INVENTORY MANAGEMENT PRACTICES AND PERFORMANCE OF WORLD FOOD PROGRAMME PARTNERS IN KENYA

MARGARET W. KINYANJUI

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS,

UNIVERSITY OF NAIROBI

OCTOBER, 2016

DECLARATION

This research project is my original work and has not been submitted for the award of a degree or any other qualification in any other university.

Signature _____ Date _____

Margaret W. Kinyanjui

REG No: D61/72822/2014

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

Signature _____ Date _____

Mr. Michael Chirchir,

Lecturer, Department of Management Science,

School of Business,

University of Nairobi

ACKNOWLEDGEMENT

This research project could not have been complete without the valuable input of a number of people whom I wish to thank. First and foremost, I thank God for His grace and the gift of life during the time of study. Special thanks to my supervisor Mr. Michael Chirchir and moderator Mr. Ernest Akelo. I wish to sincerely acknowledge their professional advice and guidance in the research project. I also thank the entire academic staff of the school of business for their contribution in one way or another while I was pursuing my studies.

I am grateful to the staff of WFP partners for their valuable assistance during the period of data collection. I also wish to thank my family and friends for their moral support and encouragement during the time of study. I also appreciate the support of my colleagues who gave me useful information which assisted in completing this research project and for standing in for me any time I was away due to my studies. May God bless and reward them in a special way.

DEDICATION

This project is dedicated to my family and especially my daughter, Elizabeth Nduta, for her moral support and encouragement when I was writing this research project.

ABSTRACT

In many firms, expenditure on inventory is a significant percentage of working capital and current assets. The main goal of inventory management is to ensure that materials are available in adequate proportions and on a timely manner. The objectives for the study included; (i) to establish the inventory management practices used by World Food Programme partners in Kenya. (ii) to establish the effect of inventory management practices on performance of World Food Programme partners in Kenya. The study used a descriptive research design. The population targeted was nineteen (19) WFP partners in Kenya. The study used a census technique. Self-administered questionnaires were used for primary data collection from the management employees of WFP partners including; warehouse manager, logistics manager and supply chain manager. It was analyzed using SPSS Version 22. Data was presented through means, standard deviations, percentages and frequencies. From the study findings, it was concluded that WFP partners used Economic Order Quantity, Just-In-Time, Vendor Managed Inventory System, ABC Analysis, Radio Frequency Identification System (RFID), Enterprise Resource Planning and Simulation in managing their stock. These organizations underscored the critical role played by inventory management practices hence they used them to enhance their performance. The various inventory management practices adopted by WFP partners significantly influenced their performance. From the multiple regression analysis, it was established that the most significant IMP in influencing performance of World Food Programme partners in Kenya is Just-In-Time followed by Economic Order Quantity, Enterprise Resource Planning, ABC analysis, Vendor Managed Inventory, Radio Frequency Identification and Simulation respectively. The study recommends that the management of WFP partners should initiate an appraisal of all the practices with a view of identifying the most important based on the line of their operations in order to ensure that they are fully implemented in order to save on costs while improving on efficiency. The IMPs should be evaluated and a bench mark for each established so that their implementation is monitored and supervised in order to yield the desired results. The WFP partners' management should organize for seminars and workshops where managers can be trained on new insights on IMPs with a focus on creating value and dealing with internal challenges of stock control. The limitation that the study encountered was low response rate as majority of the respondents could not respond to the questionnaires in time. However, the researcher made courtesy calls to remind them to respond to the questionnaires in time. The respondents also felt that the information being sought was sensitive for disclosure which led to lack of cooperation. Similar studies have been recommended to be done on donor organizations and NGOs to validate the current study outcome.

TABLE OF CONTENTS

LIST OF TABLES

ABBREVIATIONS AND ACRONYMS

BSC	Balance Scorecard
EOQ	Economic Order Quantity
FFA	Food-for-Assets
ICT	Information Communication Technology
IM	Inventory Management
IMP	Inventory Management Practices
JIT	Just-In-Time
ERP	Enterprise Resource Planning
NGO	Non-Governmental Organization
SCFA	Seasonal Cash for Assets
TCA	Transaction Cost Analysis
USAID	United States Agency for International Development
VMI	Vendor Managed Inventory
WFP	World Food Programme
SPSS	Statistical Package for Social Sciences
ANOVA	Analysis of Variance

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Sound inventory management accrues interest to organizations in terms of easy acquisition and distribution of goods. Non-governmental organizations in particular use both public and sourced funds and therefore must ensure proper stock control systems are in place and that adequate measures that may compromise stock such as theft, misappropriation of assets and false records are addressed (Boundless, 2015).

According to Rajeev (2008) the inventory management experiences inaccuracies that create various problems in a firm such as; productivity loss, manufacturing of unwanted products, declining commitment of customers and physical inventories accumulation. As a result of adopting better IMPs, the firm makes substantial savings. Donald (2006) points out that there is failure in the firms' systems since most of them are not applying IM techniques fully and such firms tend to have huge inventories due to poor planning. The failure leads to problems of demand forecasting since material managers are not able to predict the exact amount of inventory to maintain so as to meet the customers demand.

1.1.1 Inventory Management Practices

IMPs refer to activities and functions used by organizations to manage raw materials, semi-finished and finished products. Proper implementation of these activities enables the firm to minimize waste and costs and increase revenue (Zer and Wei, 2006). Some of the inventory management practices discussed in this study includes; economic order quantity, just-in-time, vendor managed inventory, enterprise resource planning,

ABC analysis, radio frequency identification systems, and simulation. According to Pandey (2004) inventories refers to materials used by companies to facilitate making of the other products such as semi-finished products, finished products and raw materials. Green and James (2000) argue that inventories are assets used for ordinary operations or materials used for the manufacturing of other products.

Inventory management according to Silver, David and Rein (2008) revolves around information integration, transportation, acquisition, inspection, material handling, warehousing, packaging and supplies control coupled with securing the inventory. Peter, (2000) further notes that IM seeks to optimize investment levels in all manners of inventory works, enhancing the movement of information, products and similar resources like people and energy from production to consumption levels.

Jaber (2009) further indicates that IM is concerned with the shape and percentage of stocked goods specification. IM facilitates maintaining adequate inventory for smooth operations in any organization. For inventory management to be effective, certain inventory control systems must be put in place depending on the set up and preferences of an organization. IM aims at determining or controlling stock levels as held by the physical distribution systems balancing product availability with the intention of holding stocks at optimal levels while ensuring minimal stock handling costs (Boundless, 2015). According to Meyer (2011) adoption of IMPs led to saving of substantial costs. Brigham and Gapenski (2013) argue that inventory management is important because firms will ensure assets and stock are well managed and accurate demand forecasting is maintained to avoid unplanned procurement processes. This

will assist the firm in executing successful procurement processes that match demand and supply forces.

1.1.2 Organizational Performance

According to Flannery (2006) organizational performance refers to the results that emanate from individuals and collective efforts in the firm. The performance of World Food Programme partners will be measured through non-financial and financial measures.

Organizational performance is also defined as the firm's capability of meeting customer preferences on a timely manner (Fawcett and Magnan, 2008). The balance scorecard (BSC) is a tool used for measuring organizational performance. BSC as a management system and strategic planning tool is deployed on firms in order to realign business initiatives to the firm's vision and corporate strategy. Successful BSC deployment leads to improved communications both internally and externally, and hence organizational performance monitoring (Kaplan and Norton, 2005). The BSC analyzes firm's performance with respect to a number of approaches such as financial perspective, learning and growth, customer approach and business perspectives (Kaplan and Norton, 2005).

1.1.3 World Food Programme Partners

WFP is an agency of United Nations that is accorded the mandate to fight hunger internationally with a catchment of ninety million people as at 2015 from seventy nations across the globe. WFP partners implements its projects as well as partner with

WFP in advocacy, policy development and programme planning (WFP, 2015). In Kenya WFP has 19 partners who have deep contextual understanding of their projects thus enriching WFP programmes, facilitates increased access and support greater accountability to affected populations. Working in partnership with these 19 partners has strengthened WFP's technical skills and expertise, and supported innovative approaches and programmes in Kenya (WFP, 2015).

WFP through its partners is progressively increasing its short term efforts including, food-for-assets (FFA) and Seasonal Cash for Assets (SCFA). In partnership with the local government, WFP seeks to build resilient communities who can easily adapt to the ever deteriorating climatic conditions. According to WFP (2015) nine hundred thousand people are being assisted through food and cash grant initiatives in Kenya. On the other hand, farmers from hunger stricken areas are provided with market for their produce through the purchase for progress (P4P) programme. All these initiatives by WFP are carried out in partnership with the partners in different parts of Kenya including regions such as Coast, Western, Rift Valley and Nyanza as well as refugee camps such as Kakuma and Dadaab.

1.2 Research Problem

Inventory management is still not well developed in the humanitarian sector including WFP partners (Lapide, 2010). Theoretically, inventory play a major role on a firm's survival. However, among NGOs, IM is not always practiced. Donald (2006) points out that there is failure in the firms' systems since most of them are not applying IM practices fully and such firms tend to have huge inventories due to poor planning. The

failure leads to problems of demand forecasting since material managers are not able to predict the exact amount of inventory to maintain so as to meet customer demand. When strategies among firms are being designed, IMPs fail to be treated as a core strategic activity (Sprague and Wacker, 2006). Proper management of inventory enables firms to mitigate inventory costs, reduce lead time and on-time delivery of goods and services (Wisner et. al, 2011).

The NGOs in Kenya play a major humanitarian role during emergencies from time to time. Mungu (2013) states that inventory management is set up to ensure an optimal stock level of humanitarian aid in general to enable satisfactory service that touches on human life unlike procurement in other sectors. Emergencies pose sudden humanitarian crisis which are beyond individual and community capacity hence threatening lives and bringing irreversible health related damages. Thus inventory management is the heart of humanitarian system and poor management will lead to wastage of financial resources, shortages of essential humanitarian aid, average of others resulting in expiration and deadline in quality humanitarian assistance (USAID, 2012). Unfortunately, in developing countries, inventory management in most NGOs is not accorded a central role in overall strategy (Shapiro, 2009). WFP partners maintain inventory management system which is aimed at ensuring that humanitarian aid is supplied and delivered at the right time. They should consider implementing inventory management practices for reduced costs and improved supply chain performance. This has a positive impact on reduction of mortalities during responding to emergency cases (WFP, 2015).

