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EFFECT OF INVENTORY CONTROL SYSTEMS ON SUPPLY CHAIN PERFORMANCE IN MANUFACTURING SECTOR IN KENYA: A CASE OF TATA CHEMICALS MAGADI LTD

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ABSTRACT

Inventory control systems are tools that are used to facilitate movement of stocks, planning, reviewing, ordering, receiving and storage among others operations. Inventory control systems influence organization's general performance in respect to operation cost, flexibility, quality and supply chain performance in manufacturing firms. Most manufacturing firms hold capital on inventory which also constitutes the most significant part of current assets. This study sought to determine effect of inventory control systems on the supply chain performance in chemical manufacturing companies focusing on Tata Chemical Manufacturing Company in Kenya. The main objective of this study was to establish effect of inventory control systems on the supply chain performance in chemical manufacturing companies in Kenya. The research adopted descriptive survey research designs which was deemed fit to establish effect of inventory control systems on the supply chain performance in chemical manufacturing companies in Kenya. Descriptive statistics such as means, standard deviation and frequency distribution were used to establish the extent to which inventory control systems on supply chain performance in manufacturing sector in Tata Chemicals Magadi Limited. Qualitative data which was collected using open ended questions was analyzed using content analysis in a thematic approach and presented in a continuous prose form. Quantitative data was further analyzed using Inferential statistics,correlation analysis and regression analysis. The study established that there existed a positive correlation between the effects of inventory control systems on the supply chain performance in chemical manufacturing companies in Kenya. There exists a significant relationship between material requirement planning, vendor managed inventory, and distribution resource planning and continuous replenishment system have a significant positive influence on performance of supply chain in chemical manufacturing companies in Kenya. The study concludes that inventory control systems applied in industry to control inventory effects corporate supply chain performance. Inventory control systems are becoming increasingly important for corporate supply chain performance. The inventory control systems in the company are adhered to in order to enhance the performance of supply chain in the companies.

Key words: Inventory Control Management, material requirement planning, vendor managed inventory, and distribution resource planning and continuous replenishment system, Supply Chain Performance

INTRODUCTION

Inventory control systems have been of concern for many years to business firms worldwide. Inventory control systems play a crucial role in enhancing effectiveness and efficiency in handling inventory of business firms (Augustine, 2013). Companies have been continually in search for sources of sustainable competitive advantage in their operations. There is need for manufacturing enterprises to embrace effective inventory management systems in order to improve their competitiveness (Rajeev, 2008). In 1980s inventories of raw materials, work-in-progress components and finished goods were kept as a buffer against the possibility of running out of needed items (Augustine, 2013).

The manufacturing companies suffer from the variability of daily deliveries and congestion as deliveries are congested. Variability of inventory controls majorly results due to firms not applying the inventory control systems in accordance with the baseline principles (Vikram & Singh, 2012). Inventory controls of manufacturing material is a requirement for the efficient operational performance, hence inventory needs proper control as it is one of the largest assets of the factory. To excel in competitive environment, companies have to design and operate materials management and product distribution functions effectively (Kazim, 2008). Inventory control systems enable a business to determine and maintain an optimum level of investment in inventory in order to achieve required operational performance. The aim of inventory control systems is to meet customer demand and improve on company supply chain performance. According to Halley and Beaulieu (2009), argue that to meet customer demand, firms have to ensure that stock-outs are avoided without incurring high inventory costs.

Manufacturing companies are trying to achieve supply effectiveness with vendors through sharing information, technical knowledge and schedules of production (Vermani, 2003). Buyer-supplier commitments and controls had significant influence on supply chain performance improvement in electrical products and components manufacturers in Thailand (Waraporn, Kamonchanok and Pongsa, 2012). Koumanakos (2008) observed that effect of inventory management on firm performance 1358 manufacturing firms operating in three industrial sectors in Greece, food textiles and chemicals were used in the study covering 2000 – 2002 periods. Wisner, Tan and Leong (2011) observed that in Isuzu Motor Ltd to study supply chain performance through product and vendor development programme (PVD) led to improvement in quality of Isuzu parts. Chen, Frank, & Wu, (2005), observed that the extent of emphasis on inventories among American firms and its effects can reach into the financial markets resulted into cost minimization, reliability and speed rather than as a higher order process with information-rich criteria such as the use of final goods inventory behaviour as an information base for production and pricing strategies. Ogbo and Ukpere (2014) established that effective system of inventory management has a significant organization performance in the seven-up bottling company, Nile Mile Enugu, Nigeria. Firm's in Malaysia have to acquire the right technology of inventory control systems for managing their supply chain inventories improving supply chain management efficiency. Brent & Travis, (2008), examined inventory control systems through collaborative models. They further discussed the

integration of traditional logistics decisions with inventory management decisions using traditional control models. Inventory control systems would integrate the farmers, chemical factories and customers of the chemical products (Meng, 2006).

