INVENTORY MANAGEMENT AND ORGANIZATIONAL PERFORMANCE OF CEMENT MANUFACTURING FIRMS IN KENYA

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DECLARATION

I, the undersigned, declare that this research project is my original work and has not been submitted to any other college, institution or university for academic credit.

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D61/89168/2016

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

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DEDICATION

To my mother, Lydia Ngolo, my dad, Noah Mikisi Muyundo and to my siblings Justus Ochiel, Belvin Mukhwana, Delphine Mulongo and Joyvine Namaemba

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I would like to thank the Almighty God for good health, strength and wisdom He granted me during the entire MBA program that ensured I remained focused and the realization of this dream.

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ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
FOQ	Fixed Order Quantity
JIT	Just in Time
RBV	Resource-Based Theory
R-A Theory	Resource-Advantage Theory
SCT	Strategic Choice Theory
SPSS	Statistical Package for Social Sciences
SCT	Strategic Choice Theory
TCA	Transaction Cost Analysis
VMI	Vendor Managed Inventory

ABSTRACT

The main objective of the study was to determine the effect of inventory management practices and organizational performance of the Cement manufacturing Firms in Kenya. The specific objectives of the study were; to establish the inventory management practices employed by the cement manufacturing firms in Kenya. To determine the relationship between inventory management practices and organizational performance of the cement manufacturing firms in Kenya. The study adopted a descriptive research design. The target population comprised of 6 cement manufacturing firms in Kenya. A census was used with the 35 respondents. Data was collected data using structured questionnaire, and the data coded into SPSS software for analysis using descriptive and inferential statistics. Descriptive statistics included use of means and standard deviation while inferential statistics included use of regression analysis. The findings were presented using frequency distribution Tables. With a response rate of 62.85 % the study established that most cement manufacturing firms used JIT to reduce the stock and the carrying cost associated in the firm. The firm used ABC analysis to assess the status of the items in the stocks. The firm used FOQ to ensure that there was an efficient and effective level of inventory in the firm. The firm used Vendor Managed Inventory to allow flexibility of the customers demand. Just-in-Time, ABC analysis, Fixed order quantity and Vendor managed inventory all had positive and significant relationship with organizational performance. The study concludes that most cement manufacturing firms used JIT to reduce the stock and the carrying cost associated in the firm. The firm only stored what was being required in the production process. The firm used ABC analysis to assess the status of the items in the stocks. The firm used FOQ to ensure that there was an efficient and effective level of inventory in the firm. The firm used Vendor Managed Inventory to allow flexibility of the customers demand. The study recommends that cement manufacturing firms in Kenya should use JIT to reduce the stock and the carrying cost associated in the firm. All the cement manufacturing firms in Kenya should adopt JIT, ABC Analysis, Fixed Order Quantity and Vendor managed inventory systems in managing of inventories. The cement manufacturing firms should also hire experts to handle statistical formulas that integrated sales forecasts data to accurately calculate safety stock levels in order to avoid stock-outs.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Due to high complexities in the supply chain function, ever changing technology, intense competition and the economic reforms in the recent past, there is need for the organizations to develop and implement practices in the organization in order to enhance the performance of the organization, and one of the critical resources in the organization is inventory since it directly affects the efficiency and effectiveness of the operations in the organization, which ultimately affects the sustainability and organization performance (Pujari, 2012). Efficient and effective management of the inventories in the organization can enable a firm to achieve a sustainable competitive edge and foster customer values through optimal levels of the stocks in the firm that reduces the operations costs while meeting and exceeding customers demand (Devaraj et al, 2007).

Inventory management practices have been of interest to various scholars and researchers in the supply chain and operations field. The inventory management practice was anchored on resource advantage theory, strategic choice theory and transaction cost theory. The resource advantage theory was formulated by Hunt and Morgan (1995) recognized the creation, implementation, management and control of resources in the organization in order to gain a competitive advantage in the industry. The transaction cost theory was developed by Williamson (1975) on the platform of the firm to develop practices that will reduce the cost of operations and improve the level of efficiency and effectiveness in the firm. The strategic choice theory was developed by Child (1972) emphasized on the control and management of the processes, resources and strategic action that directly affects the operations of the organization. These theories were

essential in the study, as there was need to develop practices, control the processes and provide strategic action in order to enhance the organizational performance and to attain competitive advantage over other rivals in the industry.

For an effective inventory management practices in the organization, there is need for a comprehensive effort in determining the optimal level of the stock in the organization that will lead to the reduction of the cost of operations and meeting and increase customer satisfaction level(Koufterous, 2011). It is prudent for the inventory in the cement manufacturing firms to be managed and controlled in order to influence the performance of the firm, for the cement manufacturing firms are essential in the development of the economy; however there is need to develop and implement inventory management practices that will influence the performance of the firm and enhance competitive advantage of the cement companies.

1.1.1 Inventory Management Practices

Inventory management practices are models used by organizations in order to manage and control their stocks. According to Stevenson (2010), inventory management practices involves the systems that are implemented with a purpose to ensure optimal level of stocks are kept in the organization and it involves activities such as recording and monitoring the levels of stocks in the organization, forecasting the demand of the materials and products and making the decisions on how much to order, how to order and when to order. Inventory management involves all the activities that guarantee the customers access to a particular products and services when being demanded (Miller, 2012).

Inventory plays a crucial role in the operations of the organization and their management practice enables the organization to grow as it relates internal and external customers (Gibson, 2013). Inventory management is essential in the firms as it has a direct influence on the financial resources of the organization that ultimately affects the overall performance of the firm. A firm with a robust inventory management practices can increase the overall performance, which includes the profitability, sustainability, efficiency and effectiveness of the operations of the organization, which is contributed through efficient management of the working capital, production and customer satisfaction (Dobler, 2014). Effective management of the inventory in the organization ensures the transformation of the broad and general business objectives into the operational actions which it main focus it to hit between the inventory investment and customer satisfaction (Pirttila & Virolainen, 2012).

For an organization to maintain an optimal level of inventory there is need to adopt robust system that it will ensure accurate track of the levels of the inventory in the organization, that will ensure adequate management of the supply chain players and to maintain control of the stocks internal processes. For the firms to adopt the inventory management system, there is need for the organization to understand the supply chain processes, the market environment of its products and the operation processes in the organization (Muhayimana, 2015) The most commonly used inventory management system implemented by the organization are the Fixed Order Quantity, Vendor Managed Inventory (VMI), Just In Time (JIT), Cycle Counting, ABC Analysis/Pareto Analysis, Two-Bin System (Kanban), Automatic Stock Replenishment and Stochastic Model systems.

1.1.2 Organizational Performance

Organizational performance refers to how well a firm achieves its market-oriented goals and objectives as well as its financial goals. It is a powerful tool for prioritizing firms' goals and attaining them (Kirkendall, 2010). Performance measurement is essential in every firm for it involves quantifying how effective and efficient the internal and external processes are in attaining the organizational objectives using a specific set of metrics (Henri, 2011). Organizational performance acts as a surrogate for organizational phenomena, for it provides information concerning the operations of the firm to both internal and external stakeholders. It entails all elements of the organization management cycle, which constitute a process for creating and implementing a certain course of action.

Organizational performance entails financial performance which includes the return on assets, profitability, contribution margins and product market performance which includes responsive on demand, market share, and sales index (Richard, 2009). Organizational performance is achieved through implementation of practices that will ensure sound management, good governance, focus on customers' value, efficiency and effectiveness processes, activities, and functions (Mahapatro, 2009). Performance measurement usually informs the implementers, policymakers,and management on the position of their businesses and some of its elements that require attention by allowing progressive evaluation and monitoring the efficiency and effectiveness of an organization.

According to Poister (2003), organizational performance helps to strengthen the management and inform decision making. He noted that profitability and market share index are the measures of organizational performance. Abdifatah (2012) argued that performance is not uniform in all organization and keen consideration is needed on different factors such as effectiveness and

efficiency of internal operations, flexible production processes, good supplier relationship management, customer relationship management and continuous improvement in the firms' operations. This study will adopt the return on investment as the measure of organizational performance.

