AN ASSESSMENT OF THE EFFECT OF INVENTORY MANAGEMENT ON PERFORMANCE OF SUPERMARKETS IN KISII TOWN: A CASE OF TUSKYS SUPERMARKET, KISII BRANCH, KISII COUNTY

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KISII UNIVERSITY

NOVEMBER, 2017
DECLARATION AND RECOMMENDATION

DECLARATION

This research project is my original work and has not been presented for a diploma in any other university.

_____________________________    __________________________
Signature                      Date

DIVINA BOSIBORI ISOE

CB05/10258/15

RECOMMENDATION

This research project has been submitted for examination with my approval as the University supervisor.

_____________________________    __________________________
Signature                      Date

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DEDICATION

I dedicate this project to parents Mr and Mrs. Isole for their encouragement and support and for being my motivation. Thank you very much for your well wishes and may God bless you.
ACKNOWLEDGEMENT

First and foremost, I give thanks and praises to our Almighty God for His blessings, guidance and protection while carrying out this study. I would like to convey my sincere gratitude to my supervisor Mr. Nyang’echi for his consideration and well executed professional and academic guidance offered to me while conducting this project study, may God bless you so much. I would like to thank parents for their support and wonderful ideas throughout this process. Lastly, I also appreciate my friends who share this journey with me and encouraged me in the adventure of academics and have been my anchor.
ABSTRACT

In today’s highly competitive business environment, organizations are striving to achieve effectiveness, cost efficiencies and economies of scale. Most of these organizations hold inventory so as to meet their customers’ needs. However, managing these inventories in order to achieve their objectives has posed a great challenge to the firms. This study sought to establish the influence of inventory management and performance of supermarkets in Kenya. It was based on the following specific objectives; to determine the effect of inventory management automation on performance of Tuskys Supermarket, to assess the influence of implementing quality control on the performance of Tuskys Supermarket and to find out how maintenance of minimal stock levels influence performance of Tuskys Supermarket. The study was based on the theory of inventory management. The study on empirical literature reviewed review other authors and researchers in the field of inventory management and performance. A descriptive research design was employed to analyse the findings. This study was carried out in Tuskys Supermarket- Kisii Branch situated in Kisii Town Kisii County, the study area was chosen owing to its convenience. The target population of the study was 52 inventory management staff at the Kisii Branch of the Tuskys Supermarket. A sample of 52 respondents was selected from the employees through census sampling technique. Primary data was collected using a semi-structured questionnaire. Data was collected from the supermarket branch and was analyzed using descriptive then presented using charts, percentages, frequencies and tables. The study sought to examine the extent to which quality control had influenced by inventory management on performance of supermarkets in Kenya. The study shows that stock clearance sales timely, stock disposal is always done, inventory quality is monitoring during ordering process and receipt and inventory wastage is minimal. The study found that stock clearance sales timely had been used to quality control influenced inventory management on performance of supermarkets in Kenya. The study showed that excess stocks are rare, followed by orders are placed at the right time and quantity, and stocks are maintained at manageable levels. The study indicated that excess stocks are rare to the extent that maintenance of minimal stock affect inventory management on performance of supermarkets in Kenya. The study recommended that inventory automation strategy should be improved through inventory management on performance of supermarkets. This can be done through automated ordering process, computerized receipts and stocks monitored network.
# TABLE OF CONTENTS

DECLARATION ..............................................................................................................ii
COPYRIGHT ...................................................................................................................iii
DEDICATION ..................................................................................................................iv
ACKNOWLEDGEMENT ...................................................................................................v
ABSTRACT ...................................................................................................................vi
TABLE OF CONTENTS .................................................................................................vii
ABBREVIATIONS AND ACRONOMYS ........................................................................x
LIST OF FIGURES .........................................................................................................xi
LIST OF TABLES ..........................................................................................................xii

## CHAPTER ONE: INTRODUCTION

1.1 Background of the Study.........................................................................................1
1.2 Statement of the Problem.........................................................................................3
1.3 Objectives of the Study.........................................................................................4
   1.3.1 General Objective..........................................................................................4
   1.3.2 Specific Objectives.......................................................................................4
1.4 Research Questions.................................................................................................4
1.5 Significance of the study.........................................................................................4
1.6 Scope of the study..................................................................................................5
1.7 Limitations of the study.........................................................................................5
1.8 Delimitations of the study.....................................................................................5
1.9 Operational definition of terms...............................................................................6

## CHAPTER TWO

LITERATURE REVIEW

2.1 Concept of Inventory Management...........................................................................7
2.2 Theoretical Review..................................................................................................8
2.2.1 Theory of Inventory Management ................................................................. 8
2.2.2 Performance of the Supermarket ................................................................. 9
2.3 Empirical Study ............................................................................................... 10
   2.3.1 Inventory Management Automation ...................................................... 10
   2.3.2 Implementing Quality Control ................................................................. 12
   2.3.3 Maintaining Minimal Stock Levels ........................................................... 13
2.4 Research Gap .................................................................................................. 13
2.5 Conceptual Frame Work .................................................................................. 15

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Research Design .............................................................................................. 16
3.2 Study Area ....................................................................................................... 16
3.3 Target Population ............................................................................................ 16
3.4 Sampling Design and Sample Size .................................................................. 17
3.5 Data Collection Instrument and Procedures .................................................... 17
3.6 Instrumentation ............................................................................................... 17
   3.6.1 Validity of Research Instruments ............................................................ 17
   3.6.2 Reliability of Research Instruments ........................................................ 17
3.7 Data Analysis and Presentation ...................................................................... 18

CHAPTER FOUR
DATA ANALYSIS AND PRESENTATION

4.1 The Response Rate ......................................................................................... 19
4.2 Enterprise Dealings ....................................................................................... 19
4.3 Number of employees in the enterprise ....................................................... 20
4.4 Types of inventory management system ...................................................... 20
4.5 Categorize the enterprise to scale of inventory management ....................... 21
4.6 Effect of Inventory Management on performance of supermarkets ........................................... 21
  4.6.1 Inventory Automation ............................................................................................................. 22
  4.6.2 Quality Control ..................................................................................................................... 22
  4.6.3 Maintenance of Minimal Stock Levels .................................................................................... 23