Globally a number of studies exist on inventory management techniques and performance. Kolias (2011) carried out a study on listed construction firms in Bursa-Malaysia about their inventory performance. The study revealed a positive correlation of inventory turnover and capital intensity, a function of investments made. Fullerton et al (2003) researched on manufacturing companies which revealed that companies that implement modern IMPs are more competitive. The study also showed a relationship that was positive between profitability of the firm and implementation of waste reduction practices. Eroglu and Hofer (2011) employed Empirical Leanness Indicator to measure IM. The study revealed leanness of inventory as the best IM tool whose effect on company performance is positive and non-linear. Empirically Rehman (2006) established a strong negative relationship on the turnover of inventory in days against the profitability of the firm.

Locally, Gakuru (2012) found that the major factor hindering the application of inventory model is frustrations by the ordering system, lack of computers to keep track of inventory levels and lack of awareness on how best to implement the inventory models. Kitheka (2012) indicated that automation of Inventory Management enhanced the bottom-line performance of supermarkets. The findings revealed a positive linear relationship on IM automation and supermarket's bottom-line performance. Mukopi (2015) found out a significant relationship among the study variables; (lean inventory systems, strategic supplier partnerships, information technology, and legal policies) and performance of IM among sugar manufacturers in Kenya. Musyoka *et al*. (2015) found out that manufacturing firms used various inventory management techniques in their operations.

The above studies did not focus on the link between IMPs and WFP partners' performance hence a knowledge gap exist that require to be researched on. Hence, the study was carried out in order to establish the effect of inventory management practices on performance of WFP partners in Kenya.

1.3 Objective of the Study

i. To establish the inventory management practices used by World Food Programme partners in Kenya.

ii. To establish the effect of inventory management practices on performance of World Food Programme partners in Kenya.

1.4 Value of the Study

From the achieved results, WFP partners and other NGOs will gain useful information on better ways of managing their inventory to achieve efficiency in their supply chain system.

Supply chain professionals and finance managers will find this study useful since it will educate them on ways of mitigating inventory costs and improving efficiency in the delivery of goods and services.

The study findings will be used by scholars and researchers to add knowledge to the inventory management discipline of procurement and supply chain management. Academicians will also find this study useful in broadening their knowledge and skills in inventory management.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter discusses literature on existing theories, studies made in the past, and conceptual model. It is structured in the following order; theoretical literature review, IMP, IMP and performance, empirical literature review and conceptual framework.

2.2 Theoretical Literature Review

Various theories have been put forward to illustrate the relationship between performance of the organization and top management choices. The theories assess the interaction of internal and external organization.

Different theories have been employed to help bring clarity to the study on inventory management practices and the performance of World Food Programme partners. This section discusses the strategic choice theory, resource dependency theory and transaction cost analysis that is used to explain the study.

2.2.1 Strategic Choice Theory

Campling & Michelson (1998) recognized a SCT that shows the inter-dependence between organizations and atmosphere and activities versus the overall performance of a firm. Child (2002) further advocated that any society where administrators are given power to make decision and direct factors like recording of investment and the amount of inventory to carry have major effects on structural products as well as performance. SCT holds that an organization's choice depends on the influence of the environment such as suppliers and decisions made by the management on inventory.

Ketchen and Hult (2007) propose that this theory views directors as workers who make downstream decisions that alter processes in their organizations. The theory is relevant to the study in that variations can be caused by factors such as environmental conditions and technology. It is easy to cope with the contextual factors and ensure the organization remains at optimal performance level by using new skills in management of inventory such as bar codes, RFID and ERP systems.

2.2.2 Resource Dependence Theory

Based on RDT, organizations pursue to have a decrease in uncertainty and manage necessity by organizing their exchange relationships, starting by having formal and semi-formal influences with other firms. Firms through their inter-dependence, can synergistically syndicate their own sets of resources, harmonizing capitals of their cohorts and thus develop a resource parcel that is unique and hard to mimic (Harrison *et al.,* 2001).

RDT is an important theory to SCM as it can help extravagant organization atmosphere by covering activities and suggesting that a single firm can hardly realize viable development. Firms need to be dependent on the buyer-supplier relationship that helps in improving cooperation and harmonization among members of the supply chain (Dyer, 2000). Thus the correctness of the theory in describing the IMPs used in the business as well as charitable sector such as EOQ, JIT, VMI, ERP, ABC, RFID and Simulation.

RDT is useful for this study in that, for a Supply Chain Management to be tactical in nature, it is important that buyer firms assume calculated creativities, that is, operation

of IMPs that foster an operative association to offer reciprocated benefits such as JIT, RFID and VMI (Paulraj & Chen, 2007). In the context of IMPs, inter administrative partnership is even more significant for handling the internal and external coordination and collaboration to have the system positively executed through the supply chains (Zhu et al., 2010).

2.2.3 Transaction Cost Analysis

Inventory management study calls up on the firm to keep all costs low hence the need to use the concept of Transaction Cost Analysis. Transaction Cost Analysis is a theory that guarantees that costs are transversely kept low (Halldorsson et al., 2007). Transaction cost analysis has broadly been used in diverse areas, particularly on finances and administrative studies. Williamson, in 1970s incorporated TCA into the over-all symmetry model and set up his contract cost economics in the new model of the firm. Williamson (1981) suggested that governments could decrease their contract costs by direct integration and cumulative level of trust at the same time. This kind of incorporation decreases the costs of register running while improving the service level of both internal and external customers while freeing capital to be used in other areas of the organization. The supply chain organization can however lessen transaction costs through vertical incorporation, increasing the level of trust among supply chain contributors, and also through horizontal amalgamation and economies of scale attained from the aggregation of supply. One of the main criticisms of TCA is that it mainly focuses on independent and dependent economic factors and fails to include social and personal relations (Skjoett-Larsen, 1999). The theory is relevant to the

study in that the IMPs are strategic in ensuring minimal cost are incurred by the firms such as JIT, ABC, RFID and simulation.

2.3 Inventory Management Practices

This section presents literature on the inventory management practices that are explored in the study which include Economic Order Quantity, JIT technique, Vendor Managed Inventory, Enterprise Resource Planning, ABC analysis, Radio Frequency Identification system and Simulation.

2.3.1 Economic Order Quantity

The Economic Order Quantity practice is viewed as a conventional method of materials acquisition. It is a measure of material in an order that diminishes the total costs required to order and hold catalogue (Peterson and Silver, 1999). This approach of placing large size of uncommon orders (Schonberger, 1982) was conceptualized by Harris in 1915. Fazel et al. (2002) suggested that Harris' model could be modified to include different price discount schemes to better reflect the practice of the industry (Ray and Chaudhuri, 1997). According to Porteus (2008), the assumptions of inventory management model is based on the fact that the firm knows with certainty the number of items of a particular inventory to be used or demanded for a specific time or period. Shapiro (2009) argues that the use of stocks or sales made by a firm remains unchanged throughout the period. This model also assumes that when stocks reach zero level, an order for replenishment should be placed without further delay.

2.3.2 Just-In-Time Technique

Hutchins (1999) defines JIT inventory technique as a process that is capable of instant reaction to demand without the need for any over stocking, either in anticipation of the demand being forthcoming or as a result of inefficiencies in the process. Hutchins (1999) also studied that the prime goal of just-in-time technique is the accomplishment of zero catalogue, not just within the confines of a single firm but ultimately on the whole supply chain. It can be applied to the manufacturing process within any company as it is also being adapted within service organizations. (Hay, 1998).

The elements of just-in-time technique include continuous improvement, eliminating the seven types of wastes as stated by Kanban and Jikoda among others. The extensive embracing of JIT inventory ideologies makes production actions well-organized, customer receptive and cost effective. Many companies that are effectively implementing JIT principles have a competitive advantage over other participants. The trick is conceptualizing how to relate moralities of JIT to gain competitive advantage in specific industry and business states. The principle of JIT is to have the right amount of catalogue in form of raw materials or finished goods to meet the difficulties of your production progression and the demands of your customers. The nearer you are to operating in a JIT situation, the most receptive you are to your customers and the less capital you have tied up in raw materials and finished goods inventory. The less you spend to store and carry catalogue, the less desuetude you have to write off, and the better you can enhance your carriage and logistics

maneuvers. Eventually, all this renders into saving real money for your firm (Donald, 2006).

2.3.3 Vendor Managed Inventory

VMI is a rationalized method to inventory organization and order fulfillment whereby the vendor is accountable for replacement of inventory based on timely POS information to the retailers. The VMI concept helps to increase client receptiveness by tumbling the demand and supply gap thus providing fulfillment to final customers by availing the anticipated product when desired. The supply chain associates must share their requirements, vision of demand and constraint to set common objectives (Guillaume et al, 2008). The quality of buyer-supplier relationship and trust, ICT system quality and intensity of information sharing has positive an impact on VMI implementation (Claassen et al, 2008). Before implementing VMI, it is important to analyze the level of uncertainty of customer demand because a high uncertainty in demand negatively influences the performance attained through VMI (Kazim Sari, 2007). Upstream data transferred to supplier's current inventory level and accurate sales forecast is the most important factor for the successful implementation of VMI (Astrid Vigtil, 2007). It also gives benefits to retailers as manufacturers stock more to reduce risk of stock out which in turn reduces retailer holding and shortage cost and increases its profit.