Statement of the Problem

Kenya manufacturing firms are facing competition in the current markets which has led to the need for coming up with better methods of managing and measuring how resources are utilized by various jobs or products, and therefore eliminate any wastage in the supply chain (Ondiek & Odera, 2012). Consequently, many chemical manufacturing companies have to adopt appropriate inventory control systems. Management in manufacturing companies in Kenya indicated that the cost of holding stock to manufacturing firms is between 4 and 10% on top of the stock's value (Koin & Mwangangi. 2014). The control of inventories is therefore critical for firm to achieve efficient and effective supply chain. In majority of manufacturing industries, inventory constitutes the most significant part of current assets. According to the annual financial statements of Tata chemicals Magadi for the years 2010/2011 &2012, the trend exhibited an increase in inventory cost held in stock over the period under analysis as the higher the inventory held in stock, the higher the supply chain staff costs and security cost (TCM, 2012). The report also indicated that an increase in 44% rate in stock over the 2010/2011 financial year lead to an equivalent 34 % increase in security costs and 24% in increase in supply chain costs and insurance cost (TCM, 2012). The extent to which inventory control systems such as material requirement planning, continuous replenishment (CRP) and inventory management improve supply chain performance in chemical manufacturing companies has not been empirically determined. However, according to Mathuva, (2013) the direction of the relationship between inventory control systems and supply chain performance of chemical firms had not been clear.

Objectives of the Study

This study sought to determine effect of inventory control systems on the supply chain performance in chemical manufacturing companies focusing on Tata Chemical Manufacturing Company in Kenya.

Theoretical Review

Contingency theory influence management of tasks in different operational settings, the essence of contingency theory is that best practices depend on the contingencies of situation. According to Cannon, (2008) the changes in dependent measures are considered to represent performance caused by variations in the independent measures. The theory hypothesized that relationship, inventory control systems are determinants of changes in operational performance of manufacturing processing firms. In this respect changes in inventory control systems will represent supply chain performance (Ramakrishma, 2005). According to Bachetti, Plebani, Saccani and Syntetos (2010) observe that inventory management need to be organized in a logical way so that the organization can be able to know when to order and how much to order. This can only be achieved through the Economic Order Quantity (EOQ) computation. Economic order quantity enables organizations to plan their inventory replenishment on a timely basis such as monthly, quarterly, half yearly or yearly

basis. By so doing, it enables firms to have minimal storage costs or zero within their warehouses since inventory is coming in and going out immediately. Thus, as organizations try to improve on the inventory management, the Economic Order Quantity (EOQ) and Re-order Point (ROP) are important tools that organizations can use to ensure that inventory supply does not hit a stock out (Agus, & Noor, 2006). Over time, organizations have been maintaining their inventory in a haphazard manner which has necessitated a change in the way firms conduct their business (Kert, 2007). Stock outs have been experienced adversely leading to customer dissatisfaction hence; firms are changing their approach to be able to remain relevant by employing Economic Order Quantity (EOQ) and Re-order Point (ROP) for customer satisfaction.

Conceptual Frameworks

In this study, inventory control systems are independent variables link to dependent supply chain performance while government policies are intervening variables.