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS
5.1 Summary of Findings.................................................................................................................. 25
5.2 Conclusion................................................................................................................................ 26
5.3 Recommendations....................................................................................................................... 26
  5.3.1 Recommendations on Policy and Practice................................................................. 26
  5.3.2 Suggestions for Further Study ......................................................................................... 27
REFERENCES .................................................................................................................................... 28
APPENDICES ..................................................................................................................................... 31
APPENDIX I: QUESTIONNAIRE ....................................................................................................... 31
**LIST OF ABBREVIATIONS AND ACRONYMS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERP</td>
<td>Enterprise resource Planning</td>
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<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>E-Pro</td>
<td>Electronic Procurement</td>
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<tr>
<td>POS</td>
<td>Point Of Sale</td>
</tr>
<tr>
<td>MRP</td>
<td>Material Requirement Planning</td>
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<tr>
<td>VMI</td>
<td>Vendor Managed Inventory</td>
</tr>
<tr>
<td>EDI</td>
<td>Electronic Data Interchange</td>
</tr>
<tr>
<td>WIP</td>
<td>Work In-Progress</td>
</tr>
<tr>
<td>RFID</td>
<td>Radio Frequency Identification</td>
</tr>
<tr>
<td>E-POS</td>
<td>Electronic Point of Sale</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 2.1 Conceptual Framework........................................................................15
LIST OF TABLES

Table 3.1 Target Population........................................................................................................16
Table 4.1: Response Rate.............................................................................................................19

Table 4.2 Enterprise Dealings.......................................................................................................19

Table 4.3 Number of employees in the enterprise........................................................................20
Table 4.4 Types of inventory management system........................................................................20
Table 4.5 Categorize the enterprise to scale of inventory management........................................21
Table 4.6 The extent to which Inventory Automation adopt performance of supermarkets.........22
Table 4.7 The extent to which Quality Control adopt performance.............................................23
Table 4.8 Maintenance of minimal stock levels............................................................................24
CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Inventory is a very critical component in every organization and it requires serious managerial consideration since it ties up a lot of firms’ capital. However, Inventories are essential for keeping the production continuous whereby moving inventories keep the market going and the distribution system intact. According to David and David (2002), these functions include providing a cushion to prevent against stock-outs and therefore if there is a constant and efficient supply of inventory, it will reduce the chances of uncertainties or lack of stocks and the costs that relate to stock-outs and if this is well achieved, it enabled any firm to attain a competitive advantage over competitors. Donald (2006), points out that there is failure in the firms’ systems since most of them are not computerized and such firms tend to have huge inventories due to poor planning and also in anticipation that they will beat the competition from the jua kali sector. The failure leads to problems of daily sales accounting since there can be errors in the amounts received in relation to the amounts sold and numerous problems are also encountered in demand forecasting since material managers are not able to predict the exact amount of inventory to maintain so as to meet the customer’s demand.

Automated inventory systems usage has had little application and this has resulted in problems that come as a result of stock shortages and it is for this reason that various researches have been carried out pertaining to Inventory Management Control Systems. Godwin (2003) researched on the impact of telecommunication inventory management and established that telecommunication and inventory control systems are directly related. For instance, Just-in Time System helps in improving the lead-time since orders are made on time and there is just-in-time delivery and therefore this helps in improving the production scheduling and planning of most companies. Every organization holds something in stock; organizations such as manufacturers, healthcare institutions and other service providers place stock in a subsidiary position rather than a central position. Inventory is still an important element in operational effectiveness and often appears in the balance sheets as the biggest of the current assets, holding up. Current stock is very expensive and it is unacceptable in many organizations to hold up excess stock (Adams, 2005)
For products in high demand, a continuing drive to reduce stock to the desired levels is needed to combat the natural tendency of increasing stock unnecessarily. Some of the advancements on constructive approaches to minimizing of the stock quantities in an organization as advanced by Donald (2006) include making forecasts more accurate and this is done by ensuring that records are right and that there is better planning and arranging for inventories to be delivered just in time instead of stock piling. This can also be done by devising ways of reducing ordering costs, production setup costs and lead-times so that optimum quantities are maintained. Various ordering policies can also be used, like blanket (call of) orders, capacity booking orders, part period balancing and economic order quantity. The method used depends on the industry, the usage, the production technique and the cost of ordering (Andrew and Whitney, 2006). Such ordering policies are also helpful in inventory management because they help firms in maintaining the right inventory levels and it is now clearly evident that firms are taking every opportunity available to ensure that such policies are implemented with the help of automated systems.

Many companies’ inventory policy is to hold sufficient finished stock to meet the market demand while minimizing the holding costs, and to enable them meet their objectives, computerized inventory management systems are introduced. Although commercial packages have done much to the discipline of inventory management, the mathematical techniques embodied in the software have not kept pace with developments. The systems can give the companies opportunities to maintain detailed stock records, but one of their major limitation is that they rely on accurate setting of various control parameters not calculated by the software and therefore they should be improved by calculating and monitoring the value of the relevant control parameters (Liu and Keith, 1995). Automated inventory management also requires a lot of information processing within and outside the organization and the transformation, storage and communication of information about the inventory in the stock points as well as in the intermediate processes across the supply chain is highly complex. The driving forces for automated inventory management are increasing customer requirements, the need for networked organizations and the opportunity of networked inventory management. In networked firms where the inventory managers have to deal with several other organizations as far as stock management is concerned, the Networked Inventory Management Information Systems (NIMIS) come in handy (Martin et. al. 1996). This study seeks to establish the effect of inventory
automation on performance of supermarkets in Kisii Town.

1.2 Statement of the Problem

Inventory management entails all the unified management of those internal activities associated with the acquisition, storage, issue, use and internal distribution of inventory used in the production and provision of services. It is the activity of determining the rate, quantities and the procedures of materials to be stocked in an organization and regulation of receipts and issues of those stocks (Sople, 2010). Many firms have had a persistent problem in establishing the right inventory levels and they have thus turned to computerizing their systems so as to achieve a balance between responsiveness and efficiency. Leading supermarkets in Kenya have moved towards the use of more centralized procurement systems for FFV. More recently, however, Kenyan supermarkets are focusing on offering a one stop shopping service by providing everything that a customer wants, all under one roof and it is quite difficult to achieve this using manual inventory management systems (Neven and Reardon, 2004). However, the use of automated inventory management systems has had little application in most organizations. This has resulted in problems that come as a result of stock-outs and stoppage in inventory flow. This in turn leads to dead inventory and the firms end up incurring huge losses in terms of opportunity costs associated with holding inventory (Wolcott, 2000).

