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INVENTORY MANAGEMENT STRATEGY AND PERFORMANCE OF MANUFACTURING FIRMS IN KENYA

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ABSTRACT

In developed and some emerging economies, push and pull strategies have been shown to be an important means for sustaining competitive advantage for all successful industries and businesses. However, despite the clear benefit of inventory management strategy, most of manufacturing firms are still experiencing challenges in their performance. Thus, the main objective of this study was to establish the effect of inventory management strategy on the performance of manufacturing firms in Kenya. This study was guided by Stochastic Inventory Model. Cross-sectional research design was adopted. The KAM 2023 directory has listing of members (firms) by sectors, which contains a register of 13 sectors of those in manufacturing firms spread all over the country. The population of this study was 1032 manufacturing firms in Kenya from which a study sample of 288 respondents was selected using Yamane formula. The study used purposive sampling to select senior managers from production and Supply Chain management. Primary data was obtained from the respondents using a self-administered questionnaire. On the other hand, secondary data was obtained from relevant published records, journals, magazines, and newspapers among other public sources. Pilot study was conducted with 10% of the sample size. Data analysis was conducted using descriptive and inferential analysis with the aid of the statistical package for social science. Descriptive analysis was presented using means and standard deviation. The study concluded that inventory management strategy has a positive and significant influence on the performance of manufacturing firms in Kenya. The study recommended that firms should focus on implementing effective inventory management strategies such as accurate demand forecasting, efficient inventory control, and optimized inventory levels. This can help reduce costs, improve customer satisfaction, and enhance overall firm performance.

Key Words: Inventory Management Strategy, Performance of Manufacturing Firms

Background of the Study

All organizations depend on their supply chains, and in the fiercely competitive environment of today, effectively developing and managing the supply chain is the same as managing the entire enterprise. The strategy chosen by the organization determine the complete business model followed by the organization. Supply chains strategies are designed on basis of manufacturing of a product, delivered to wholesalers, retailers and made available to the customers (Aguinis, 2015). The most common strategies for moving inventories from upstream to downstream sites are push and pull strategies, or some mix of both (hybrid). Push and pull supply chain strategy is all about determining your manufacturing supply chain and promotional route to and from market, either by the products being pushed towards customers or your customers pulling the product through the retail chain towards them. (Edward A. Silver, David F. Pyke, and Douglas J. Thomas 2016). To grow a manufacturing business an organization needs both strategies, push strategy gets a larger volume of products out to customers faster while pull strategy can take longer and involve many smaller orders (CIPS 2020)

The basically organization's all processes in supply chain management fall into any one of the two categories depending on the timing of their execution with respect to the customer demand. Push and Pull System is a manufacturing system where which production is based on a projected production plan where information flows from management to the market the same direction in which the materials flow (Kalchschmidt & Verganti, 2018). Based on demand estimates, the material is pushed through the supply chain from the originating raw material end to the client end. At the very end of the supply chain, the finished products are ready for orders from clients. At different stages in the supply chain, there is naturally inventory in different forms (raw materials, work-in-progress, and finished goods), 'just-in-case' it may be needed. According to Kaynak and Hartley (2019), push processes function in an atmosphere of uncertainty where client demand is not yet understood.

According to Manufacturing Priority Agenda 2020 (MPA, 2021), the Kenya's manufacturing sector has exhibited a fluctuation in growth. The sector expanded by 3.6 percent in 2015 and decreased to a low of 0.5 percent in 2017.In 2018, it recovered to a rise of 4.2 percent (MPA, 2020). Subsequently, manufacturing sector contribution to Gross Domestic Product (GDP) has reduced from 8 percent in 2017 to 7.7 percent in 2018.

The growth in manufacturing sector in 2018 was as a result of picking up of agro processing activities as well as an increase in the manufacturing activities which include increased assembly of vehicles (KNBS, 2022). The declining trend in manufacturing sector's contribution to GDP calls for concerted efforts to spur the sector's growth for it to attain a 15 percent contribution of GDP by 2022 as envisioned by the 'Big Four Agenda'. To accelerate structural transformation of Kenya's economy towards an industrial economy, there is need to revitalize leather, textile and apparel industries as well as boost competitiveness of manufacturing industries

The competitiveness of a manufacturing sector is one of the key concerns in any economy. The increasing level of competition and globalization in the world economy has a major impact on the need for organizations to improve their supply chain performance. Many companies pay millions of dollars in order to improve their supply chain performance through process inventory management strategies, policies, customer management and training their employees (Aldrich & Herker, 2015).According to the Competitive Industrial Performance (CIP) Index data from United Nations Industrial Development Organization (UNIDO, 2019), the manufacturing sector in Kenya is ranked at position 112 out of 150 economies in the global manufacturing. As a share of GDP, Manufacturing Value Added (MVA) declined to 9.9 percent in 2017 from 10.29 percent in 2015.Aditionally, manufactured exports as a share of total exports declined from 48.6 percent to 41.6 percent. Manufacturing capacity to produce

has increased as reflected in the rise of MVA per capita from 113.95 in 2015 to 115.99 US dollars in 2017. However, the capacity to export manufactured goods has declined from 57.44 to 42.93 US dollars.