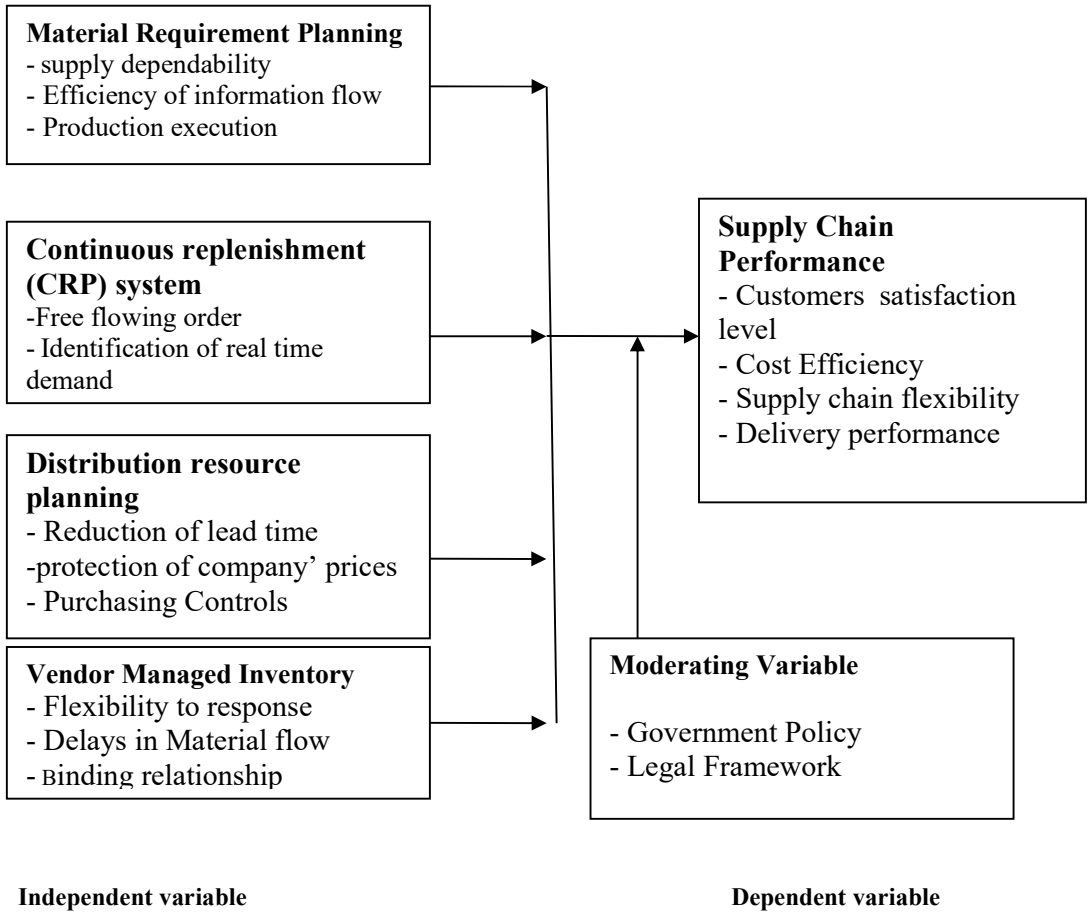

Figure 1 :Conceptual Frameworks

Empirical Literature Review

Koumanakos (2008), studied the effect of inventory management on firm performance 1358 manufacturing firms operating in three industrial sectors in Greece, food textiles and chemicals were used in the study covering 2000 – 2002 period. The hypothesis that lean inventory management leads to an improvement in a firm's financial performance was tested. The findings suggest that the higher the level of inventories preserved by a firm, the lower the rate of return. In conclusion, most of the studies reviewed concentrated on conventional firm level variables such as inventory levels, demand and lead time. Disney and Towill (2003), carried out a study on the effect of vendor managed inventory (VMI) dynamics on the Bullwhip Effect in supply chains. The study compares the expected performance of a vendor managed inventory (VMI) supply chain with a traditional serially linked supply chain. The emphasis of this investigation is the impact these two alternative structures have on the Bullwhip Effect generated in the supply chain. The study pay particular attention to the manufacturer's production ordering activities via a simulation model based on difference equations. Inventory recovery as measured by the integral of time×absolute error performance metric is also substantially improved via VMI. Noise bandwidth, that is a measure of capacity requirements, is then used to estimate the order rate variance in response to random customer demand. Finally, the paper simulates the VMI and traditional supply chain response to a representative retail sales pattern. The results are in accordance with rich picture performance predictions made from deterministic inputs.