Allan and Remko (2002) researched on how to establish inventory levels of gifts and decorative accessories in beauty shops and established that companies that make good use of Electronic Data Interchange (EDI) are far much better equipped to succeed than those which rely on outdated methods of inventory control. The research however fails to explain how using such a powerful system would assist the firms increase their profits, improve their service delivery levels and reduce the total operation costs for the firms. It’s therefore apparently clear that inventory management automation has a positive impact on organizational performance. However, many practitioners still believe that inventory management automation automatically leads to a reduction in the firms’ operations cost as well as enhanced customer service. Supermarkets in Kisii County are growing at an alarming rate because of the bulging population in the area and there are no notable studies have been conducted in such supermarkets as far as inventory management automation is concerned. This study will try to address this issue because many firms invest a lot of their capital in automation but still fail to realize their objectives because of the low level of usage of the installed systems and more specifically on Tuskys Supermarket branch in Kisii Town.
1.3 Objectives of the Study

1.3.1 General Objective
The general objective of the study was to assess the effect of inventory management on performance of supermarkets in Kenya with reference to Tuskys Supermarket, Kisii Branch.

1.3.2 Specific Objectives
This study was guided by the following specific objectives;

i. To determine the effect of inventory management automation on performance of Tuskys Supermarket.

ii. To assess the influence of implementing quality control on the performance of Tuskys Supermarket.

iii. To find out how maintenance of minimal stock levels influence performance of Tuskys Supermarket.

1.4 Research Questions
The study sought to answer the following questions;

i. What is the effect of inventory management automation on the performance of Tuskys Supermarket?

ii. What is the influence of implementation of quality control on the performance of Tuskys Supermarket?

iii. How does maintenance of minimal stock levels influence the performance of Tuskys Supermarket?

1.5 Significance of the Study
The findings of this study would benefit the management of Tuskys Supermarket, retail industry players and governments to implement proper inventory management practices to improve performance. The outcome of the proposed research would inform supermarket industry players and how that would affect time, target achievement and budget and scope of their management of inventory. The conclusions and recommendations of this study would help retain chain players
especially when they are implementing inventory management.

1.6 Scope of the Study
The study would be done in Kisii County which is one of the 47 devolved units in the government of Kenya. The target would be inventory/procurement and supply chain management officials at the Kisii Branch of the Tuskys Supermarket. The study would be limited to investigate the influence of inventory management on performance of Tuskys Supermarket, Kisii Branch. The scope of the study would be narrow to the inventory management practices at the supermarket branch.

1.7 Limitations of the Study
The study focused on only Tuskys Supermarket, Kisii Branch. Other branches might not be in tandem with the findings but with management being centralized most of the policies are made from the headquarters. The respondents may not have enough time to fill the questionnaires but the researcher would make revisits to ensure they are filled in time.

1.8 Delimitations of the Study
The study would not cover other supermarket chains in the retail industry in Kenya and even in Kisii Town due to time and budget constraints. However with Tuskys the face of the retail industry in Kenya can easily be deduced. The literature would be limited to inventory management and performance of the retail industry players since it is relevant to the study. The management in the purchasing and supply chain management and operations would be incorporated in the study since they are the only ones controlling inventory management within the establishment.
1.9 Operational Definition of Terms

**Automation**  
Use of technology and systems to manage inventory

**Quality Control**  
Minimizing wastage, lead time and cost of managing inventory

**Re-ordering**  
The process of sourcing for inventory after exhaustion of existing stock

**Supermarket**  
A large retail market with a variety of products under one roof and consumers pick goods that they need to buy
CHAPTER TWO

LITERATURE REVIEW

2.1 Concept of Inventory Management

Inventory is a very expensive asset that can be replaced with information which is a less expensive asset but to do this, the information has to be accurate, timely, reliable and consistent. When this happens, you carry fewer inventories, reduce cost and get products to customers faster (David, 1996). This therefore implies that inventory management is very important if a company wants to achieve a balance between efficiency and responsiveness. David, (1996) explains the following objectives of inventory management: maximizing customer service, maximizing the efficiency of purchasing and production, maximizing inventory investment and maximizing profit. It is worth noting that meeting these objectives requires balancing short-term as well as long-term objectives. Whether used to provide customer service or to achieve efficiencies, the need to carry inventories conflicts with the management’s desire to minimize inventory investments. For instance, long production runs tend to create inventories; marketing people want stocks of a larger variety of products and options to serve a broad customer demand. High levels of inventory also take up space in factories and distribution centres, thus incurring additional costs of storage, insurance, and so on. Reconciling these conflicting objectives is a primary goal of inventory management. Inventory Management systems and inventory control processes provide information to efficiently manage the flow of materials, effectively utilize people and equipment, coordinate internal activities and communicate with customers (Wolcott, 2000).

Vijay (2004) defines automation as a technology dealing with the application of mechatronics and computers for the production of goods and services. Automation is broadly classified into manufacturing and service automation. The main reasons why many firms automate is to curb the problems of shortage of labour, high cost of labour, need to increase productivity and to reduce the manufacturing lead-times. All this put together, it implies that automation leads to lower operational costs and improved customer service. Inventory can appear in many places in the supply chain, and in several forms such as raw materials inventory, work-in-process (WIP) or finished goods inventory. The major challenge faced by many supply chain managers is
establishing an efficient and effective inventory management system for their organizations (Brason et al, 2005). In order to effectively automate inventory management, several systems have been developed so as to ensure that firms, supermarkets included, hold the right quantities of stock so as to strike a balance between the costs involved and customer satisfaction. Such systems include Materials Requirement Planning (MRP), Vendor Managed Inventory (VMI), Radio Frequency Identification (RFID), Enterprise Resource Planning (ERP), Electronic Point of Sale (E-POS), and E-Procurement (Ken et al. 2010; Simchi-Levi et al. 2009 and Sople, 2010).

