



PROJECT INVENTORY MANAGEMENT PRACTICES AND PERFORMANCE OF 150 KLPD ETHANOL PLANT CONSTRUCTIONS AT KASTHEW CONSTRUCTION COMPANY UG LTD, UGANDA

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DECLARATION

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DEDICATION

I dedicate this work to my wife Mrs. Angel Nakkinda, my son Jayden Mark Ssemanda and my daughter Jeanne Elizabeth Ssemanda for the unconditional support, being patient with me during the course of this programme and for their moral support. They have helped much to care for me and motivate me to work hard in order to succeed in this programme, an expression of responsibility in all the places I have ever been to, has always been because of them.

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ABSTRACT

The destinations of the review were to inspect the impact of material requirement plan, vendor managed stock and just in time on performance of 150 KLPD Ethanol Plant Constructions at Kasthew Company. The objectives of the study were to examine the effect of material requirement plan, vendor managed inventory and just-in-time inventory on performance of 150 KLPD Ethanol Plant at Kasthew Construction Company UG Ltd. The findings were utilized for reference via different destiny researcher in a bid to complement their class and right down to earth paintings. The overview inspired and stimulated different analysts' interest to direct in addition research on stock management and execution. This review utilized a descriptive research design. The general sample size comprised of 52 respondents got from a complete populace of 60 workers. The study employed stratified random sampling technique basing on the members' shared attributes. Information was gathered utilizing essential sources in light of the fact that the analyst needed to determine from the respondents their insight, mentality, convictions, future and past conduct towards the subject of the study. Then information was examined utilizing SPSS to come up with the examination findings. Relapse investigation was likewise utilized for the assessment of connections between a reliant variable, and at least one autonomous factor. It was used to evaluate the strength of the connection among factors and for displaying the future connection between them. According to the findings, MRP has a positive significant effect on performance of the 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company. The Company always plans to increase profitability (mean 4.12), (4.43 mean) indicates that company's revenues have always exceeded the expenditures. Mean 3.96 indicates that material necessity readiness practice leads to development of the company. Steady material planning has consistently helped the company's development satisfy purchaser needs (mean 3.92). Hence concluding that material requirements planning should base on customer orders, sales forecasts and manufacturing policy in order to stimulate customer demand which leads to the improvement in the performance of Kasthew Construction Company. According to the findings, VMI has a significant effect on performance of 150 KLPD Ethanol Plant Constructions at the Company. With (mean 4.02) there is a consent that upstream information is constantly moved to providers in request to diminish the interest and reduce the supply gap, whereas together with suppliers it is vital to share information relevant to restocking in a timely manner (mean 3.53). Hence concluding that the performance of 150 KLPD Ethanol Plant at Kasthew Construction Company can be improved once vendor managed inventory is effectively worked on because it helps to increase the customer responsiveness by reducing the supply and demand gap thus giving satisfaction to the end customer by availing the desired product when needed. According to the findings, JIT has a positive significant effect on performance of 150 KLPD Ethanol Plant Constructions at the Company, whereby (mean 4.29) indicates that zero inventory in store helps reduce holding costs whereas (mean 3.69) indicates that the company always meets her set goals using the available resources. Hence concluding that application of just-in-time as an inventory management system can lead to the improvement in the performance of the 150 KLPD Ethanol Plant Constructions at the Company since it increases on the quality, productivity and efficiency during inventory management. The study recommended that Kasthew Construction Company should develop a good system to monitor record and track the entire inventory so that there is effectiveness in inventory management and ensure to cover loopholes in the system to enhance performance of their projects. Managers should ensure improved and effectives inventory management practices that are more affordable and accessible to quality and cost-maximization in the organization.

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LIST OF ACRONYMS AND ABBREVIATIONS

JIT:	Just-In-Time model
MRP:	Material Requirement Planning
VMI:	Vendor Managed Inventory
MRO:	Maintenance, repair and operations
ERP:	Enterprise Resources Planning
SKU:	Stock-keeping units
TCA:	Transaction Cost Analysis
SPSS:	Statistical Package for the Social Sciences

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DEFINITION OF KEY TERMS

Project Inventory management system: in this study, is the arrangement and control of raw materials and the quantity needed to be maintained for a project, how large orders ought to be made and stocked without exorbitant stockpile for project execution.

Just in time: in this research, describes the speed at which the project raw materials arrive the site and used as at when needed in order not to delay the project execution period.

Vendor managed inventory: in this study, is the relationship created between the project management team and the suppliers of the project raw materials to achieve reliable and just in time supplies for the project.

Material requirements planning: in this study refers to how raw materials for the project are planned for so that there will be no lack of materials when needed for the project execution, as well as no excess raw materials overstocked.

Project Performance: this is the level of accomplishment of the project on time, at cost, scope and quality according to plans.

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This study will look at the effect of inventory management practices on the performance of the 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (Ug) Ltd. The chapter will therefore look at the background, the statement of the problem, the study objectives, hypothesis of the study, the scope of the study and the significance of the study.

1.1 Background of the Study

Inventory management worldwide, alludes to getting ready for ideal amounts of materials at all stages in the project cycle and advancing procedures which will guarantee the accessibility of plant inventories. According to (Chatzoudes, 2011), as the process of efficiently overseeing the constant flow of units into and out of an existing inventory. This involves controlling the transfer of units in order to prevent the inventory from becoming too high or dwindling to levels that could put operation of the company into jeopardy. Competent inventory management also seeks to control the costs associated with inventory, both from the perspective of the total value of the good included and the tax burden generated by cumulative value of inventory (Manyuru, 2015).

In Africa, massive guide inventories devour extensive belongings and create stowed away charges. Thusly, many corporations have modified their manner to address inventory control. This is because in the mid-1980s, stock management decrease turned into the essential goal, as it is frequently the

scenario of just in time (JIT) frameworks, in which unrefined components and parts are offered or delivered with perfect timing to be utilized at each segment of the introduction cycle (Krajewski, Ritzman, and Malhotra, 2010). This way to address inventory control brings surprising expense reserve funds from reduced inventory tiers. The extent of inventory control likewise concerned the scarcely discernible variations among renewal lead time, conveying prices of stock, useful resource management, stock determining, stock valuation, inventory perceivability, and future stock fee gauging.

Inventory management involves the planning, ordering and scheduling of the materials used in the manufacturing process. However, (Lee, Palekar, & Qualls, 2011) argued that inventory management is primarily about specifying the size and placement of stocked goods. Inventory management is required at different locations within a facility or within multiple locations of a supply network to protect the regular and planned course of production against the random disturbance of running out of materials or goods for improved performance (Lee, Palekar, & Qualls, 2011).

Poor inventory management had become an issue of great concern since performance is regarded as the main stream for development of organizations. A truly effective inventory management system minimizes the complexities involved in planning, executing and controlling a supply chain network which is critical to business success (Manyuru, 2015). The opportunities available by improving a company's inventory management can significantly improve bottom line business performance.

Among East African organizations, there are proven techniques that can help accurately industry customer demand and to calculate the inventory needed to meet defined level of customer service. Using the right techniques for sales forecasting and inventory management help to monitor changes and respond to alerts when action needs to be taken. The right approach to inventory management

can produce dramatic benefits in customer service with lower inventory (Ketchen, Thomas, Hult, & Slater, 2017). Modern inventory management in organizations utilize new and more refined techniques that provide for dynamic performance of inventories to maximize customer service with decreased inventory and lower costs. These improved approaches to inventory management are of major consequence to overall competitiveness where the highest level of customer service and delivered value can favorably impact market share and profits (Chopra & Mendl, 2017).

In Kenya, a study in manufacturing companies was done to investigate the effect of inventory management practices on organizational performance (Orodho, 2013). The study revealed that inventory investment and inventory records accuracy had a positive influence on organizational performance while inventory shrinkage had a negative effect on organizational performance. Therefore, there was a need for an organization to manage its inventory investment by ensuring that the right amount of stock is kept at all times.

In Uganda, (Wainaina, 2015) found out that inventory management practices are effective on inventory turnover. As a result, the effectiveness of inventory and store management affects turnover performance. He further noted that to achieve an upward trend in turnover growth, inventory management practices must be carried out efficiently. Poor inventory management can lead to poor performance. For example, when an audit was conducted at Bugema University, inventory management was of a concern. The audit revealed that there were no accurate stock records. In this case, the financial performance was poor and therefore, a disclaimer opinion was issued (Bugema University, 2006).

150 KLPD Ethanol Plant is being carried out in Luwero by Kasthew Construction Company UG Ltd which has existed for over 10 years with the objective of maximizing profits and providing better services to customers at the right time. To date the company does not focus on how much of each inventory item a firm should hold in stock, how much should be ordered at a given time and at what point inventory should be ordered. This has greatly affected its production, sales and hence reducing on its financial performance (Kasthew Audit Report 3rd October 2017). It's therefore important for an organization to have a sound, effective and well-coordinated inventory management practices because the business environment is rapidly changing, highly competitive and it drastically affects the performance of the organization.