1.1.3 Cement Manufacturing Industry in Kenya

Cement Manufacturing Firms in Kenya have been in existence for decades in Kenya. Some have been newly formed while others are still in the process of formation. Cement is an essential building material used in the construction industry in Kenya. According to World Bank and OECD (2017) cement manufacturing companies in Kenya contribute to 18% of Kenya's GDP. Initially, the Kenyan government relied heavily on importation of finished products. In the early 1990s, import substitution industrialization strategy was introduced in the manufacturing sector. Its main aim was to enhance local manufacturing by blocking and discouraging cement manufacturing products imports from abroad. With the growing knowledge, the government adopted export oriented industrialization in order to replace import substitution industrialization (World Bank and OECD, 1998).

After a period of slow growth in Kenya, the cement manufacturing sector picked up between 2004 and 2005 with the outputs increasing by 4.1% (World Bank, 2007). This was after the government had given incentives to the sector and demands for the products had risen. There are six (6) cement manufacturing firms in Kenya namely ARM cement, Bamburi cement, East African Portland cement, National cement, Mombasa cement and Savannah cement. Others are still in the process of formation including Cemtech in West Pokot and Dangote cement in Kitui. Common wealth network (2016) confirms that the manufacturing sector is of great significance to the Kenyan economy. In 2011, 254,000 people had been employed in the manufacturing

sector and this translates to 13% of the total Kenyan employment and this contributed Kshs. 28.5 billion towards the GDP.

According to the East African cement producers association (2009), cement consumption in East Africa is continuously growing and this indicates economic growth and strength of the country. However, the performance of the manufacturing sector has been faced by various challenges that the government needs to look into in order to save the cement manufacturing industries: Underdeveloped institutional frameworks, physical infrastructure and limited financial access that have led to higher costs of carrying out the business and lowered the capital injection (Mars Group Kenya, 2011).

1.2 Research Problem

Inventory management is one of the most critical practices in many of the organization, which are focused on meeting and exceeding the customers' satisfaction levels while at the same time reducing the cost of the operation in the organization. As stipulated by Ahmad and Zabri (2016), inventory management has a direct influence on the day-to-day activities of an organization which by extension affects the operations and profitability of the organization. According to Dobler (2006), a firm that practices an effective inventory management usually increases its service delivery to their customers, operational capacity and overall profitability of the firm.

The ability of the organization to increase customer satisfaction levels is based on how effective and efficient it can be able to deliver the products and services to the customers in a way that it meets and exceeds the customers' expectations. According to the Investment Climate Transformation Index (2018), manufacturing firms have lost a lot money through improper supply chain management practices, specifically, inventory management practices. This is

common in the manufacturing sector and some of causes includes but not limited to litigations, corruptions, substandard products and services and contract cancellation. Therefore, there is urgent need to solve these problems by making appropriate practices in the organization. Thus it is essential for the organization to adopt the appropriate inventory management practices for it will not only enhance the profitability of the organization but it will lead to the meeting and exceeding the customers' expectation in terms of the demands and service delivery.

Both global and local studies have done in the area of inventory management. Globally, Jonsson and Mattsson (2008) studied on the inventory management practices and its implication on the planning of the distribution and manufacturing firms in United Kingdom. The study established that the material requirement planning, Vendor Managed Inventory and EOQ were the perceived practices in the surveyed firms, which lead to the reduction of the cost and improved planning that enhanced customer satisfaction and profitability of the firm. Ranganatham (2010), studied on the inventory management practices in small scale enterprises in India, established the enterprises which had adopted the effective inventory management practices had shown improvement in terms of the service delivery and profitability of the enterprises. Kumar, Anzil, Ashik, Ashwin, and Ashok (2017) investigated the selective inventory controls in the realization of the effective inventory management system in manufacturing firms in India. The selective inventory control established that inventories should be reviewed periodically for better management of the stocks, which will enable the organization to gain a competitive advantage over its rivals.

Locally, Gitau (2016) investigated on the effects of the inventory management practices on the firms' productivity of the parastatals in Kenya. The findings established a positive correlation between inventory management practices and firms productivity. However, the study focused on

selective inventory methods on the parastatals. Kinyua (2016) studied on the effect of management of inventory on the performance of manufacturing firms of the consumers' goods in Nairobi Kenya. It was established that the Economic Order Quantity had more influence on the performance of the survey firms in comparison of the other inventory management practices such as ABC, JIT and VMI. However, the study focused on the manufacturing firms of the consumer goods in Nairobi. Onyango (2016) studied on the effects of Inventory management practices on service delivery of the humanitarian organization in the Health Sector in Kenya. The study established effective inventory management practices had a positive effect in the service delivery of the humanitarian organization. However, the study focused on the humanitarian organization in the Health Sector. Wanyonyi (2017) studied on the inventory management practices and service delivery of major supermarkets in Kenya. The adoption of the ABC inventory methods, JIT, VMI and EOQ inventory practices enhanced the service delivery in the major supermarket through the reduction of the operational costs and meeting and exceeding the demand of the customers. However, the study focused on the major supermarkets in Kenya.

The aforementioned studies did not broadly address the relationship between inventory management practices and organizational performance especially in Cement Manufacturing firms in Kenya. This study sought to fill the knowledge gap by answering the research questions; what are the inventory management practices employed by cement manufacturing firms in Kenya? What is the relationship between inventory management practices and organizational performance of cement manufacturing firms in Kenya?

1.3 Research Objective

The main objective of this study was to determine the effect of inventory management practices and organizational performance of cement manufacturing firms in Kenya

The specific objectives were:

i. To establish the inventory management practices adopted by cement manufacturing firms in Kenya
ii. To determine the relationship between inventory management practices and organizational performance of cement manufacturing firms in Kenya

1.4 Value of the Study

This study will be important to cement manufacturing firms in identifying the inventory management practices which when used adequately and sufficiently will enhance organizational performance. It would also help the organization to recognize the gaps in the operations of the organization especially regarding the excessive cost associated with inventory in the firm.

This study will be essential to other manufacturing firms and other organization to enable them to gauge the importance of inventory management practices, which will help them being able identify the inefficiency and opportunities particularly those relating to cost lessening and improved organizational performance.

The scholars and researchers will benefit from the study, as the findings will provide depth insights and create new knowledge on the inventory management practices. The study will also expand the literature on the body of inventory management and organizational performance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter discusses the theoretical framework of inventory management practices, organizational performance, inventory management practices and organizational performance. A review of pragmatic literature by different scholars and researchers was discussed alongside a conceptual framework linking inventory management practices and organizational performance

2.2 Theoretical Literature Review

Various theories have explained the rationale of inventory management practices and organizational performance. This study was anchored towards transaction cost theory, resource advantage theory and strategic choice theory as discussed below.

2.2.1 Transaction Cost Theory

Transaction Cost Analysis (TCA) theory was developed by Williamson (1975). The theory was developed on the platform of the firm to keep the optimal level of the resources in the organization in order to reduce the cost of the operations and improves the level of the efficiency and effectiveness. The theory recognizes the need to have the inventory in the organization in order to have hybrid governance mechanisms in the competitive environment (Huo, 2012). The Transaction cost theory recognizes the elements of the costs that come up with the storage of the stock in the firm, as it recognizes the inventory in the organization as an expense that will affect the organization profitability and eventually affects the organizational performance.

The theory also posits that the inventory which involve economic exchange and market prices elements, for instance in the manufacturing industry, they will be need of the information

integration cost between the suppliers and the firms, that it will allow appropriate coordination and collaboration in the supply chain, while this facilitation will require some cost which an expense to the organization. According to Faems (2008), the transaction cost theory enables the organization to be susceptible on how much to order and when to order in order to enhance the organization performance and reduction of the cost associated in the order being done by the organization.

The proponents of the relational perspective on the transactional cost theory emphasizes on the building of the partnership and collaboration with the supply chain partners in order to enhance the transaction that may results to lower operational costs and improved customer service levels. The enables the firm to have the minimal cost of operations, as the transaction are streamlined towards collaborations, information sharing and trust, thus making the organization to be able to only store the required inventory in the organization (Bennett &Klug, 2012). The theory is essential in the study as it recognizes the cost associated in having the inventory in the organization and the holistic perspective of the associated supply chain partners concerned with the inventory management.