2.3.4 Enterprise Resource Planning

ERP is a trade process administration software that allows a firm to use a system of unified applications to manage the commercial and systematize other back office

tasks associated to services, technology and human properties (Lysons and Farrington, 2006). ERP software incorporates all surfaces of a process, including product development, manufacturing, sales and promotion (Schonberger, 2008). ERP is deliberated as an enterprise application intended to be used by larger traders and often necessitates devoted teams to tailor and analyze the data and handle upgrades and placement. On the other hand, Small business ERP applications are lightweight business administration software solutions, modified for the common business industry. ERP allows different subdivisions with miscellaneous needs to interconnect with each other by distributing the same material in a single system. ERP upsurges support an interaction among all elements of businesses in a firm on this basis (Harrison, 2004).

Hitt, Wu, and Zhou (2002) identified the consistent and unified environment of ERP software providing a degree of interoperability that is difficult and luxurious to realize with stand-alone, convention built systems. Most ERP vendors provide an occasion to update measures and align with supposed best performance to meet changing business needs more quickly (Harrison, 2004). Use of ERP improves development for record, improved connectivity with a wide assortment of suppliers, enhances incorporation of all supply chain partners and has led to improved inventory accuracy.

2.3.5 ABC Analysis

ABC Analysis is a catalog control method in which inventory items are categorized into three groups according to their value. Group A: The high value items. These are 15-20% of items accounting for 75% of total value stock. The items in this category

should be monitored regularly. Group B: The medium value items. These forms 30-40% of items which account for approximately 15% of the total value of stocks (Croom and Jones, 2010). Dai and Kauffman (2001) argues that Group B items should be given less attention. Group C: The low value items, the 40-50% of items that account for 10-15% of the annual inventory value. These items should receive least attention. Thus, ABC system facilitates inventory control, over-usage, selective control and enables companies to concentrate on the most cost-effective areas. In addition, it eliminates unnecessary paperwork and reduces stock holding costs.

2.3.6 Radio Frequency Identification System

According to Blanchard (2010) Radio Frequency Identification System (RFIDS) is the process where an item's identification is taken in which the reading and recoding of the data is executed using modern technology. This form of technology is useful in minimization of costs for companies since this process is efficient compared to manual process. This enhances integration of supply chain systems through improved sharing of information leading to supply chain performance (Davila *et al.,* 2009). Radio Frequency Identification system has numerous benefits which include; increased revenue, reduction of cost, diversion prevention, counterfeit product shielding, shrinkage, theft prevention, and creation of competitive advantage (Blanchard, 2010)**.** Over the last few years, many corporations are incorporating RFID expertise into their tactical planning, as it provides important advantages to the performance of supply chain. There are many benefits accrued by applying RFID into logistics and supply chain processes than just cultivating identification of products,

shipments, and assets. Nevertheless, the most common benefits of RFID demonstrate that it is worthy the venture (Cecil and Robert, 2006).

2.3.7 Simulation

Simulation is the method of mimicking a real marvel with a set of mathematical formulas and unconventional computer programs. Simulation replicas permit a priori managing and studying variety of likely results and insinuation of particular inventory strategies. A well planned inventory simulation should include data based on recommendations of front-line workers who know where losses happen that might otherwise be overlooked. A simulation model is easier to describe to administration personnel since it is an explanation of performance of some system or procedure (Davila et al., 2009).

World-class groups understand that non-integrated manufacturing and delivery procedures, poor relations with suppliers and clienteles are insufficient for their achievement. They understand the impression of an organization's plan on other areas of the supply chain. The impact of an organization's plan on the whole supply chain is not possible to predict before its execution. In the practical application of this concept, the development of supply chain management simulation model has become a necessity (Kitheka, 2012).

2.4 Organizational Performance

Performance of an organization, according to David (2009) include associating the results expected to genuine ones, deviation investigations from plans, discrete performance evaluation and probing progress made toward meeting the outlined

objectives. Assessment of strategy is very important to an organization's welfare (David, 2005) and it touches on three rudimentary actions; assessing the fundamental bases of the plan of a firm, comparing predictable with definite results and taking remedial actions to ensure that presentation agrees with plans. Organizational performance refers to the ability of an organization to attain its goals and aims (Ricardo and Wade, 2011) and is equivalent to efficiency, effectiveness, economy and quality (Daft, 2010). Hansen and Wernerfelt (2009) emphasized that the economic model of performance was determined by the quality of the firm's resources, the characteristics of the industry in which the organization compete and the organization's position relevant to its competitors. The financial and non-financial measuring tool for the short term and long term performance is the balanced scorecard. It measures the financial, customers, internal business processes, the learning and growth perspectives of performance (Kaplan and Norton, 2005).

Rosen (1995) noted that performance measurement for many industrial organizations is done through profit, share of the market, sales, dividend rate, earnings/share, return on net worth, productivity, costs and turnover of staff. Rosen made further observations that most of the limitations measure the competence with which capital is utilized. Financial performance refers to how well a firm uses its resources to generate income. This term is also used as an overall measure of a firm's general monetary health over a given period of time, and can be used in relating to comparable firms across the same business or to compare industries or sectors in combination. Non-financial actions can be great pointers for future monetary performance as stated by Ittener and Larcker (2000). Where the final goal is

exploiting financial performance, current benchmark may not capture long-term advantages from decisions made. The BSC is a framework for measuring performance that add strategic non-financial performance measures to traditional financial metrics in order to provide managers and executives with a more 'balanced' view of the performance of the organization (Kaplan and Norton, 2005).

2.5 Inventory Management Practices and Organizational Performance

Variations in levels of inventory usually affect return on assets (ROA). This is a significant monetary bound from an internal and external viewpoint. Reduction in inventory usually improves ROA, and vice versa if inventory goes up without offsetting increases in revenue (Coyle *et, al*., 2003). Sanches and Ferez (2001) also investigated the connection between slender manufacturing practices in firms and resultant improved competitiveness. Lean production is also predictable to advance the performance of the firms through worthy housekeeping practices, such as general waste decrease and lessening risky wastes. Lenox (2001) concluded that wiry production is harmonizing improvements in the performance of procurement function and it often lowers marginal cost of pollution reduction thus enhancing competitiveness.

A study by Fullerton et al (2003) offers pragmatic support that manufacturing organizations that implement higher marks of contemporary inventory organization techniques should outdo competitors; it was found that an optimistic connection exists between firms' effectiveness and the notch to which waste reducing manufacturing practices such as condensed set up times, defensive maintenance programs and

uniform workloads are realized. These findings indicate that manufacturing initiatives retaining modern record management techniques are reliably more lucrative than their equivalents.

Another study suggesting a positive association between inventory organization and performance was Eroglu and Hofer (2011), which used the Empirical Leanness Indicator (ELI) as a quantity for inventory administration. They argued that inventory wiriness is the best inventory administration tool. According to Eroglu and Hofer (2011) firms that are slenderer than the industry average usually realize optimistic returns to slimness.

2.6 Empirical Literature Review

Schonberger (2008) did a study on 50 manufacturing firms in America about the supplier partnering and supply chain performance. The study used mixed methodology where both quantitative and qualitative approaches were employed. The study found that supplier partnering contributes to supply chain performance. This is because supplier partnering improves on efficiency and minimizes inventory costs. It also reduces the cycle time by reducing lead time. The study findings are only generalized to the manufacturing firms and only show the situation among the American firms.

According to Drurry (2011) who investigated management and cost accounting, some organizations especially in the developing economies, the top management is reluctant to invest in modern technologies and equipment to facilitate inventory management; this inhibits effective management of stocks. This prolongs the cycle

time and delay delivery of goods and services to the final consumer and thus may negatively impact on supply chain performance. As a result this causes lack of cooperation between suppliers and the organization which eventually leads to delayed delivery of goods and services or no delivery in extreme cases. To succeed in inventory management, the organization should ensure that it has reliable suppliers to supply goods and services on time. The study is limited to the profit making firms and never shows the link between IMPs and organizational performance.

Akintonye (2014) did a study on effect of inventory management on performance of German service firms. He used exploratory research design where qualitative data was heavily relied on. The study revealed that inventory management models have helped organizations to become more competitive in terms of how they manage their inventories. The availability of technology has made it possible for firms to conduct businesses on a daily basis with fewer inventories. The study limited itself to service firms in German which is a developed economy and the findings only reflect the private firms.

Mehra and Inman (2014) focused on inventory management and efficiency of manufacturing firms. The objective of the study was to establish the effect of inventory management on efficiency of manufacturing firms. The study used descriptive cross-sectional survey research design where data was analyzed using descriptive statistics and inferential statistics. The study revealed that use of technology in inventory management improved efficiency. The study limited itself to

manufacturing firms and the findings are only generalized to the manufacturing sector.

Mukopi (2015) scrutinized the effects of inventory supervision on the performance of the procurement purpose of Sugar Manufacturing Companies in the Western Kenya Sugar Belt. Descriptive research design, specifically a survey study was employed in carrying out the research. The study recognized that there is a robust connection between the four variables; lean inventory systems, tactical supplier partnerships, information technology, legal policies and the effect of inventory administration on performance of the procurement of sugar manufacturing corporations in the western sugar belt. The study only focused on the manufacturing sector.

Oballah (2015) sought to investigate the effect of inventory supervision practices on performance of organization in civic health bodies in Kenya. A descriptive study design was used. Data was collected and analyzed by use of content analysis and non-parametric tests. Hypothesis testing was done through chi-tests. The study revealed that investment in inventory and the accuracy of records has a positive influence on performance of the organization while shrinkage of inventory has a negative effect on performance of Kenyatta National hospital. The case study design was used, however this findings cannot be generalized to other sectors.

Kamakia (2015) did a study on inventory management and supply chain performance of petroleum marketing firms in Nairobi. Descriptive design was used for the study. The study findings indicated that all of the surveyed petroleum firms in Nairobi use inventory management techniques; this is the first indication that these techniques

help them in the improvement of supply chain performance of their firms. Conclusions were made that the inventory management predicted the supply chain performance. This is an indication that the model was good in predicting the supply chain performance by use of specific inventory management techniques variables. The study was limited to the energy sector.