The country seems to be more capable of producing manufactures than exporting them. This may likely be attributed to a dominant domestic demand, low competitiveness of Kenyan manufactures in the international market or trade barriers on exports (UNIDO, 2015). Finally, Kenya's share of world manufacturing production has increased from 0.0439 percent in 2015 to 0.0441 percent in 2017, indicating that other economies have expanded their MVA at a slower rate than Kenya. However, the share of world manufactured exports has reduced from 0.00195 percent to 0.00176 percent over the same period, indicating that the market share for manufacture exports has reduced.

According to the US Department of State, this exposes a gap in the country's ability to achieve a fully industrialized economy by 2020. It argues that there is still a lot of room for expansion in Kenya's manufacturing sector, but for this to happen, reforms to the business environment need to be made to factor in the influence of supply chain alignment in the sector (KPMG, 2018). The manufacturing sector has a great potential on promoting economic growth and competitiveness in the country like Kenya.

Statement of the problem

The assessment and projections of economic growth of Kenya is pegged on the increase in the contribution of the manufacturing sector to the economy (GOK, 2022). However, there is still a gap as to how Manufacturing firm's performance can be heightened despite prominence in the government development blueprints such as Vision 2030 (Economic Survey,2022). In reality, the performance and contribution of manufacturing firms to Kenyan's economy has been worrying especially in the wake of realizations that other sectors of the economy such as real estate and telecommunications have surpassed it on the contribution to the GDP (Economic Survey, 2023). According to the data released by the Kenya National Bureau of Statistics in 2023, GDP at market price contributed by manufacturing firms has been: 9.8% in 2019, 9.6% in 2020, 9.5% in 2021, 8.9% in 2022 and employment has moved from 280,700 in 2019, 271,000 in 2020, 270,200 in 2021 and to 251,700 in 2022.

According to KAM, KPMG 2022 Survey, despite the Government initiatives to promote manufacturing firms through "Buy Kenya build Kenya" and mandatory reservation of 40% in all Government agencies Procurement Budgets for goods to be sourced locally; An overwhelming number of manufactures in Kenya have experienced a fall in turnover, with a least 23% registering losses in the range of 65% to 100%, and with 51%, registering loses between 30% and 65%, due to a fall in demand of the products. Challenges facing manufacturing firms in Kenya may be substantially due to lack of innovative strategies that are key drivers of economic performance and growth, this has led to the rise of importation of capital goods to kshs 1,806.3 billion in 2021 from Kshs 1,581.3 billion in 2018 (Economic survey 2020). According to KIPPRA 2023, Kenya's Manufacturing trade performance is held back by the concentration of exports in the EAC and imports from markets outside Africa, this has been orchestrated by luck of resilient from negative economic shocks, between 2019 and 2023, 72 per cent of African countries received less than 1% (one per cent) each of Kenya's total manufacturing exports to the continent which has to a greater extent affected its growth and contribution to employment in Kenya.

According to the Competitive Industrial Performance (CIP) Index data from United Nations Industrial Development Organization (UNIDO, 2022), the manufacturing sector in Kenya is ranked at position 112 out of 150 economies in the global manufacturing. As a share of GDP, Manufacturing Value Added (MVA) declined to 8.6 percent in 2022 from 10.29 percent in 2019.Aditionally, manufactured exports from Kenya as a share of total exports declined from

48.6 percent to 41.6 percent. According to KNBS (2023), there is an indication of mergers and acquisitions in most manufacturing companies due to the ongoing financial difficulties, which have seen Simba cement, acquire 100% shares of Cemtech that was one of the upcoming cement manufacturing company in Kenya.

Under the Big Four Agenda, the government's goal is to increase the manufacturing sector's contribution to the Gross Domestic Product (GDP) to 15 per cent by 2022 (currently at 9.2 per cent), create jobs annually, increase foreign direct investment and improve ease of doing business (Presidency, 2022). However, stakeholders have raised many concerns on the lack of strategic focus in inventory management, distribution management and including lack of adherence to the currently laid policies (Ayoyi and Odunga, 2015). Despite manufacturing enterprises contributing significantly to Kenya's GDP, their performance has been dismal over the years and below expectation, between 2019 and 2023, manufacturing contribution to national GDP declined by 1.5 percentage points while the contribution to the industrial sector GDP declined by 2.8 percentage while other sectors registered higher growth rates in the same period (World Bank, 2024). Kenya manufacturing sector growth is projected to slow further for the third year in a row from 2.6% in the year 2024 to 1.8% in 2025, almost three-quarters of a percentage point below the average of the 2022 (World Bank 2024) This depicts the downwards trajectory that manufacturing firms in Kenya are undergoing.

