respondents by Age

Years	Frequency	Percent
31- 40 Years	48	32.0
41-50 Years	57	38.0
50 Years and above	45	30.0
Total	150	100.00

4.4.3 Distribution of Respondents by Level of Education

The respondents were asked to state their highest level of education and the results revealed that majority of the respondent (68%) indicated that their academic qualification was up to master's level. The result further revealed that (48%) of the respondent indicated that their academic qualification was up to degree level. With majority respondents having degree and above, it is expected that their level of understanding of performance of state corporations is good. This is an indication that the results obtained from respondents interviewed in the present study can be relied

upon. These findings concur those of Hatry (2016) who established that majority of who run public procurement are highly educated and that there is evidence linking education and performance of state corporations.

Table 4: Distribution of Respondents by Level of Education

Education Level	Frequency	Percent
Undergraduate	48	32
Post-Graduate	102	68
Total	150	100

4.4.4 Distribution of Respondents by Length of Service

The study determined the number of years the respondents had worked in their current office. The respondents were asked to indicate their work duration. The result revealed that majority of the respondents (37.3%) indicated that their work duration was 9 and above years. The result also showed that (26.0%) of the respondent indicated that their work duration was 3-5 years. The result also showed that (36.7%) of the respondent indicated that their work duration was 6-8 years. The findings of the study are in tandem with literature review by Joiner (2012) who indicated that a duration and experience of employee helps him or her to have better knowledge and skills which contribute to performance.

Table 5: Distribution of Respondents by Length of Service

Length of Service	Frequency	Percent
3-5 Years	39	26.0
6-8 Years	55	36.7
9 Years and above	56	37.3
Total	150	100.0

4.5 Descriptive Statistics

4.5.1 Demand and Supply Forecasting

There was also need to establish the effect of demand and supply forecasting on performance of state corporations in Kenya. The respondents were also asked to comment on statements regarding demand and supply forecasting on performance of state corporations in Kenya. Results also showed that 3% of respondents indicated to very great extent, great extent was at 12%, moderate extent was 3%, while little extent was at 27% and not at all was at 21%.