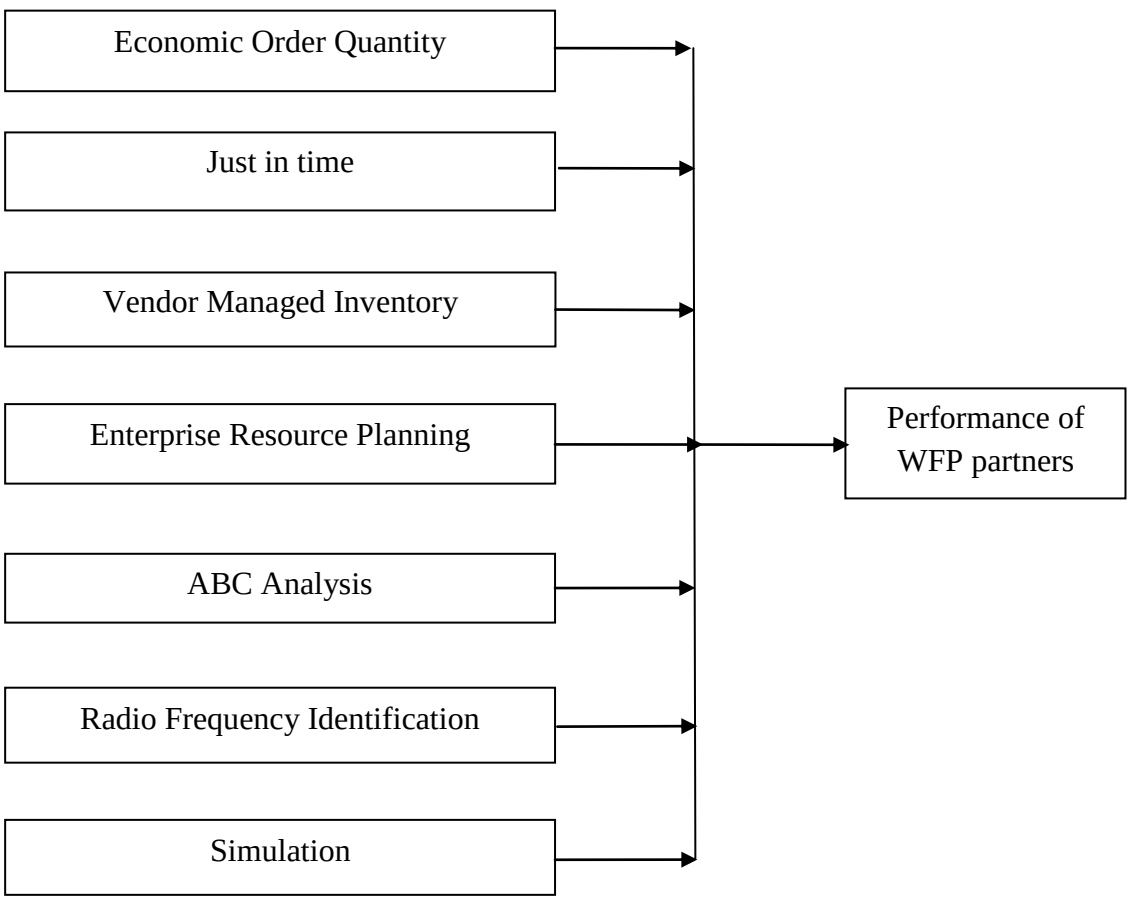
Musyoka *et al*. (2015) focused on the role of inventory management practices on performance of production department a case of manufacturing firms in Mombasa County. The study adopted a descriptive research design. Data analysis was done using descriptive and inferential statistics on the quantitative data from primary and secondary sources while thematic analysis was used to analyze qualitative data. The study found out that manufacturing firms used various inventory management techniques such as the action level methods, just-in-time, periodic review technique, material requirement planning and economic order quantity. The findings only reflect the manufacturing firms.

2.7 Conceptual Framework

The study will be based on the conceptual framework below that shows the study's independent and dependent variables. The independent variables are; EOQ, JIT, VMI, ERP, ABC, RFID and Simulation. On the other hand, the dependent variable is the performance of WFP partners. WFP partners strive to achieve high quality service delivery in the humanitarian sector where time is highly restricted owing to emergency situation that they operate in. They achieve this performance by adopting

individual and/or a hybrid IMPs. Depending on the IMP(s), the performance of WFP partners is determined.

Figure 2.1 Conceptual Model



Source: (Author, 2016)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section presents the method adopted to undertake the stipulated study. It is broken down as follows; research design, target population, data collection and data analysis.

3.2 Research Design

The descriptive research design was adopted for the study because it allowed description of the study variables without them being manipulated as proposed by Kothari (2004).

3.3 Target Population

The nineteen (19) WFP partners in Kenya (WFP, 2015) formed the study target population. (Appendix II). Given the small sample size, a census was used.

3.4 Data Collection

Primary data formed the basis of this research and was gathered using a self-administered questionnaire that was given to management employees of WFP partners including; warehouse manager, logistics manager and supply chain manager. Both open and closed ended questions were used. The questionnaire had three main sections denoted as A, B and C where Section A was about background information of the organization and the respondent. Section B contained questions on implementation of IMP while section C contained questions on IMP and performance of WFP partners. The questionnaire was distributed to the respondents who were given one week to fill in and return them. The study used both quantitative and

qualitative data. The study used a five point Likert scale questions on the two study objectives to ascertain the extent to which an IMP was applied in each organization. The study sought information from the following WFP partners' employees: warehouse manager, logistics manager and supply chain manager in the procurement department. Three management employees were sought from each organization giving the study a sample size of 57 respondents.

3.5 Data Analysis

Once the questionnaires were received back, they were checked for completeness and consistency where poorly filled in questionnaires were not used for the study. Data cleaning, editing and coding followed after which data entry was undertaken for all the questionnaires in a database. SPSS was the software that the researcher employed to manipulate the data to achieve the study objectives. The study used descriptive and inferential statistical analysis in terms of regression analysis and correlation analysis. The primary data from the returned questionnaires had both quantitative and qualitative data to be analysed. To analyze quantitative data, the researcher used descriptive statistics using SPSS. Tables and figures were used while explanations were presented in prose. Qualitative data was analyzed by content analysis, where a thematic framework was developed based on issues gained from qualitative type of data.

The multiple regression model was used for the study to explain magnitude, nature and direction of relationship between the study variables where variables' significance

was arrived at using t-test (Kothari 2004). The multiple regression analysis model specification is as shown below.

$$Y=\alpha+\beta_1X_1 + \beta_2X_2+ \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 +\varepsilon \quad \text{where}$$

Y= performance of WFP partners; X_1= Economic Order Quantity, $X_{2=}$ Just in time; $X_{3=}$ Vendor Managed Inventory; X_4= Enterprise Resource Planning; X_5= ABC Analysis; X_6= RFID; X_7= Simulation; ε= error term; β=coefficient of independent variables; α= constant

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presented the findings of analysis of the IMPs and performance of WFP partners in Kenya. The specific study objectives included; to establish the IMPs used by WFP partners and to establish the effect of inventory management practices on performance of WFP partners in Kenya.

4.1.1 Response Rate

The study had a target of 57 respondents to whom questionnaires were administered. 50 respondents sent back their dully filled questionnaires, giving a response percentage of 87.7%. This percentage was considered adequate and representative as it conforms to Mugenda and Mugenda (2003) stipulation which indicated that a response rate of 50% is adequate for statistical reporting and analysis. A response rate of 60% is considered good while a response rate of 70% and above is excellent.

4.2 Demographic Information

Issues like gender, age, qualifications and years of service were discussed in the first section of the questionnaire in order to capture the background information of the respondents. This information was very important because it provided the basic understanding of the respondents and enhanced reliability of the information provided.

4.2.1 Gender of the respondents

The research sought to determine how the respondent's gender was distributed.

Table 4.1 Gender of the respondents

	Frequency	Percent
Male	32	64
Female	18	36
Total	**50**	**100**

Source: Field Data, 2016

The study established that 64% of the respondents were male while 36% were female as illustrated in Table 4.1 above. This implied that most of the management employees in the WFP partners in Kenya were men.

4.2.2 Age of the respondents

The research study sought to determine how the respondent's age was distributed. Table 4.2 below shows the findings relating to the age of the respondents.

Table 4.2 Age of the respondents

	Frequency	Percent
18-23 years	0	0
24-29 years	18	36
30-35 years	22	44
Over 35 years	10	20
Total	**50**	**100**

Source: Field Data, 2016

The study established that most respondents were aged between 30-35 years which represented 44%, 36% were aged between 24-29 years and 20% were aged over 35 years. This depicts that majority of the top management employees of the WFP partners in Kenya were old enough to respond on the Inventory Management Practices and Performance of World Food Programme partners in Kenya.

4.2.3 Respondents' professional qualification

The study also sought to establish the highest level of education attained by the respondents. Table 4.3 below shows the findings.

Table 4.3 Respondents' professional qualification

	Frequency	**Percent**
Diploma	6	12
Bachelor's degree	28	56
Master	14	28
PhD	2	4
Total	**50**	**100**

Source: Field Data, 2016

From the findings, most respondents (56%) had a Bachelor's degree as their highest education level, 28% had a Master's degree, 12% had a Diploma while 4% had a PhD as their highest education level. This shows that majority of the managers at World Food Programme partners in Kenya had attained at least university education and thus

were educated enough to understand the issue of inventory management practices in World Food Programme partners in Kenya.

4.2.4 Years of Service with the WFP partner

The study sought to establish the length of time that the respondents had worked with WFP partner. The findings are as shown in Table 4.4 below.

Table 4.4 Distribution of respondents based on their length of service

	Frequency	**Percent**
Less than a year	4	8
1-5 years	12	24
6-10 years	40	40
Over 10 years	14	28
Total	**50**	**100**

Source: (Field Data, 2016)

The study established that 40% of the respondents had worked with WFP partners for 6-10 years, 28% had worked for over 10 years, 24% had worked for 1-5 years while 8% of the respondents had worked with WFP partners for less than one year. This implied that majority of the respondents had worked with WFP for long enough to be able to provide crucial information relating to inventory management practices and performance of World Food Programme Partners in Kenya.