Ganeshan et al (2001), focused on the impact of forecast errors, mode of communication and planning frequency and management techniques on the performance of an expanded and comprehensive retail supply chain. The study suggests links between inventory parameter and supply chain performance. The empirical study used case study to link the input and output variable of single chemical product used as household cleaner and simulation method to analyze the data. The study found out that all the three inventory parameter had a significant effect on performance. Increasing forecasting errors and re-planning frequency decrease service, return on investment, and increase cycle time. Lwiki, Ojera, Wachira and Mugenda (2013), examines the impact of inventory management practices on the financial performance of sugar manufacturing firms in Kenya, by analyzing the extent to which lean inventory system, strategic supplier partnership and technology are being applied in these firms. The research survey was conducted in all the eight operating sugar manufacturing firms from the period 2002-2007. Descriptive statistics was used to test the impact of inventory management practices and Correlation analysis was used to determine the nature and magnitude of the relationship among inventory management variables. The results indicate that there exists a positive correlation between inventory management and Return on Sales ($r=0.740$) and also with Return on Equity ($r=0.653$) which were found to be statistically significant at 5% level.

Ogbo and Victoria (2014) sought to determine relationship between effective system of inventory management and organization performance in the seven-up bottling company, Nile Mile Enugu. The result of the analysis showed that flexibility in inventory control management is an important approach to achieving organizational

performance. It was found that organizations benefits from inventory control management by way of easy storage and retrieval of material, improved sales effectiveness and reduced operational cost. The study also found that there is a relationship between operational feasibility, utility of inventory control management in the customer related issues of the organization and cost effectiveness technique are implemented to enhance the return on investment in the organization. Effective inventory control management is recognized as one of the areas management of any organization should acquire capability. It is recommended that organizations should adopt the inventory keeping method that best suit their operations.

Mwangi (2013), carried out a study to establish the relationship between inventory management techniques and supply chain performance non-governmental organizations in the agricultural sector in Kenya. The objective was to determine the impact of inventory management techniques on the supply chain performance of non-governmental organizations in the agricultural sector in Kenya and to establish the challenges of inventory management implementation techniques in non-governmental organizations in the agricultural sector in Kenya. Descriptive research design was adopted cross sectional type for all NGO and used descriptive statistics of mean and standard deviation and regression analysis to establish relationship between inventory management techniques and supply chain performance. The study revealed that there existed a significant relationship between EOQ, JIT, and marginal analysis, order batching, vendor managed inventory, simulation and ABC analysis and supply chain performance.

Koin and Mwangangi (2014), sought to establish the effect of inventory management on an organizations performance. The study will employ a descriptive research design. The study population was 459 employees where a sample of 56 respondents was reselected for the study. Data was analysis through descriptive and regression analysis. The study improvements in the management of the supplier relation, specifically on supply network members and material and information flow, supplier performance criteria and supplier relationship management, improved the supply chain effectiveness in the manufacturing sector in Kenya. Inventory management is important because firms will ensure assets and stock are well managed and demand forecasting is greatly enhanced to avoid unplanned procurement. Inventory can double up as stock and assets. Therefore, when an organization employs demand forecasting, it will minimize operational costs and improve customer satisfaction (Hines and Bruce, 2007). This will enable the organization plan for the future as it applies various variables that the organization can use for its goal achievement namely: demand and supply, cost and personnel requirements. Organization's inventory is an important component and its management is vital to the success and cost reduction of the firm's expenditure. Wild, (2002) recommends, proper warehousing of inventory so that when goods are ordered, they are held at the warehouse for the least time possible minimizing holding cost of inventory. Consequently, other operational costs may increase inventory management costs like through the balance of ordering costs, holding costs, safety stock and stock outs (Palevich, 2012) and (Wisner, Tan and Leong, 2011)

RESEARCH METHODOLOGY

The Research Design

The research adopted descriptive survey research designs. The descriptive survey design refers to a set of methods and procedures that describe variables (Mugenda and Mugenda, 2003). This research design involves gathering data that describe events and then organizes, tabulates, depicts and describes the data. The descriptive survey design is a methods and procedures that describe variables. This design helps in collecting quantitative and qualitative data to provide a great depth of responses in order to test hypothesis or to answer the questions of the current status of the subject under study. The research design was deemed fit to establish effect of inventory control systems on the supply chain performance in chemical manufacturing companies in Kenya. The target population of this study was 145 staff working in Tata Chemicals Magadi Limited. The study population comprised of procurement officers, supply chain officers, Line officers, production officers, Quality control officers, Information Technology Officers and Operation officers. Stratified samplings as noted by Coper and Schildler (2008) is a method applied if the population from which a sample is to be drawn does not constitute an identical group and hence requires comparisons between various sub-groups. Kothari (2004) indicated that a minimum sample size of 30 units of a large study population is sufficient for a study. The respondents were selected through simple random sampling. Mugenda and Mugenda (2003) indicated that a sample proportion of 10% or 20% is sufficient representative for a sample. Therefore the study adopted a stratified random sampling and adopted a sample proportion of 50% as indicated by Mugenda and Mugenda (2003) to determine a sample size of 73 respondents. The primary data for this study was collected using the questionnaire which was administered through drop and pick later approach.