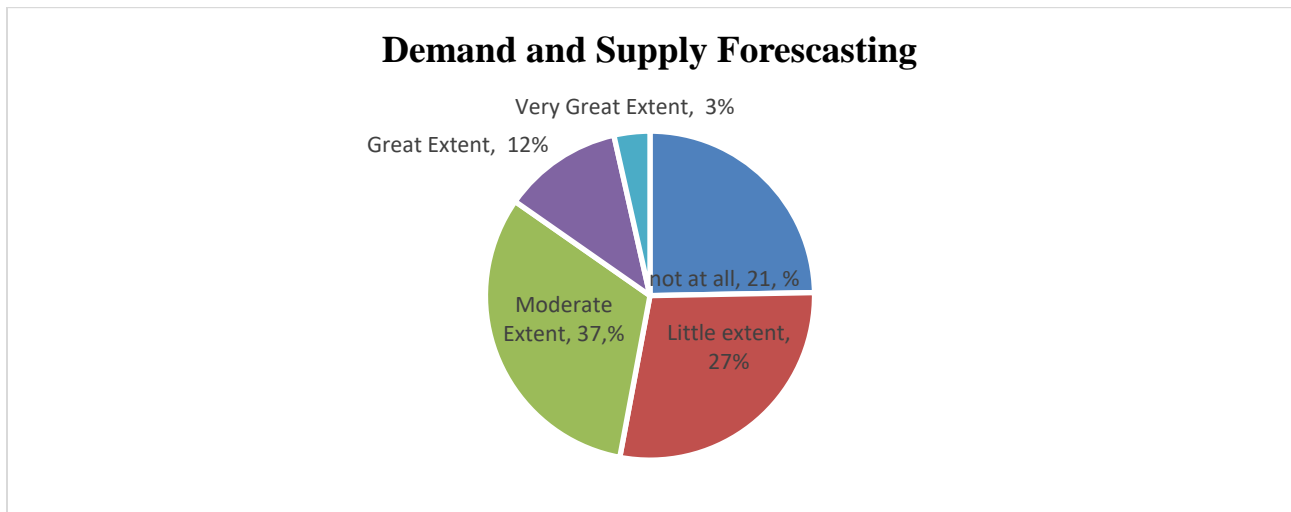


Figure 3: Demand and Supply Forecasting

The respondents were asked to indicate the descriptive for demand and supply forecasting. The result revealed that majority of the respondent (100%) agreed with the statement that production scheduling plays a great role in expanding market share. The result further revealed that majority of the respondent (100%) agreed with the statement that sales scheduling plays a great role in expanding market share. The result revealed that majority of the respondent (95.4%) agreed with the statement that product life cycle play a great role in expanding market share.

The result further revealed that majority of the respondent (96%) agreed with the statement that production scheduling plays a great role in improving profitability. The result revealed that majority of the respondent (100%) agreed with the statement that sales scheduling plays a great role in improving profitability. The result further revealed that majority of the respondent (100%) agreed with the statement that product life cycle play a great role in improving profitability.

The result further revealed that majority of the respondent (95.3%) agreed with the statement that production scheduling plays a great role in cost reduction. The result further revealed that majority of the respondent (100%) agreed with the statement that sales scheduling plays a great role in cost reduction. The result further revealed that majority of the respondent (100%) agreed with the statement that product life cycle plays a great role in cost reduction.

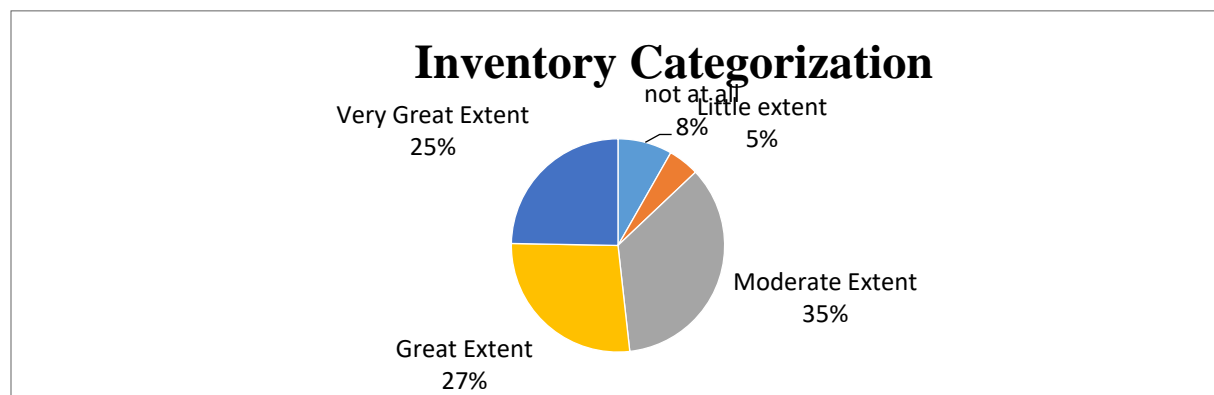
The average for the statements on demand and supply forecasting was 3.79. The results imply that an organization benefits greatly when reliable demand and supply forecasting are embraced to reduce costs, introduce systems designed to address the organization's needs, and work with the organization to streamline performance (Jolley, 2013).

Table 6: Demand and Supply Forecasting

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation
Production scheduling plays a great role in expanding market share	0.00%	0.00%	0.00%	54.0%	46.00%	4.1	0.796
Sales scheduling plays a great role in expanding market share	0.00%	0.00%	0.00%	48.7%	51.30%	4.0	0.794
Product life cycle play a great role in expanding market share	0.00%	1.30%	3.30%	40.7%	54.70%	4.5	0.499
Production scheduling plays a great role in improving profitability	1.30%	1.30%	1.30%	56.7%	39.30%	4.5	0.502
Sales scheduling plays a great role in improving profitability	0.00%	0.00%	0.00%	47.3%	52.70%	2.9	1.434
Product life cycle play a great role in improving profitability	0.00%	0.00%	0.00%	50.0%	50.00%	3.2	1.407
Production scheduling plays a great role in cost reduction	0.70%	1.30%	2.70%	44.0%	51.30%	3.4	1.047
Sales scheduling plays a great role in cost reduction	0.00%	0.00%	0.00%	52.7%	47.30%	3.5	1.183
Product life cycle plays a great role in cost reduction	0.00%	0.00%	0.00%	50.7%	49.30%	3.7	0.957
Average						3.7	0.957