2.2.2 Resource Advantage Theory

Resource-Advantage Theory (R-A Theory) was developed by Hunt and Morgan (1995). The theory was an advancement of the Resource-Based Theory (RBV), as it provides insightful and comprehensive elements of the firms to have resources in the organization through discovery, creation, management and control in order improve their efficiency and effectiveness in the organization. The R-A theory focuses on the capabilities of the organization when it adopts some certain practices in the organization or when it has some certain level of the resources in the organization (Hunt, 2011).

According to Olavarrieta and Ellinger (1997), recognized the elements of the R-A theory as the need of the organization to control and manage their resources in order to gain a sustainable competitive advantage over other competitors in the industry, the emphasize was placed in that some resource may be advantageous but leads to a lot of cost in the organization thus, they control and management is essential to ensure there is an optimal level of these resources in order for the firm to be effective and efficient in their operations.

For the manufacturing firms, there is need to have the inventory in the organization but it is effective to have the optimal level of the inventory in the organization since too much of the inventory may not be advantageous but lead to inventory cost which affects the profitability of the organization. Too little of the inventory in terms of the resource may affects the customers service levels for it will lead to customer dissatisfaction. (Megicks & Warnaby, 2008). The theory is essential in the study as it recognizes inventory, as the resource that an organization can enhance organizational performance, but there is need to manage and control the resources in order for the firm to meet and exceed the customers' expectation and to be competitive in the industry.

2.2.3 Strategic Choice Theory

Strategic Choice Theory (SCT) was developed by Child (1972), in which he recognized the management practices in the organization is essential for the firm to attain both the short and long-term objectives. The theory placed more emphasize on the control and management of the processes, resources and strategic action that directly influence the operations of the organization and ultimately the profitability and sustainability of the organization. According to Quigley & Hambrick, (2012), the management of the internal resources makes the firm to attain a competitive advantage for the management of the organization can easily control them. The

strategic choice theory enables the management to identify some of the resources in the organization that needs control and management in order to enable the firm to gain an optimal customer service levels and attaining the objective of the firm.

According to Campling and Michelson (2008) SCT provides the elements of the inter-dependence between the firm and the other players in the environment, as it will affect the operation of the firm. Therefore, SCT holds that the organization choices of the management and control of the resource is highly dependent on the influence of its environment such as the external environment, which includes the suppliers, economic circles and the competitors in the markets who affects the level of the inventory in the organization. The strategic choice theory argues that an organization that builds on the operational slacks becomes a firm adaptive strategic behavior for instance the inventory in the organization can be an operational slack in the firm, thus it will need the top management team (TMTs) in order to enhance an optimal level of the inventory in order to enhance their operational efficiency and effectiveness. (Mousa & Redd, 2013). This theory is essential in the study as it provides an emphasis on the optimal inventory levels, as a result of the implementation of the inventory management practices, which will provide as buffers against the external influences, which reduces the need for adaptive mechanisms.

2.3 Inventory Management Practices

Inventory management is one of the most critical practices in the operation of the manufacturing firms. For there is need for the organization to reduce the cost associated with the inventory due to storage of too much of the inventory and at the same time to avoid the loss of the customer satisfaction due to stock outs which is brought by having too little in the store. Therefore,

inventory management practices solve the paradox of having too much and too little in the organization, by enabling an optimal amount of the inventory that will enhance customer service delivery and profitability of the organization. Inventory Management practices that will be adopted in the study includes the Economic Order Quantity, Just in Time and ABC control Model.

Vendor-managed inventory (VMI) is a coordination practice especially between the seller, usually a supplier or a manufacturer, and a buyer in which the supplier takes the full management and control of the inventory regarding the level of the inventory in the firm, how to be supplied in the organization and the replenishment decisions in the organization. Vendor managed inventory provides the supplier/vendor with all the relevant information concerning the inventory in the organization, thus the vendor will be able to know the optimal level of the inventory in the organization, and thus helps the organization to monitor, control and manage the level of the inventory in the organization (Tang, 2006). Vendor Managed Inventory is essential in the organization supply chain as it provides a competitive advantage for the organization, for the organization have given out the responsibilities and obligation of the inventory management to the vendor. Thus, there is higher productivity, efficiency and effectiveness in the operations, improved customers satisfaction and reduction of cost associated with inventory (Zavanella and Zanoni, 2009).

Fixed Order Quantity (EOQ) is an inventory management practice that involves the ordering of the inventory in the organization that will results to the lower inventory costs by solving the paradox of the inventory purchase price, holding cost and the ordering costs within as stipulated time period as the organization. (Ogbo, 2014). The Fixed Order Quantity Model is based on the

predictable holding cost, purchase cost and the ordering cost of the quantity demanded by the customers within a specific time period. Under the FOQ inventory management practices, there is an element of the certainty on the demands of the customer over a period of time, thus there is need to have a certain level of the inventory in order to reduce the inventory cost and to optimally meet the demand of the customers (Porteous, 2008). The inventory management practices under the FOQ models, it makes the inventory level static over a period of time usually annually. Thus, the organization will have a predetermined inventory costs, inventory levels and the demand of the stock. Hence, the organization must have had all the information concerning the demand of the inventory, the cost of make an order, the cost of holding one unit of the inventory in the organization. The firm can have the decision on the levels of the inventory in the organization that will meet the demand of the customers and minimizing the cost of the inventory in the organization.

Just-In-Time (JIT) is an inventory management technique that enables the organization to place an order at that particular time when the inventory is being demanded in the organization. Hence, the firms inventory are ordered in small units in order to avoid having the inventory in the organization, for the inventory are cautiously scheduled to be acquired in the organization at exact time they are needed resulting to 'zero' inventory level (Ma & Fei, 2014). The 'zero' inventory level usually is the absolute number of the stock, which is usually as little as possible or closely to infinite in the organization. Thus, the inventories are to be used immediately, once they are in the organization. However, the 'zero' inventory level simply means that the ownership of the inventory does not belong to the organization but to the vendor even if the inventory piled up in the organization. Just-In-Time Practices enables the organization to share with the supplier some of the inventory management information such as the demand of the

products, the design of the product and time needed for the stock to be in the organization when an order is placed, in order to avoid the delays which will results to customers disappointments and overall performance of the firm (Mazanai, 2012).

ABC is an inventory management system that classifies the inventory of the organization into three classes that is class ‘A’ items which are items which requires more attention, prioritization and management control as they are essential and more valuable in the organization. The ‘B’ items which requires moderate attention, moderate control and management, and have the moderate value to the organization while ‘C’ items requires less attention, less control and managed as they have low value compared to Class ‘A’ and ‘B’ items (Zavanella and Zanoni, 2009). The ABC control model recognizes that a small portion of the organization might have more value of the overall items within their operations, while significantly; large portion of the inventory may constitute low value of the inventory (Mandal, 2012). The value of the inventory is ascertained by the multiplying the unit charge and the quantity of the items in the organization.

The ABC inventory control models enables the firm to fully put a lot of attention on the high value items compared to the low value items, thus having the control and management mechanism for different inventory depending on their value in the organization. Thus, the firm tends to strategic on the high value items, for it really affects the operations of the organization, thus the customer service levels depends on these items, which eventually affect the profitability of the organization (Ng, 2007).

2.4 Inventory Management Practices and Organizational Performance

Inventory management practices are essential in the operation of the organization, as it influences the efficiency and effectiveness of the organization, which ultimately affects the

performance of the organization. The inventory is the most crucial asset in the organization for it affects the functions that directly affect the customers in the organization (Nzuza, 2015). The inventory management practices are designed and implemented in order to meet and exceed the customer demands and expectations. The inventory management practices in the organization affects the organizational performance, as it directly concerned with the products and services being demanded by the customers (Dabholkar & Overby, 2012).