1.2 Problem Statement

Kasthew Construction Company UG Ltd and its accomplices like ROKO and Regal Paints have set up endeavors to furnish the country with development products and administrations like material stockpile of Stone Aggregates, Sand, Cement and Steel-Metals, prepared blended cement to meet the prerequisites of customers; notwithstanding, as per the Kasthew General's Report (2018), it was discovered that development materials worth Ushs 1.5 billion were not appropriately represented and some had been squandered between August 2014 and June 2016 in the Kasthew Construction stores. Simultaneously Kasthew Construction couldn't supply all structural materials requested by various customers. A month to month stockpiling cost of Ushs 16 million was squandered on these materials and their resulting demeanor cost was Ushs 200 million. The reasonable justification for this could be connected to the way inventory management practices are being polished at Kasthew Construction Company. As per study by (Bhagwat and Sharma, 2017), organizations frequently relieve frail sales-

power by holding more inventories of which, holding more inventories is relied upon to influence execution that adversely organizations have consistently experienced changed interest. Construction sites are less concerned on inventory management and hence more materials plus labour hours are wasted. The Construction industry in Uganda has experienced a lot of challenges while trying to carry out its inventory management and material control processes. Stock may become obsolete before it is used, capital may be tied up, running out of stock if there is a hitch in the system whereas meeting stock needs can become complicated and expensive, an area that has not been addressed by previous studies. Therefore, the researcher did this review to build up the impact of inventory management practices and performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (Ug) Ltd

1.3 Objectives of Study

1.3.1 General Objective

This study examined the effects of inventory management practices on the performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (Ug) Ltd.

1.3.2 Specific Objectives

The study was guided by the following objectives

- i. To examine the effect of material requirement plan on performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (Ug) Ltd.
- ii. To examine the effects of vendor managed inventory on performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (Ug) Ltd.

- iii. To assess the effects of just-in-time inventory on performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (Ug) Ltd.

1.4 Hypothesis

H₀₁: material requirement plan has an effect on performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (Ug) Ltd.

H₀₂: vendor managed inventory has an effect on performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (Ug) Ltd.

H₀₃: just-in-time inventory has an effect on performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (Ug) Ltd.

1.5 Significance of the Study

The study is hoped to be of benefit to the following stakeholders:

Management of Construction organizations: management of valid records can assist with fixing control to survey their exhibition on stock management and overseeing what quantity is applied in fabric management. This will help in creating a decent work courting inside the management.

Overall population: this will add to the supply of statistics on inventory management and its pointers to execution for groups.

Academicians: the findings can be utilized for reference via different destiny researchers in a bid to complement their classes and write down to earth paintings. The overview will inspire and stimulate different analysts' interests to direct additional research on stock management and execution.

Researcher: The study will help the researcher to fulfill the requirements for the award of Masters of Business Administration, of Mount Kenya University.

1.6 Limitations of the Study

This review considered the part of inventory management practices (Material Requirement Planning, Vendor-Managed-Inventory and Just In Time Inventory Management,) as components that impact hierarchical execution. Consequently, the researcher may not be able to deal with different factors like management abilities, staff enlistment and managerial use that might influence authoritative execution. That implies the outcomes may not be contrasted and concentrates on dependent of different factors (pointers) of hierarchical execution.

The review was restricted to the graphic study and connection research plans whereby the poll will be utilized. This strategy has its impediments which, for example, may not permit the information to be analyzed.

1.7 Scope of the Study

1.7.1 Content-Scope

In terms of content, the study mainly focused on assessing the effect of inventory management practices on the performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (Ug) Ltd. Inventory management system (independent variable) was looked at in terms of vendor managed inventory, material requirement planning and just-in-time management. Yet the dependent variable (performance) was measured in terms of time, cost and quality.

1.7.2 Geographical-scope

The geographical scope looked at 150 KLPD Ethanol Plant Constructions carried out by Kasthew Construction Company UG Ltd. Kasthew Construction Company UG Ltd is a locally owned leading Civil Engineering and Construction Company in Uganda-Kampala, with a solid reputation acquired over a period of 10 (ten) years. Kasthew Construction Company UG Ltd is located in Kampala, Colline House, Pilkington Road.

1.7.3 Time scope

The study was carried out between April 2022 and July 2022. The review covered a time of 3 years beginning from 2016-2018, a good way to permit the analyst to lead and accumulate/collect crucial investigation of records regarding the evaluation.

1.8 Organization of the Study

Chapter one took a gander at the foundation, explanation of the issue, destinations of the review, research questions, importance and study constraints. Chapter two took a gander at the connected writing dependent on what different writers have written with respect to the current review. Chapter three took a gander at the examination approach which incorporated checking on the exploration configuration, concentration on populace, test size, choice method, inspecting technique, research devices, wellsprings of information which was sorted into essential and optional, information assortment process, instrument of information assortment and information investigation. Chapter four considered the research findings and discussions on the demographic characteristics of respondents and the presentation of findings. Chapter five considered the summary of findings, conclusions, suggestions for study and recommendations of the study.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.0 Introduction

This part presents basic survey of issues that have been investigated and contemplated both hypothetically and exactly in the current writing on inventory management practices on the presentation of associations in non-industrial nations and somewhere else in the world. The literature was comparative in that it was in line with the specific objectives of the study, so as to make the writer appreciate the contributions of the different writers and he was able to identify the gaps.

2.1 Theoretical literature

2.1.1 Material requirement plan

Material requirement plan was established in the 1960s, to aid the precise arranging of goods. The point is to make available either bought or enterprise fabricating congregations not prolonged in advance than they are wanted by using the following segment of creation or for conveyance (Abdulmalek, 2016). MRP empowers requests to be determined all through the complete assembling cycle and permits buying and manage places of work to move the proper substances at the best threat to setting collectively or conveyance focuses. Establishments utilize this method as stock stored is based totally upon the interest on hand or close by.

One of the assumptions behind the lotyzing models just described is that demands for the item belong purchased or mode is independent of all other demands. This situation is true for most manufacturers finished goods. However sub-assemblies, raw materials and parts do not exhibit this

independence (Barney, 2011). Demand for these items is dependent on the assembly schedule for finished goods. Similarly, many MRO items depend on maintenance schedule. Recognition of the existence of demand dependence lies behind the techniques known as materials requirements planning (MRP).

MRP systems attempt to support the activities of construction companies, maintenance or use by meeting the needs of the master schedule. In order to determine needs, MRP systems can be accurate bill of materials for each final product or project. These bills can take many forms but it is conceptually advantageous to view them as structural trees. Seven general types of structural tree can be identified (Bhasin & Burche, 2013). No research had been carried out on the effect of material requirement plan on performance of 150 KLPD Ethanol Plant Constructions.

2.1.2 Vendor managed inventory

Vendor managed inventory (VMI), also known as continuous replenishment of supplier / vendor managed inventory, is one where vendor is responsible for replenishing stock on behalf of organization is most widely discussed partnering initiatives for encouraging collaboration and information sharing among trading partners (Alvarado, 2010) popularized in the late 1980's by WalMart and proctor and Gamble, it was subsequently implemented by many other leading companies from different industries, such as glaxusmith Kline, Electrolux, Italia nestle and Tesco Boeing and Acoa (Berle & Means, 1932). It is a supply chain initiative where the vendor decides on the appropriate inventory levels of each of the products and the appropriate inventory policies to maintain these levels.

In VMI, the retailer provides the vendor with access to the real time inventory level. In this partnership program, the retailer may set certain service level or shelf space requirements, which are then taken into consideration by the vendor. That is, in a VMI system, the retailer's influence shifts from managing inventory to simply renting space (Wild, 2012). VMI offers a competitive advantage for retailers/super markets which embrace it because it results in higher product availability and service faced as well as lower inventory monitoring and ordering cost, for vendors, on the other hand, it results in reduced bull whip effect and better utilization of manufacturing capacity as well as better synchronization of replenishment planning (Zhu & Sarkis, 2014).

VMI is a recent phenomenon in the retail supermarkets in Uganda having started in 2005 and steadily growing (Berle & Means, 1932). The effectiveness of VMI in the construction companies has been registered in improved stock management, cash flows, risk management, and management of bull whip effects associated with unpredictable saving in demand. While VMI has been voted best by the construction company managers, it has its shortcoming associated with trust, turnover of suppliers and small scale suppliers who lack financial capacity to implement VMI concepts sustainably sometimes this interferes with customer satisfaction as some goods on VMI become one-offs due to the high turnover of suppliers because some new suppliers are yet to develop credibility in their respective area of supply (Barney, 2011).

In Uganda, the concept of vendor inventory management has not yet been widely embraced by many organizations and this has made many organizations to experience increased cost in the execution of inventory management functions (Orodho, 2013), VMI effectiveness as a system is affected by invention, how the quality of ICT and quality of information and sharing but is not affected by the

quality of relationship. This indicates that relationship among VMI partners is developed on the basis that relationship among VMI partners is developed on the basis of implementing the system based on trust and reliability (Benson, 2011). However, the quality of ICT is most important to facilitate sharing of information among the VMI partners in the supply chain (Fama & Jensen, 1983). No research had been carried out on the effects of vendor managed inventory on performance of 150 KLPD Ethanol Plant Constructions.

2.1.3 Just-in-time inventory

The study by (Sila, Ebrahimpour, and Brikholz, 2016) sought to establish the impact of just in time on organizational efficiency in Uganda Baati Limited and was driven by four objectives. These objectives included, to find out the elements of just in time, the elements of just in time, to know how the concept of just in time is implemented, to determine how the concept of just in time is implemented, and to know the challenges faced in the implementation of just in time. To achieve the objectives, the researcher sampled fifty (50) respondents from Uganda Baati Limited. The researcher used the quantitative research methods; three data collection tools that is, questionnaires, interviews and observation. The data collected was presented in table forms and analyzed statistically.