4.5.2 Inventory Categorization

The second objective of the study was to assess the effect of inventory categorization on performance of state corporations in Kenya. The respondents were asked to indicate to what extent did inventory categorization affect had on performance of state corporations in Kenya. Results indicated that majority of the respondents 25% agreed that it was to a very great extent, 27% said that it was to a great extent, 35% said it was moderate, while little extent and not all were at 5 and 8% respectively.

**Figure 4: Inventory Categorization**

The respondents were also asked to comment on statements regarding inventory categorization on performance of state corporations in Kenya. The responses were rated on a Likert scale and the results presented in Table 7 below. It was rated on a 5 point Likert scale ranging from; 1 = strongly disagree to 5 = strongly agree. The scores of 'strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon. The score of 'neutral' has been taken to represent a statement agreed upon. The score of 'agree' and 'strongly agree' have been taken to represent a statement highly agreed upon.

The respondents were asked to indicate the descriptive for safety stock. The result revealed that majority of the respondent (62%) agreed with the statement that A class items plays a great role in expanding market share. The result revealed that majority of the respondent (72.7%) agreed with the statement that B class items plays a great role in expanding market share. The result also revealed that majority of the respondent (64.7%) agreed with the statement that C class items play a great role in expanding market share.

Further, the results revealed that majority of the respondent (100%) agreed with the statement that A class items plays a great role in improving profitability. Results also revealed that majority of the respondent (98.7%) agreed with the statement that B class items plays a great role in improving profitability. The result revealed that majority of the respondent (99.3%) agreed with the statement that C class items play a great role in improving profitability.

Results further indicated that majority of the respondent (97.3%) agreed with the statement that A class items plays a great role in cost reduction. Results revealed that majority of the respondent (62.6%) agreed with the statement that B class items plays a great role in cost reduction. Finally, the results revealed that majority of the respondent (97.3%) agreed with the statement that C class items plays a great role in cost reduction. The average for the statements on inventory categorization was 4.25. The results imply that an organization benefits greatly when inventory categorization is embraced to reduce costs and work with the organization to streamline performance (Mackie, 2008).

Table 7: Inventory Categorization

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation
A class items plays a great role in expanding market share	1.30%	1.30 %	35.3 0%	29.3 0%	32.70%	3.9 1	0.92
B class items plays a great role in expanding market share	0.70%	2.00 %	24.7 0%	36.0 0%	36.70%	4.0 6	0.87
C class items play a great role in expanding market share	1.30%	1.30 %	32.7 0%	28.0 0%	36.70%	3.9 7	0.93
A class items plays a great role in improving profitability	0.00%	0.00 %	0.00 %	53.3 0%	46.70%	4.4 7	0.50
B class items plays a great role in improving profitability	1.30%	0.00 %	0.00 %	48.7 0%	50.00%	4.4 6	0.64
C class items play a great role in improving profitability	0.00%	0.70 %	0.00 %	51.3 0%	48.00%	4.4 7	0.54
A class items plays a great role in cost reduction	2.00%	0.70 %	0.00 %	43.3 0%	54.00%	4.4 7	0.73
B class items plays a great role in cost reduction	0.00%	0.00 %	37.3 0%	29.3 0%	33.30%	3.9 6	0.84
C class items plays a great role in cost reduction	1.30%	1.30 %	0.00 %	45.3 0%	52.00%	4.4 5	0.70
Average						4.2 5	0.74

4.5.3 Information Technology Integration

There was also need to establish effect of information technology integration on performance of state corporations in Kenya as the third objective. The respondents were asked to comment on extent of information technology integration on performance of state corporations in Kenya as the third objective. Results indicated that majority of the respondents 47% agreed that it was to a very great extent, 45% said that it was to a great extent, 2% said it was moderate; little extent was 2% and not all at 4%.