Global Competitiveness Report 2022-2023 shows that, compared to the average of Sub-Saharan Africa countries, Kenya manufacturing sector is ranks lower in terms of factors that contribute to more efficient goods market which is attributed to lack of innovative strategies, and the country has a score of 1.8 points (out of 7) in the Global Competitiveness Index.

Several studies on supply chain and manufacturing firm's performance have been done However; these studies have used different contexts and knowledge approaches. For instance, Kitheka (2017) in a study of pull and pull supply chain strategies and the performance of supermarkets in western Kenya. Bungei (2018) examined a study on the role of supply chain management practices on organizational performance: A case study of Kenya medical research institute. Mwangangi (2016) did a study to examined the influence of logistics management the on the performance of manufacturing firms in Kenya however this study did not involve push and pull strategies. Rotich (2016) studied on the effect of inventory management strategy on financial performance of listed manufacturing firms in Kenya; however, this study did not touch on the knowledge of inventory management strategy. Atela (2023) analyzed a study on the competitive strategies and performance of manufacturing cement companies in Kenya; however, this study specifically was narrowed to the cement manufacturing industry. Limited studies seem to have been conducted on this problem especially on inventory management strategy in manufacturing industry and hence the cause of this study. This study filled the gap by examining the effect of inventory management strategy and performance of manufacturing firms in Kenya.

Specific Objective

i. To establish the effect of inventory management strategy on the performance of manufacturing firms in Kenya.

Theoretical Review

Stochastic Inventory Model

Harris and Marschak (1951), stochastic Inventory theory deals with the management of stock levels of goods, with the intent of effectively meeting demands for those goods, proposed the stochastic inventory model. A bigger quantity requested typically results in a reduction in ordering frequency, which lowers ordering costs but raises storage costs and necessitates more

storage space. The entire inventory-associated cost curve has a minimum point, and certain expenses decrease as holding costs while others increase (Lwiki et al., 2018).

Kalpakam and Sapna, (2015) dealt with a base stock policy, where the lead-time is stochastic and correlated with the possibility of lost demand. Products are taken out of the system due to failure or demand. A stochastic process is said to be state dependent if the probability of being in a future state is dependent on the present state in which the state is found. This principle is exploited in Markov processes. A stochastic process is said to have serial dependence if some parameters of the system depend not directly on the previous state of the system, but somehow on the previous state and the prediction at that time.

It is a useful mechanism in time series analysis. Such dependencies could be on the location parameter, as in most such models, or on the spread parameter as in heteroscedastic models. A stochastic process is said to be strictly stationary if sequences of consecutive responses of equal length in time have identical distributions. This means the values of the statistical parameters of the process are assumed constant with respect to time.

The stochastic inventory model method is used in determining an optimal order quantity which will minimize total inventory cost. The stochastic inventory theory is very useful tool for stock safety level and it can be applied to finished goods inventories, work-in-progress inventories and raw material inventories. It regulates the purchase and storage of inventory in a way to ensure that an even production flow at the same time restricting excess investment on inventories (Kumar, 2016). Stochastic inventory model is based on the premise that the order of inventory has a significant effect on quality of inventories. This model therefore will be relevant in establishing the effects of inventory management strategy on performance of manufacturing firms in Kenya.

Conceptual Framework

According to Mugenda & Mugenda (2003), a conceptual framework is a brief description of the phenomenon being studied and a graphical or visual representation of the key study variables. In this study, inventory management strategy constitutes the independent variable while performance of manufacturing firms the dependent variable as illustrated in Figure 1.

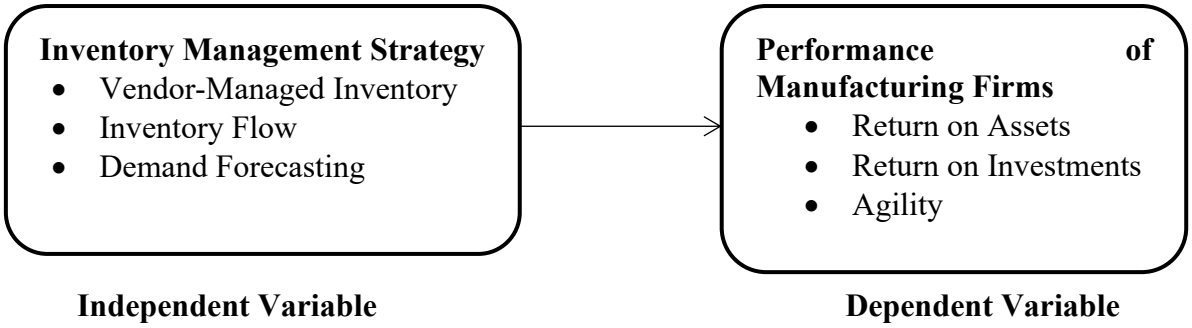

Figure 1: Conceptual Framework

Inventory management strategy

According to CIPS (2020), inventory management is the procedure for ordering, storing, and utilizing a company's inventory. This include handling raw materials, parts, and completed goods in addition to storing and processing them. Balancing the hazards of inventory gluts and shortages is particularly challenging for businesses with complicated supply chains and

manufacturing processes (Farrington, 2017). To achieve these balances, firms have developed two major methods for inventory management: just-in-time (JIT) and materials requirement planning (MRP).