4.2.5 Length of time as a WFP partner

The study sought to establish how long the respondents' organization had been WFP partners. The findings are shown in Table 4.5 below.

Table 4.5 Length of time as a WFP partner

	Frequency	**Percent**
Less than 1 year	0	0
1-5 years	0	0
6-10 years	16	32
Over 10 years	34	68
Total	**50**	**100**

Source: Field Data, 2016

The study established that 32% of the respondent's organization had been WFP partners for 6-10 years and 68% had worked as WFP partners for over 10 years. This implied that most organizations had worked as WFP partners for long enough to be able to provide reliable information relating to inventory management practices in World Food Programme Partners in Kenya.

4.2.6 Position in the organization

The study sought to establish the position held by respondents in their organizations. The results are as shown in Table 4.6.

Table 4.6 Position in the organization

	Frequency	Percent
Warehouse Managers	17	34
Supply Chain Managers	17	34
Logistics Managers	16	32
Total	**50**	**100**

Source: Field Data, 2016

The study established that 34% of the respondents were warehouse managers, 34% of the respondents were supply chain managers while 32% of the respondents were logistics managers. This implied that the managers were directly involved in the daily operations related to inventory management thus they were qualified to respond on issues regarding inventory management practices in World Food Programme Partners in Kenya.

4.3 Inventory Management Practices

The first objective of the study sought to establish the IMPs used by World Food Programme Partners in Kenya. The findings are as discussed in the subsequent subsections.

4.3.1 Inventory Management Practices in use

The study sought to find out the Inventory Management Practices used by World Food Programme Partners in Kenya. The research findings are as indicated on Table 4.7 below.

Table 4.7 Inventory Management Practices in use

	Frequency	Percent
Economic Order Quantity	45	90
Just-In-Time	38	76
Vendor Managed Inventory System	37	74
ABC Analysis	32	65
Radio Frequency Identification System (RFID)	32	64
Enterprise Resource Planning	31	62
Simulation	29	58

Source: Field Data, 2016

The study established that 90% of the WFP partners used Economic Order Quantity, 76% used Just-In-Time, 74% used Vendor Managed Inventory System, 64% used ABC Analysis, 64% used Radio Frequency Identification System (RFID), 62% Enterprise Resource Planning and 58% used Simulation. This implied that the most significant Inventory management practices in use were Economic Order Quantity, Just-In-Time, Vendor Managed Inventory System, ABC Analysis, Radio Frequency Identification System (RFID), Enterprise Resource Planning and Simulation. This further implied that WFP partners employed the various Inventory management practices at varying degrees in managing their stock.

4.3.2 Inventory Management Practices

In order to further identify the Inventory Management Practices in WFP partners, the respondents were requested to indicate their level of agreement with statements on the extent to which various Inventory Management Practices were reflected in their organizations. The responses were rated on a five point Likert scale where: 5-Strongly agree, 4-Agree, 3- Moderately agree, 2-Disagree, and 1-Strongly disagree.

Table 4.8 Economic Order Quantity

Economic Order Quantity	**Mean**	**Std. Dev**
The organization adopts a classical economic order quantity model.	3.71	0.48795
The organization observes periodical replenishment of stocks	4.15	0.51411
The organization maintains minimum stock levels	4.01	0.01521

Source: Field Data, 2016

From the study findings on the extent to which EOQ as an Inventory Management Practice was reflected in their organization, the majority of the respondents agreed that; the organization adopted a classical economic order quantity model (Mean 3.71), the organization observed periodical replenishment of stocks (Mean 4.15) and the organization maintained minimum stock levels (Mean 4.01).

Table 4.9 Just-In-Time

Just-In-Time	**Mean**	**Std. Dev**
The organization uses JIT stock control system	3.71	0.48795
The organization uses the JIT system to eliminate waste	3.80	0.46765

Source: Field Data, 2016

On the extent to which Just-In-Time as an Inventory Management Practice was reflected in their organization, the respondents agreed that, the organization used JIT stock control system (Mean 3.71), the organization used the JIT system to eliminate waste (Mean 3.80).

Table 4.10 Vendor Managed Inventory System

Vendor Managed Inventory System	**Mean**	**Std. Dev**
The organization practices vender managed inventory systems.	4.00	0.57735
The organization collaborates with its suppliers in system upgrade	4.14	0.69007
The organization uses automatic stock tracking	4.71	0.43795

Source: Field Data, 2016

On Vendor Managed Inventory System, the respondents agreed that; the organization practiced vender managed inventory systems (Mean 4.00), the organization collaborated with its suppliers in system upgrade (Mean 4.14) and the organization used automatic stock tracking (Mean 4.71).

Table 4.11 Enterprise Resource Planning

Enterprise Resource Planning	**Mean**	**Std. Dev**
The organization uses Enterprise Resource Planning system	3.70	0.75593
The organization has an integrated information sharing system	3.57	0.78680
The organization maintains a database for all its suppliers	4.28	0.48795

Source: Field Data, 2016

On Enterprise Resource Planning, the respondents agreed that; the organization used Enterprise Resource Planning system (Mean 3.70), the organization had an integrated information sharing system (Mean 3.57) and the organization maintained a database for all its suppliers (Mean 4.28).

Table 4.12 ABC Analysis

ABC Analysis	**Mean**	**Std. Dev**
The organization uses ABC analysis to classify items according to their stock value	4.02	0.57735
The organization uses ABC Analysis to reduce stock holding cost	4.00	0.81650

Source: Field Data, 2016

On ABC Analysis, the respondents agreed that; the organization used ABC analysis to classify items according to their stock value (Mean 4.02) and the organization used ABC Analysis to reduce stock holding cost (Mean 4.00).

Table 4.13 Radio Frequency Identification System (RFID)

Radio Frequency Identification System (RFID)	**Mean**	**Std. Dev**
The organization uses RFID System of technology in reading and collecting data	4.70	0.41795
The organization uses manual system of information	3.59	0.75593

Source: Field Data, 2016

On Radio Frequency Identification System (RFID), the respondents agreed that; the organization used Radio Frequency Identification System of technology in reading

and collecting data (Mean 4.70) and the organization used manual system of information (Mean 3.59).

Table 4.14 Simulation

Simulation	Mean	Std. Dev
The organization uses simulation inventory models technique	3.61	0.42793
The organization uses simulation to generate reports that help in decision making.	3.55	0.78680

Source: Field Data, 2016

On Simulation, the respondents agreed that; the organization used simulation inventory models technique (Mean 3.61) and the organization used simulation to generate reports that helped in decision making (Mean 3.55).

4.4 Inventory Management Practices and Performance

The second objective of the study sought to establish the effect of Inventory Management Practices on the performance of WFP partners. The study findings are as discussed below.

4.4.1 Effect of inventory management practices on performance

In order to identify the effect of IMPs on performance of WFP partners, respondents were requested to indicate their level of agreement on statements regarding the effect of inventory management practices on the performance of World Food Programme partners. The responses were rated on a five point Likert scale where: 5-Strongly agree, 4-Agree, 3- Moderately agree, 2-Disagree, and 1-Strongly disagree.

Table 4.15 Economic Order Quantity

Economic Order Quantity	Mean	Standard. Dev.
Use of EOQ model minimizes operational cost	3.60	0.6455
Use of EOQ minimizes lead time	3.64	0.6377
Use of EOQ enables the organization to meet demand	4.08	0.6403
Use of marginal analysis techniques helps control optimal stock levels of perishable goods	4.40	0.5000

Source: Field Data, 2016

From the study findings, the following were the effects of IMP on performance; use of EOQ model minimized operational cost (Mean 3.60), use of EOQ minimized lead time (Mean 3.64), use of EOQ enabled the organization to meet demand (Mean 4.08) and use of marginal analysis techniques helped control optimal stock levels of perishable goods (Mean 4.40).

Table 4.16 Just-In-Time

Just-In-Time	Mean	Standard. Dev.
Use of JIT improves quality	4.36	0.4899
Use of JIT improves reliability of suppliers	4.36	0.6899
The organization uses JIT system to improve customer	3.68	0.5568
Use of JIT improves timely delivery of goods and services	3.60	0.6455

Source: Field Data, 2016

On Just-In-Time, the effects on performance were; use of JIT improved quality (Mean 4.36), use of JIT improved reliability of suppliers (Mean 4.36), the organization used JIT system to improve customer service (Mean 3.68) and use of JIT improved timely delivery of goods and services (Mean 3.60).

Table 4.17 Vendor Management Inventory System

Vendor Management Inventory System	Mean	Standard. Dev.
The organization uses VMI for reduction of stock out costs	4.08	0.6403
The organization uses VMI for improved speed of tracking	4.40	0.5000
Use of VMI reduces stock holding costs	4.28	0.5416
Use of VMI has reduced the risk of defective and obsolescence of	3.68	0.5568
Use of VMI has enhanced supplier relations partnership	4.28	0.5416

Source: Field Data, 2016

On Vendor Management Inventory System, the effects on performance were; the organization used VMI for reduction of stock out costs (Mean 4.08), the organization used VMI for improved speed of tracking stock items (Mean 4.40), use of VMI reduced stock holding costs (Mean 4.28), use of VMI had reduced the risk of defective and obsolescence of items (Mean 3.68) and use of VMI had enhanced supplier relations partnership (Mean 4.28).

Table 4.18 Enterprise Resource Planning

Enterprise Resource Planning	Mean	Standard. Dev.
Use of ERP improves planning for inventory	3.64	0.6377
Use of ERP has improved connectivity with a wide range of suppliers	4.57	0.6470
Use of ERP enhances integration of all supply chain partners	3.87	0.6901
Use of ERP has led to improved inventory accuracy	4.00	0.8165

Source: Field Data, 2016

Concerning Enterprise Resource Planning, the effects on performance were; use of ERP improved planning for inventory (Mean 3.64), use of ERP had improved connectivity with a wide range of suppliers (Mean 4.57), use of ERP enhanced integration of all supply chain partners (Mean 3.87) and use of ERP had led to improved inventory accuracy (Mean 4.00).