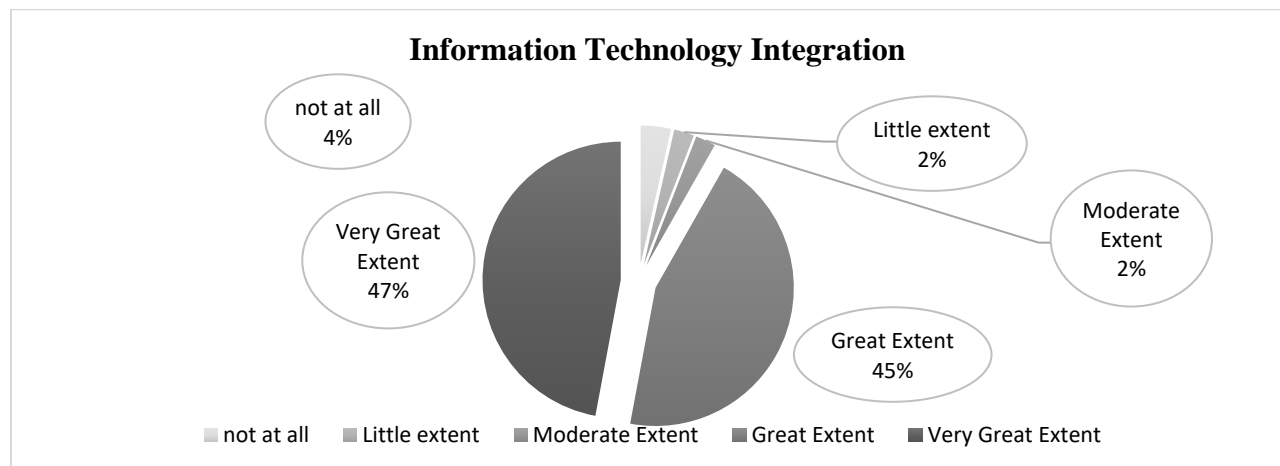


Figure 5: Information Technology Integration

The respondents were asked to indicate their levels of agreement on statements regarding information technology integration. The result revealed that majority of the respondent (62.7%) agreed with the statement that vendor managed inventory systems plays a great role in expanding market share. The result further revealed that majority of the respondent (71.4%) agreed with the statement that electronic data interchange plays a great role in expanding market share. The result revealed that majority of the respondent (62%) agreed with the statement that material requirement planning play a great role in expanding market share.

The result further revealed that majority of the respondent (63.4%) agreed with the statement that vendor managed inventory systems plays a great role in improving profitability. The result revealed that majority of the respondent (70%) agreed with the statement that electronic data interchange plays a great role in improving profitability. The result further revealed that majority of the respondent (69.4%) agreed with the statement that material requirement planning play a great role in improving profitability.

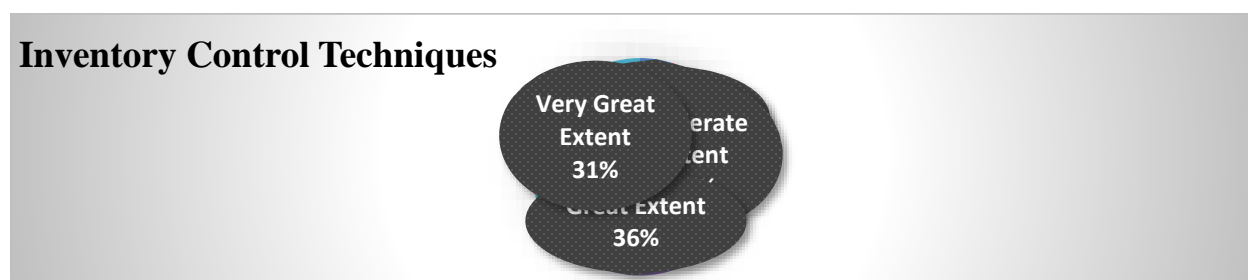
The result revealed that majority of the respondent (43.4%) disagreed with the statement that vendor managed inventory systems plays a great role in cost reduction. The result further revealed that majority of the respondent (100%) agreed with the statement that electronic data interchange plays a great role in cost reduction. The result revealed that majority of the respondent (100%) agreed with the statement that material requirement planning plays a great role in cost reduction. The average for the statements on information technology integration was 3.79. The results imply that an organization benefits greatly when information technology integration is embraced to reduce costs, introduce measurement of procurement ROI's systems designed to address the organization's needs, and work with the organization to streamline performance (Larry, 2013).