Concerning the reviewed findings, the researcher found out that there are certain factors that need to be considered in implementing JIT. 45 people among the respondents a representation of 90% responded yes; meaning that majority agreed that certain factors should be looked in to in the implementation of JIT, and meanwhile no individual disagreed and 10% were not sure. The researcher also found out that it is true that running a pilot study with a frequency of 10, key supervisors frequency of 5, inviting suppliers to observe JIT systems with 15 mean while majority

of the respondents considered obtaining top management support in the implementation of JIT as the most crucial with a frequency of 20. This was in keeping with (Rushton, 2016). (Dainty, Briscoe, and Millett, 2001) who expressed that it's miles hard to present a bunch of steps with the intention to paintings for any affiliation; the overall concept relies upon on the experience of several JIT adopters within the US; which coincides with the findings. The respondents on their view moreover felt that don't forget, the following; popular schooling has been offered to every one of the workers in various abilities and to energize more noteworthy adaptability and owning the sizable wellsprings of the unrefined materials to make certain non-stop elements. No research had been carried out on effects of just-in-time inventory on performance of 150 KLPD Ethanol Plant Constructions. No research had been carried out on the effects of just-in-time inventory on performance of 150 KLPD Ethanol Plant Constructions.

2.1.4. Performance

JIT as an inventory control exercise has been found, by means of a few investigations, to favorably have an effect on affiliation's presentation. That is upheld by using a pay attention (Farrington and Lysons, 2016) which suggests that businesses which surpass their companions execute a large norm of JIT stock exercise than the folks that didn't make a difference in the JIT practice. As thus, lower of waste through positive practices completed, for instance, preventive support applications, set-up time lower and uniform responsibilities. From the discoveries, firms had been consistently extra efficient than the contenders because of using the JIT processes.

(Freeman, 1984) applied an alternate inventory management device that is Empirical Leanness Indicator (ELI) which drew out the fine connection between an affiliation's presentation and stock

control. Empirical Leanness Indicator (ELI) as expressed by using (Freeman, 1984) is a stock management approach that is preeminent. In lean creation practice, inventory is viewed as a form of waste which need to be faded supposedly is same to quality inventory control. This review drew out that overall revenues are emphatically motivated through leanness which encrust the years 2003-2008 folks fabricating corporations. It moreover showed that companies that attain excellency receive lower back from leanness are greater streamlined contrasted with the actual enterprise. (Freeman, 1984) tracked down that the organization's presentation universally is non-direct and high quality from the effect of inventory leanness.

Within the assessment (Childhouse and Towill, 2013) confirmed that a terrible effect on ROA became capable because of an enhancement for turnover considering the effects of time. An expertise of the proof showed that a few turnover developments associated with elevated ROA at the same time as other turnover improvement associated with faded ROA, which fluctuated dynamically starting with one firm then onto the subsequent regarding the association's presentation and turnover development. Moreover, (Childhouse and Towill, 2013) profoundly looked at the turnover-ROA dynamic as probable changeability supply through accepting capital force. From the discoveries, it was observed that ROA and the factors in no way had any awesome effect on the relationship amongst ROA and turnover improvement. Along those lines, the evaluation presumed that well-known association's exhibition is not related with the affiliation's inventory execution.

The performance of an organization is evaluated by how it reduces cost or increases value. The firm's performance monitoring is important; in many industries, the supply chain represents roughly 75 percent of the operating budget expense (Prajogo and Olhager, 2012). Three common measures of

performance are used when evaluating performance: efficiency, responsiveness and effectiveness (Chase, Aquilano, and Jacobs, 2001). In order to achieve responsiveness, the firms should be flexible to the changing and diverse needs of the customers and also build to order and mass customization processes as a means to meet the specific requirements of the customers. Effectiveness on the other hand means doing the right thing at the right time. Firms should ensure that they do enough research to know what their customers need and should also get the right resources so as to serve their customers satisfactorily (Janat, 2015).

In a state of harmony with (Amin, 2015) there are two main ways to improve performance: improving the measured attribute by using the performance platform more effectively, or by improving the measured attribute by modifying the performance platform, which in turn allows a given level of use to be more effective in producing the desired output. Performance can be measured by obtaining the magnitude of a quantity, such as length or mass, relative to a unit of measurement, such as a meter or a kilogram.

Chelsea, (2015) recorded extraordinary procedures to evaluate through the colossal definitive show which are; accounting measures (efficiency measures, improvement measures, effect, liquidity and earnings measures), valuable execution (slice of the pie, adjustments in intangible sources like licenses or HR, client dedication and assistant execution market based absolutely gauges (return on investor execution), market based measures (backpedal on investor, market regard conveyed, retaining period returns), persistence measures (saves time skylines of 5 years and less) and financial certainly worth measures (extra benefits, money related subjects regard introduced and income advantage from investment).

Previous studies suggest that effective inventory practices have a direct impact on the overall financial and marketing performance of an organization (Koumanakos, 2008). Indeed, inventory practices is expected to increase an organization's market share, return on investment and improve overall competitive positions. As an instance, (Tan, Lyman, and Wisner, 2012) asserted that customer relations and purchasing practices impact the effectiveness of inventory strategy and lead to financial and market performance. (Frohlich, Bertolin, and Westbrook, 2011) on the other hand suggested that companies with broader inventory integrations with suppliers and customers showed the largest performance improvement in business achievements.

In inventory, the leader obliges of an assortment of sports taken with the guide of the administration with an end goal to decrease expense, keep the venture's introduction, constant reserve and diminish of incidents (Sople, 2010). Stock leads to an extent of strategies that organizations use to ensure that legitimate amount of a thing is used at the right surroundings (Disney and Towill, 2013).

2.2 Empirical Literature

2.2.1 Inventory Management Practices and Performance

As identified through the study by (Tan, Lyman, and Wisner, 2012), the cause for the assessment was to install the connection among stock management practices and its impact on the performance of business development in Uganda basing on the following objectives; to determine approaches to inventory control used by Kavuma Investments, to find out the Inventory costs incurred in procurement process in Kavuma Investments, and to find out the relationship between approaches of inventory control and financial performance of Kavuma Investments. The descriptive aspect of the

research design was used in establishing the company performance and the analytical research design was used to establish relationship between inventory control and performance. The sample size of 30 was determined by formulae of (Krejcie and Morgan, 1970). Information became both essential and auxiliary. Vital information turned to be collected by way of the usage of polls and optionally available records were got from reports, diaries, and internet. Frequency tables, and graphs were worked out basing on the data entered into excel. In these frequency tables, and graphs analysis was done with a corresponding percentage. However statistical packages for social sciences (SPSS) were used to determine the relationship between the two variables.

Findings revealed that Goods are not inspected on receipt, staff members of Kavuma investments do not pay maximum attention to those inventories whose value is highest, all store staffs of Kavuma Investments are not highly skilled, it experiences under stocks situations, and gets damaged goods from its stores. Besides that, Kavuma Investments is faced with costs of checking on orders, maintaining records of the entire process, and handling costs. Nevertheless, there is a strong positive relationship between approaches of Inventory Control and Financial Performance at Pearson correlation coefficient $r=0.794$.

2.2.2. Material requirement plan and Performance

A review was done by (Augustine, 2013) on the effect of substances prerequisite watching for the presentation of the buying function in Mine action Yei South Sudan. The organization changed basically in one association (Mine action). This affiliation is part of the Norwegian People's useful resource main sporting events. Their exercises incorporate well-being arrangements in the direction of the South Sudanese, Agricultural preparations, schooling of medical experts, getting ready of

neighborhood area laborers, and lastly the affiliation has shaped an association in the arrangements within the removal of Mines in South Sudan. The expert determined to do an exam on the impact of substances prerequisite watching for the presentation of the shopping for ability because of the basic and traditional practices of acquisition in institutions and as an example, Mine action was picked by various several institutions which are located in South Sudan. The evaluated population protected the shopping for officials, human asset supervisors, chiefs, such as monetary regulators and the sector representatives adding up to respondents.

Examination discoveries exposed that materials prerequisite association assisted Mine action with auctioning in making certain productivity in the management of the association's substances, making sure an incentive for cash, making the accessibility of certain materials for the day-to-day running of the association and guaranteeing responsibility for the materials which are secured with the aid of the buying department of the affiliation. This has made it suitable for the specialist to deduce so that substances prerequisite arrangement becomes a particularly imperative errand inside the buying division of Mine movement Yei South Sudan and Mine motion as an affiliation (Alvarado, 2010). The exam discoveries additionally uncovered that, because of the failure in the buying division that exists within the acquirement/shopping for workplace, inadequate file retaining and helpless materials control could result due to the affiliation not having substances necessity planning approaches within the association. The discoveries were 07 or 35% respondents verified that materials necessity planning is not being used in Mine movement yet they basically do coordinate shopping for without making preparations for what they need to secure. Within the class and the graphical portrayal, it became investigated that 04 or 20% of the respondents delivered up those

substances prerequisite association techniques which had been utilized in the association or Mine action.