Tuskys is a Kenyan supermarket chain. It is one of the large supermarket chains in the Great Lakes Area. It employs nearly 7,000 people, 6,000+ in Kenya, and 900 in Uganda. The head office of Tuskys is located at the Gami Properties Complex, along Mombasa Road, in Nairobi, the capital of Kenya. As of June 2015, Tuskys owns and operates nearly fifty supermarkets in Kenya and Uganda. Tuskys is the second-largest supermarket chain in the African Great Lakes region, behind Nakumatt. Tuskys employs more than 6,000 people in Kenya. Tuskys is a wholly Kenyan, privately held company owned by seven children of Joram Kamau, the founder of the business who died in 2002. One of the branches is Kisii which is called the Chigware branch in reference to Soapstones in Kisii County. The branch is strategically located at the bus park which makes the best performing supermarket in Kisii town given its market share. However most of the products are sourced from outside the county which makes inventory management key in making it a profitable venture.

2.2 Theoretical Review

2.2.1 Theory of Inventory Management

Managing all kinds of assets in an organization can be viewed as an inventory problem. Nearly all the literature on optimal inventory management uses the criteria of cost minimization or profit maximization. An inventory manager’s goal for example is modelled as minimizing cost or maximizing profit while satisfying customer’s demands. Too much inventory consumes physical space, creates a financial burden, and increases the possibility of damage, spoilage and loss. Further, excessive inventory frequently compensates for sloppy and inefficient management, poor forecasting, haphazard scheduling, and inadequate attention to process and procedures. In this context the lean production principle pioneered by Womack et al. (1990) has been linked to
reduced level of inventories. However, (Rajagopalan and Kumar, 1994; Herer et al., 2002; Wickramatillake et al., 2006) argue that volatility of demand may limit the application of this principle. On the other hand, too little inventory often disrupts manufacturing operations, and increases the likelihood of poor customer service. In many cases good customers may become dissatisfied and take their business elsewhere if the desired product is not immediately available. Boute et al. (2006) concluded that companies with very high inventory ratios have more possibilities to be bad financial performers and this is consistent with the findings of Shah and Shin (2007), who reported a strong negative relationship between the cash conversion cycle and corporate profitability for a large sample of public American firms. Chen et al. (2005) by examining how the market values the firms with respect to their various inventories policies, reported that firms with abnormally high inventories have abnormally poor stock returns, firms with abnormally low inventories have ordinary stock returns while firms with slightly lower than average inventories perform best over time. Furthermore, in another study, Shah and Shin (2007) examined the empirical associations among three constructs - inventory, IT investments and financial performance - using longitudinal data that span four decades. They concluded that reducing inventories has a significant and direct relationship with a firm’s financial and operational performance.

2.2.2 Performance of the Supermarkets

The performance of the supermarkets can be broadly classified into customer service delivery levels and the operational costs of the firm. A competitive advantage accrues to those firms that can quickly respond to changing market conditions (Mecker, 1999). Since the Internet allows near instantaneous transfer of information between various links in the supply chain, it is ideally suited to help firms keep pace with their environments. Many businesses have placed a priority upon real-time information regarding the status of orders and production from other members of the supply chain (Demers, 2001). Federal Express is an example of such a business (King, 1999). Federal Express allows customers to track packages easily and quickly in real-time. This makes Federal Express a critical member of other organizations’ supply chains. With automated inventory management system, a firm is able to manage the right inventory levels and deliver what is needed by the customer at exactly the right time.
Organizational automation helps reduce costs by decreasing the use of paper and labour, reducing errors, providing better tracking of purchase orders and goods delivery, streamlining ordering processes, and cutting acquisition cycle times. Recent research by the Aberdeen group, an Internet research firm, has shown that an automated inventory system can cut average costs from $100 (when done manually) to $33 (Williams, 2002). One survey of large companies by an IT research and consulting firm found that Internet-based inventory management can save roughly 5 percent on high-cost strategic goods, allow a reduction in stores staff by 10 percent, and offer a high return on investment (Konicki, 2002). The organizational factors discussed in the study will be the contextual factors that moderate the relationship between inventory management automation and the performance of supermarkets. Such factors include size of the organization, age of the organization, calibre of management, organizational structure and organizational culture.

2.3 Empirical Study

2.3.1 Inventory Management Automation

To fully realize the reviewed benefits of proper inventory management, firms have opted to automate their inventory management operations. The major systems that have been put in place to automate inventory management are discussed in the following section: First, The materials requirement planning concept was developed in the 1970?s following the introduction of high speed computers. MRP does the work of the materials manager to control inventory of items to lean the supply chain. The forecast of inventory items is controlled by the production item on which their demand is dependent. MRP is typically applied to manage inbound material movement in the enterprise and is based on the production requirements and scheduling (Sople, 2010). MRP was developed and refined by Joseph Orlicky at IBM and Oliver Wight, a consultant in the late 1960s and 1970s. A materials requirement plan is derived from the master production schedule (MPS), inventory records and the product structure. The product structure refers to a diagram or a list of materials and their quantities; usually called a bill of materials (BOM) needed to produce one item of output (Brason Steve et al, 2005). Lysons and Farrington (2006), point out that an MRP system has the following elements: Master production schedules (MPS): The MPS uses the inputs from marketing and sales to forecast demand for quantities of
the final product over a planned time horizon known as time buckets. The bill of materials (BOM): also known as the product structure, this lists all the items that comprise each assembly and subassembly that make up the final product, The inventory file: This is the record of individual items of inventory and their status. Research by Krupp (2004) showed that traditional inventory management systems have been too complex to use successfully for many managers. A suitable planning and control system has to be put in place. Real time MRP comes in handy to reduce the effects of forecasting errors which are a major source of problems to any firm’s performance. Real time MRP approach has been modified by using route lead-time to estimate the customers’ order lead-time which would be less cumbersome.

Second, Vendor Managed Inventory (VMI) Systems. This is a new concept that has been made popular by the Bose Corporation. It is now widely used in the industry with encouraging results. In VMI, the supplier takes charge of the inventory management of products and manages the replenishment process based on the consumption pattern of the consumer. They use EDI or other inter-organizational software packages or place the supplier’s representative at the customer’s place. Therefore in VMI, the manufacturer is given the responsibility for monitoring and controlling inventory at the retailer’s distribution centre and in some instances at the retail store level as well. Specific inventory targets are agreed and it is the responsibility of the manufacturer to ensure that suitable inventory is always available. Such arrangements depend on accurate and timely information, and suitable computerized systems have only become available in recent years. The main advantage for the retailer lies in the reduction of the operating costs and also the delay in the payment for the products in question. For manufacturers, it is suggested that running a VMI system for a retailer provides the opportunity to develop a much closer and hopefully more binding relationship with the retailer as well as giving much better visibility of real demand.