Table 8: Information Technology Integration

auto	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation
Vendor managed inventory systems plays a great role in expanding market share	0.00%	0.00%	37.30%	30.70%	32.00%	4.1	0.796
Electronic data interchange plays a great role in expanding market share	0.00%	0.00%	28.70%	34.70%	36.70%	4.0	0.794
Material requirement planning play a great role in expanding market share	0.00%	0.00%	38.00%	33.30%	28.70%	4.5	0.499
Vendor managed inventory systems plays a great role in improving profitability	0.00%	0.00%	36.70%	36.70%	26.70%	4.5	0.502
Electronic data interchange plays a great role in improving profitability	0.00%	0.00%	30.00%	42.00%	28.00%	2.9	1.434
Material requirement planning play a great role in improving profitability	0.00%	0.00%	30.70%	38.70%	30.70%	3.2	1.407
Vendor managed inventory systems plays a great role in cost reduction	20.70%	22.70%	21.30%	20.00%	15.30%	3.4	1.047
Electronic data interchange plays a great role in cost reduction	0.00%	0.00%	0.00%	48.00%	52.00%	3.5	1.183
Material requirement planning plays a great role in cost reduction	0.00%	0.00%	0.00%	50.00%	50.00%	3.7	0.95775
Average						3.7	0.95775

4.5.4 Inventory Control Techniques

The second objective of the study was to establish the effect of inventory control techniques on performance of state corporations in Kenya. The respondents were asked to indicate to what extent inventory control techniques affected performance of state corporations in Kenya. Results indicated that majority of the respondents 31% agreed that it was to a very great extent, 36% said that it was to a great extent, 23% said it was moderate, while little extent and not all tied at 5%.

**Figure 6: Inventory Control Techniques**

The respondents were also asked to comment on statements regarding inventory control techniques effect on performance of state corporations in Kenya. The respondents were asked to indicate descriptive responses for inventory control techniques. The result revealed that majority of the respondents (56.6%) indicated that they agreed with the statement that Just in time plays a great role in expanding market share. The result further revealed that majority of the respondents (73.3%) indicated that they agreed with the statement that contingency planning plays a great role in expanding market share. The result revealed that majority of the respondents (69.3%) indicated that they agreed with the statement that economic order quantity system play a great role in expanding market share.

The result further revealed that majority of the respondents (100%) indicated that they agreed with the statement that just in time plays a great role in improving profitability. The result revealed that majority of the respondents (100%) indicated that they agreed with the statement that contingency planning plays a great role in improving profitability. The result further revealed that majority of the respondents (40.7%) indicated that they agreed with the statement that economic order quantity system play a great role in improving profitability.

The result revealed that majority of the respondents (46.6%) indicated that they agreed with the statement that just in time plays a great role in cost reduction. The result further revealed that majority of the respondents (48.7%) indicated that they agreed with the statement that contingency planning plays a great role in cost reduction. The result revealed that majority of the respondents (52.6%) indicated that they agreed with the statement that economic order quantity system plays a great role in cost reduction.

The average for the statements on inventory control techniques was 3.8. The results imply that an organization benefits greatly when inventory control techniques is embraced to reduce costs, introduce systems designed to address the organization's needs, and work with the organization to streamline performance (Lazear, 2010).