2.2.3. Vendor managed inventory and Performance

As indicated by an assessment done by (Donlon, 2013), this overview turned to build up the connection among vendor managed stock and affiliation execution in Nakumatt Supermarket. The review applied co-social exploration configuration, having an objective population of 60 respondents and test length of 56 respondents tested by usage of straightforward arbitrary method. This suggests that vendor-controlled inventory was a given way on execution of Nakumatt Supermarket. It changed and additionally settled that there were some difficulties of seller controlled inventory at Nakumatt, for instance, VMI is a situation to extensive commercial enterprise with 80%, accompanied by calls for all partners to concur un uphold measure showed with the aid of 75%, believe cannot be performed in the intervening time with 70%, expect companies to make more conveyances of products extra constrained lead time on the grounds that vendor assumes responsibility for inventory for the advantage of the organization. VMI often depends on cycle and innovations with 65% therefore movements must be tended to in VMI. It was found out that there has been connection among dealer managed stock and affiliation execution, as an instance, brings down hobby value validated by way of 80% and hurries up the path of VMI had 78% of the respondents recognizing it others have been a perfect conveyance, accomplished price advantages over contenders, customers' grumbling and solicitations react to extraordinarily brief proven by way of 73% of respondents. Ultimately, vendor managed inventory works on the exhibition of associations depending on the above observation.

2.2.4 Just-in-time inventory and Performance

The study by (Sila, Ebrahimpour, and Brikholz, 2016) looked to find out the effect of just in time on authoritative effectiveness in Uganda Baati limited and became driven via four goals. These destinations encompass, to discover the components of simply in time, the additives of simply in time, to recognize how the idea of simply in time is accomplished, to decide how the concept of just in time is completed, and to recognize the problems that appeared inside the execution of just in time. To accomplish the desires, the researcher inspected fifty (50) respondents from Uganda Baati. The researcher utilized the quantitative exploration strategies; 3 data collection gadgets this is, polls, interviews and belief. The statistics collected were brought in desk systems and broke down measurably.

Concerning the reviewed findings, the researcher located that there are sure factors that must be considered in imposing JIT. 45 respondents with a portrayal of 90% reacted sure; that means that larger part concurred that sure additives should be examined to in the execution of JIT, meaning at the same time as no man or woman range and 10% did not know. The researcher likewise located that it is simply the case that strolling a pilot take a look at with a recurrence of 10, key administrators' recurrence of 5, inviting companies to notice JIT frameworks with 15 suggestions at the same time as a greater part of the respondents considered obtaining top administration support in the execution of JIT because of the most full-size with a recurrence of 20. This was in line with (Rushton, 2016). (Dainty, Briscoe, and Millett, 2001) who expressed that it's miles hard to present a bunch of steps with the intention to paintings for any affiliation; the overall concept relies up on the experience of several JIT adopters within the US; which coincides with the findings. The respondents on their view

moreover felt that don't forget, the following; popular schooling has been offered to every one of the workers in various abilities and to energize more noteworthy adaptability and owning the sizable wellsprings of the unrefined materials to make certain non-stop elements.

2.3 Critical Review and Research Gap identification

The literature review above did not give a comprehensive coverage on the effect of inventory management practices on performance of construction companies' projects. The study intends to cover this content gap and since this study of inventory management system and performance of construction companies' projects has never been carried out in various performance of construction companies in Kampala (Vigoroso, 2015), therefore this study covered the geographical gap. It is from this gap that the studies of these kinds were undertaken. Inventory management has to meet the set budget and decide upon what to order, how to order and when to order so that stock is available on time and at the optimum cost (Jay and Barry, 2016). Organizations with effective inventory management systems do not have to spend large capital balances for purchasing enormous amounts of inventory at once thus saving handling and holding costs (Koumanakos, 2008). It is important to unravel the circumstance surrounding inventory management systems and practices in the performance of projects in construction companies.

2.4. Theoretical framework

For any situation, the test affirmation has shown that there are constrained real factors and energy for such practices, their method for interest, basically as the importance within the Ugandan assembling undertaking. The deficit of information and incomplete gathering of those forward-looking strategies inside the space of inventory control would possibly explain the earnest

improvement inside the wastage of ordinary substance, longer lead-time, loss of offers, the lack of things, the discipline of concede buy, increasing introduction charges, and inconveniences of ghastly prevalent grades by means of, and through destroying the endeavors. Thusly, there is by means of all records a gigantic hindrance of distinction between hypothetical inventory control and the possible technique considering the assembling business, and the need to interface the opening of hypothesis and exercise is focal. In this way, the accompanying hypotheses investigate inventory practices.

2.4.1 Strategic Choice Theory

The strategic choice concept brought up the connection among the choices of the board and the exhibition of a company simply as family members of the affiliations outside and inside weather (Childhouse and Towill, 2013). The theory underlined on the quantity of the choices made through the executives at the presentation of firm. (Liban, 2014) set up a strategic preference model that exhibited the dependence between the climate and associations, sports and widespread enterprise execution. The version zeroed in on conducting a better level so that you can improve effectiveness especially notwithstanding confined belongings; anyhow, the strategic idea was ineffective in giving a greater significance on context-oriented perspectives, which includes climate, innovation simply as the level of pastime into consideration and surely considered as how the construction of a firm assistance within the exhibition of a business.

Stock management techniques were a few of the selections that the administration considered while selecting alternatives as respects on how to work on the presentation of an affiliation. This research study will target supporting us with understanding the selections of inventory administration techniques which are made by way of administrators to work at the authoritative exhibition of

accommodations and development corporations as a long way as gain, first-rate, productivity, ideal creation, advent objectives and on time conveyance (Bhagwat and Sharma, 2017).

2.4.2 Transaction Cost Analysis (TCA) theory

As proven with the aid of (Zhu and Sarkis, 2014), Transaction Cost Analysis (TCA) is a hypothesis that ensures fees of the stock association are remained conscious of to a trifling stage TCA turned to be all matters taken into consideration in various districts, explicitly inside the assessment of money related issues and proper plans and execution. Inside the start of 1970s, the mathematicians and marketplace grasp, Williamson, created TCA into the version of popular information and set up his transaction fees cash associated factors of view inside the principal hypothesis of an alliance. (Little and Shum, 2010) battled those affiliations can diminish their costs of transaction via vertical exchange off, comparably as upgrading the level of belief for. This sort of coordination became logical because it was going to decrease the prices of stock affiliation while raising the level of the indoor and outdoor customers whilst passing on money for use in special quarters of a commercial enterprise.

The lowering of costs which joined the transaction prices skilled throughout the store affiliation, changed into one of the vital focal points of a connection. Frequently, the decrease of transaction prices finished a boom in the degree of skillability. Glaringly, as explained earlier, the stock association tactics are depended on to acknowledge a basic component in the handiness of the stock association by the pioneers (Vokurka and O'Leary-Kelly, 2016). Considering that one of the presentation opinions in this review is price, this overview will target assisting us with know-how

whether inventory association methods embraced via lodging and progression affiliations result in an overhauled gain.

2.4.3 Theory of Economic Order Quantity (Wilson's EOQ Model)

The EOQ versions portray by (Coleman, 2000) and (Orodho, 2013) as one that is focused on ordering portions that minimizes the stability of the cost between the inventories holding costs and the re-order costs. Of route, (Orodho, 2013) portrayed EOQ model as assumptions that are critical to compute EOQ as provided: the costs of holding a stock are known, and are considered constant; there are ordering costs which are perceived to be constant; the level of demand was known and was regarded to be constant; that the lead time cycle was well-known and considered constant; the price per unit was also considered constant; the replenishments made immediately, the entire batch was delivered promptly and that the stock-outs are not allowed. One starter of EOQ states that all things considered dismissal, there is a need to have guard shares that are stored to cook for deviations all through lead-time and mention-making and appropriately, it makes it complex to be depleted. The EOQ model demanded that for each item that is preserved in a store, it is critical to establish the point of ordering, which was considered the most cost operative quantity of ordering. The version made an assumption that any extra components were apparently and admittedly on how inadequacies had been constant and standard in all affiliations. As an example, weak points remembered exchange for the extent of hobby, harm whilst shifting an aspect and burglaries for the duration of the vehicle cycle. For the cutting-edge condition, deficiency inside the degree of interest might on this manner power EOQ to be modified according to guarantee in opposition to questionable commercial enterprise scenario because of solicitations skilled in enterprise surroundings. The changed monetary