A barcode is an optical machine readable representation of data about the object to which it attaches. Barcodes are used for identification, handling, retrieval and storage of goods in warehouses and stores. It is the most popular technology in many applications. Individual inventory items, cartons or unitized packages are affixed with a barcode that can be read by a barcode scanner attached to an online computer system. Barcode is assigned to a particular inventory item to show its identity during storage, retrieval and dispatch. Barcodes are further
used for communication of dispatched items for the preparation of bills by accounts departments and making periodic reports on inventory status and sales. The barcodes facilitate the tracking of specific items in the warehouse during inventory audit or material pick up. They also help in tracking a consignment during transportation/inspection at the customer end.

The point of sale (POS) system connects scanning equipment and the retailer’s inventory management systems. Goods marked with a barcode are scanned by a reader, which in turn recognizes the goods. It notes the item, tallies the price and records the transaction. POS provides an instant record of transactions at the POS. Thus, replenishment of products can be coordinated in real time to ensure that stock-outs in the retail store are avoided. With EPOS technology, companies can be able to settle bills, use electronic printouts and smart sense coupons, respond to on-line alerts and information and take a more customer focused approach (Janat, 2009). With EPOS, managers are now able to spend more time maximizing the potential of their staff and are more visible to their customers.

2.3.2 Implementing Quality Control

Quality control is of utmost importance in any size business and should be implemented as early as possible. Having a process to ensure quality can be directly linked to customer satisfaction and business growth. Starting quality control procedures can be easy as making a checklist that provides all procedures employees need to follow when checking the goods they receive. For example, you could ask workers to examine products for the following: Signs of damage: Leaks, tears, or broken seals; Product colors, styles, and sizes: All must be identical to the description on the purchase order and Prices and terms of sale. When all employees are working toward the same goals, quality will increase. If items don’t meet company standards, they know to return them to suppliers. This inventory management best practice prevents unnecessary increase in stock levels, and employees will no longer offer customers inappropriate merchandise. Certain inventory management best practices link to quality control. Employees should be provided with checklist and/or computing systems that can assist them in following proper procedures when checking the goods they receive. If products meet the required quality standards, employees must consider particular factors, such as light, humidity and temperature, in order to avoid damaging the merchandise kept in warehouse.
2.3.3 Maintaining Minimal Stock Levels

Minimum stock level is the level below which the stock of an item should not fall. This is known as safety or buffer stock. An enterprise must maintain minimum quantity of stock so that the production is not hampered due to non-availability of materials. The formula for calculating minimum level is: Minimum Stock Level = Re-ordered level – (Average rate of consumption × Lead time). Lead Time is defined as the amount of time required to deliver an order after the order is placed. The lead time can be constant (including zero) or random.

Inland or Importable Inventory: If the material is to be import then the lead time will be more implying minimum inventory level is to be kept high. Availability of Inventory: If the material is not easily available then the minimum stock level to be kept high. Possibility of Interruption in Production: If the production process is smooth then it is easy to determine the minimum stock level, but, if production is not smooth due to some reasons such as strike, power, etc. Then it is not easy to find out exact level of minimum stock. Nature of the Material: Materials that are regularly stored must maintain a minimum level. If on customer’s order a special item of material is to be purchased, no minimum level is required to be fixed for that. The Maximum Time required from the Date of Order to the Date of Actual Delivery: It is known as the Lead Time. The longer the lead time the lower is the minimum level, provided the reorder point remains constant. Rate of Consumption of the Material: The minimum rate, the maximum rate and the normal rate of consumption are to be taken into consideration.

2.4 Research Gap

According Vijay (2004) indicates that inventory automation curbs the problems of shortage of labour, high cost of labour, need to increase productivity and to reduce the manufacturing lead-times. He does not however analyze the relationship between inventory automation and firm performance especially retail chain industry. Brason et al (2005) further indicates that bar coding ensures proper inventory management and accountability. The researchers however did not analyze the effect of the various inventory management practices and performance of an organization like a supermarket. This study therefore seeks to establish various inventory management practices and how they affect performance of retail industry, with a specific reference to Tuskys Supermarkets, Kisii Branch.
According to Atrill (2006) there is need to analyze the costs of maintaining certain levels of inventory as there are costs involved in holding too much stock and there are also costs involved in holding too little inventory. In the cost structure of most of the products manufactured the cost of inventory exceeds 50% of the total cost (Ramakrishna, 2005). He also argues that inventory management performance provides an opportunity to reduce manufacturing costs and be treated as a profit centre, this may affect the performance of supermarkets.

According to Lardenoije, Van Raaij, & Van Weele (2005) financial measures ignore market dynamics and increased complexity in acquisition of goods and services for business firms. They are of contrary opinion that firms have to assess the complexity of acquisition of inventory and on how to control in order to improve performance of the supermarket. The function of inventory management is to measure and monitor the stock on which is a major concern to the administrators. The study challenges the entrepreneurs to find formula to reduce inventory without compromising production and without increasing cost.
2.5 Conceptual Framework

Independent Variables

- Inventory Management
  - Inventory management automation
  - Implementing quality control
  - Maintaining minimal stock-levels

Dependent Variables

- Performance of Supermarkets
  - Profits
  - Customer loyalty
  - Market share

Intervening Variables

- Government policy
- Political factors
- Regulatory factors

Figure 2.1 Conceptual Framework
Source: (Researcher 2017)

Explanation of Variables

The conceptual framework illustrates the two main variables; independent variables which include inventory automation, quality control, stock levels minimization and simplifying re-ordering process while the dependent variable is performance of Tuskys Supermarket, Kisii Branch. Automation of inventory management includes having a computerized system for monitoring flow of inventory to ensure there are no stock outs, quality control involves management ensuring that goods ordered are in good form and in quality and state ordered, maintaining minimal stock-levels encompasses avoiding stock deterioration or obsoleteness hence maintaining stock within demand limits and not below quantity demanded while simplifying re-ordering process is aimed at reducing cost of ordering, timeliness and convenience. The intervening variables which include government policy and political factors are aimed at streamlining the proper functioning of the business enterprises. Government policies e.g. laws and regulations, make the supermarket to work within the prescribed time frames. In regard to political factors which include political instability, increase and decrease taxes as a government favour one enterprise which lower taxes as compared to others.
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design
This study adopted a case study research design. Case study design is suitable in gathering data whose intention is to describe the nature of the existing condition. It attempts to describe characteristics of subjects, opinions, attitudes, preferences and perceptions of persons of interest to the researcher (Orodho 2005). Case study research design is suitable for this study because it is usually the best methods for collecting information that will demonstrate relationships. In this study the researcher sought to establish the effect of inventory management on performance of Tuskys supermarket, Kisii Branch.