Table.9: Inventory Control Techniques

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation
Just in time plays a great role in expanding market share	0.0%	0.0%	43.3%	21.3%	35.3%	3.9	0.9
Contingency planning plays a great role in expanding market share	0.0%	0.0%	26.7%	36.0%	37.3%	4.1	0.8
Economic order quantity system plays a great role in expanding market share	0.0%	0.0%	30.7%	37.0%	32.0%	4.0	0.8
Just in time plays a great role in improving profitability	0.0%	0.0%	0.0%	45.0%	54.7%	4.6	0.5
Contingency planning plays a great role in improving profitability	0.0%	0.0%	0.0%	50.0%	50.0%	4.5	0.5
Economic order quantity system plays a great role in improving profitability	22.7%	18.0%	21.3%	18.0%	19.3%	2.9	1.4
Just in time plays a great role in cost reduction	15.3%	18.0%	20.0%	21.0%	25.3%	3.2	1.4
Contingency planning plays a great role in cost reduction	0.0%	22.0%	29.3%	28.0%	20.0%	3.5	1.0
Economic order quantity system plays a great role in cost reduction	0.0%	26.0%	21.3%	21.0%	31.3%	3.6	1.2
Average						3.8	0.9

4.6 Correlation Analysis

Correlation analysis was used to determine both the significance and degree of association of the variables and also predict the level of variation in the dependent variable caused by the independent variables.

Table 10: Summary of Pearson's Correlations

Correlations		Inventory Categorizat ion	Inventor y Control Techniq ues	Informat ion Technolo gy Integrati on	Demand and Supply Forecasti ng	Performa nce of State Corporati ons
Inventory Categorization	Pearson Correlation	1				
	Sig. (2-tailed)					
Inventory Control Techniques	Pearson Correlation	.598**	1			
	Sig. (2-tailed)	0				
Information Technology Integration	Pearson Correlation	.589**	.469**	1		
	Sig. (2-tailed)	0	0			
Demand and Supply Forecasting	Pearson Correlation	.588**	.780**	.532**	1	
	Sig. (2-tailed)	0	0	0		
Performance of State Corporations	Pearson Correlation	.806**	.684**	.680**	.696**	1
	Sig. (2-tailed)	0	0	0	0	

** Correlation is significant at the 0.05 Level (2-Tailed).

The correlation summary shown in Table 10 indicates that the associations between each of the independent variables and the dependent variable were all significant at the 95% confidence level. The correlation analysis to determine the relationship between inventory categorization and performance of state corporations in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there is a positive relationship ($r=0.806$) between inventory categorization and performance of state corporations in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$).

The correlation analysis to determine the relationship between inventory control techniques and performance of state corporations in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there is a positive relationship ($r=0.684$) between inventory control techniques and performance of state corporations in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$).

The correlation analysis to determine the relationship between of information technology integration on performance of state corporations in Kenya, Pearson correlation coefficient

computed and tested at 5% significance level. The results indicate that there is a positive relationship ($r=0.680$) between information technology integration and performance of state corporations in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$).

The correlation analysis to determine the relationship between demand and supply forecasting and performance of state corporations in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there is a negative relationship ($r=0.696$) between demand and supply forecasting and performance of state corporations in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$). Hence, it is evident that all the independent variables could explain the changes in the performance of state corporations in Kenya, on the basis of the correlation analysis.

4.7 Regression Analysis

In this study multivariate regression analysis was used to determine the significance of the relationship between the dependent variable and all the independent variables pooled together. Regression analysis was conducted to find the proportion in the dependent variable (performance of state corporations in Kenya) which can be predicted from the independent variables (inventory categorization, inventory control techniques, information technology integration and demand and supply forecasting).

Table 11 presents the regression coefficient of independent variables against dependent variable. The results of regression analysis revealed there is a significant positive relationship between dependent variable and the independent variable. The independent variables reported R value of 0.876 indicating that there is perfect relationship between dependent variable and independent variables. R square value of 0.768 means that 76.8% of the corresponding variation in performance of state corporations in Kenya can be explained or predicted by (inventory categorization, inventory control techniques, information technology integration and demand and supply forecasting) which indicated that the model fitted the study data. The results of regression analysis revealed that there was a significant positive relationship between dependent variable and independent variable at ($\beta = 0.761$), $p=0.000 <0.05$).