Table 4.19 ABC Analysis

ABC Analysis	Mean	Standard.
Use of ABC leads to efficient management of resources	4.57	0.6470
Use of ABC enables the organization to concentrate on the most cost- effective areas	3.85	0.6971
ABC reduces stock holding costs	3.57	0.42384

Source: Field Data, 2016

On ABC Analysis, the effects on performance were; use of ABC led to efficient management of resources (Mean 4.57), use of ABC enabled the organization to

concentrate on the most cost-effective areas (Mean 3.85) and ABC reduced stock holding costs (Mean 3.57).

Table 4.20 Radio Frequency Identification System

Radio Frequency Identification System	Mean	Standard.
The organization uses RFID for efficient management of	3.60	0.6455
Use of RFID improves effectiveness in stock management	3.64	0.6377
Use of RFID reduces theft	4.08	0.6403
Use of barcodes in tracking stock items has enhanced availability of items	4.40	0.5000

Source: Field Data, 2016

Concerning Radio Frequency Identification System, the effects on performance were; the organization used RFID for efficient management of records (Mean 3.60), use of RFID improved effectiveness in stock management (Mean 3.64), use of RFID reduced theft (Mean 4.08) and use of barcodes in tracking stock items had enhanced availability of items (Mean 4.40).

Table 4.21 Simulation

Simulation	Mean	Standard.
The organization adapts simulation module	3.60	0.6455
The organization uses simulated values of services and stocks	3.89	0.6872

Source: Field Data, 2016

On Simulation, the effects on performance were; the organization adapted simulation module (Mean 3.60) and the organization used simulated values of services and stocks (Mean 3.89). This implied that the various Inventory management practices in use in the WFP partners significantly influenced performance as indicated by the Mean of above 3. It further implies that depending on the extent to which one or all of these Inventory management practices are employed, performance would either be scaled down or be enhanced.

4.5 Inferential Statistics

Multiple regressions were used in order to establish the predictive power of the inventory management practices in influencing performance of World Food Programme partners in Kenya.

4.5.1 Regression Analysis Results

In order to test relationship between independent variables on the performance of World Food Programme partners in Kenya the researcher used multiple regression analysis. The researcher applied SPSS V 21.0 to enter, code and compute the measurements of the multiple regressions. Coefficient of determination was used to explain the extent to which changes in the dependent variable was explained by the change in the independent variables or the percentage of variation in the dependent variable (performance of World Food Programme partners in Kenya) that is explained by all the seven independent variables (economic order quantity, just-in-time, vendor managed inventory, enterprise resource planning, ABC analysis, radio frequency identification and simulation).

4.5.2 Regression Coefficients

In order to determine the relationship between performance of World Food Programme partners in Kenya and the seven variables, multiple regression analysis was used. From Table 4.22 below which was generated using SPSS, the equation: **Y =** $\beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \varepsilon$) becomes: $Y= 1.147+ 0.752X_1+ 0.545X_3+0.487X_2+ 0.439X_4 + 0.435X_5 + 0.431X_6 + 0.426X_7 + \varepsilon$

Table 4.22 Coefficient of Determination

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1.147	.826		3.61	.000
	Economic order quantity	0.545	0.2178	0.116	3.936	.0251
	Just in time	0.752	0.1032	0.152	4.223	.0192
	Vendor managed inventory	0.435	0.1827	0.257	3.226	.0462
	Enterprise resource planning	0.487	0.3425	0.054	3.724	.0269
	ABC analysis	0.439	0.1937	0.263	3.247	.0454
	Radio frequency identification	0.431	0.1802	0.221	3.124	.0469
	Simulation	0.426	0.1603	0.206	3.106	.0477

Source: Field Data, 2016

According to the regression equation above, taking all IMPs (just-in-time, economic order quantity, enterprise resource planning, ABC analysis, vendor managed inventory, radio frequency identification and simulation) to be constant at zero, performance of World Food Programme partners in Kenya was 1.147. The results that was analyzed depicted that holding other variables constant, an increase in just-in-time resulted to a 0.752 increase in World Food Programme partners' performance; a unit increase in economic order quantity lead to a 0.545 increase in performance of World Food Programme partners in Kenya, a unit increase in enterprise resource planning lead to a 0.487 increase in performance of World Food Programme partners in Kenya, a unit increase in ABC analysis lead to a 0.439 increase in performance of World Food Programme partners in Kenya, a unit increase in vendor managed inventory lead to a 0.435 increase in performance of World Food Programme partners in Kenya, a unit increase in radio frequency identification will lead to a 0.431 increase in performance of World Food Programme partners in Kenya while a unit increase in simulation lead to a 0.426 increase in performance of World Food Programme partners in Kenya.

This shows that just-in-time contribute most to the performance of World Food Programme partners in Kenya followed by economic order quantity, enterprise resource planning, ABC analysis, vendor managed inventory, radio frequency identification and simulation respectively. At 5% level of significance and 95% level of confidence, just-in-time had a 0.0192 level of significance, economic order quantity showed a 0.0251 level of significance, enterprise resource planning showed a 0.0269 level of significance, ABC analysis showed a 0.0454 level of significance,

vendor managed inventory showed a 0.0462 level of significance, radio frequency identification showed a 0.0469 level of significance while simulation showed a 0.0477 level of significance hence the most significant IMP in influencing performance of World Food Programme partners in Kenya is just-in-time followed by economic order quantity, enterprise resource planning, ABC analysis, vendor managed inventory, radio frequency identification and simulation respectively.

4.5.3 Model Summary

The model summary findings are as shown in Table 4.23 below.

Table 4.23 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.855	0.731	0.642	0.6273

Source: Field Data, 2016

The seven IMPs that were studied explain 73.1% of the performance of World Food Programme partners in Kenya as represented by the R^2. This therefore means that other variables not in the study contribute 26.9% of the performance of WFP partners. Therefore, there is need to conduct further research in order to identify the other factors (26.9%) that has influence on performance of World Food Programme partners in Kenya.

4.5.4 ANOVA Results

The study ANOVA results are as shown in Table 4.24 below.

Table 4.24 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.534	7	1.267	9.475	.0179[a]
	Residual	9.307	42	2.327		
	Total	**3.465**	**49**			

Source: Field Data, 2016

From the above findings, the level of significance is 0.0179 which is less than 0.05, thus the model is considered significant statistically in highlighting the way IMPs influence performance of World Food Programme partners in Kenya. The F critical at 5% level of significance is 3.23. Since F calculated (9.475) is greater than the F critical. This shows that the overall model is significant.

4.6 Discussion of Findings

The study established that WFP partners used to varying degrees the following IMPs: Economic Order Quantity, Just-in-time, Vendor Managed Inventory System, ABC Analysis, Radio Frequency Identification System (RFID), Enterprise Resource Planning and Simulation. This is supported by Zer and Wei (2006) who argue that IMPs refer to activities and functions used by organizations to manage raw materials, semi-finished products and finished products. Proper implementation of these

activities enables the firm to minimize waste and costs and increase revenue. According to Pandey (2004) inventories refers to materials used by companies to facilitate the making of the core products such as semi-finished products, finished products and raw materials. Green and James (2000) argues that inventories are assets used for ordinary operations or materials used for the manufacturing of other products.

From the study findings it was revealed that just-in-time contribute most to the performance of World Food Programme partners in Kenya followed by economic order quantity, enterprise resource planning, ABC analysis, vendor managed inventory, radio frequency identification and simulation respectively. This is supported by Peterson and Silver (1999) who argue that EOQ method is viewed as a conventional way for buying materials. Economic order quantity is a measure of material within an order that diminishes the total costs required to order and hold catalogue.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter covers the summary, conclusion and recommendations of the study. The study objectives were; to establish the inventory management practices used by World Food Programme partners in Kenya and to establish the effect of inventory management practices on the performance of World Food Programme partners in Kenya.

5.2 Summary

The study established that WFP partners used varying degrees of the following IMPs in managing their stock: Economic Order Quantity, Just-in-time, Vendor Managed Inventory System, ABC Analysis, Radio Frequency Identification System (RFID), Enterprise Resource Planning and Simulation.

The study established that IMPs applied by WFP partners affected their performance. The use of EOQ model; minimized operational cost and lead time; enabled WFP partners to meet demand while the use of marginal analysis techniques helped to control optimal stock levels of perishable goods. On the other hand, use of JIT improved quality; reliability of suppliers; customer service and timely delivery of goods and services. Vendor Management Inventory System was useful in reduction of stock out costs; improving speed of tracking stock items; reducing stock holding costs and risk of defective and obsolescence of items while it also enhanced supplier relations partnership.

Enterprise Resource Planning improved planning for inventory and connectivity with a wide range of suppliers while it also enhanced integration of all supply chain and led to improved inventory accuracy. ABC Analysis led to efficient management of resources; enabled the WFP partners to concentrate on the most cost-effective areas and reduce stock holding costs. The Radio Frequency Identification System led to efficient management of records; improved effectiveness in stock management; reduced theft; and enhanced availability of items. Simulation enhanced performance by enhancing loss reduction and by increasing predictability of the inventory management.

From the regression analysis, the study established that just in time contribute most to the performance of World Food Programme partners in Kenya followed by economic order quantity, enterprise resource planning, ABC analysis, vendor managed inventory, radio frequency identification and simulation respectively. It was further established that the most significant IMP in influencing performance of World Food Programme partners in Kenya is just-in-time followed by economic order quantity, enterprise resource planning, ABC analysis, vendor managed inventory, radio frequency identification and simulation respectively.

5.3 Conclusion

The conclusion of this study is that WFP partners used Economic Order Quantity, Just-In-Time, Vendor Managed Inventory System, ABC Analysis, Radio Frequency Identification System (RFID), Enterprise Resource Planning and Simulation in varying degrees in managing their stock.