The availability of stock is the secret to effective management of inventories. Computer software programs should therefore be used to measure order amounts, based on demand forecasts and the amount of safety stock. This can -user interactions and time spent on order processing substantially (Kim, 2017). However, having a high turn in stock means another benefit for international organisations. Through increasing the number of inventory turns, international organizations can at any given time retain less inventories, resulting in less money being spent (Alverson, 2016). Last minute customisation can be carried out according to actual demand, with more effective inventory management strategy and prediction of generic products. Other innovations and best practices in this field include vendor-managed inventory (VMI – an approach where the manufacturer manages inventory at the customer's location), quick response manufacturing (QRM – a shortened lead times approach), and efficient consumer response (ECR – an approach to creating the best value for the customer at the lowest cost).

Material/Inventory flow models are graphical representations of material behaviour over the lead-time of the fabrication. According to Laundry (2015) the main challenges faced by inventory flow control managers are to maintain a consistent flow of materials for production. The inventory and cash flows should be handled well in all situations.

Vendor Managed Inventory (VMI) is a business model where the buyer of a product provides information to a vendor of that product and the vendor takes full responsibility for maintaining an agreed inventory of the material, usually at the buyer's consumption location (Murray, 2018). A third party logistics provider can also be involved to make sure that the buyer have the required level of inventory by adjusting the demand and supply gaps. VMI makes it less likely that a business will unintentionally become out of stock of a good and reduces inventory in the supply chain (Lapide, 2017).

According to Eachus (2020), demand forecasting is an essential component of any supply chain strategy because, without it, it is impossible to estimate how to purchase material to meet customer demand. In supply chain management, demand forecasting refers to the process of planning or predicting the demand of materials to ensure a company can deliver the right products and in the right quantities to satisfy customer demand without creating a surplus. Forecast error can result in creating a surplus, which is both wasteful and costly.

According to Bowersox (2018) higher levels of inventory management strategies can lead to an enhanced competitive advantage and improved organizational performance. Inventory management strategy is very vital to an enterprise since it is custom-made to reducing costs or proliferating profits while satisfying customer’s demands by guaranteeing that balanced items of stock are sustained at the right quality, quantity, and that are obtainable at the right time and in the right place (Cinnamon et al., 2019). Therefore, adoption of inventory management strategy practices such as vendor management inventory, inventory flow and demand forecasting can help manufacturing companies to improve performance of their manufacturing companies.

Empirical Review

Inventory Management Strategy

Eroglu and Hofer (2017) used a different inventory management strategy tool which is Empirical Leanness Indicator (ELI) which brought out the positive link between a firm’s performance and inventory management. Empirical Leanness Indicator (ELI) as stated by Eroglu and Hofer (2016) is an inventory management technique which is supreme. In lean

production practice, inventory is considered to be a type of waste which should be reduced is seen to be equivalent to quality inventory management. This study brought out that profit margins are positively affected by leanness which encrust the years 2003 – 2008 of US manufacturing firms. It also showed that firms that attain favourable returns from leanness are leaner compared to the industry itself. Eroglu and Hofer (2017) found that the firm's performance in general is non-linear and positive from the impact of inventory leanness.

Cannon (2018) conducted a study on the influence of inventory management on performance of manufacturing firms. The study adopted descriptive survey design. The study deeply looked at the turnover-ROA dynamic as probable variability source by embracing capital intensity. From the findings, it was discovered that ROA and the variables never made any notable impact on the correlation between ROA and turnover improvement. Therefore, the study concluded that overall firm's performance is not associated with the firm's inventory performance.

Ngugi, Kimutai and Chebet (2019) conducted a study on the effects of inventory management systems on performance of manufacturing companies in Eldoret town, Kenya. This study examined effect of inventory management systems on performance of manufacturing companies in Eldoret Town, Kenya. A cross sectional research design was used. Manufacturing companies' staff benefited to know the contributions of inventory management systems and how it enhances effectiveness and efficiency of inventory in manufacturing companies. It also benefited them to know the challenges faced in the adoption of inventory management systems and how to improve the performance of the manufacturing company. The study found out that Material Requirement Planning (MRP) affects manufacturing companies performance in Eldoret Town, Kenya with p=0.048. It was reported that Distribution Resource Planning (DRP) System affects performance of manufacturing companies in Eldoret Town, Kenya with p=0.000. It was found that Vendor Managed Inventory (VMI) system affects performance of manufacturing companies in Eldoret Town, Kenya with p=0.000. In addition, the study revealed that Just in Time (JIT) System affects performance of manufacturing companies in Eldoret Town, Kenya with p=0.000. The study concluded that manufacturing companies benefit from adoption of inventory management systems.