According to Tumuhairwe (2012), the effective inventory management practices in the organization enhances the inventory levels by ensuring an optimal level of the inventory in the organization which will results to minimal inventory costs and increase customer service levels. The inventory management practices are designed to achieve the balance between the inventory costs and the customer satisfaction levels. The variability of the inventory that does not match the customers demand arises due to the inability of the organization in applying the inventory control system in accordance to the organization baseline principles. An effective inventory management principle enables the organization to determine and maintain an optimal level of the inventory that will enhance organizational performance (Sila, Ebrahimpour and Birkholz, 2006)

An effective inventory management practices should ensure that, the customers demand is met and the stock-out are avoided without experiencing higher inventory costs (Ogbo and Onekanma, 2011). According to Githui (2012), the inventory management practices are to minimize the inventory investments and maximize organizational performance.. The major objective of the inventory management is to maximize the customer service levels through maintaining an optimal level of the inventory with the minimum cost as possible which will eventually affects the performance of the firm. Organization are striving to avoid of storing too little or too much in the organization as it has an influence in the overall performance of the organization (Cachon

and Olivares, 2010). An effective inventory management practices should logically indicate how much to order, when to order and how to order putting into consideration the customers' demands and expectation, as organizational performance disparities occurs due to the variability between the inventory levels and the customers' demands and expectations.

2.5 Empirical Literature Review

Several researchers both locally and globally have expressed their interest on inventory management practices and organizational performance. Globally, Panigrahi (2013) sought to establish the relationship between inventory management practices and profitability of the Indian Cement companies. The study through the cross-section research, that covered over a period between 2001 and 2010. The study focused on the effect of the inventory management practices on the gross operating income of the five leading Indian Cement companies. The study adopted the regression analysis to determine the relationship between the inventory control practices and the gross operating income. The study focus was on the period of the inventory conversion in the companies on how it influences on the gross operating profit taking current ratio, size of the firm, financial debt ratio as the control variables. By the use of the inventory control practices such as EOQ, Continuous Review Systems and Periodic Review, it was established that there is a negative significant relationship between the inventory conversion period and the profitability of the Indian Cement companies.

Ahmad and Zabri (2016) sought to establish the effect of the inventory management practices and operational performance of the micro retailing enterprises in Malaysia. The researcher administered the questionnaires to the 100 micro retailing enterprises and was able to receive all the 100-questionnaire translating to a response rate of 100%. The results from the analysis of the

data established that most of the micro retailing enterprises have employed both the unsystematic and unsystematic inventory management approaches in the operation of their businesses. Although, it was established that only 33% of the micro retailing enterprises have adopted the systematic inventory control models, which include the EOQ models, Vendor Managed Inventory (VMI) and Bar Code Tagging. It was further established that the systematic control models were an effective inventory control practices that influences the operational performance of the micro retailing enterprises, for it led in the reduction of the operational cost, increased flexibility, enhanced customer service delivery and the increased profitability.

Kumar, Anzil, Ashik, Ashwin and Ashok (2017) sought to investigate the effect of the inventory management practices through the selective inventory control models. The study focused on the ABC, HML, XYZ and FSN inventory control models and analysis. The study focused on the manufacturing firms in the India as the population of the study, where the study focused on the one dimensions of selective control models. Through the survey of the manufacturing firms operating in India, the analysis of the results established that the ABC and XYZ inventory control models were the most effective selective control models in the manufacturing. The ABC and XYZ inventory control models lead to the reduction of the obsolesce items in the organization, reduction of the inventory costs through elimination of the inventory which were not valuable in the organization and contributed to the optimal level of the inventory in the organization. In addition, the study established, that through the selective inventory control models, the high value items were stored and kept under high supervision, since they were so prone to affect the efficiency and effectiveness of the operations of the manufacturing firms, thus there was need to put more emphasize on the safety stocks, re-order level and lead-time.

Locally, Gitau (2016) investigated on the effects of the inventory management practices on the firms' productivity of the parastatals in Kenya. The researcher used a descriptive research design to establish the relationship between the inventory management practices and the firms' productivity, in which the study used the structured questionnaire on the 34 parastatals in Kenya. Out the 34-questionnaire administered in the surveyed, 27 questionnaires were filled and returned, translating to a response rate of 79.41%. Through the analysis of the results, it was established that most the parastatals have adopted the VMI, EOQ and the ABC control models as their inventory management practices, although the EOQ was majorly used in the most of the parastatals. It was then established that the inventory management practices is essential in the productivity of the parastatals, as it led to the operational efficiency and effectiveness due to reduction of the inventory costs and ensuring optimal level of the inventory in the organization. It was finally, established that the inventory management practices have a significant relationship to the firms' productivity of the parastatals in Kenya.

Onyango (2016) investigated on the effects of Inventory management practices on service delivery of the humanitarian organization in the Health Sector in Kenya. The researcher used a descriptive research design to establish the relationship between the inventory management practices and service delivery, in which the study used semi-structured questionnaire on the 30-health humanitarian organization in Kenya. Out the 30-questionnaire administered in the surveyed, 21 questionnaires were completed and returned, translating to a response rate of 70%. The data was analyzed by the use of descriptive statistics using the Statistical Package of Social Sciences (SPSS version 22.0). It was established that the health humanitarian organization have adopted the re-order level techniques, Economic Order Quantity, Just –in-Time technique, Vendor Managed Inventory and Activity Based Costing analysis as the inventory management

practices. It was established that the inventory management practices led to increased patient safety, prior service delivery during emergencies, reduction of the inventory cost and increase efficiency and effectiveness of the health operations. The analysis of the results concluded that the inventory management practices have an influence on the service delivery of the health humanitarian organization.

Wanyonyi (2017) studied on the effect of inventory management practices on the service delivery of the major supermarkets in Nairobi. The researcher used a descriptive research design in carrying out the research study. A survey was conducted with the use of the semi- structured questionnaire to establish the extent and the relationship between the inventory control practices and the service delivery of the major supermarkets in Nairobi. The researcher administered 15 questionnaires to the 15 major supermarket in Nairobi, and 13 questionnaires were completed and returned translating to a response rate of 86.7%. From the analysis of the results, it was established that the major supermarket had employed the JIT, ABC, VMI and EOQ models as their inventory control practices, although it was established that had the Vendor Managed Inventory and the EOQ models was adopted in a very large extend. The study established that the inventory control practices in the supermarkets led to the reduction of the inventory levels, reduction of the inventory costs, increased responsiveness, enhanced reliability and assurance in the customer service delivery. It was finally, established that the inventory control practices are significant on the service delivery in the major supermarkets.

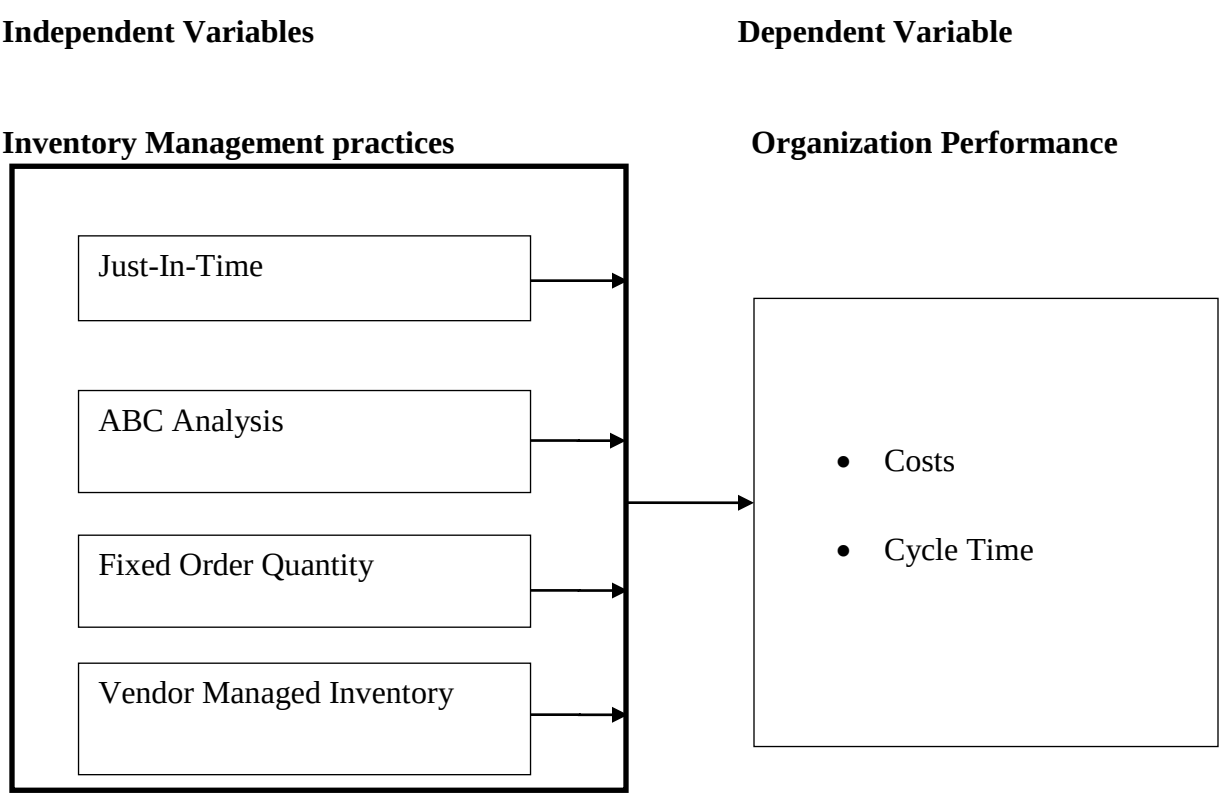
From the aforementioned studies, they have shown how specific elements of inventory management practices have an effect on the organizational performance. It is evident there was a gap according to the best knowledge of the researcher on the inventory management practices on