The study further concludes that EOQ as an Inventory Management Practice was reflected in their organizations in the following ways; the organization adopted a classical economic order quantity model, it observed periodic replenishment of stocks and maintained minimum stock levels. On the extent to which Just-In-Time as an Inventory Management Practice was reflected in their organization, the organization used JIT stock control system, it also used the JIT system to eliminate waste. The use VMI systems, collaborated with its suppliers in system upgrade and it used automatic stock tracking. On Enterprise Resource Planning; the organization used Enterprise Resource Planning system, it had an integrated information sharing system and maintained a database for all its suppliers. On ABC Analysis; the organization used ABC analysis to classify items according to their stock value and to reduce stock holding cost. The organization used RFID System of technology in reading and collecting data and also used manual system of information. On Simulation; the organization used simulation inventory models technique and the organization used simulation to generate reports that helped in decision making. Thus the various forms of inventory management practices employed by the WFP partners were reflected in those organizations. Further, these organizations underscored the critical role played by the Inventory management practices hence they used them to influence performance.

The study concludes that the effects of IMP on performance were use of EOQ model to minimize operational cost, lead time, enable the organization to meet demand and marginal analysis techniques helped control optimal stock levels of perishable goods. Use of Just-In-Time, improved quality, reliability of suppliers improved customer

service and delivery of goods and services. Use of Vendor Management Inventory System brought about reduction of stock out costs, improved speed of tracking stock items, reduced stock holding costs, reduced the risk of defective and obsolescence of items and enhanced supplier relations partnership. Enterprise Resource Planning improved planning for inventory, had improved connectivity with a wide range of suppliers, enhanced integration of all supply chain partners and had led to improved inventory accuracy. ABC Analysis led to efficient management of resources, enabled the organization to concentrate on the most cost-effective areas, reduced stock holding costs. Radio Frequency Identification System (RFID) brought about efficient management of records, improved effectiveness in stock management, reduced theft and used barcodes in tracking stock items had enhanced availability of items. Organizations had adopted Simulation module and it used simulated values of services and stocks. Thus the various Inventory management practices in use in the WFP partners significantly influenced performance as indicated by the mean of above 3. Also, depending on the extent to which one or all of these Inventory management practices were employed, performance would either be scaled down or be enhanced.

The study further concludes that just in time contribute most to the performance of World Food Programme partners in Kenya followed by just in time, economic order quantity, enterprise resource planning, ABC analysis, vendor managed inventory, radio frequency identification and simulation respectively. The most significant IMP in influencing performance of World Food Programme partners in Kenya is just in time followed by economic order quantity, enterprise resource planning, ABC

analysis, vendor managed inventory, radio frequency identification and simulation respectively.

5.4 Recommendations

Given the significant influence of Inventory management practices on performance of WFP partners, the researcher recommends that the management of those partner organizations should initiate an appraisal of all the practices with a view of identifying the most important practice in order to ensure that they are fully implemented in order to save on costs while improving on efficiency.

Since the study found that there were various Inventory Management Practices being applied in varying degrees in different organizations, the study recommends that the practices be evaluated and a bench mark for each established so that their implementation is monitored and supervised in order to yield the desired results.

The study further recommends that the WFP management should organize for seminars and workshops where the managers can be trained on new insights on IMP with a focus on creating value and dealing with the internal challenges of stock control.

5.5 Limitations of the Study

The researcher encountered slow response rate as majority of the respondents could not respond to the questionnaires in time. However, the researcher made courtesy calls to remind them to respond to the questionnaires in time. The respondents also felt that the information being sought was sensitive for disclosure which led to lack of cooperation.

The respondents were also hesitant to participate as they thought that the information collected would be used against them. The researcher however assured them that the information would be kept confidential and that they were not required to indicate their names as the study was pegged on anonymity and would only be used for academic purposes.

5.6 Areas for Further Studies

Since the study sought to explore Inventory Management Practices and Performance of World Food Programme Partners in Kenya, the researcher is recommending more studies to be done in other donor organizations and NGOs to allow comparison and generalization of findings on the Inventory Management Practices and Performance.

REFERENCES

Akintonye, N. (2014). The effect of inventory management on performance of German service firms, *Journal of Operations Management*, 2(1), 1-5.

Astrid, V. (2007). Supply Chain Inventory Management and the Value of Shared Information, *Management Science* 46, 1032 – 1048.

Aydin, G., & Porteus, E. L. (2008). Joint inventory and pricing decisions for an assortment. *Operations Research*, *56*(5), 1247-1255.

Blanchard, D. (2010). *Supply chain management: best practices (2nd edition)*, John Wiley & Sons, New Jersey.

Boundless, S. (2015). Effects of working capital management on SME profitability, *Journal of Business Finance & Accounting*, 30 (3–4), 1-14.

Brigham, F., & Gapenski, G. (2013). *Purchasing and Supply Chain Management*, Pearson Education Ltd, England

Campling, J. T., & Michelson, G. (1998). A strategic choice–resource dependence analysis of union mergers in the British and Australian broadcasting and film industries. *Journal of Management Studies*, *35*(5), 579-600.

Cecil, B., & Robert, H. (2006). *Introduction to Operations and Supply Chain Management*, Prentice-Hall.

Claassen, M. J., Van Weele, A. J., & Van Raaij, E. M. (2008). Performance outcomes and success factors of vendor managed inventory (VMI). *Supply Chain Management: An International Journal*, *13*(6), 406-414.

Coyle, J. J., Bardi, E. J., & Langley, C. J. Jr. (2003). The management of business logistic:a supply chain perspective (7th ed.). Mason: South-Western.

Croom, D., & Jones, E. (2010). Inventory management of selected shipyard companies in India, *a published PhD thesis*, Saurashtra University.

Dai, D., & Kauffman, D. (2001). *Inventory Management, Production Planning, and Scheduling*, 3rd edition, New York, John Wiley & Sons.

David R. F. (2009). *Strategic Management: Concepts and Cases. 12th edition*. Pearson Prentice Hall.

Donald, J. (2006). *Logistics Management: Integrated Supply Chain Processes*, Pearson Education Ltd. England.

Drurry, C. (2011). *Management and cost accounting.* Prentice Hall, London.

Eroglu, C., & Hofer, C. (2011). Lean, Leaner, Too Lean? The Inventory-Performance Link Revisited, *Journal of Operations Management*, 29, 356–369.

Fawcett, S. et al (2008). Benefits, barriers and bridges to effective supply chain management, Supply Chain Management: *An International Journal*, 13(1), 35-48

Flannery, M. J., & Rangan, K. P. (2006). Partial adjustment toward target capital structures. *Journal of financial economics*, *79*(3), 469-506.

Fullerton, R. R., McWatters, C. S., & Fawson, C. (2003). An Examination of the Relationship between JIT and Financial Performance, *Journal of Operations Management* 21, 383–404.

Gakuru, N. (2012). Application of inventory models in drug inventory management the case for the Nairobi city council health services, *Unpublished MBA Project, University of Nairobi.*

Green, J. H. (2000). *Production and Inventory Control Handbook*, 3rd edition, New York, McGraw Hill.

Hansen, T., & Wernerfelt, D. (2009). *Quantitative Methods for Business*, 4th Edition, Prentice Hall, England.

Holweg, M., Disney, S., Holmström, J., & Småros, J. (2005). Supply chain collaboration: Making sense of the strategy continuum. *European management journal*, *23*(2), 170-181.

Hutchins, D. (1999). *Just in time*. Gower Publishing, Ltd.

Ittner, C., & Larcker, D. (2000). *Financial Times' Mastering Management series*, Knowledge@ Wharton.

Jaber, M. Y. (Ed.). (2009). *Inventory management: non-classical views*. CRC Press.

Kamakia, C.W. (2015). Inventory management and supply chain performance of petroleum marketing firms in Nairobi, *unpublished MBA project, University of Nairobi.*

Kaplan, R. S., & Norton, D. P. (2005). Using the Balanced Scorecard as a Strategic Management System. *Harvard Business Review, 34(5), 15-22.*

Kazim, S. (2007). Effect of inventory management practices on organizational performance in public health institutions in Kenya: A case study OF Kenyatta

National Hospital, *International Journal of Education and Research*, 3 (3), 12-17.

Ketchen, D. J., & Hult, G. T. M. (2007). Bridging organization theory and supply chain management: The case of best value supply chains. *Journal of Operations Management*, *25*(2), 573-580.

Kitheka, S. (2012). Inventory management automation and the performance of supermarkets in western Kenya, *Unpublished MBA Project, University of Nairobi.*

Kolias, G.D., Dimelis, S.P., & Filios, V.P. (2011). An Empirical Analysis of Inventory Turnover Behavior in the Greek Retail Sector: 2000-2005. *International Journal of Production Economics*, 133 (1), 143–153.

Kothari, C. R. (2004). *Research methodology: methods and techniques, (2nd Ed.).* New Delhi. New Age International (P) Limited.

Kruger, G.A. (2005). A statistical look at Inventory Management, *Quality Progress*, 8, pp6

Lapide, L. (2010). Inventory management in service firms: forecast errors, *The Journal of Business Forecasting*, 1-2.

Lazaridis, I., and Dimitrios, T. (2005). *The relationship between working capital management and profitability of listed companies in the Athens Stock Exchange*.

Lysons, K., & Farrington, B. (2006). *Purchasing and supply chain management*. Pearson Education.

Martínez Sánchez, A., & Pérez Pérez, M. (2001). Lean indicators and manufacturing strategies. *International Journal of Operations & Production Management*, *21*(11), 1433-1452.

Mehra, S. & Inman, R. (2014). Inventory management and efficiency of manufacturing firms, *Journal of Operations Management*, 1(2), 1-4

Mugenda, O. M. & Mugenda, A. G. (2003). Research methods: quantitative and qualitative approaches. Nairobi: Acts Press

Mukopi, C.M. (2015). An Analysis of the Effects of Inventory Management on the Performance of the Procurement Function of Sugar Manufacturing Companies in the Western Kenya Sugar Belt, *International Journal of Scientific and Research Publications*, 5, (4), 5-15.