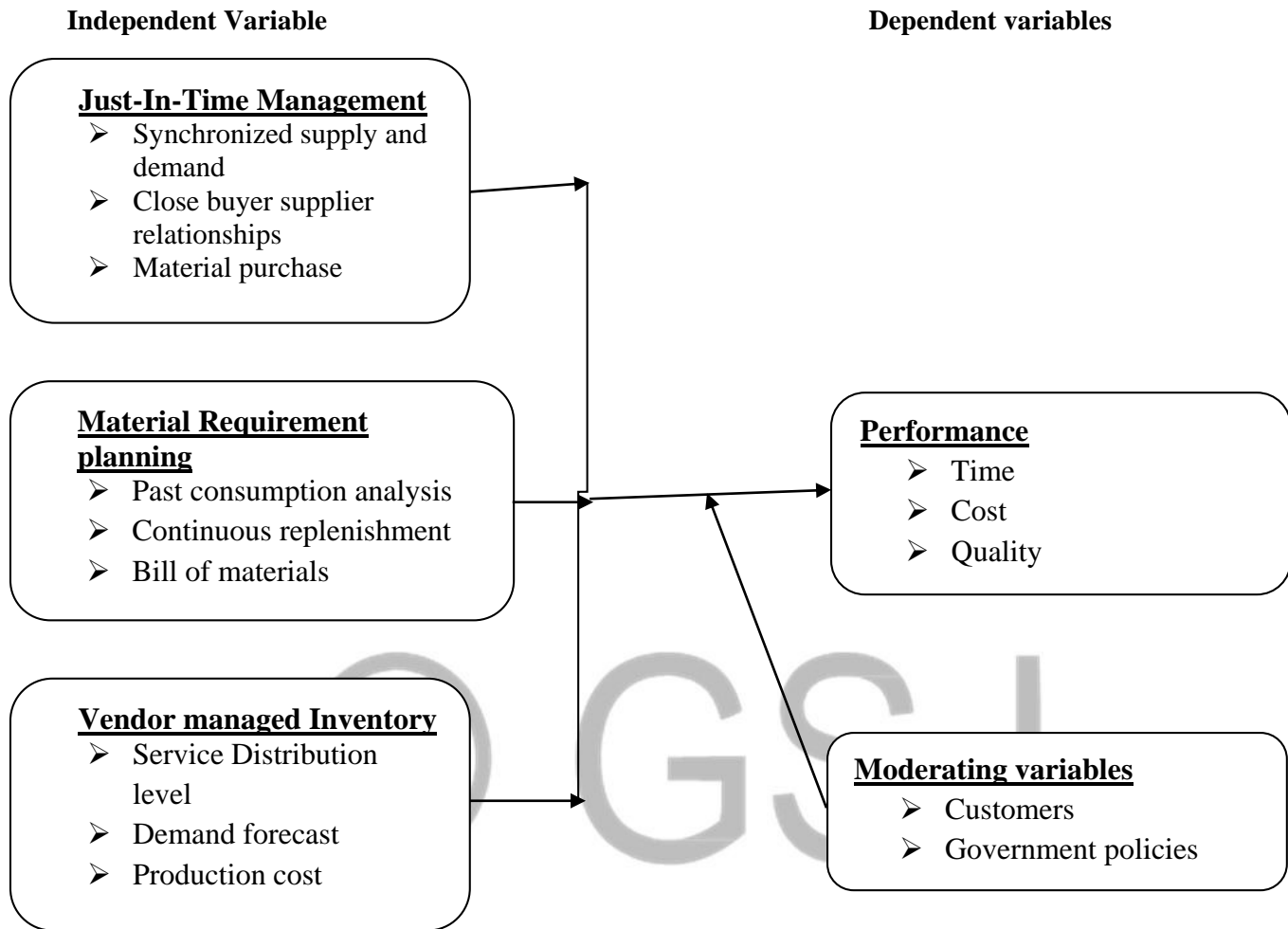
asking is generally an EOQ model that has to be embraced within the event instability eminent and it is an enormous wonder on this audit. It will likely be fundamental to recognize the mixture of EOQ model that can be accomplished via construction and development affiliations.

2.5 Conceptual framework

The model shows the relationship between inventory management practices and performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd.

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Figure 2.1: Conceptual framework



Source: Adopted from (Tan, Lyman, & Wisner, 2012) and modified by the researcher

The conceptual framework shows that the independent variable in this review is inventory management practices which is conceptualized as in material requirement planning, vendor managed inventory, and just-in-time management. However, the reliant variable (performance) will be estimated as far as time, cost and quality are concerned. Basing on the hypothesis of the review, the conceptual framework clarifies the relationship of the factors of the review; that is the connection between stock administration practices and execution. The framework reflects that performance is

influenced by inventory management practices. The intervening variable will be conceptualized as customer and government policies and measured by construct such as quality of inventory.

2.6 Summary of reviewed literature

This review is looking to survey the impacts of inventory management practices on the performance of 150 KLPD Ethanol Plant Constructions at Kasthew Constructions Company (UG) Ltd and development organizations. Various investigations inspected, for example, (Browne, Harben, and Shivnan, 2001), (Achaba, McIntyre, Smith, and Kalyanam, 2000), (Khisra, 2011) found that inventory management practices influence the association in various ways comparable to inventory management practices like shrinkage, records exactness, ventures and turnover are fundamental components in associations. Notwithstanding, none of those researchers saw development organizations. Different specialists, for example, (Abdulmalek, 2016), (Barney, 2011), (Fama and Jensen, 2013), (Prajogo and Olhager, 2012) and (Guillaume, Lambaré, Leblanc, Mitouard, and Le Moigne, 2008) studied little and medium endeavors though the current review is on enormous substance that handles the acquisition and circulation of development materials and administrations in the whole country (Kasthew Constructions Uganda Ltd).

Various strategies utilized in inventory management practices have been examined in this piece of writing audit. Despite the fact that, different specialists have done a ton of work, for this review the analyst has had the option to discover some basic focuses and the exploration hole, and what clarifies the significance of the current review. Towards the end, a calculated system was created to show the inventory management practices and execution relationship through various factors.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

Research methodology is a scientific technique used to collect data either from the field (primary data) or from other resources (secondary data). The chapter explained how the required information was obtained, from where, how sample was taken, methods of data collection and how data was analyzed.

3.1 Research Design

According to (Orodho, 2013), a research design is referred to as a plan, structure and strategy of investigation to obtain answers to research questions and control variance. Kasthew Construction Ug Ltd was used as the case study. Kasthew Construction Company UG Ltd is a locally owned leading Civil Engineering and Construction Company in Uganda-Kampala, with a solid reputation acquired over a period of 10 (ten) years. The study majorly focused on the central region in the districts of Mukono, Kampala, and Mpigi where Kasthew Construction Company is currently having projects. This study used a descriptive research design. This helped to specify clearly what the researcher wanted to find out and the way of doing it. Quantitative method was also used to explain the event using numerical data which was statistically analyzed.

3.2 Target Population

Target population is the aggregate or totality of objects or individuals, having one or more characteristics in common that are of interest to the researcher and where inferences are to be made.

The survey population consisted of 60 staff members of Kasthew Construction Company UG Ltd.

3.3.1 Sample Size

In order to determine the sample size, Yamane’s formula was applied as shown below. (Yamane 1967)

$$n = \frac{N}{1 + N(e)^2}$$

Where n = Sample Size
 N = Total Population
 e = sampling error value (0.05)

$$\left[n = \frac{60}{1 + 60(0.05)^2} = 52 \right]$$

The overall sample size constituted of 52 respondents derived from a total population of 60 employees using the table of (Yamane, 1967). The researcher opted for these respondents because they are key decision makers. The sample was categorised into two groups as seen below;

Table 3.1
The number of respondents from each category

Category	Population	Sample size
Purchasing department	10	9
Store keepers	10	9
Site foremen	5	4
Site workers	19	16
Accounts department	5	4
Technical managers	10	9
General manager	1	1
Total	60	52

Note. Primary data from Kasthew Constructions, 2021

3.3.2. Sampling Technique

The review utilized stratified random sampling technique basing on the individuals' common credits. This was finished by gathering the workers as indicated by the board levels. The sampling technique was that, every one of the chiefs and workers of Kasthew Construction Company UG Ltd was remembered for the review to take into account sufficient portrayal of the different perspectives communicated. What's more, a helpful sampling determination technique was utilized. Every one of the 52 representatives was regulated with the poll.

3.4 Data Collection Methods

Data was collected using primary sources because the researcher wanted to find out from the respondents their knowledge, attitude, believes, future and past behavior towards the subject of the study.

3.4.1. Data Collection Instruments

The researcher gathered data utilizing a survey which comprised of both open finished and shut finished inquiries. Poll was utilized to acquire information on the impacts of stock administration practices which is a vital factor towards authoritative execution. This instrument permitted respondents to address questions openly as they won't uncover their names and furthermore save time in light of the fact that the survey was filled in with no administrator.

3.4.2 Procedures of Data Collection

Before the organization of the questionnaires the researcher toke a basic letter from Mount Kenya University, the researcher initially looked for approval from the proposed respondents to lead exploration and survey the inquiries to stay away from blunders and guarantee that main qualified respondents were to be drawn closer.

The respondents were mentioned to answer the questionnaires. The researcher underscored recovery of the questionnaires inside three days from the date of circulation. Furthermore, ultimately, all returned questionnaires were checked in case all were replied.

The data was collected, coded into the computer, and statistically treated using SPSS.

3.4.3 Reliability and validity of instruments

As per (Amin, 2015) legitimacy alludes to the fittingness of the instrument, accordingly how much an instrument measures and what it should quantify. To accentuate legitimacy, the surveys were built by research targets which were approved by the director and two different specialists to get aptitude judgment on the substance legitimacy to guarantee that the inquiries were equipped for catching the planned information. This was likewise done to assist with further developing the sentence development and language clearness of the information instruments dependent on the remarks that were gotten from the people who audited the instruments.

Surveys were conceded to 1 worker of Kasthew Construction Company UG Ltd, 2 to individual understudies at Mount Kenya University to test for the legitimacy. The researcher saw that the appropriate responses given by every respondent were comparative. This was approved by fast comprehension of the inquiries and subjective nature of answers provided by the respondents.

$$\text{Content validity index (CVI)} = \frac{\text{Number of items rated relevant}}{\text{Total number of items rated in questionnaire}}$$

Reliability is defined by (Kothari, 2016) as the instrument's consistency in measuring whatever it is intended to measure. The study was tested for reliability coefficient basing on Cronbach's Alpha method for reliability and content validity index. All the values for reliability coefficients which exceeded 0.7 were taken to be very reliable and consistent.