organizational performance of the cement manufacturing firms in Kenya. This study therefore intended to fill the research gap by focusing on the cement manufacturing firms in Kenya.

2.6 Conceptual Framework

The conceptual provides the link between the independent variables and the dependent variable. The independent variable has inventory management practices, which has EOQ, VMI, JIT and ABC inventory model as shown below. On the other hand, the dependent variable is the organizational performance.

Figure 2.1: Conceptual Model



Source: Researcher (2018)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1Introduction

This chapter presents the methodology that was used in carrying out the research. It provided the research design that was used, target population of the study, data collection methods and instrument and the data analysis tools that was employed.

3.2 Research Design

The research study employed a descriptive survey research design. A cross-descriptive survey involves observation and description of the subject of a study without manipulation of any kind (Kothari, 2004). This design was appropriate for the study, as it facilitated the collection of substantive information regarding inventory management practices in the cement manufacturing firms in Kenya

3.3 The Target Population

The target population was the 6 cement manufacturing companies in Kenya (Appendix II). According to Burns and Grove (2003) population refers to all the elements that meet the criteria for inclusion in a study. The research used a census because of the relatively low population size of the target population.

3.4 Data Collection

The study used both the primary data and secondary data. The primary data was collected using a structured questionnaire. The employment of primary data enabled the researcher to have greater control over the way information was collected and also to focus on specific inventory management practices that affected organizational performance of cement manufacturing firms

in Kenya. The respondents were the heads of departments or their equivalent because they were directly involved in decision making and implementation of inventory management practices. In Savanna cement ltd, 6 departments, Bamburi cement ltd, 7 departments, ARM cement ltd, 5 departments, EAPCC ltd, 5 departments, National cement ltd, 4 departments and in Mombasa cement ltd, 8 departments. These were a total of 35 departments.

The questionnaire was divided into three sections. Section A discussed on general demographic profile; section B contained extent of inventory management practices and section C provided on the organizational performance. The researcher used ‘‘drop and pick later’’ method to administer the questionnaires. The secondary data collected through the financial reports of the organization.

3.5 Data Analysis

The data pertaining to inventory management practices being qualitative was coded using the numeric scales that will be used by the respondents in responding to the questions posed in the questionnaire. This transformed the data into a quantitative form that permitted analysis using quantitative methods. Descriptive statistics was used to analyze general information collected in section A. Section B analyzed using descriptive statistics on the extent of inventory management practices by the cement manufacturing firms. Section C used correlation and regression to analyze the collected data on relationship between inventory management practices and organizational performance. The multi-linear regression equation assumed the following expression:

$$\mathbf{Y=\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\varepsilon}$$

Where **Y** = Organizational Performance of Cement Manufacturing firms,

$\boldsymbol{\beta_0}$= Constant, i.e., the value of Y when X=0,

$\mathbf{X_1}$= Just-In-Time

$\mathbf{X_2}$= ABC system Analysis

$\mathbf{X_3}$= Fixed Order Quantity

$\mathbf{X_4}$ = Vendor Managed Inventory

$\boldsymbol{\beta_1}$, $\boldsymbol{\beta_2}$, $\boldsymbol{\beta_3}$ and $\boldsymbol{\beta_4}$ will be the coefficients of $X_1, X_2, X_3, \& X_4$ respectively.

Table 3.1: Summary of Data Collection and Data Analysis Methods

Objective	**Questionnaire**	**Data Analysis**
General Profile	Section A	Descriptive Statistics
Extent of Inventory Management Practices	Section B	Descriptive Statistics
Organizational Performance	Section C	Factor Analysis

Source: **Researcher (2018)**

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1 Introduction

In this chapter, the research data and the results of its analysis are presented. The chapter also discusses the data in the context of the insights from the theoretical and empirical literature. This chapter reveals important patterns on how cement manufacturing firms in Kenya have adopted inventory management practices, and the insights thereof provide a good basis for recommending actionable plans that these organizations could use to enhance organizational performance.

4.2 Response Rate

Out of the 35 respondents that the researcher targeted, 22 completed the questionnaires, translating to a response rate of 62.85%; the researcher deemed this response rate satisfactory considering Kothari (2004) who contends that, for survey findings to be reliable, researchers need a response rate of at least 60%.

4.3 Demographic Data

The researcher sought to know the period over which the respondents had worked at their organizations, and table 4.2 below shows the findings.

Table 4.2: Work Experience

Years	Frequency	Percent
1-5	6	27.0
6-10	12	55.0
11-15	4	18.0
Total	22	100.0

Research Data (2018)

From table 4.2, it is apparent that most of the respondents (55%) had worked at their organizations for between 6 and 10 years, while 18% of the respondents had worked in their organizations for between 11 and 15 years. Therefore, most of the respondents had the work experience required to understand the issues of inventory management practices that the researcher was investigating.

4.3.2 Inventory Management Practices

The researcher sought the respondents' view on the extent to which their organizations' have adopted the inventory management practices Table 2 below shows the findings.

Table 4.3: Extent of Inventory Management Practices

Extent	**Frequency**	**Percent**
Very High	15	68.0
High	5	22.0
Moderate	1	5.0
Low	1	5.0
Total	22	100.0

Research Data (2018)

From table above, the findings suggest that most of the respondents think that the extent of inventory management practices in their organizations is very high (68%), while others (22%) think that their organizations' inventory management practices to a high extent, (5%) at a moderate extent and (5%) at a low extent. This is in line with the resource-based view of the firm considers dynamic resources and capabilities to be adopted to an organizations ability to achieve its objectives (Lynch et al., 2000). Inventory management practices are dynamic practices that enable organizations to deal with emerging having the optimal level of the stocks in the organization, and, therefore, the respondents' view about the extent of inventory management practices in their organizations shows how cement manufacturing firms' consider inventory management practices to be a dynamic resource and practices in the organization.

4.4 Inventory Management Practices Adopted by Cement Manufacturing Firms.

The study sought to investigate the inventory management practices that cement manufacturing firms have adopted as shown in the tables below.

4.4.1 Just-In-Time Practices

Several statements on JIT practice of inventory management were carefully identified by the researcher. Respondents were then requested to indicate the extent of their agreement with each of these statements. A Likert scale of 1-5, where 1. Strongly Disagree 2. Disagree 3.Neutral 4. Agree 5. Strongly Agree was used. The findings are indicated in Table 4.4.1.