3.2 Study Area
This study was carried out in Tuskys Supermarket- Kisii Branch situated in Kisii Town Kisii County, the study area was chosen owing to its convenience.

3.3 Target Population
According to Ngechu (2004), target population in statistics is the specific population from which information is desired. The study covered the inventory management process at the supermarket chain. Employees at administration, procurement and supply chain management, finance, operations and customer care were the respondents for the study. The study targeted 52 respondents.

Table 3.1 Target Population

<table>
<thead>
<tr>
<th>Department</th>
<th>Target population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchasing and supply chain</td>
<td>24</td>
</tr>
<tr>
<td>Finance</td>
<td>10</td>
</tr>
<tr>
<td>Operation managers</td>
<td>5</td>
</tr>
<tr>
<td>Supportive staff</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>52</strong></td>
</tr>
</tbody>
</table>

Source: Researcher, 2017
3.4 Sampling Design and Sample Size

The researcher employed purposive sampling technique to select the sample for the population. According to Mugenda and Mugenda (2003), a sample of not more than 100 respondents can be sampled from a given target population. A total number of 52 respondents were examined in this study using census sampling with the supermarket.

3.5 Data Collection Instruments and Procedures

The study used questionnaires to collect data. The questionnaires was both closed and open – ended. Primary data was sought during the study. The qualitative data (non-numerical data) was collected from the open ended questions. The quantitative data was collected using the closed questions where the responses were scored on a numerical scale.

3.6 Instrumentation

The data collection instruments for this study included a questionnaire which was administered to each employee and managers from the four departments. These instruments were used to gather data related to the assessment of inventory management on the performance supermarkets in Kenya.

3.6.1 Validity of Research Instruments

It is the accuracy or meaningfulness and technical soundness of the research. It is the degree to which the tests or a research instrument. The validity of data collected was made through collecting data from the relevant respondents with an introductory letter. The validity of the instruments was established by being given to experts, research assistant with experience and the supervisor who approved the instrument for data collection.

3.6.2 Reliability of Research Instruments

Reliability refers to the consistency overtime. In this case, reliability can be achieved if the instruments attract the same response or carry the same meaning to an individual or group of people over time. In order to test the reliability of the instrument that used in the study, a pilot study was carried out using selected participants who were not included in the actual survey. It is the judgment of the appropriateness of a measure for specific inferences or decision that results
from the scores that generated. In short, it refers to the degree to which the instruments measures what they are meant. In short, Reliability of an instrument is the measure of the degree to which a research instrument yields consistent results of data after repeated trials. This was achieved by testing the collected data against the set research objectives.

3.7 Data Analysis and Presentation

All questionnaires from the respondents were scrutinized to check for any inadequate or out rightly irrelevant responses. The collected data was analyzed using mean percentages and presented using tables, charts, graphs, frequencies and percentages.
CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.1 The Response Rate

The study issued 52 questionnaire to respondents, only a total of 40 questionnaires were returned indicating 76% response rate while 24% of the questionnaire were not returned. The response rate was highest from due to is large populations in Tuskys Kisii branch, this indicated that all majority of the respondents were in agreement under the study as it was suitable and the results were presented in table 4.1.

Table 4.1: Response Rate

<table>
<thead>
<tr>
<th>Response Rate</th>
<th>Number of Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response rate</td>
<td>40</td>
<td>76</td>
</tr>
<tr>
<td>Non response rate</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Field Data, 2017

4.2 Enterprise Dealings

Table 4.2 Enterprise Dealings

<table>
<thead>
<tr>
<th>Enterprise Dealings</th>
<th>No. of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foods</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>Clothes</td>
<td>22</td>
<td>55%</td>
</tr>
<tr>
<td>Household</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Field data (2017)

The study sought to find out what does the enterprise(s) deal with. The study found that enterprise(s) deal with Foods, Clothes and Households with 10%, 35%, and 55% respectively as in table 4.2.
4.3 Number of employees in the enterprise

Table 4.3 Number of employees in the enterprise

<table>
<thead>
<tr>
<th>Number of employees</th>
<th>No. of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarket Supervisor</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>Middle level Managers</td>
<td>22</td>
<td>55</td>
</tr>
<tr>
<td>Supermarket Manager</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

Field Data, 2017

The study asked the respondent to indicate how many employees does the enterprise have and found that supervisor at 55% followed by middle level managers by supermarket supervisor with 35% and supermarket manager with 10% respectively. The findings show that the majority of the respondents were middle level managers.

4.4 Types of inventory management system

Table 4.4 Types of inventory management system

<table>
<thead>
<tr>
<th>Aspects</th>
<th>f</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor managed inventory systems</td>
<td>22</td>
<td>55</td>
</tr>
<tr>
<td>Materials requirement planning</td>
<td>13</td>
<td>32.5</td>
</tr>
<tr>
<td>Bar-coding</td>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>Electronic point of sale</td>
<td>3</td>
<td>7.5</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

Field data (2017)

The respondent were asked to indicate relevant information that relates to the type of inventory management system does the enterprise have. The study found that vendor managed inventory systems had high response of 22 respondents indicating 55%, materials requirement planning 13(32.5%), Electronic point of sale 3(0.5%) and Bar-coding had 3(7.5%). The findings show
that vendor managed inventory systems had high percentage of the respondents. The study recommended that most of the respondents were to bar-coding.

4.5 Categorize the enterprise to scale of inventory management

The sought to examine whether to categorize the enterprise on the following scale regarding inventory management.