3.5 Data Analysis

Immediately after data was collected, the researcher edited the findings by checking the accuracy of the data. This helped the researcher to get the correct information at the end of the study. This involved the examination of the variation in response to the questions according to the respondent, then data was analysed using Statistical Package for Social Scientistis (SPSS) to comeup with the research findings. While qualitative data was analysed in relationship to the literature review in chapter two, the analysed data was interprited in respect to the set objectives in chapter one using frequancy and percentages to comeup with the findings. Subjective information was investigated and introduced utilizing tables, pie diagrams and visual charts. Information was introduced utilizing tables, pie diagrams and visual charts.

A regression model provides a function that describes the relationship between one or more independent variables and a response, dependent, or target variable. The formula for regression is as follows:

$$Y = a + bx \quad (1)$$

Where

Y= unknown dependent variable

x= known independent variable

a= y intercept

b= slope of the line

$b > 0$ Positive connection between the two factors, which means we can utilize autonomous variable (x) to foresee variable the reliant variable (y) for huge relationship

$b < 0$ Negative connection between the factors, invalid speculation would be acknowledged no noteworthy relationship

$b = 0$ no expectation win, the estimation of variable (x) would be the equivalent with variable (y).

3.6 Ethical Consideration

Moral concerns were thought about by first obtaining a basic letter from the Faculty and afterward looking for approval from the administration of Kasthew Construction Company. Informed assent was looked for from the respondent before any progression was taken. The information was gathered by utilization of dependable and substantial apparatuses, coded and information assortment devices which was scorched to stay away from any type of data abuse. The researcher kept up with the secrecy of the respondents and ensured their protection consistently. The researcher attempted to be proficient while introducing himself to the respondents as this would influence the mentality and assumptions for the respondents. The researcher made sure that the research tools were always kept in a bag and always carried an umbrella to protect the bag just in case it rained.

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSION

4.0 Introduction

This chapter presents the findings and discussion of the study. The responses relating to the study were obtained. The descriptive statistics regarding the biographical information of the participants was also presented. Data was collected by use of questionnaires. This chapter also contains a tabular form which explains the findings of the objectives of the study which are; to examine the effect of material requirement plan on performance of 150 KLPD Ethanol Plant Constructions, to examine the effects of vendor managed inventory on performance of 150 KLPD Ethanol Plant Constructions and to assess the effects of just-in-time inventory on performance of 150 KLPD Ethanol Plant Constructions. The sample under consideration was 52 respondents. The response rate was 94.2% (49) of those proposed making the findings valid. Mugenda and Mugenda (2003) asserts that a response rate of 50% and above is adequate for analysis and reporting data and thus this response rate was believed to be sufficient and demonstrative for the study as shown in the table below;

Table 4.1

Response rate

Response rate	Expected Response		Actual response		Non response	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
	52	100	49	94.2%	3	5.8%

Note. Primary Data 2022

4.1 Demographic Characteristics of Respondents

In order to understand the nature of the respondents, the researcher was dealing with: some of the demographic information was collected and included: Gender, Age, Education background, and Period spent working in construction.

Table 4.2
Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	38	77.6	77.6	77.6
	Female	11	22.4	22.4	100.0
	Total	49	100.0	100.0	

Note. Primary Data

According to table 3 above, majority of the respondents were male with a rate of 77.6% (38) and the female were rated at 22.4% (11). The study indicated that there was employment for both genders at the construction company. The findings represented the views of the two sex groups about Inventory Management Practices and the Performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd, this was necessary for the study to get a balanced picture of the respondents' views.

Table 2.3
Age bracket

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25 years	8	16.3	16.3	16.3
	26-38 years	26	53.1	53.1	69.4
	39-50 years	12	24.5	24.5	93.9
	above 50 years	3	6.1	6.1	100.0
	Total	49	100.0	100.0	

Note. Primary Data

From the table 4 above, 53.1% of the respondents were in the age bracket of 26-38 years, 24.5% were of the age 39-50 years, 16.3% within a range of 18-25years and 6.1% were above 50 years.

This indicates that respondents were mature enough to answer the questions in the questionnaires which meant that the information given was reliable.

Table 4.4
Period spent working in construction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than a year	3	6.1	6.1	6.1
	1-7 years	36	73.5	73.5	79.6
	8-10 years	7	14.3	14.3	93.9
	above 10 years	3	6.1	6.1	100.0
	Total	49	100.0	100.0	

Note. Primary Data

From the above table 5, majority of the respondents had spent a period of 1-7 years working in construction companies rated at 73.5%, this was followed by 14.3% who had spent 8-10 years, 6.1% had spent less than a year and above 10 years. This indicates that the biggest percentage had worked in the construction company for a long time and therefore knew enough on the Inventory Management Practices and the Performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd.

Table 4.5
Level of education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Diploma	16	32.7	32.7	32.7
	Degree	9	18.4	18.4	51.0
	Masters	3	6.1	6.1	57.1
	Others	21	42.8	42.8	100.0
	Total	49	100.0	100.0	

Note. Primary Data

Various views with their respective percentages were put forward when respondents were asked of the level of education they had attained, they were as follows; majority of them represented by 42.8% said they held other qualifications like certificates, followed by 32.7% of the respondents who said were diploma holders and 18.4% of the respondents revealed that they were degree holders whereas 6.1% of the respondents also revealed that they held masters qualifications implying that majority having other qualifications meant they understand the topic at hand.

4.2 Presentation of Findings

The descriptive analysis status was generated using SPSS version 17 and the information was exported to Microsoft Word as illustrated in the tables below. A Likert scale of 1-5 was used in the tables as illustrated 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Not sure (NS), 4 = Agree (A), 5 = Strongly Agree (SA). The analysis was in accordance with the objectives of the study. Mean standard deviation and variance were used in the tables as illustrated below. The analysis was in accordance with the objectives of the study. The percentages of over 50 indicated in either case the agreement or disagreement level of the variable under study.

4.2.1. The Effect of Material Requirement Plan on Performance of 150 KLPD Ethanol Plant Constructions.

The study sought to establish the effect of material requirement plan on performance of 150 KLPD Ethanol Plant Constructions and the results were as presented below;

Table 4.6

Material requirement plan and performance of 150 KLPD Ethanol Plant Constructions

	N	Minimum	Maximum	Mean	Std. Deviation
The Kasthew development consistently bases on customers' requests prior to having a material prerequisite arrangement	49	2	5	3.63	.809
There is Material necessity readiness practice in Kasthew development	49	3	5	3.96	.789
MRP framework, helps Kasthew development determine exactly when and how much material to be stirred up	49	1	4	3.02	1.233
Steady material planning has consistently helped Kasthew development satisfy purchaser need	49	1	5	3.92	1.057
Kasthew development consistently holds planning for inventory to guarantee uninterrupted business tasks	49	4	5	4.65	.481
Valid N (listwise)	49				

Note. Primary Data 2022

The results shown in Table 7 above reveal that respondents agreed that the Kasthew Company development consistently bases on customers' requests prior to having a material prerequisite arrangement (mean=3.63). Respondents strongly agreed that; There is Material necessity readiness

practice in Kasthew Company development as revealed by (mean= 3.96) and responses on whether MRP framework, helps Kasthew development determine exactly when and how much material to be stirred up was represented as follows (mean= 3.02) as some respondents emphasized that steady material planning has consistently helped Kasthew development satisfy purchaser need as represented with (mean= 3.92). An analysis on whether Kasthew development consistently holds planning for inventory to guarantee uninterrupted business tasks were as follows; (mean=4.65).

The findings of this study proved a positive significant effect material requirements planning have on performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd, this therefore implies that good material requirements planning increases the level of performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd and poor material requirements planning reduces it. This finding is in line with (Rushton, 2011) who noted that material requirements planning is standard system for calculating the quantities of components, sub-assemblies and materials required to carry out a production program for complex products. It is based on customer orders, sales forecasts and manufacturing policy (Farrington and Lysons, 2016). Material requirements planning systems help manufacturers determine precisely when and how much material to purchase and process based upon a time-phased analysis of sales orders, production orders, current inventory and forecasts (Farrington and Lysons, 2016). According to Su and Zhong (2015), argue that consistent material planning stimulates consumer demand. According to Kotler and Keller (2016), in Europe, inventories are a significant portion of the current assets of any business. They noted that business firms hold planning for inventory to ensure

uninterrupted business operations. Inventory needs proper control as it is one of the largest assets of a business.

According to Oniwon (2011), inventory has to be available at the right time, right place, right quantity, and in right quality in order for a firm to generally perform well. Material requirements planning system may play a critical role in speeding up production scheduling execution. Scheduling entails generation of a plan with reference to the sequence of time allocated for the completion of an item (Cousens, Szweszewski and Sweeney, 2015). According to Silva (2013), scheduling preserves systems capacity utilization and directly affects the speed of response to customer demand.