A study on the impact of inventory management on organizational performance among Kenyan textile manufacturing enterprises was done by Namusonge and Ngeno in 2017. Cooperative game theory served as the study's primary framework. The convergent parallel mixed techniques design was used for the study. The study targeted a total of 196 respondents drawn from employees of procurement departments and departmental heads of respective 15 textile manufacturing industries operating in Nairobi County. The sample size was therefore 139 respondents. Stratified and simple random sampling methods were used to select employees of procurement departments from their respective textile firms. Questionnaires and interview schedules were used to gather the data from primary sources. The study applied the use of both qualitative and quantitative data which was analyzed using statistical package for social sciences (SPSS Version 22). The study concludes that transport management possess the potential of positively influencing supply chain performance of Textile firms and therefore recognizes the importance of transport management in the supply chain.

RESEARCH METHODOLOGY

Research Philosophy

Research philosophy refers to the process of discovering knowledge as well as understanding and turning it into knowledge that is acceptable in a particular discipline (Ryan, Scapens & Theobald, 2017). For this study, the research philosophy was positivism. This is because this philosophy premises that knowledge is grounded on facts and that no abstractions or personal position of the individuals is considered.

Research Design

Research design is the overall plan, strategy or blue print upon which the research is conducted (Kothari, 2003). This study adopted cross-sectional research design since it uses theories and hypothesis to account for the forces that causes a certain phenomenon to occur (Cooper & Schindler, 2017). The design is also appropriate for the study as it allows the survey to be carried out in the natural settings and permits the study to employ probability samples. The study also employed cross-sectional research design as it seeks to describe and establish associations among inventory management strategy and performance of manufacturing firms.

Target Population

The KAM 2023 directory has listing of members (firms) by sectors which contains a register of 13 sectors of those in manufacturing firms spread all over the country (KAM, 2023). The study targeted all manufacturing companies registered under Kenya Association of Manufacturers. Therefore, the target population was 1032 manufacturing companies in Kenya while the unit of observation will be senior managers from production and Supply Chain management.

Table 1: Target Population.

No.	Sector	Number of Members
1	Building, mining and construction.	55
2	Chemical & allied	121
3	Energy, electrical and electronics	61
4	Food and beverages	251
5	Fresh produce	14
6	Leather & footwear	19
7	Metal & allied	104
8	Motor vehicle assemblies and accessories	61
9	Paper and board	84
10	Pharmaceutical and medical equipment	33
11	Plastic and rubber	104
12	Textile and apparel	90
13	Timber, wood and furniture.	35
	TOTAL	**1032**

Source: KAM directorate list (2023)

Sampling Frame

According to Kombo and Tromp (2016) a sampling frame is a list of units of sampling and a sample is selected from this units. This frame defines a researcher's population of interest (Creswell, 2014). To ensure adequate coverage of the population of the manufacturers in Kenya and ease of access, the sample frame consisted of all the 13 sectors. Therefore, the sampling frame was the 1032 manufacturing companies distributed among the 13 sectors. The list is available from the KAM 2023 directory. Additionally, the register provides details of the geographical location of each firm.

Sample Size and Sampling Technique

A sample size is a representation of a larger population. According to (Gujarati, 2017), a sample is deemed suitable if it captures the characteristics of the population sufficiently. According to Mugenda (2003), a sample of 10-50% of the target population is appropriate for social Science

studies. This study adopted Yamane (1967) simplified formula to calculate the sample size which will provide the number of responses that should to be obtained using the equation;

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

Where:

n = sample size

N = population size

e = the level of precision

This formula assumes a degree of variability of 0.5, the level of precision of 5% and a confidence level of 95%.

$n = 1032 / [1+ 1032(0.05)^2]$

$= 288.2681564 \approx 288$

Using this formula, a sample of 288 manufacturing firms were selected. The study then selected senior supply chain managers from each of the 288 selected companies. Therefore, the sample size will be 288 respondents.

Table 2: Sample Size

No.	Sector	Population	Sample
1	Building, mining and construction.	55	15
2	Chemical & allied	121	34
3	Energy, electrical and electronics	61	17
4	Food and beverages	251	70
5	Fresh produce	14	4
6	Leather & footwear	19	5
7	Metal & allied	104	29
8	Motor vehicle assemblies and accessories	61	17
9	Paper and board	84	23
10	Pharmaceutical and medical equipment	33	9
11	Plastic and rubber	104	29
12	Textile and apparel	90	25
13	Timber, wood and furniture.	35	10
	TOTAL	**1032**	**288**

The firms were stratified according to categories (sub sectors) which are 13. Stratified sampling was then used to identify the firms that to be studied. Kothari (2017) defined stratified sampling method is a technique that is used in selection of a sample that is greatly precise and ensuring that the sample selected is representative and it is selected from a population that is heterogeneous.