Table 4.5 Categorize the enterprise to scale of inventory management

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Average</td>
<td>11</td>
<td>27.5</td>
</tr>
<tr>
<td>Efficient</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>Inefficient</td>
<td>7</td>
<td>17.5</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

Field data (2017)

The findings show that efficient had 14 respondents indicating 35 percentages, average had 11 respondents indicating 27.5% and poor had 8 respondents indicating 20 percentages and inefficient had 7 respondents indicating 27.5%. The study recommended that the supermarket have to categorize the enterprise on the scale regarding inventory management.

4.6 Effect of Inventory Management on performance of supermarkets

The objectives of the study were to assess the effect of inventory management on performance of Tuskys Supermarket. To achieve this objective respondents were required to rate the extent of use, the frequency, satisfaction and effectiveness of the various aspects of inventory management such as inventory automation, quality control and maintenance of minimal stock levels.
4.6.1 Inventory Automation

Table 4.6 The extent to which Inventory Automation adopt performance of supermarkets

<table>
<thead>
<tr>
<th>Inventory automation</th>
<th>Very large extent</th>
<th>Large extent</th>
<th>Moderate extent</th>
<th>Less extent</th>
<th>Not at all</th>
<th>$\sum f_i$</th>
<th>$\sum f_iw_i$</th>
<th>$\frac{\sum f_iw_i}{\sum f_i}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory automation</td>
<td>45</td>
<td>56</td>
<td>36</td>
<td>8</td>
<td>0</td>
<td>40</td>
<td>145</td>
<td>3.63</td>
</tr>
<tr>
<td>Computerized stock levels</td>
<td>80</td>
<td>56</td>
<td>12</td>
<td>4</td>
<td>1</td>
<td>40</td>
<td>153</td>
<td>3.83</td>
</tr>
<tr>
<td>Automated ordering process</td>
<td>110</td>
<td>32</td>
<td>30</td>
<td>2</td>
<td>0</td>
<td>40</td>
<td>174</td>
<td>4.35</td>
</tr>
<tr>
<td>Computerized receipts and issue of stock</td>
<td>65</td>
<td>48</td>
<td>27</td>
<td>0</td>
<td>4</td>
<td>40</td>
<td>144</td>
<td>3.60</td>
</tr>
<tr>
<td>Stocks monitored on a network</td>
<td>45</td>
<td>32</td>
<td>24</td>
<td>18</td>
<td>6</td>
<td>40</td>
<td>125</td>
<td>3.13</td>
</tr>
</tbody>
</table>

**Source: Field data, 2017**

The results in table 4.6 above indicate majority that respondents are satisfied with an aggregate mean of 3.71 on inventory automation. Automated ordering process is the highest rate with a mean of 4.35 followed by Computerized stock levels with a mean score of 3.83, inventory automation had a mean score of 3.63, computerized receipt and issue of stock with amen of 3.60 while the lowest influence was stocks monitored on a network with a mean score of 3.13. The findings of this study reveal that automated ordering process is the large extent on influencing performance in the supermarket.

4.6.2 Quality Control

The study sought to examine the extent to which quality control had influenced by inventory management on performance of supermarkets in Kenya.
Table 4.7 The extent to which Quality Control adopt performance

<table>
<thead>
<tr>
<th>Quality Control</th>
<th>Very large extent</th>
<th>Large extent</th>
<th>Moderate extent</th>
<th>Less extent</th>
<th>Not at all</th>
<th>( \sum f_i )</th>
<th>( \sum fiw_i )</th>
<th>( \frac{\sum fiwi}{\sum f_i} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory wastage is minimal</td>
<td>45</td>
<td>56</td>
<td>51</td>
<td>2</td>
<td>8</td>
<td>40</td>
<td>162</td>
<td>4.05</td>
</tr>
<tr>
<td>Inventory quality</td>
<td>45</td>
<td>36</td>
<td>15</td>
<td>16</td>
<td>9</td>
<td>40</td>
<td>121</td>
<td>3.03</td>
</tr>
<tr>
<td>Stock disposal</td>
<td>60</td>
<td>56</td>
<td>21</td>
<td>12</td>
<td>1</td>
<td>40</td>
<td>150</td>
<td>3.75</td>
</tr>
<tr>
<td>Stock clearance</td>
<td>60</td>
<td>56</td>
<td>27</td>
<td>10</td>
<td>2</td>
<td>40</td>
<td>155</td>
<td>3.88</td>
</tr>
</tbody>
</table>

**Source: Field Data, 2017**

The results in table 4.7 above indicate majority that respondents are satisfied with an aggregate mean of 3.68 on quality control. Inventory wastage is minimal is the highest rate with a mean of 4.05 followed by stock clearance with a mean score of 3.88, stock disposal with a mean score of 3.75, while the lowest influence was inventory quality with a mean score of 3.03. The findings of this study reveal that inventory wastage is the large extent on influencing performance in the supermarket.

**4.6.3 Maintenance of Minimal Stock Levels**

The study sought to establish the extent that maintenance of minimal stock levels will affect inventory management on performance of supermarkets in Kenya.
Table 4.8 Maintenance of minimal stock levels

<table>
<thead>
<tr>
<th>Maintenance of minimal stock levels</th>
<th>Very large extent</th>
<th>Large extent</th>
<th>Moderate extent</th>
<th>Less extent</th>
<th>Not at all</th>
<th>$\sum fi$</th>
<th>$\sum wi$</th>
<th>$\sum fiwi$</th>
<th>$\sum fi$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocks are maintained at manageable levels</td>
<td>45</td>
<td>32</td>
<td>24</td>
<td>18</td>
<td>6</td>
<td>40</td>
<td>125</td>
<td>3.13</td>
<td></td>
</tr>
<tr>
<td>Orders are placed at the right time and quantity</td>
<td>80</td>
<td>56</td>
<td>27</td>
<td>0</td>
<td>1</td>
<td>40</td>
<td>164</td>
<td>4.10</td>
<td></td>
</tr>
<tr>
<td>Excess stocks are rare</td>
<td>110</td>
<td>72</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>40</td>
<td>192</td>
<td>4.80</td>
<td></td>
</tr>
</tbody>
</table>

Source: Field Data, 2017

The results in table 4.8 above indicate majority that respondents are satisfied with an aggregate mean of 4.01 on maintenance of minimal stock level. Excess stocks are rare is the highest rate with a mean of 4.80 followed by Orders are placed at the right time and quantity with a mean score of 4.10, while the lowest influence was Stocks are maintained at manageable levels with a mean score of 3.13. The findings of this study reveal that maintenance of minimal stock levels is the large extent on influencing performance in the supermarket.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

The respondents were asked to indicate relevant information that relates to inventory management on performance of supermarkets by the level of respondents agreement. The study issued 52 questionnaires to respondents, only a total of 40 questionnaires were returned indicated 76% response rate while 26% of the respondents did not show their response. The response rate was highest from due to its large populations in Tuskys supermarket. This indicated that the majority of the respondents were in agreement under the study.