Table 11: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.876 ^a	.768	.761	.1148

a. Predictors: (constant), Inventory Categorization, Inventory Control Techniques, Information Technology Integration, Demand and Supply Forecasting.

b. Dependent Variable: Performance of State Corporations

Table 12: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.329	4	1.582	119.907	.000 ^b
	Residual	1.913	145	0.013		
	Total	8.243	149			

a. Predictors: (constant), Inventory Categorization, Inventory Control Techniques, Information Technology Integration, Demand and Supply Forecasting.

b. Dependent Variable: Performance of State Corporations

The significance value is 0.000 which is less than 0.05 thus the model is statistically significance in predicting how inventory categorization, inventory control techniques, information technology integration and demand and supply forecasting affect performance of state corporations in Kenya. The F critical at 5% level of significance was 86.80. Since F calculated which can be noted from the ANOVA table above is 119.907 which is greater than the F critical (value=86.80), this shows that the overall model was significant.

The study therefore establishes that; inventory categorization, inventory control techniques, information technology integration and demand and supply forecasting affect performance of state corporations in Kenya. These results agree with Gianakis (2012) results which indicated a positive and significant effect of inventory management on performance of state corporations.

Table 13: Coefficients of Determination

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		β	Std. Error	Beta		
1	(Constant)	0.817	.229		3.576	.000
	Inventory Categorization	.537	.064	.472	8.439	.000
	Inventory Control Techniques	.097	.041	.159	2.391	.002
	Demand and Supply Forecasting Information Technology Integration	.080	.032	.168	2.49	.001
		.067	.015	.237	4.597	.000

a. Predictors: (constant), Inventory Categorization, Inventory Control Techniques, Information Technology Integration, Demand and Supply Forecasting.

b. Dependent Variable: Performance of State Corporations

The research used a multiple regression model

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

Where Y= Performance of State Corporations in Kenya

β_0 = Constant

X_1 = Inventory Categorization

X_2 = Inventory Control Techniques

X_3 = Information Technology Integration

X_4 = Demand and Supply Forecasting

ϵ = Error Term at 95% Confidence Level.

The regression equation will be;

$$Y = 0.817 + 0.537X_1 + 0.097X_2 + 0.08X_3 + 0.067X_4$$

The regression equation above has established that taking all factors into account (inventory categorization, inventory control techniques, information technology integration and demand and supply forecasting) constant at zero, performance of state corporations in Kenya will be an index of 0.817. The findings presented also shows that taking all other independent variables at zero, a unit increase in inventory categorization will lead to a 0.537 increase in performance of state corporations in Kenya. The P-value was 0.000 which is less 0.05 and thus the relationship was significant.

The study also found that a unit increase in inventory control techniques will lead to a 0.097 increase in performance of state corporations in Kenya. The P-value was 0.002 and thus the relationship was significant. In addition, the study found that a unit increase in information technology integration will lead to a 0.067 increase in the performance of state corporations in Kenya. The P-value was 0.000 and thus the relationship was significant.

Lastly, the study found that a unit increase in demand and supply forecasting will lead to a 0.08 increase in the performance of state corporations in Kenya. The P-value was 0.001 and hence the relationship was significant since the p-value was lower than 0.05. The findings of the study show that, inventory categorization contributed most to the performance of state corporations in Kenya.

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of the Findings

The study endeared to determine effect of inventory management on performance of state corporations in Kenya. The regression results revealed that inventory management practices identified in the study, that is, inventory categorization, inventory control techniques, information technology integration and demand and supply forecasting combined could explain approximately 76.8% of the variations in the performance of state corporations in Kenya. The other 23.2% may be attributed to other strategies not explained by the model or the variables.

From inferential statistics, a positive correlation is seen between each determinant variable and performance of state corporations. The strongest correlation was established between inventory categorization and performance of state corporations. All the independent variables were found to have a statistically significant association with the dependent variable at ninety-five percent level of confidence.

5.2 Conclusion

The findings of the study indicated that product returns management, recycling management, disposal management and product repackaging have a positive relationship with performance of food and beverage manufacturing firms in Kenya.

5.3 Recommendations

Finally, the study recommended that food and beverage manufacturing firms should embrace reverse logistics so as to improve performance and further researches should to be carried out in other sectors to find out if the same results can be obtained.

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