The study then employed purposive sampling technique to select senior supply chain managers from each of the 288 manufacturing firms. Purposive sampling or judgmental sampling is employed when the study has to pick elements or respondents with the required characteristics (Babbie, 2016).

Data Collection Instruments

Data collection is the process of collecting and collating information on variables in a systematic way that enables one to answer research questions and evaluate outcomes (Kothari, 2014). This study utilized a semi-structured questionnaire to collect data. Mugenda and Mugenda (2003) state that a questionnaire is a form or document with a set of questions deliberately designed to elicit responses from respondents or research informants for purpose of collecting data or information. The questionnaire contained both closed and open-ended questions. In the closed section the respondents were required to pick one answer. The questionnaire was divided into six sections. Semi structured questionnaires are those in which some control or guidance is given for the answer (Kothari, 2017). These study chose to use Questioners because they are easy to administer and hence saves time as a drop and pick strategy was adopted.

Data Analysis and Presentation

Data processing and analysis is essential to ensure that all relevant data is gathered for making contemplated comparisons and analysis Mugenda & Mugenda (2003) Data analysis is the computation of certain measures along with searching for patterns of relationships that exist. Babbie (2016), states that data analysis can refer to a variety of specific procedures and methods. Data analysis involves goals; relationships; decision making; and ideas, in addition to working with the actual data itself, data analysis includes ways of working with data to support the goals and plans of the study.

According to Creswell (2014) data analysis can be categorized into descriptive (describes a set of data); exploratory (analyzing data sets to find previously unknown relationships); inferential (use a relatively small sample of data to say something about a bigger population); predictive (analyze current and historical facts to make predictions about future events); causal (to find out what happens to one variable when you change another); mechanistic (understand the exact changes in variables that lead to changes in other variables for individual objects). This study adopted a descriptive data analysis and inferential data analysis.

Descriptive data analysis was adopted for this study because descriptive analysis is used to describe the basic features of the data in a study. It provides simple summaries about the sample and the measures (Kothari, 2017). The study adopted inferential data analysis in order to enable it reach conclusions that extend beyond the immediate data alone to infer from the sample data about the population.

The study used SPSS version 25 in the analysis of data. The study utilized the SPSS to develop a multiple regression model to make inferences on the effect of each of the independent variables on the dependent variable. The rationale for using correlation and regression analysis is to establish the relationship between inventory management against performance of manufacturing firms. Illustrative data representation devices and tools were adopted to diagrammatically represent and analyze the data.

FINDINGS AND DISCUSSION

Descriptive Statistics

Inventory Management Strategy on Performance of Manufacturing Firms in Kenya

The mean score for the statement "Materials requirement planning helps our company with inventory management strategy and manage demand" is 4.98, with a standard deviation of 1.529. This indicates that the respondents agreed with the above statement. Additionally, the mean score for the statement "VMI makes it less likely for our business to unintentionally become out of stock of a good and reduces inventory in the supply chain" is 4.04, with a

standard deviation of 1.435. It indicates that the respondents agreed with the above statement. More so, the mean score for the statement "Am satisfied with the inventory management practices adopted in our organization" is 4.93, with a standard deviation of 1.515. It indicates that the respondents agreed with the above statement. The mean score for the statement "Third-party logistics providers are involved to make sure that the buyers have the required level of inventory" is 4.16, with a standard deviation of 1. 504. It indicates that the respondents were in agreement about the statement above. Moreover, the mean score for the statement "We use computer software programs to measure order amounts" is 4.76, with a standard deviation of 1.164. It shows that the respondents agreed in their opinion regarding to the above statement.

The mean score for the statement "In our firm, there is good flow of inventory to meet customer demands" is 4.07, with a standard deviation of 1.567. It also exhibits that the respondents were in agreement when giving their opinion regarding to the above statement. The mean score for the statement "In our organization, stock holding costs are not very high" is 4.09, with a standard deviation of 1.534. It equally demonstrates that the respondents agreed regarding the above statement. The mean score for the statement "Stock taking in our organization is done on a regular basis" is 4.32, with a standard deviation of 1.197. It demonstrates that the respondents agreed with the above statement. More so, the mean score for the statement "Our firm ensures adequate stock is available to respond to customer demand" is 4.19, with a standard deviation of 1.342. It indicates that the respondents agreed to the above statement. More so, the mean score for the statement "In our company, stock availability is secret to effective inventory management" is 4.50, with a standard deviation of 1.345.