Table 4.7

The relationship between material requirement plan and performance of 150 KLPD Ethanol Plant Constructions using Pearson’s correlation

		Material requirements planning	Performance
Material requirements planning	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	49	
Performance	Pearson Correlation	.201	1
	Sig. (2-tailed)	.167	
	N	49	49

Note. Primary Data 2022

Findings in relation to the relationship between material requirement plan and performance of 150 KLPD Ethanol Plant Constructions, presented the value of the co-efficient as equals to 0.201. This

value being a positive implies that there was a relationship between material requirement plan and performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd

4.2.2 The Effects of Vendor Managed Inventory on Performance of 150 KLPD Ethanol Plant Constructions

The study sought to establish the effects of vendor managed inventory on performance of 150 KLPD Ethanol Plant Constructions and the results were as presented below;

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Table 4.8

Vendor managed inventory and performance of 150 KLPD Ethanol Plant Constructions

	N	Minimum	Maximum	Mean	Std. Deviation
There is consciousness of the interval for substitution in request to make supplies	49	2	5	3.88	.807
The organization imparts objectives and destinations to the providers in request to address its issues and targets	49	4	5	4.51	.505
Upstream information is constantly moved to providers in request to diminish the interest and supply hole	49	3	5	4.02	.777
The company agrees with its suppliers to share information vital to restocking in a timely manner	49	3	4	3.53	.504
Replacement of inventory is based on timely purchase orders	49	3	5	3.98	.629
Valid N (listwise)	49				

Note. Primary Data 2022

Frequencies in Table 9 above indicate that respondents agreed (mean=3.88) that it is consciousness of the interval for substitution in request to make supplies. Respondents agreed with (mean=4.51) that the organization imparts objectives and destinations to the providers in request to address its issues and targets, respondents agreed with (mean=4.02) that upstream information is constantly moved to providers in request to diminish the interest and supply hole. The company agrees with its

suppliers to share information vital to restocking in a timely manner with (mean=3.53), and (mean=3.98) respondents revealed that replacement of inventory is based on timely purchase orders.

The findings revealed that there is a significant effect vendor managed inventory has on performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd, this also implied that high vendor managed inventory improves the level of performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd and poor vendor managed inventory reduces it. This finding agrees with (Astrid, 2017) who noted that vendor managed inventory helps to increase the customer responsiveness by reducing the supply and demand gap thus giving the satisfaction to end customer by availing the desired product when needed. Supply chain partners must share their vision of demand, requirement and constraint to set the common objectives (Guillaume, 2008). Quality of buyer supplier trust and relationship, quality of ICT system and intensity of information sharing has positive impact on vendor managed inventory implementation (Marloes et al, 2008). Before implementing vendor managed inventory, it is important to analyze the level of uncertainty of customer demand because a high uncertainty in demand negatively influences the performance attained through vendor managed inventory. Kazim, (2017) argued that upstream data transferred to supplier's i.e. current inventory level and accurate sales forecast is the most important factor for the successful implementation of vendor managed inventory.

Table 4.9

Relationship between vendor managed inventory and performance of 150 KLPD Ethanol Plant Constructions using Pearson’s Correlations

		Vendor managed inventory	Performance
Vendor managed inventory	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	49	
Performance	Pearson Correlation	.487**	1
	Sig. (2-tailed)	.000	
	N	49	49

Note. **. Correlation is significant at the 0.01 level (2-tailed).

Findings in relation to the relationship between vendor managed inventory and performance of 150 KLPD Ethanol Plant Constructions, presented the value of the co-efficient as equals to 0.487. This value being a positive implies that there was a relationship between vendor managed inventory and performance of 150 KLPD Ethanol Plant Constructions.

4.2.3 The Effects of Just-In-Time Inventory on Performance of 150 KLPD Ethanol Plant Constructions.

The study sought to establish the effects of just-in-time inventory on performance of 150 KLPD Ethanol Plant Constructions and the results were as presented below;

Table 4.10

Just-in-time inventory and performance of 150 KLPD Ethanol Plant Constructions

	N	Minimum	Maximum	Mean	Std. Deviation
The perfect proportion of merchandise are requested, got at the ideal opportunity	49	1	5	3.78	1.177
The right nature of products are constantly requested, got in time	49	1	5	4.39	.885
Zero inventory in store helps reduce holding cost	49	3	5	4.29	.577
Suppliers respond quickly to the emergent needs of materials	49	3	5	3.84	.472
Valid N (listwise)	49				

Note. Primary Source 2022

The results shown in Table 11 above reveal that respondents agreed that the perfect proportion of merchandise are requested, got at the ideal opportunity (mean=3.78). Respondents strongly agreed that; the right nature of products are constantly requested, got in time to as revealed by (mean= 4.39). The respondents also indicated that Zero inventory in store helps reduce holding cost, the respondents were in agreement represented by (mean=4.29). An analysis on whether Suppliers respond quickly to the emergent needs of materials were as follows; (mean=3.84).

The findings indicated that just-in-time inventory significantly affects the performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd; this effect therefore implies that just-in-time as an inventory management system contributes to the performance of 150

KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd. This finding is in line with Hutchins (2010) who also studied that the prime goal of just-in-time technique is the achievement of zero inventory, not just within the confines of a single organization but ultimately throughout the entire supply chain. It can be applied in the manufacturing process within any company as it is also being adapted within service organizations.

According to Kaplan and Norton (2012), noted that the companies effectively implementing JIT principles have substantial competitive advantages over competitors that have not. The trick is figuring out how to apply JIT principles to gain competitive advantages in your specific industry and business situation. The basic premise of JIT is to have just the right amount of inventory, whether raw materials or finished goods, available to meet the demands of your production process and the demands of your end customers (Silva, 2013).

According to Likert (2013), manual perusal of the inventory levels on a daily basis is one of the ways to facilitate re-ordering under computerized system. Under this plan, a printout is generated of all items in inventory and is examined by the inventory manager, who decided when and how much to order based on usage rates and expected future needs. ABC analysis and minimum and maximum meters of establishing inventory review plans are vital and they are useful for both manual and computerized systems.

Table 4.11

Relationship between just-in-time inventory and performance of 150 KLPD Ethanol Plant Constructions using Pearson Correlations

		Just in time	Performance
Just in time	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	49	
Performance	Pearson Correlation	.454**	1
	Sig. (2-tailed)	.001	
	N	49	49

Note. **. Correlation is significant at the 0.01 level (2-tailed).

Findings in relation to the relationship between just-in-time inventory and performance of 150 KLPD Ethanol Plant Constructions, presented the value of the co-efficient as equals to 0.454. This value being a positive implies that there is a relationship between just-in-time inventory and performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd.

4.2.4. The Performance of 150 KLPD Ethanol Plant Constructions.

The study sought to establish the performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd. and the results were as presented below;

Table 4.12
The performance of 150 KLPD Ethanol Plant Constructions

	N	Minimum	Maximum	Mean	Std. Deviation
The company always plans to increase profitability in the business.	49	3	5	4.12	.634
The company revenue has always exceeded the expenditure	49	4	5	4.43	.500
There is Material necessity readiness practice in Kasthew development	49	3	5	3.96	.789
Steady material planning has consistently helped Kasthew development satisfy purchaser need	49	1	5	3.92	1.057
Accomplishment of the objectives in the company is achieved with minimal costs	49	4	5	4.41	.497
The company has always met its set goals using the available resources	49	1	4	3.69	.683
Valid N (listwise)	49				

Note. Primary Data 2022

The results shown in Table 13 above reveal that respondents agreed that the company always plans to increase profitability in the business (mean=4.12). Respondents strongly agreed that; The company revenue has always exceeded the expenditure as revealed by (mean= 4.43) and responses on whether

There is Material necessity readiness practice in Kasthew development was represented as follows (mean= 3.96) as some respondents emphasized that Steady material planning has consistently helped Kasthew development satisfy purchaser needs as represented with (mean= 3.92). An analysis on whether Accomplishment of the objectives in the company is achieved with minimal costs were as follows; (mean=4.41). Lastly, on whether the company has always met its set goals using the available resources was represented with a mean of 3.69

4.2.5 Regression Analysis

Regression was used so as to decide the degree to which inventory management can impact the performance of 150 KLPD Ethanol Plant Constructions. Here it has been explored to perceive how the autonomous factors influence or impact the result of the needy factors. The term relapse is said to mean attempting to discover the connection between two factors or more. All together words, relapse can just happen where there is a physical presence of at least two factors. Where by factor x which is known as the autonomous variable influences the activity of variable y, which is the reliant variable (Kothari, 2004).

The formula for regression is as follows:

$$Y = a + bx \quad (1)$$

Where

Y= unknown dependent variable

x= known independent variable

a= y intercept

$b =$ slope of the line

$b > 0$ Positive connection between the two factors, which means we can utilize autonomous variable (x) to foresee variable the reliant variable (y) for huge relationship

$b < 0$ Negative connection between the factors, invalid speculation would be acknowledged no noteworthy relationship

$b = 0$ no expectation win, the estimation of variable (x) would be the equivalent with variable (y).