Data Analysis and presentation

The collected data was well examined, summarized, coded and tabulated. The study adopted descriptive analysis technique to analyze quantitative data. Descriptive statistics such as means, standard deviation and frequency distribution were used to establish the extent to which inventory control systems on supply chain performance in manufacturing sector in Tata Chemicals Magadi Limited. Inferential statistics, correlation analysis and regression analysis was done to establish whether there exists a significant relationship between material requirement planning, vendor managed inventory, distribution resource planning and continuous replenishment (CRP) system and supply chain performance.

DATA ANALYSIS, INTERPLETATION AND PRESENTATION

Inventory Control Systems and Supply Chain Performance

From the findings majority 87%, indicated that raw materials, final products and storage of the final chemical products were the usage points of inventory control systems in the company. From the findings, majority of the respondents indicated that the company adopted distribution resource planning control system, continuous replenishment system, vendor managed inventory control systems and material requirements planning control system. This is in line with Naslund (2008), who stated that inventory control systems such as material requirements planning attempts to rein in materials needs. It is a technique that is based around the concept of dependent demand.

Material Requirements Planning

The findings indicated that reduction in supply dependability, achievement of current inventory and forecasts on timely bases, acquisition and allocation of limited resources to meet customers' demand and the speed of production execution in the company affects the supply chain performance in the company to a very great extent as indicated by mean of 4.86, 4.81, 4.74 and 4.73. Most of the respondents indicated that time-phased analysis of sales orders, Attainment of efficiency of information flow and Attainment of accurate forecasting of capacity requirement affects the supply chain performance in the company to a very great extent as indicated by mean of 4.65, 4.64 and 4.54. Most of the respondents indicated that effectiveness of scheduling and scheduling effectiveness speeding customer service delivery and Material requirements scheduling effectiveness affects the supply chain performance in the company to a great extent as indicated by mean of 4.33 and 4.13 with standard deviation of 0.49 and 0.39. Most of the respondents indicated that reduction of idle time of production machines affects the supply chain performance in the company to a moderate extent as indicated by mean of 391 with standard deviation of 0.27. This implies that material requirements planning system play a critical role in supply chain management. This is in line with Baily et al (2008), who stated that MRP provides integration of related functions into the system (in particular capacity planning, inventory management and shop floor control allows feedback from them, making sure that the production plan is constantly kept up to date.

Continuous Replenishment System

On whether the company achieve efficiency logistical network due to continuous replenishment systems, all the respondents indicated that the company achieve efficiency logistical network due to continuous replenishment systems. Respondents unanimously stated that decisions regarding the amount of inventory that the company should hold and its location within a company's logistics network are crucial. This implies that achieve efficiency logistical network help the company to meet customer service requirements and expectations. This is in line with Farrington & Lysons (2006), who stated that continuous replenishment enables the company to develop

free flowing order fulfillment and delivery systems, so that pipeline inventories can be substantially reduced. The study sought the extent to which continuous replenishment systems reduce storage and factory overall costs in the company. From the findings, 70% of the respondents indicated that continuous replenishment systems reduce storage and factory overall costs to a very great extent while 30% of the respondents indicated that continuous replenishment systems reduce storage and factory overall costs to a great extent. This implies that effective continuous replenishment systems are a must for smooth and efficient running of the production cycle with least interruptions. This is in line with Kumar & Suresh (2008), who argued that inventory control would ensure adequate supply of products to customers and avoid shortages and ensure timely action for replenishment.