The mean score for the statement "In our company, stocktaking is carried out for the purposes of inspecting the product receiving/issuing status" is 4.08, with a standard deviation of 1.457. This shows that the respondents agreed when giving their opinion regarding to the above statement. The mean score for the statement "Through demand forecasting, our company is able to estimate materials to meet customer demand" is 4.05, with a standard deviation of 1.392. It demonstrates that the respondents also agreed in responding to the above statement. Additionally, the mean score for the statement "Demand forecasting has helped our company to ensure we deliver the right products and in the right quantities to satisfy customer demand without creating a surplus" is 4.96, with a standard deviation of 1.510. It exhibits that the respondents agreed with the above opinion statement. The findings suggest that respondents generally perceive materials requirement planning to be helpful for inventory management and managing demand.

Table 3: Descriptive Statistics for Inventory Management Strategy

Aspect	SD	D	N	A	SA	Mean	SD
Materials requirement planning helps our company with inventory management strategy and manage demand.	5.9%	0%	0%	54.5%	39.6%	4.98	1.529
VMI makes it less likely for our business to unintentionally become out of stock of a good and reduces inventory in the supply chain	2.0%	0%	0%	55.7%	42.4%	4.04	1.435
Am satisfied with the inventory management practices adopted in our organization	4.3%	0%	0%	55.3%	40.4%	4.93	1.515
Third party logistics providers are involved to make sure that the buyers have the required level of inventory.	3.5%	0%	0%	47.8%	48.6%	4.16	1.504
We use computer software programs to measure order amounts,	3.5%	0%	0%	57.3%	39.2%	4.76	1.164
In our firm, there is good flow of inventory to meet customer demands	2.0%	0%	0%	63.5%	34.5%	4.07	1.567
In our organization, stock holding costs are not very high	5.5%	0%	0%	51.0%	43.5%	4.09	1.534
Stock taking in our organization is done on a regular basis	1.6%	0%	0%	55.7%	42.7	4.32	1.197
Our firm ensures adequate stock is available to respond to customer demand	3.5%	0%	0%	58.4%	38.0%	4.19	1.342
In our company, stock availability is secret to effective inventory management	2.4%	0%	0%	51.4%	46.3%	4.50	1.345
In our company, stocktaking is carried out for the purposes of inspecting the product receiving / issuing status	3.5%	0%	0%	49.0%	47.5%	4.08	1.457
Through demand forecasting, our company is able to estimate materials to meet customer demand	1.6%	0%	0%	63.5%	34.9%	4.05	1.392
Demand forecasting has helped our company to ensure we deliver the right products and in the right quantities to satisfy customer demand without creating a surplus.	5.1%	0%	0%	58.8%	36.9%	4.96	1.510

$\bar{x}$= 4.08071

Test for Hypothesis One

The first specific objective of the study was to establish the effect of inventory management strategy on the performance of manufacturing firms in Kenya. The associated null hypothesis was that inventory management strategy has no significant role on performance of manufacturing firms in Kenya. A univariate analysis was conducted in which inventory management strategy was regressed on performance of manufacturing firms in Kenya.

The R-Squared depicted the variation in the dependent variable that can be explained by the independent variables. The greater the value of R-squared the greater the effect of independent variable. The R Squared can range from 0.000 to 1.000, with 1.000 showing a perfect fit that indicates that each point is on the line. As indicated in Table 3, the R-squared for the relationship between inventory management strategy and performance of manufacturing firms

in Kenya was 0.391; this is an indication that at 95% confidence interval, 39.1% of variation in performance of manufacturing firms in Kenya can be attributed to changes in inventory management strategy. Therefore, inventory management strategy can be used to explain 39.1% of changes in performance of manufacturing firms in Kenya but there are other factors that can be attributed to 60.9% change in performance of manufacturing firms in Kenya.

Table 4: Model Summary for Inventory Management Practice

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.625[a]	.391	.389	.55258

a. Predictors: (Constant), Inventory Management strategy

The analysis of variance was used to determine whether the regression model is a good fit for the data. It also gave the F-test statistic; the linear regression's F-test has the null hypothesis that there is no linear relationship between the two variables. From the analysis of variance (ANOVA) findings in Table 5, the study found out that that Prob>$F_{1,253}$= 0.000 was less than the selected 0.05 level of significance. This suggests that the model as constituted was fit to predict performance of manufacturing firms in Kenya. Further, the F-calculated, from the table (162.501) was greater than the F-critical, from f-distribution tables (3.878) supporting the findings that inventory management strategy can be used to predict performance of manufacturing firms in Kenya.