Table 4.4.1: Just-In-Time Practices

Just-In-Time Practices	Mean	Std. Dev
The firm only replenishes what is being needed by the customers.	4.7333	.63968
The firm only stores what is being required in the production process.	4.6667	.66089
It uses it to reduce the stock and the carrying cost associated in the firm.	4.5667	.67891
The firm uses just with a name of ensuring zero defects products and services.	3.8667	.68145
Suppliers are provided with details of product design and manufacturing data for proper planning	3.6772	.5678
We provide our suppliers with helpful information regarding operations and service delivery so as to have the products when it is needed	3. 6123	.4537
Our organization objectives of inventory are aligned to those of our suppliers in order to reduce holding cost	3.574	1.3567
Our inventory systems are interlinked with those of our suppliers to ensure the products are available when it is needed	3.5004	.4217
We have strategic suppliers for various product and service supplies thus provides instantaneous replenish of inventory	3.4982	.6789
We regularly interact with our suppliers in mutual information exchanges regarding inventory levels	3.4000	.7895
Average Mean Score	**4.0583**	**.66523**

Research Data (2018)

From Table 4.4.1, most cement manufacturing firms have used JIT to only replenishes what is being needed by the customers (M=4.7333). The firm only stored what was being required in the production process (4.6667). The firm used JIT to ensure zero defects products and services (M=4.5667). The firm only replenished what was being needed by the customers (3.8667).

4.4.2 ABC Analysis Practices

Several statements on ABC analysis practices of inventory management practices and how they affect organizational performance of cement manufacturing firms were carefully identified by the researcher. Respondents were then requested to indicate the extent of their agreement with each of these statements. A Likert scale of 1-5, where 1. Strongly Disagree 2. Disagree 3.Neutral 4. Agree 5. Strongly Agree was used. The findings are indicated in Table 4.5.2.

Table 4.5.2: ABC Analysis Practices

Statement	Mean	Std. Dev
The firm uses ABC analysis as stock classification system to allocate time and finances in stock practices.	3.92	.640
The firm uses ABC analysis to assess the status of the items in the stocks	3.88	.833
The firm uses ABC analysis practices to determine the specific attention required by each group of stocks.	3.76	.779
The firm divides stocks in the warehouse into different classification of A, B and C.	3.72	.891
The firm only orders the actual amount being required for consumption.	3.72	.542
The firm uses ABC analysis as stock classification system to allocate time and finances in stock practices.	3.72	.936
The firm is able to determine the most crucial items in the productions of the organization	3.68	.802
The firm can easily regulate the expenditures of the inventory through the adoption of the practice	3.60	.816
The firm can concentrate on the high valuable items in order to ensure continuity in the operations	3.56	.768
We regularly interact with our suppliers in mutual information exchanges regarding inventory levels	3.52	.823
Average Mean Score	**3.708**	**.783**

Research Data (2018)

The findings in Table 4.5.2 shows that the firm used ABC analysis to stock classification system to allocate time and finances in stock practices. (M=3.92). The firm uses ABC analysis to assess the status of the items in the stocks (3.88). The firm uses ABC analysis practices to determine the specific attention required by each group of stocks. (M=3.76). The firm divides stocks in the warehouse into different classification of A, B and C. (M=3.72). The firm only orders the actual amount being required for consumption. (M=3.72).

4.4.3 Fixed Order Quantity

Several statements on Fixed Order Quantity of inventory management and how they affect organizational performance of cement manufacturing firms were carefully identified by the researcher. Respondents were then requested to indicate the extent of their agreement with each of these statements. A Likert scale of 1-5, where 1. Strongly Disagree 2. Disagree 3.Neutral 4. Agree 5. Strongly Agree was used. The findings are indicated in Table 4.6.3.

Table 4.6.3: Fixed Order Quantity

Statement	Mean	Std. Dev
The firm uses Fixed Order Quantity to know the quantity of stock to order at any given time.	4.12	.561
The firm uses it to ensure that there is an efficient and effective level of inventory in the firm.	4.02	.671
The firm uses fixed Order Quantity to help in determining the exact time the firm needs to make an order.	3.98	.229
There is high replenishment level due to the adoption of the practice	3.88	.891
The organization is able to balance between the holding cost and ordering cost due to the adoption of the practice	3.83	.542
The firm has experienced the optimal level of the inventory due to the adoption of the practice	3.76	.571
There is high level of the customer service level due to the adoption of the practices	3.73	.134
The firm can easily regulate the cost of the inventory due to the adoption of the practices	3.65	.618
The replenishment levels has greatly improved due to the implementation of the practice	3.61	.659
We regularly interact with our suppliers in mutual information exchanges regarding inventory levels	3.58	1.004
Average Mean Score	**3.816**	**.588**

Research Data (2018)

The findings in Table 4.4.3 show that the firm uses Fixed Order Quantity to know the quantity of stock to order at any given time (M=4.12). The firm used fixed Order Quantity to ensure that

there is an efficient and effective level of inventory in the firm. (M=4.02). The firm used Fixed Order Quantity to help in determining the exact time the firm needs to make an order (M=3.98).

4.4.4 Vendor Managed Inventory

Several statements on Vendor Managed Inventory and how they affect organizational performance were carefully identified by the researcher. Respondents were then requested to indicate the extent of their agreement with each of these statements. A Likert scale of 1-5, where 1. Strongly Disagree 2. Disagree 3.Neutral 4. Agree 5. Strongly Agree was used. The findings are indicated in Table 4.4.4.

Table 4.7.4 Vendor Managed Inventory

Vendor Managed Inventory	Mean	Std. Dev
The firm purchases specified items from specific linked suppliers of the inventory of the organization.	4.7667	.47946
There is a reduction of the damages due to the long-time storage of inventory in the company.	4.5333	.43018
The firm uses Vendor Managed Inventory to eliminate the need to reorder and avoid stock-outs being experienced in the firm.	4.4333	.57135
There is a reduction of the firm's stock outs due to the implementation of the practice.	4. 4123	.37812
There inventory are always delivered on time due to the practices	4. 3891	.35916
The firm saves on time and cost due to the adoption of the practice in the organization	3.9451	.04215
The firms coordinates movement of inventory from the supplier to the organization	3.8621	.06253
The firms achieves high inventory utilization by use of practices in the management of inventory	3.6541	.76213
The firm avoids stock outs by use of VMI	3.6003	.49612
The firm inventory delivered on time by use of VMI	3.5921	1.0045
Average Mean Score	**4. 04837**	**0.42075**

Research Data (2018)

The firm used Vendor Managed Inventory to purchases specified items from specific linked suppliers of the inventory of the organization (M=4.7667). The firm used Vendor Managed

Inventory to reduce the damages due to the long-time storage of inventory in the company (M=4.5333). The firm purchased specified items from distributors (M=4.4333).

Table 4.8.5: Summary of the Inventory Management Practices

Inventory Management Practice	Mean	Standard Deviation
Just-In-Time	4.0583	.6652
Vendor Managed Inventory	4.0485	.4208
Fixed Order Quantity	3.8160	.5880
ABC System	3.708	.7830

4.5 Organizational Performance

Several statements on organizational performance of cement manufacturing firms were carefully identified by the researcher. Respondents were then requested to indicate the extent of their agreement with each of these statements. A Likert scale of 1-5, where [1] No extent, [2] Little extent, [3] Moderate Extent, [4] Large Extent, [5] Very large extent was used. The findings are indicated in Table 4.9.6

Table 4.9.6 : Organizational Performance

Statements	Mean	Std. Dev
Reduction in cost of operations	4.5000	.50855
There is a decline of overall administration and inventory costs	4.4000	.67466
There is increased operations efficiency	4.3667	.49013
Timely response to customers' needs	4.0667	.82768
Average Mean Score	**4.261914**	**.633653**

Research Data (2018)

Table 4.8.5 shows that there was reduction in cost of operations (M=4.5000). There was a decline of overall administration and inventory costs (M=4.4000). There was increased operations efficiency (M=4.3667). There was timely response to customers' needs (M=4.0667).

4.6 Relationship between Inventory Management Practices and Organizational Performance of Cement Manufacturing Firms

Regression analysis was used to determine relationship between Inventory Management Practices and organizational performance of Cement Manufacturing firms. The findings are shown in subsequent sections.

4.6.1 Model Summary

The findings of the Model Summary are shown in Table 4.10.8.