The study sought to find out what does the enterprise(s) deal with. The study found that enterprise(s) deal with foods, clothes and households with 10%, 35%, and 55%. The study asked the respondent to indicate how many employees does the enterprise have and found that supervisor at 55% followed by middle level managers by supermarket supervisor with 35% and supermarket manager with 10% respectively. The findings show that the majority of the respondents were middle level managers.

The respondent were asked to indicate relevant information that relates to the type of inventory management system does the enterprise have. The study found that vendor managed inventory systems had high response of 22 respondents indicating 55%, materials requirement planning 13(32.5%), Electronic point of sale 3(0.5%) and Bar-coding had 3(7.5%). The findings show that vendor managed inventory systems had high percentage of the respondents. The findings show that efficient had 14 respondents indicating 35 percentages, average had 11 respondents indicating 27.5% and poor had 8 respondents indicating 20 percentages and inefficient had 7 respondents indicating 27.5%. The study recommended that the supermarket have to categorize the enterprise on the scale regarding inventory management.

The study sought to assess the extent to which inventory automation strategy affect inventory management on performance of supermarkets. The study show that majority that respondents are satisfied with an aggregate mean of 3.71 on inventory automation. Automated ordering process
is the highest rate with a mean of 4.35 followed by Computerized stock levels with a mean score of 3.83, inventory automation had a mean score of 3.63, computerized receipt and issue of stock with amen of 3.60 while the lowest influence was stocks monitored on a network with a mean score of 3.13. The findings of this study reveal that automated ordering process is the large extent on influencing performance in the supermarket.

The study sought to establish the extent that maintenance of minimal stock levels will affect inventory management on performance of supermarkets in Kenya. The study indicated majority that respondents are satisfied with an aggregate mean of 4.01 on maintenance of minimal stock level. Excess stocks are rare is the highest rate with a mean of 4.80 followed by Orders are placed at the right time and quantity with a mean score of 4.10, while the lowest influence was Stocks are maintained at manageable levels with a mean score of 3.13. The findings of this study reveal that maintenance of minimal stock levels is the large extent on influencing performance in the supermarket.

5.2 Conclusions
From the findings of the study it can be concluded the inventory automation influence performance to a moderate extent.

It can also be concluded that the influence of quality control on performance is high as evidenced by a moderate extent of satisfaction. Further it is also concluded that inventory wastage influences the performance in manufacturing concerns to a large extent.

On the basis of these findings the study concludes that the use of inventory automation to a large extent improves performance while use of inventory management lowers productivity in supermarkets. Therefore there is need for manufacturing concerns to embrace extensive use of these inventory management as a tool to efficient performance.

5.3 Recommendations

5.3.1 Recommendations on Policy and Practice
The study recommended for different types of inventory management. The findings recommended for efficient to categorize the enterprise on the scale regarding inventory
management. The study recommended that inventory automation strategy should be improved through inventory management on performance of supermarkets. This can be done through automated ordering process, computerized receipts and stocks monitored network. The study also recommended that stock clearance sales timely, stock disposal is always and receipt and inventory wastage is minimal. The study recommended that stock clearance sales timely had to be used to quality control in inventory management in order to improve performance of supermarkets in Kenya.

The study examined the extent to which quality control had influenced by inventory management on performance of supermarkets in Kenya. The study shows that stock clearance sales timely; stock disposal is always done had a mean of 3.75, inventory quality is monitoring during ordering process and receipt had a mean of 2.925 and inventory wastage is minimal had a mean of 2.125. The study found that stock clearance sales timely had been used to quality control influenced inventory management on performance of supermarkets in Kenya.

5.3.2 Suggestions for Further Study

The study suggested that the study to be conducted on the effect of technological inventory management on organizational performance. The study also suggested for development of the inventory management decision developed by program team is composed together very well company.
REFERENCES


APPENDICES

APPENDIX I: QUESTIONNAIRE

Questionnaire for Employees in Tuskys Supermarket

Section A: Personal and Organizational Details:

1. What is the name of the Supermarket?

2. What does your enterprise(s) deal with?
   - Foods
   - Clothes
   - Household

3. How many employees does your enterprise have?

<table>
<thead>
<tr>
<th>Position</th>
<th>Supermarket Manager</th>
<th>Middle level Managers</th>
<th>Supermarket Supervisor</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. What type of inventory management system does your enterprise have?
   - Vendor managed inventory systems
   - Materials requirement planning
   - Bar-coding
   - Electronic point of sale

5. Categorize your enterprise on the following scale regarding inventory management
   - Efficient
   - Average
   - Inefficient
   - Poor
Section B: Effect of Inventory Management on performance of supermarkets in Kisii County

6. To what extent inventory automation strategy affect inventory management on performance of supermarkets? Please indicate the extent to which your enterprise adopts them.

**Key:** (5) Very large extent (4) large extent (3) moderate extent (2) less extent (1) not at all

<table>
<thead>
<tr>
<th>Inventory automation</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computerized stock levels</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automated ordering process</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computerized receipts and issue of stock</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stocks monitored on a network</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Do what extent that quality control will influence inventory management on performance of supermarkets in Kenya? Please indicate the extent to which your enterprise adopts them.

**Key:** (5) Very large extent (4) large extent (3) moderate extent (2) less extent (1) not at all

<table>
<thead>
<tr>
<th>Quality control</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory wastage is minimal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inventory quality is monitoring during ordering process and receipt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stock disposal is always done</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stock clearance sales timely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. Do what extent that maintenance of minimal stock levels will affect inventory management on performance of supermarkets in Kenya? Please indicate the extent to which your enterprise adopts them.

**Key:** (5) Very large extent (4) large extent (3) moderate extent (2) less extent (1) not at all

<table>
<thead>
<tr>
<th>Maintenance of minimal stock levels</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocks are maintained at manageable levels</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orders are placed at the right time and quantity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excess stocks are rare</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>