Continuous Replenishment System Relates to Supply Chain Performance

From descriptive results, respondents indicated that continuous replenishment system leads the company in achieving logistic systems, reduction in line inventory, stock listing efficiency, purchasing controls and cross-docking, store ready packaging and automated handling thus influence supply performance to a very great extent as indicated by a mean of 4.82, 4.79, 4.70, 4.65 and 4.59 with standard deviation of 0.80, 0.83, 0.80, 0.65 and 0.62. Most of the respondents indicated that continuous replenishment system leads the company in achieving free flowing order fulfilment, Timely inventory replenishment, accurate forecasting of capacity requirement and identification of real time demand due to up-to-the-point-of-sale information systems influencing supply performance to a very great extent as indicated by a mean of 4.57, 4.55, 4.53 and 4.50 with standard deviation of 0.53, 0.45, 0.48 and 0.48. Most of the respondents indicated that due to continuous replenishment system the company experience reduction in frequency of ordering as indicated by a mean of 4.42 with standard deviation of 0.37. This is in line with Mustaffa & Potter (2009), who stated that CRP systems are able to synchronize flow of product by focusing on the end-user requirements via the use of real-time demand, linked to flow-through distribution systems that allow for cross-docking, store ready packaging and automated handling.

Distribution Resource Planning

The results indicated that majority of the respondents indicated that distribution resource planning controls make the company achieve logistic systems, improve customer service delivery, protection of company's chemical products price and influence production planning and controls to a very great extent as indicated by mean of 4.90, 4.87, 4.79 and 4.77 with standard deviation of 0.70, 0.77, 0.83 and 0.71. Most of the respondents indicated that distribution resource planning controls make the company achieve reduction of lead time affect operational and attainment of accurate forecasting of capacity requirement influencing supply performance to a very great extent as indicated by a mean of 4.67 and 4.53 with standard deviation of 0.63 and 0.51. Most of the respondents indicated that distribution resource planning controls make the company achieve its projections and aggregate supply requirement schedules, lower inventory investment and improved customer service and planning

of physical resources requirements to a great extent as indicated by mean of 4.33, 4.11 and 4.05 with standard deviation of 0.41, 0.23 and 0.22. This is in line with Farrington & Lysons (2006), who stated that DRP serves a central role in coordinating the flow of goods inside the factory with the system modules that place the goods in the hands of the customer.

Vendor Managed Inventory

Respondents were requested to indicate the extent to which the given vendor managed inventory controls relate to supply chain performance in the company. From the findings, majority of the respondents indicated that vendor managed inventory controls leads to iimprovement in customer loyalty, improvement in binding relationship resulting into monitored framework of performance targets, elimination of delay in information flow and the achievement of delivery on time by vendor influencing supply performance to a very great extent as indicated by a mean of 4.90, 4.83, 4.82 and 4.81 with standard deviation of 0.85, 0.81, 0.85 and0.83. Most of the respondents indicated that vendor managed inventory controls lead to elimination of delays in material flow, undertaking of demand visibility and focusing on flexibility to response on inventory requirements influencing supply performance to a very great extent as indicated by a mean of 4.73, 4.63 and 4.61 with standard deviation of 0.71, 0.61 and 0.53. Most of the respondents indicated that vendor managed inventory controls led to elimination of production delays and creation of an environment of continuous improvement to a very great extent as indicated by mean of 4.58 and 4.50 with standard deviation of 0.54 and 0.54. This implies that a well designed and developed approach to VMI can lead not only to reductions in inventory levels in the supply chain. This is in line with Letinkaya & Lee (2000), who stated that VMI provides the opportunity to develop a much close relationship and binding relationship among the retailers and the manufacturers as well as giving a much better visibility of the real demand.

Supply Chain Performance

Results on the extent to which inventory control systems adopted influence supply chain performance measurement indicators of Tata Chemical Manufacturing Company, majority of the respondents indicated that inventory control systems adopted improve customer satisfaction, delivery performance, supply chain response time, supply chain flexibility and provision of error-free products in sales volume to a very great extent as indicated by mean of 4.94, 4.93, 4.88, 4.82 and 4.78 with standard deviation of 0.88, 0.84, 0.81, 0.67 and 0.68. Most of the respondents indicated that inventory control systems adopted improve order-to-delivery lead time, supply chain cost efficiency and quality of chemical products to a very great extent as indicated by mean of 4.73, 4.68 and 4.51 with standard deviation of 0.62, 0.58 and 0.46. Most of the respondents indicated that inventory control systems adopted improve level of output to a great extent as indicated by mean of 4.07 with standard deviation of 0.23. The findings were also consistency with Bai & Zhong (2008) who observed that inventory investment and its control systems for manufacturing companies are vital for achievement of supply chain performance.