Table 4.10.8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.888[a]	.788	.761	2.88474

a. Predictors: (Constant), Vendor Managed Inventory, Just in Time, Fixed Order Quantity, ABC Analysis

As shown in Table 4.10.7, the coefficient of determination R square is 0.788 and the adjusted R squared is 0.761. This show that 76.1% variations in organizational performance in cement manufacturing firms is explained by their inventory management practices in adopted in the organization. Only 23.9% variance is not explained (attributable to other independent variables and chance variation). From this, it indicates it is a good model.

4.6.2 Analysis of Variance (ANOVA)

The ANOVA findings are reported in Table 4.11.9.

Table 4.11.9: Analysis of Variance

4.7.2: Analysis of Variance

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	267.92	4	66.980	24.102	.000[b]
Residual	72.247	17	2.779		
Total	**340.167**	**21**			

a. Dependent Variable: Organizational Performance
b. Predictors: (Constant), Vendor Managed Inventory, Just in Time, Fixed Order Quantity, ABC Analysis

From Table 4.7.2, the value of F calculated is 24.102 while F critical is 2.743. The value of F calculated is greater than F critical which is 2.074. Thus, the overall regression model is statistically significant in predicting relationship between Inventory Management Practices and organizational performance of the cement manufacturing firms.

4.6.1 Regression Coefficients

The beta coefficients with p values are indicated in Table 4.12.10.

Table 4.12.10: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	43.929	9.283		4.732	.000
Just in Time	.511	.173	.353	2.954	.030
ABC Analysis	.402	.105	.321	3.829	.040
Fixed Order Quantity	.274	.128	.030	2.140	.002
Vendor Managed Inventory	.231	.072	.051	3.208	.023

a. Dependent Variable: Organizational Performance

The regression equation obtained is;

$$\mathbf{Y=43.929+.511X_1+.402X_2+.274X_3+.231X_4}$$

Where:
Y=Composite measure of Organizational performance encompassing various aspects of efficiency and effectiveness that result from adoption of inventory management practices.

X_1, X_2, X_3X_4= JIT, ABC, FOQ and VMI and Inventory models respectively. The significance testing of the research project is done at α=5%, which was also collaborated with the T-testof which the critical is 2.074

Thus, Just-in-Time (t=2.954, p=0.030) had positive and significant relationship with organizational performance. ABC analysis (t=3.829, p=0.040) had positive and significant relationship with organizational performance. Fixed order quantity (t=2.140, p=0.002) had positive and significant relationship with organizational performance. The finding contradicts with Panigrahi (2013) who sought to establish the relationship between inventory management practices and profitability of the Indian Cement companies and established that by the use of the inventory control practices such as EOQ, Continuous Review Systems and Periodic Review, it was established that there is a negative significant relationship between the inventory conversion period and the profitability of the Indian Cement companies.

Vendor managed inventory (t=3.208, p=0.023) had positive and significant relationship with organizational performance. Thus, all the variables were statistically significant as their p values were all less 0.05. In general, therefore, there is a positive relationship between inventory management practices and organizational performance of cement manufacturing firms. The findings are in line with Onyango (2016) who investigated on the effects of Inventory management practices on service delivery of the humanitarian organization in the Health Sector in Kenya and concluded that the inventory management practices have an influence on the service delivery of the health humanitarian organization.

4.7 Discussion of the Findings

From the findings, JIT was used to reduce the stock and the carrying cost associated in the firm. The finding is in line with Mazanai(2012) who established that the JIT inventory control models enables the firms to reduce the inventory cost, the reduction of the inventory level in the organization and obsolesce of the product especially the perishable products in the firms.

The firm divides stocks in the warehouse into different classification of A, B and C. An ABC according to Zavanella and Zanoni (2009) is an inventory management system that classifies the inventory of the organization into three classes that is class 'A' items which are items which requires more attention, prioritization and management control as they are essential and more valuable in the organization. The 'B' items which requires moderate attention, moderate control and management, and have the moderate value to the organization while 'C' items requires less attention, less control and managed as they have low value compared to Class 'A' and 'B' items. The findings of the study indicated that ABC had significant influence on service delivery. The finding is in line with Kumar, Anzil, Ashik, Ashwin and Ashok (2017) who established that ABC and XYZ inventory control models were the most effective selective control models in the manufacturing.

The firm used fixed order quantity to ensure that there is an efficient and effective level of inventory in the firm. The finding is consistent with Ogbo (2014) who held that an fixed Order Quantity (FOQ) is an inventory management practice that involves the ordering of the inventory in the organization that will results to the lower inventory costs by solving the paradox of the inventory purchase price, holding cost and the ordering costs.

The firm uses Vendor Managed Inventory to allow flexibility of the customers demand. The finding is in line with Xuand Leung (2009) who noted efficient application of the VMI practices, the vendor will achieve more on the flexibility in the operation scheduling, replenishment levels and distribution decisions. Similarly, the vendor will be able to be effective depending on the fluctuations of the demand due to higher visibility and monitoring of the customers' inventory levels thus meeting and exceeding the customers' expectation.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the study based on objectives. The conclusions emanating from these key findings are also presented. The recommendations informing policy, theory and practice are also provided.

5.2 Summary of the Findings

The main objective of the study was to determine the effect of inventory management on organizational performance of cement manufacturing in Kenya. The specific objectives of the study were; to establish the inventory management practices employed by the cement manufacturing firms and to determine the relationship between inventory management practices and organizational performance of cement manufacturing firms in Kenya. The study was informed by the Transaction Cost Theory, Strategic Choice Theory and Resource Advantage. The study relied on primary data that was collected using questionnaires. The collected data was coded and analyzed using SPSS.

5.2.1 Inventory Management Practices Employed by Cement Manufacturing Firms

From the findings, most cement manufacturing firms used JIT to reduce the stock and the carrying cost associated in the firm. The firm only stored what was being required in the production process. The firm used JIT to ensure zero defects products and services. The study also established that the firm used ABC analysis to assess the status of the items in the stocks. The firm divided stocks in the warehouse into different classification of A, B and C. The firm only ordered the actual amount being required for consumption. The firm also used ABC

analysis practices to determine the specific attention required by each group of stocks. The firm used ABC analysis as stock classification system to allocate time and finances in stock practices.

The findings of the study indicated that the firm used fixed order quantity to ensure that there was an efficient and effective level of inventory in the firm. The firm used fixed order quantity to know the quantity of stock to order at any given time. The firm used fixed order quantity to help in determining the exact time the firm needs to make an order. The study also revealed that the firm used Vendor Managed Inventory to allow flexibility of the customers demand. The firm used Vendor Managed Inventory to reduce the damages due to the long-time storage of inventory in the company. The firm purchased specified items from distributors. The firm used Vendor Managed Inventory to eliminate the need to reorder and avoid stock-outs being experienced in the firm

5.2.2 Relationship between Inventory Management Practices and organizational Performance of Cement Manufacturing Firms

Thus, Just-in-Time had positive and significant relationship with organizational performance. ABC analysis had positive and significant relationship with organizational performance. Fixed order quantity had positive and significant relationship with organizational performance. Vendor managed inventory had positive and significant relationship with organizational performance. Thus, all the variables were statistically significant as their p values were all less 0.05. In general, therefore, there is a positive relationship between inventory management practices and organizational performance of the cement manufacturing firms in Kenya.

5.3 Conclusion

Most cement manufacturing firms used JIT to reduce the stock and the carrying cost associated in the firm. The firm only stored what was being required in the production process. The firm used JIT to ensure zero defects products and services. The firm used ABC analysis to assess the status of the items in the stocks. The firm divided stocks in the warehouse into different classification of A, B and C. The firm only ordered the actual amount being required for consumption. The firm used fixed order quantity to ensure that there was an efficient and effective level of inventory in the firm. The firm used Fixed Order Quantity to know the quantity of stock to order at any given time. The firm used Vendor Managed Inventory to allow flexibility of the customers demand. The firm used Vendor Managed Inventory to reduce the damages due to the long-time storage of inventory in the company. The firm purchased specified items from distributors.

Thus, Just-in-Time had positive and significant relationship with organizational performance. ABC analysis had positive and significant relationship with organizational performance. Fixed order quantity had positive and significant relationship with organizational performance. Vendor managed inventory had positive and significant relationship with organizational performance. There was a positive relationship between inventory management practices and organizational performance of cement manufacturing firms.