Mungu, S. (2013). *Supply chain management practices and stock levels of essential drugs in public health facilities in Bungoma East Sub County*, Unpublished Research Project, University of Nairobi.

Musyoka, R.M., Ochieng, V.O., Chepkulei, B., & Wambui, M.M. (2015). Role of inventory management practices on performance of production department' a case of manufacturing firms, *International Journal of Economics, Commerce and Management*, 3, 5-11

Nsubuga, E. H. K. (2006). *Fundamentals of Education Research.* Kampala, Uganda. K Publishers (U) Ltd.

Oballah, K. (2015). The effect of inventory management practices on organizational performance in public health institutions in Kenya, *Unpublished thesis, University of Nairobi.*

Özer, Ö., & Wei, W. (2006). Strategic commitments for an optimal capacity decision under asymmetric forecast information. *Management Science*, *52* (8), 1238-1257.

Pandey, I. M. (2004). *Financial Management 9th (ed*), Vikas Publishing House PVT Ltd.

Paulraj, A., & Chen, I. J. (2007). Environmental uncertainty and strategic supply management: a resource dependence perspective and performance implications. *Journal of Supply Chain Management*, *43*(3), 29-42.

Peter, Z. (2000). *Inventory and Credit Management 1st Edition*, Mittall Publication, New Delhi, India.

Peterson, S., & Silver, N. (1999). Inventory management optimization as part of operational risk management. *Economic Computation and Economic Cybernetics Studies and Research*, 213-222.

Porteus, E. (2008). *Stochastic inventory theory*, *Journal Operations Research and Management Science* 2, 605-652

Rajeev, N. (2008). Inventory management in small and medium enterprises: A study of machine tool enterprises in Bangalore. *Management Research News*, *31*(9), 659-669.

Ray, J., & Chaudhuri, K. S. (1997). An EOQ model with stock-dependent demand, shortage, inflation and time discounting. *International Journal of Production Economics*, *53*(2), 171-180.

Rehman, A. (2006). Working Capital Management and Profitability: Case of Pakistani Firms (*Unpublished Dissertation), COMSATS Institute of Information Technology (CIIT), Islamabad, Pakistan*.

Ricardo, N., & Wade, D. (2011). Use of remote sensing to support forest and wetlands policies in the USA. *Remote Sensing*, *3*(6), 1211-1233.

Rosen, R. (1995). *Strategic Management: An introduction*. Pitman Publishing.

Sambharya, R. B., & Banerji, K. (2006). The effect of Keiretsu affiliation and resource dependencies on supplier firm performance in the Japanese automobile industry. *Management International Review*, *46*(1), 7-37.

Schonberger, R. (2008**).** *Supplier partnering contributes and supply chain performance: a deeper look.* Hoboken, New Jersey, USA: Published by John Wiley & Sons Inc.

Shapiro, J. (2009). *Modeling the supply chain (2nd ed.).* Cengage, USA: Cengage Learning

Siau, K., & Tian, Y. (2004). Supply chains integration: architecture and enabling technologies. *Journal of Computer Information Systems*, *44*(3), 67-72.

Silver, E. A., Pyke, D. F., & Peterson, R. (2008). *Inventory management and production planning and scheduling* (Vol. 3, p. 30). New York: Wiley.

Skjoett-Larsen, T. (1999). Supply chain management: a new challenge for researchers and managers in logistics. *The International Journal of Logistics Management*, *10*(2), 41-54.

Sprague, L.G., & Wacker, J.G (1996). Macroeconomics Analyses of Inventories: Learning from Practice, *International Journal of Production Economics*, 45(26), 231-237.

Sushma, V., & Bhupesh, S. (2007). Effect of Working Capital Management Policies on Corporate Performance an Empirical Study, *Global Business Review*, 8 (21), 267.

Tersine, R.J. (2009). *Principles of inventory and material management*, 2nd edition, North Holland.

USAID (2012). *Selecting and implementing vendor managed inventory systems for public health supply chain: Deliver Project*, USAID

Williamson (1981). The market for corporate control: The scientific evidence. *Journal of Financial economics*, *11*(1), 5-50.

Wisner, T., & Leong, G. (2011). *Principles of supply chain management, A Balanced Approach (3rd Edition),* New York, John Wiley & Sons USA.

Zer, O. & Wei, W. (2006). Strategic commitment for optimal capacity decision under asymmetric forecast information, *Management Science*, 52, 8, 1239-1258

Zhu, Y., Li, Y., Wang, W., & Chen, J. (2010). What leads to post-implementation success of ERP? An empirical study of the Chinese retail industry. *International Journal of Information Management*, *30*(3), 265-276.

APPENDICES

APPENDIX I: SUMMARY OF DATA COLLECTION AND ANALYSIS METHODS

Objective	**Section of the Questionnaire**	**Data analysis**
General information	Section A	Descriptive statistics
To establish the inventory management practices used by World Food Programme partners in Kenya	Section B	Descriptive statistics
To establish the effect of inventory management practices on performance of World Food Programme partners in Kenya	Section C	Correlation and regression analysis

APPENDIX II: QUESTIONNAIRE

Section A: Background Information

1. What is your gender? Male [ ] Female [ ]

2. What is your age in complete years? 18-23 [ ] 24-29 [ ] 30-35 [ ]

Over 35 [ ]

3. What is your highest professional qualification in supply chain management?

Certificate [ ] Diploma [ ] Bachelor's [ ] Masters [ ] PhD [ ]

4. How long in years, have you been working at your current organization?

Less than 1 year [ ] 1-5 years [ ]

6-10 years [ ] Over 10 years [ ]

5. For how long has your organization been a WFP partner?

Less than 1 year [ ] 1-5 years [ ]

6-10 years [ ] Over 10 years [ ]

6. What is your position in the organization?

Warehouse Manager [ ] Logistics Manager [ ]

Supply Chain Manager [ ] Other (specify) ……

Section B: Inventory Management Practices

8. Which inventory management practices does your organization use? ……

……

9. Please indicate the extent to which you agree with the following statements on the Inventory Management Practices used by your Organization. Use a scale of 1-5 where 1= strongly disagree, 2-disagree, 3-moderately agree, 4-agree and 5= strongly agree.

Statement	1	2	3	4	5
Economic Order Quantity					
The organization adopts a classical economic order quantity model.					
The organization observes periodical replenishment of stocks					
The organization maintains minimum stock levels					
Just-In-Time					
The organization uses JIT stock control system					
The organization uses the JIT system to eliminate waste					
Vendor Managed Inventory System					
The organization practices vender managed inventory systems.					
The organization collaborates with its suppliers in system upgrade					
The organization uses automatic stock tracking					
Enterprise Resource Planning					
The organization uses Enterprise Resource Planning system					
The organization has an integrated information sharing system					
The organization maintains a database for all its suppliers					
ABC Analysis					
The organization uses ABC analysis to classify items according to their stock value					
The organization uses ABC Analysis to reduce stock holding cost					
Radio Frequency Identification System (RFID)					
The organization uses Radio Frequency Identification System of technology in reading and collecting data					
The organization uses manual system of information					
Simulation					
The organization uses simulation inventory models technique					
The organization uses simulation to generate reports that help in decision making.					

Section C: IMP and Performance

What is your level of agreement with the following statements on the effect of inventory management practices on performance of World Food Programme partners? Use a scale of 1-5 where 1= strongly disagree, 2-disagree, 3-moderately agree, 4-agree and 5= strongly agree.

Statement	1	2	3	4	5
Economic Order Quantity					
Use of EOQ model minimizes operational cost					
Use of EOQ minimizes lead time					
Use of EOQ enables the organization to meet demand					
Use of marginal analysis techniques helps control optimal stock levels of perishable goods					
Just-In-Time					
Use of JIT improves quality					
Use of JIT improves reliability of suppliers					
The organization uses JIT system to improve customer service					
Use of JIT improves timely delivery of goods and services					
Vendor Management Inventory System					
The organization uses VMI for reduction of stock out costs					
The organization uses VMI for improved speed of tracking stock					
Use of VMI reduces stock holding costs					
Use of VMI has reduced the risk of defective and obsolescence of items					
Use of VMI has enhanced supplier relations partnership					
Enterprise Resource Planning					
Use of ERP improves planning for inventory					
Use of ERP has improved connectivity with a wide range of suppliers					
Use of ERP enhances integration of all supply chain partners					
Use of ERP has led to improved inventory accuracy					
ABC Analysis					
Use of ABC leads to efficient management of resources					
Use of ABC enables the organization to concentrate on the most cost- effective areas					
ABC reduces stock holding costs					
Radio Frequency Identification System					
The organization uses RFID for efficient management of records					
Use of RFID improves effectiveness in stock management					
Use of RFID reduces theft					
Use of barcodes in tracking stock items has enhanced availability					
Simulation					
The organization adapts simulation module					
The organization uses simulated values of services and stocks					

Thank you for your participation

APPENDIX III: WFP PARTNERS

1. ACTION AID INTERNATIONAL
2. ACTION AID KENYA
3. ARID LANDS DEVELOPMENT FOCUS – KENYA
4. CARE CANADA INTERNATIONAL
5. FEED THE CHILDREN KENYA
6. FOOD FOR THE HUNGRY
7. GARISSA REHABILITATION PROGRAMME
8. INTERNATIONAL RESCUE COMMITTEE IRC
9. ISLAMIC RELIEF
10. KENYA RED CROSS SOCIETY
11. LUTHERAN WORLD FEDERATION
12. MINISTRY OF EDUCATION
13. MINISTRY OF HEALTH KENYA
14. MSF SWITZERLAND
15. NORWEGIAN REFUGEE COUNCIL
16. RAMATI
17. SALESIANS OF DON BOSCO
18. TURKANA REHABILITATION PROGRAMME
19. WORLD VISION INTERNATIONAL

Source: WFP (2016)