Regression Analysis

A multiple regression model was applied to establish whether there exists a significant relationship between material requirement planning, vendor managed inventory, distribution resource planning and continuous replenishment system and supply chain performance. Adjusted R^2 of 0.462 was obtained indicating a variation of 46.2% of supply chain performance varied with variation in factors material requirement planning, vendor managed inventory, distribution resource planning and continuous replenishment system at a confidence level of 95%. The study established that there existed a significant goodness of fit between variable as F-test (F=10.435, P=0.002< 0.05). The calculated F= 10.435 far exceeds the F-critical of 3.944. This implied there the level of variation between independence and dependent variable was significant at 95% confidence level. This indicated that the model formed between material requirement planning, vendor managed inventory, distribution resource planning and continuous replenishment system and supply chain performance was a good fit for the data. The strength of variation of the predictor values of supply chain performance of was significant as P= 0.02<0.05.

Table Regression Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std.Error	Beta		
1	(Constant)	3.002	.428		8.125	.000
	Material requirement planning	.723	.113	.611	12.454	.003
	Vendor managed inventory	.479	.136	.360	7.655	.011
	Distribution resource planning	.605	.156	.512	10.320	.002
	Continuous replenishment system	.513	.117	.423	7.021	.001

a. Predictors: (Constant) Material requirement planning, vendor managed inventory, distribution resource planning and continuous replenishment system
b. Dependent: Supply chain performance

From the above regression model, it was found that performance of supply chain in chemical manufacturing companies in Kenya would be at 3.002 holding material requirement planning, vendor managed inventory, distribution resource planning and continuous replenishment system constant at zero. The regression results indicated

that material requirement planning significantly influenced performance of supply chain in chemical manufacturing companies in Kenya (r=.723, p=0.003<0.05).

The regression coefficient results also indicated that there was a significant positive relationship between vendor managed inventory and performance of supply chain as indicated by (r=.479, p=0. 011<0.05). From the regression results in regression table, distribution resource planning significantly influenced performance of supply chain in chemical manufacturing companies in Kenya (r=.605, p=.002<0.05). From the regression results in Table 4.19 on, the study found that continuous replenishment system significantly influence performance of supply chain (r=.513, p=001<0.05). This clearly indicated that there exists a significant relationship between material requirement planning, vendor managed inventory, and distribution resource planning and continuous replenishment system have a significant positive influence on performance of supply chain in chemical manufacturing companies in Kenya.

SUMMARY, CONCLUSIONS AND POLICY RECOMENDATIONS

Summary of Findings

The study established that the company determine quantities of components and production programme for chemical products. The quantities required for the actual processing operations were taken from the stores into the workrooms; an important consideration in process and plant layouts was the quantity of the materials in the overall inventory, including the equipment. Company determine materials quantities based on time-phased analysis of sales orders, production orders, current inventory and forecasts. MRP based on time-phased analysis enables the company to reduce waste by maintaining only the lowest possible materials and product levels in stock. The study established that reduction in supply dependability, achievement of current inventory and forecasts on timely bases, acquisition and allocation of limited resources to meet customers' demand and the speed of production execution in the company affects the supply chain performance.

The study established that the company achieve efficiency logistical network due to continuous replenishment systems. That decision regarding the amount of inventory that the company should hold and its location within a company's logistics network are crucial. Continuous replenishment systems reduce storage and factory overall costs. Continuous replenishment system leads the company in achieving logistic systems, reduction in line inventory, stock listing efficiency, purchasing controls and cross-docking, store ready packaging and automated handling thus influence supply performance. The study established that continuous replenishment system leads the company in achieving free flowing order fulfilment, Timely inventory replenishment, accurate forecasting of capacity requirement and identification of real time demand due to up-to-the-point-of-sale information systems influencing supply performance. The company facilitates accurate prediction of customer demand and timely response to their requirement.

The study established that distribution resource planning controls make the company achieve logistic systems, improve customer service delivery, protection of company's chemical products price and influence production planning and controls. The study established that distribution resource planning controls make the company achieve reduction of lead time affect operational and attainment of accurate forecasting of capacity requirement. It controls make the company achieve its projections and aggregate supply requirement schedules, lower inventory investment and improved customer service and planning of physical resources requirements.