5.4 Recommendations

The study recommends that Cement manufacturing firms in Kenya should use JIT to reduce the stock and the carrying cost associated in the firm. All cement manufacturing firms should only store what is being required in the production process. All cement manufacturing firms in Kenya

should also use Fixed Order Quantity should know the quantity of stock to order at any given time. The cement manufacturing firms should also use Vendor Managed Inventory to allow flexibility of the customers demand. Thus the cement manufacturing firms in Kenya should adopt JIT, ABC Analysis, fixed Order Quantity and Vendor managed inventory systems in managing of inventories. Adoption of these aspects in inventory management will improve organizational performance of the firms.

Cement manufacturing firms in Kenya should hire experts to handle statistical formulas that integrated sales forecasts data to accurately calculate safety stock levels, by doing that the cement manufacturing firms will adequately decide whether inventory ordering should be done regularly using data from analytical tools. Cement manufacturing firms should also perform effective inventory control on all parts of the inventory in the organization in order to avoid the issues of stock-outs that affect customer service levels.

5.5 Limitations of the Study

The study relied on primary data that took a lot of time to collect. The researcher encountered uncooperative respondents during data collection where most of them feared being victimized with their information they gave. At the point of collecting data most respondents were help up with their day to day activities and thus collecting data within a day was no practical.

5.6 Suggestions for Further Studies

The current study was limited to cement manufacturing firms in Kenya; future studies should cover manufacturing firms especially the large manufacturing firms. Data collection in the current study was done using questionnaires; future studies should use secondary data especially on the organizational performance, it will prudent enough to use the RoI and profitability of the

firms in relations to inventory management practices adopted in the organizations. Future studies should also consider including moderating or controlling variables besides dependent and independent variables.

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Appendix 1: Questionnaire

Introduction

This questionnaire is intended for use in collecting data in pursuit of the objectives of the study titled "Inventory Management Practices and Organizational Performance of Cement Manufacturing Firms in Kenya". It has three sections each containing questions on general survey participant information, inventory management practices and organizational performance. Kindly complete the questionnaire as per the instructions. Your participation is highly appreciated.

SECTION A: **DEMOGRAPHIC INFORMATION**

1. Company Name _____

2. What is your Job designation in this company? (Tick as appropriate)

Supply Chain Manager ☐

Procurement Officer ☐

Operations Manager ☐

Logistics Manager ☐

Warehouse Manager ☐

Other (Specify) _____

3. For how long have you held the position? (Tick as appropriate)

1-5 years ☐

6-10 years ☐

11-15 years ☐

Over 20 years ☐

Other (Specify) _____

SECTION B: EXTENT OF INVENTORY MANAGEMENT PRACTICES

4. How do you rate the extent to which the organization have adopted the inventory management practices (tick where appropriate)

Very high ☐

High ☐

Moderate ☐

Low ☐

Don't Know ☐

5. The following are statements reflecting specific aspects of just-in-time practices of inventory management. Kindly indicate your level of agreement with them according to the following scale:

1-not at all, 2-low extent, 3-moderate extent, 4-large extent, 5-very large extent

No.	**Statement**	**1**	**2**	**3**	**4**	**5**
1	The firm only replenish what is being needed by the customers.					
2	The firm only stores what is being required in the production process.					
3	It uses it to reduce the stock and the carrying cost associated in the firm.					
4	The firm uses just with a name of ensuring zero defects products and services.					
5	Suppliers are provided with details of product design and manufacturing data for proper planning					
6	We provide our suppliers with helpful information regarding operations and service delivery so as to have the products when it is needed					
7	Our organization objectives of inventory are aligned to those of our suppliers in order to reduce holding cost					
8	Our inventory systems are interlinked with those of our suppliers to ensure the products are available when it is needed					
9	We have strategic suppliers for various product and service supplies thus provides instantaneous replenish of inventory					
10	We regularly interact with our suppliers in mutual information exchanges regarding inventory levels					

Any other? Please state _____

_____

_____

6. The following are statements reflecting specific aspects of ABC analysis practices of inventory management. Kindly indicate your level of agreement with them according to the following scale:

1-not at all, 2-low extent, 3-moderate extent, 4-large extent, 5-very large extent

No.	**Statement**	**1**	**2**	**3**	**4**	**5**
1	The firm uses ABC analysis as stock classification system to allocate time and finances in stock practices.					
2	The firm uses ABC analysis to assess the status of the items in the stocks					
3	The firm uses ABC analysis practices to determine the specific attention required by each group of stocks.					
4	The firm divides stocks in the warehouse into different classification of A, B and C.					
5	The firm only orders the actual amount being required for consumption.					
6	The firm uses ABC analysis as stock classification system to allocate time and finances in stock practices.					
7	The firm is able to determine the most crucial items in the productions of the organization					
8	The firm can easily regulate the expenditures of the inventory through the adoption of the practice					
9	The firm can concentrate on the high valuable items in order to ensure continuity in the operations					
10	We regularly interact with our suppliers in mutual information exchanges regarding inventory levels					

Any other? Please state _____

_____

_____

7. The following are statements reflecting specific aspects of Fixed Order Quantity (FOQ) practices of inventory management. Kindly indicate your level of agreement with them according to the following scale:

1-not at all, 2-low extent, 3-moderate extent, 4-large extent, 5-very large extent

No.	Statement	1	2	3	4	5
1	The firm uses Fixed Order Quantity to know the quantity of stock to order at any given time.					
2	The firm uses it to ensure that there is an efficient and effective level of inventory in the firm.					
3	The firm uses Fixed Order Quantity to help in determining the exact time the firm needs to make an order.					
4	There is high replenishment level due to the adoption of the practice					
5	The organization is able to balance between the holding cost and ordering cost due to the adoption of the practice					
6	The firm has experienced the optimal level of the inventory due to the adoption of the practice					
7	There is high level of the customer service level due to the adoption of the practices					
8	The firm can easily regulate the cost of the inventory due to the adoption of the practices					
9	The replenishment levels has greatly improved due to the implementation of the practice					
10	We regularly interact with our suppliers in mutual information exchanges regarding inventory levels					

Any other? Please state _____

_____

_____

8. The following are statements reflecting specific aspects of Vendor Managed Inventory (VMI) practices of inventory management. Kindly indicate your level of agreement with them according to the following scale:

1-not at all, 2-low extent, 3-moderate extent, 4-large extent, 5-very large extent

No.	Statement	1	2	3	4	5
1	The firm purchases specified items from specific linked suppliers of the inventory of the organization					
2	There is a reduction of the damages due to the long-time storage of inventory in the company.					
3	The firm uses Vendor Managed Inventory to eliminate the need to reorder and avoid stock-outs being experienced in the firm.					
4	There is a reduction of the firm's stock outs due to the implementation of the practice					
5	There inventory are always delivered on time due to the practices					
6	The firm saves on time and cost due to the adoption of the practice in the organization					
7	The firms coordinates movement of inventory from the supplier to the organization					
8	The firms achieves high inventory utilization by use of practices in the management of inventory					
9	The firm avoids stock outs by use of VMI					
10	The firm inventory delivered on time by use of VMI					

Any other? Please state _____

_____

_____

SECTION C: ORGANIZATIONAL PERFORMANCE

9. Below are statements describing on Performance. Kindly indicated the level to which you agree with them in accordance to the following scale:

1-not at all, 2-low extent, 3-moderate extent, 4-large extent, 5-very large extent

No.	Statement	1	2	3	4	5
1	Reduction in cost of operations					
2	There is a decline of overall administration and inventory costs					

3	There is increased operations efficiency					
4	Timely response to customers' needs					

THANK YOU FOR YOUR TIME

Appendix 2: Cement Manufacturing Firms in Kenya

1. East Africa Portland Cement Company
2. Bamburi Portland Cement Company
3. Athi-River Mining Limited
4. Mombasa Cement
5. National Cement
6. Savannah Cement

Source: Cement (2018) http://www.cemnet.com/GCR/country/Kenya, viewed; October, 2018