The relapse investigation was performed utilizing SPSS bundle with certainty interim degree of 95% to landing in a significant end and the outcomes are clarified underneath:

HYPOTHESIS I

Null Hypothesis: Whether Material Requirements Planning has influence on performance of 150 KLPD Ethanol Plant Constructions



Model Summary

Change Statistics					
Model	R Square Change	F Change	df1	df2	Sig. F Change
1	.040	1.972	1	47	.167

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.794	1	3.794	1.972	.167 ^a
	Residual	90.410	47	1.924		
	Total	94.204	48			

Note. a. Predictors: (Constant), material requirements planning

Note. b. Dependent Variable: performance

The ANOVA table above indicated that Material Requirements planning as a system of inventory management significantly affects the performance of 150 KLPD Ethanol Plant Constructions and this was indicated by the F-value=1.972. This implies that Material Requirements planning as a system of inventory management highly contributes to the performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd. This was in agreement with the findings of (Barney, 2011)

HYPOTHESIS II

Null Hypothesis: Whether Vendor Managed Inventory has influence on performance of 150 KLPD Ethanol Plant Constructions

Model Summary

Change Statistics					
Model	R Square Change	F Change	df1	df2	Sig. F Change
1	.237	14.608	1	47	.000

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.337	1	22.337	14.608	.000 ^a
	Residual	71.867	47	1.529		
	Total	94.204	48			

Note. a. Predictors: (Constant), vendor managed inventory

Note. b. Dependent Variable: performance

The ANOVA table above indicated that Vendor Managed Inventory as a system of inventory management significantly affects the performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd and this was indicated by the F-value=14.608 and Sig-value=.000, since the sig. value (0.000) was less than 0.05 and which is the maximum level of

significance required to declare a significant effect. This implies that Vendor Managed Inventory as a system of inventory management highly contributes to the performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd. This was in agreement with the findings of (Bhagwat & Sharma, 2017)

HYPOTHESIS III

Null Hypothesis: Whether just in time has an influence on performance of 150 KLPD Ethanol Plant Constructions.

Model Summary

Change Statistics					
Model	R Square Change	F Change	df1	df2	Sig. F Change
1	.206	12.169	1	47	.001

ANOVA^b

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	19.375	1	19.375	12.169	.001 ^a
	Residual	74.829	47	1.592		
	Total	94.204	48			

Note. a. Predictors: (Constant), just in time

Model Summary

Change Statistics					
Model	R Square Change	F Change	df1	df2	Sig. F Change
1	.206	12.169	1	47	.001

Note. b. Dependent Variable: performance

The ANOVA table above indicated that just-in-time as a system of inventory management significantly affects the performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd. and this was indicated by the F-value=12.169 and Sig-value=.001, since the sig. value (0.000) was less than 0.05 and which is the maximum level of significance required to declare a significant effect. This implies that just-in-time as a system of inventory management highly contributes to the performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd. This was in agreement with the findings of (Abdulmalek, 2016)

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter gives the summary of the main findings of the study, conclusions and recommendations of the study.

5.1 Summary of Findings

5.1.1. Summary on the Effect of Material Requirement Plan on Performance of 150 KLPD

Ethanol Plant Constructions

In regards to the effect of material requirement plan on the performance of 150 KLPD Ethanol Plant Constructions, the findings revealed that Kasthew development consistently bases on customers' requests prior to having a material prerequisite arrangement, there is Material necessity readiness practice in Kasthew development, MRP framework helps Kasthew development determine exactly when and how much material to be stirred up, Steady material planning has consistently helped Kasthew development satisfy purchaser needs and lastly Kasthew development consistently holds planning for inventory to guarantee uninterrupted business tasks. These findings are in line with (Rushton, 2011) who noted that material requirements planning is a standard system for calculating the quantities of components, sub-assemblies and materials required to carry out a production program for complex products.

5.1.2. Summary on the Effects of Vendor Managed Inventory on Performance of 150 KLPD

Ethanol Plant Constructions

The findings revealed that consciousness of the interval for substitution in request to make supplies; the organization imparts objectives and destinations to the providers in request to address its issues and targets, upstream information is constantly moved to providers in request to diminish the interest and supply hole. The company agrees with its suppliers to share information vital to restocking in a timely manner and lastly replacement of inventory is based on timely purchase orders. These findings agree with (Astrid, 2017) who noted that vendor managed inventory helps to increase the customer responsiveness by reducing the supply and demand gap thus giving the satisfaction to end customer by availing the desired product when needed. Supply chain partners must share their vision of demand, requirement and constraint to set the common objectives.

5.1.3. Summary on the Effects of Just-In-Time Inventory on Performance of 150 KLPD

Ethanol Plant Constructions.

The findings revealed that the perfect proportion of merchandise are requested, got at the ideal opportunity, the right nature of products are constantly requested, got in time, Zero inventory in store helps reduce holding costs and lastly the Suppliers respond quickly to the emergent needs of materials. This finding was in line with (Hutchins, 2010) who also studied that the prime goal of Just In time Technique is the achievement of zero inventory, not just within the confines of a single organization but ultimately throughout the entire supply chain. It can be applied to the manufacturing process within any company as it is also being adapted within service organizations.

5.2 Conclusions

According to the findings, material requirements planning has a positive significant effect on performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd, hence concluding that material requirements planning should base on customer orders, sales forecasts and manufacturing policy in order to stimulate customer demand which leads to the improvement in the performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd.

According to the findings, vendor managed inventory has a significant effect on performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd, hence concluding that the performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd can be improved once vendor managed inventory is effectively worked on because it helps to increase the customer responsiveness by reducing the supply and demand gap thus giving satisfaction to the end customer by availing the desired product when needed.

According to the findings, just-in-time inventory has a positive significant effect on performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd. Hence concluding that application of just-in-time as an inventory management system can lead to the improvement in the performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd since it increases on the quality, productivity and efficiency during inventory management.

5.3 Recommendations

On the basis of the above findings, the following recommendations are made:

Owners should develop a good system to monitor, record and track the entire inventory so that there is effectiveness in inventory management and ensure to cover loopholes in the system to enhance performance of construction projects for construction companies. Managers should ensure improved and effective inventory management practices that are more affordable and accessible to quality and cost-maximization in the organization.

Owners and managers of the 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd should develop vendor managed inventory system as the alternative ways of keeping inventory which makes vendor managed inventory easy and flexible so as to boost performance of construction projects for construction companies. The researcher recommended that a study be carried out comprising of other factors which were not part of the model to study.

Owners should develop material requirements planning system and make sure they always have an inventory plan that enables them have minimum inventory at all times, there is need for more awareness and maintenance, this will help them control inventory and hence increase on the performance of construction projects for construction companies.

5.4 Suggestions for Further Study

Prospective researchers and even students are encouraged to research on the following areas;

- a) Vendor managed inventory and profitability of project constructions for construction companies in Uganda.
- b) Material requirements planning and profitability of project constructions for construction companies in Uganda.
- c) The challenges facing the performance of project constructions for construction companies in Uganda.



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APPENDICES

APPENDIX I: QUESTIONNAIRE

I am Ssemanda John Bosco a student of Mount Kenya University, pursuing a master of Business Administration carrying out research on “Inventory Management Practices and the Performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd”. All data given is for scholarly purposes and your reaction to this questionnaire will help me in fruition of this examination. If it's not too much trouble, spare a couple of moments of your time and answer the accompanying inquiries unequivocally. By occupying in the dark space and ticking were essential. Be guaranteed that all data given will be treated with the serious level of secrecy.

Section A: Personal Profile

1. Gender

Male

Female

2. Age bracket

18-25years 26-38years

39-50years Above 50years

3. Period spent working in construction

Less than a year 1-7years

8-10years above 10years

4. Highest level of education

Diploma Degree

Masters Others

Please indicate the number which best suits your answer using the key below

Strongly disagree (SD)	Disagree (D)	Not sure (NS)	Agree (A)	Strongly agree (SA)
1	2	3	4	5

Section B: Inventory Management Practices

Material requirements planning	SD	D	NS	A	SA
The Kasthew development consistently bases on customers' requests prior to having a material prerequisite arrangement	1	2	3	4	5
There is Material necessity readiness practice in Kasthew development	1	2	3	4	5
MRP framework, helps Kasthew development determine exactly when and how much material to be stirred up	1	2	3	4	5
Steady material planning has consistently helped Kasthew development satisfy purchaser need	1	2	3	4	5
Kasthew development consistently holds planning for inventory to guarantee uninterrupted business tasks	1	2	3	4	5
Vendor Managed Inventory	SD	D	NS	A	SA
There is consciousness of the interval for substitution in request to make supplies	1	2	3	4	5
The organization imparts objectives and destinations to the providers in request to address its issues and targets	1	2	3	4	5
Upstream information is constantly moved to providers in request to diminish the interest and supply hole	1	2	3	4	5
The company agrees with its suppliers to share information vital to restocking in a timely manner	1	2	3	4	5

Replacement of inventory is based on timely purchase orders	1	2	3	4	5
Just in time	SD	D	NS	A	SA
The perfect proportion of merchandise are requested, got at the ideal opportunity	1	2	3	4	5
The right nature of products are constantly requested, got in time	1	2	3	4	5
Zero inventory in store helps reduce holding cost	1	2	3	4	5
Suppliers respond quickly to the emergent needs of materials	1	2	3	4	5

Section C: Performance of 150 KLPD Ethanol Plant Constructions at Kasthew Construction Company (UG) Ltd

Performance	SD	D	NS	A	SA
The company always plans to manage time in the business.	1	2	3	4	5
The company revenue has always exceeded the expenditure	1	2	3	4	5
The company always plans and meets the desired profits	1	2	3	4	5
The company provides its clients with an appropriate cost structure	1	2	3	4	5
Accomplishment of the objectives in the company is achieved with minimal costs	1	2	3	4	5
The company has always met its set goals using the available resources	1	2	3	4	5