The study established that vendors are able to schedule deliveries efficiently and it eliminates delays in both information and material flow for the chemical processing. This implies that the achievement of delivery on time is a standard procurement objective. This is in line with Baily, Farmer, Barry, Jessop & David (2008), who indicated that failure to achieve supply on time may slow down the cash to cash cycle, thus reducing the organization's efficiency or profitability. Company respond to promptly and accurately as a result of vendor controls and has a greater degree of responsiveness from its own suppliers. That VMI information improves forecasts of customers' requirement, thereby enabling manufacturers to plan production to meet customer demand.

Vendor managed inventory controls leads to improvement in customer loyalty, improvement in binding relationship resulting into monitored framework of performance targets, elimination of delay in information flow and the achievement of delivery on time by vendor influencing supply performance. It leads to elimination of delays in material flow, undertaking of demand visibility and focusing on flexibility to response on inventory requirements influencing supply performance. The study established that there were public procurement policies that control inventory controls in Kenya manufacturer's board in the mining sector. Inventory management policy framework influenced inventory control management. Government policy framework coordinates the procurement and inventory management activities and acts as an intermediary between the government and the industry monitors the domestic market to avoid any distortion thus influence supplies chain performance. Government policy framework lead to provision of advisory services and provision of standards of inventory management thus influence supplies chain performance.

Conclusions

The study concludes that inventory control systems applied in industry to control inventory effects corporate supply chain performance. Inventory control systems such as material requirements planning attempts to rein in materials needs, it is a technique that is based around the concept of dependent demand. The study concludes that material requirements planning is standard system for calculating the quantities of components, sub-assemblies and materials required to carry out a production programme for complex products. MRP provides integration of related functions into the system in particular capacity planning, inventory management and shop floor control allows feedback from them, making sure that the production plan is constantly kept up to date.

The study concludes that continuous replenishment enables the company to develop free flowing order fulfillment and delivery systems, so that pipeline inventories can be substantially reduced. Determining material quantities based on time-phased analysis ensure that firms will always have sufficient inventory to meet production demands, but not more than necessary at any given time. Inventory control would ensure adequate supply of products to customers and avoid shortages and ensure timely action for replenishment. CRP systems are able to synchronize flow of product by focusing on the end-user requirements via the use of real-time demand, linked to flow-through distribution systems that allow for cross-docking, store ready packaging and automated handling.

The study concludes that distribution resource planning system tries to combine the need for lower inventory investment with improved customer service. Inventory control would ensure adequate supply of products to customers and avoid shortages and ensure timely action for replenishment. Distribution resource planning system tries to combine the need for lower inventory investment with improved customer service and it serves a central role in coordinating the flow of goods inside the factory with the system modules that place the goods in the hands of the customer.

The study concludes that VMI provides the opportunity to develop a much close relationship and binding relationship among the retailers and the manufacturers as well as giving a much better visibility of the real demand. The study concludes that inventory investment and its control systems for manufacturing companies are vital for achievement of supply chain performance. Inventory management and the performance of the procurement function operate in a regulated environment for efficient inventory. Public entities draft procurement policies that are compatible with procurement regulations and all employees should be made aware of the formulated policies.

Policy Recommendations

Based on results and conclusions inventory control systems is becoming increasingly important for corporate supply chain performance. The study recommended that companies should ensure inventory control systems in the company are adhered to in order to enhance the performance of supply chain performance. Material requirements planning system play a critical role in supply chain management. The study recommended that Tata Chemicals Magadi Limited and chemical manufacturing companies in Kenya should adopt the MRP in order to ensure that the appropriate materials are available for production and the necessary products are available for customers to avoid shortages.

Efficiency logistical network help the company to meet customer service requirements and expectations. Material quantities based on time-phased analysis leads the firm in getting the right materials to the right place at the right time. The study recommended that management in Tata Chemicals Magadi Limited and chemical manufacturing companies in Kenya should adopt and ensure effective

continuous replenishment systems for smooth and efficient running of the production cycle with least interruptions. By adopting CRP systems the company will be able to synchronize flow of product by focusing on the end-user requirements via the use of real-time demand, linked to flow-through distribution systems that allow for cross-docking, store ready packaging and automated handling. The study recommends that management should adopt vendor managed inventory in order to adjust production times and quantities to suit the suppliers. This will help the company to react promptly and accurately to the needs of their customers are more likely to attract orders. The study recommends that there should be a well designed and developed approach to VMI in order to reduce inventory levels in the supply chain. The study recommends that the company should compile with mandated responsibility established under the PPOA Act.

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