Table 5: ANOVA for Inventory Management Practice

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	49.619	1	49.619	162.501	.000[b]
	Residual	77.253	253	.305		
	Total	126.872	254			

a. Dependent Variable: Performance of Manufacturing Firms

From the results in Table 6, the following regression model was fitted.

$$Y = 1.611 + 0.574\,X_1$$

(X_1 is Inventory Management Strategy)

The coefficient results showed that the constant had a coefficient of 1.611 suggesting that if inventory management strategy was held constant at zero, performance of manufacturing firms in Kenya would be 1.611 units. In addition, results showed that inventory management strategy coefficient was 0.574 indicating that a unit increase in inventory management strategy would result in a 0.574 improvement in performance of manufacturing firms in Kenya. It was also noted that the P-value for inventory management strategy coefficient was 0.000 which is less than the set 0.05 significance level indicating that inventory management strategy was significant. Based on these results, the study rejected the null hypothesis and accepted the alternative that inventory management strategy has positive significant influence on performance of manufacturing firms in Kenya.

Table 6: Coefficients Table for Inventory Management Practices

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.611	.151		10.677	.000
	Inventory Management strategy	.574	.045	.625	12.748	.000

a. Dependent Variable: Performance of Manufacturing Firms

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Inventory Management Strategy and Performance of Manufacturing Firms

The first null hypothesis test was 'Inventory management strategy has no significant role on performance of manufacturing firms in Kenya. The study found that inventory management strategy is statistically significant in explaining performance of manufacturing firms in Kenya. The influence was found to be positive. This means that unit improvement in inventory management strategy would lead to an increase in performance of manufacturing firms in Kenya. Based on the findings, the study concluded that inventory management strategy positively and significantly influences performance of manufacturing firms in Kenya.

Recommendations

Based on the findings of the study, the study recommends that firms should focus on implementing effective inventory management strategies such as accurate demand forecasting, efficient inventory control, and optimized inventory levels. This can help reduce costs, improve customer satisfaction, and enhance overall firm performance.

REFERENCES

Baier, C., Hartman, E. & Moser, R. (2017). Strategic alignment and purchasing efficacy: an exploratory analysis of their impact on financial performance. *Journal of Supply Chain Management,* 44(4), 36-52.

Barratt, M. & Oliveira, A. (2016). Exploring the experiences of collaborative planning initiatives. *International Journal of Physical Distribution & Logistics Management,* 31(4), 266-289.

Carmignani, G. (2019). Supply chain and quality management. The definition of a standard to implement a process management system in a supply chain. *Business Process Management,* 15(3), 395-407.

Cooper, M.C., Lambert, D.M. & Pagh, J.D. (2014). Supply chain management: more than new name for logistics. *The International Journal of Logistics Management,* 8(1), 1-13.

Douglas, A., Coleman, S. & Oddy, R. (2018). *The case for ISO 9000.* The TQM Magazine, 15(5), 316-324.

Ellram, L. M. (2018). Total cost of ownership: elements and implementation. *International Journal of Purchasing and Materials Management,* 29(3), 3-11.

Flynn, B.B., Huo, B. & Zhao, X. (2015). The impact of supply chain integration on performance: a contingency and configuration approach. *Journal of Operations Management,* 28(1), 58-71.

Foster, A., & Feitzinger, E. (2016). Using total profit analysis to model supply chain decisions. *Journal of Cost Management* (July/August).

Ireland, R. D., Hitt, M. A., & Vaidyanath, D. (2017). Alliance management as a source of competitive advantage. *Journal of Management*, 28(3), 413-446.

James, H., & Faizul, H. (2015). From arms-length to collaborative relationships in the supply chain: An Evolutionary process. *International Journal of Physical Distribution& Logistics Management* 3(9), 750-764.

Kalchschmidt, M., Zotteri, G. & Verganti, R. (2018). Inventory management strategystrategyin a multi-echelon spare parts supply chain. *International Journal of Production Economics,* 8(2), 397-413.

Kothari, C. R. (2017). *Research Methodology Methods and Techniques* (3rd ed.). New Delhi: New Age Publishers.

Larson, P.D. & Kulchitsky, J.D. (2015). The use and impact of communication media in purchasing and supply chain management. *Journal of Supply Chain Management,* 36(3), 29-38.

Lehtonen, J., Smaros, J. & Holmstrom, J. (2015). The effect of demand visibility in product introductions. *International Journal of Physical Distribution & Logistics Management,* 35(2), 101-115.

Luzzini, D., Caniato, F., Ronchi, S. & Spina, G. (2017). A transaction costs approach to purchasing portfolio management. *International Journal of Operations and Production Management,* 32(9), 1015-1042.

Marquez, A.C. & Blanchard, C. (2019). *A decision support system for evaluating operations investments in high-technology business.* Decision Support Systems*,* 41(2), 472-487.

Mehrjerdi, Y.Z. (2018). A framework for six sigma driven RFID-enabled supply chain systems. *International Journal of Quality and Reliability Management,* 30(2), 142-160.

Nassiuma, D. K. (2015). *Survey Sampling Theory and Methods.* Nairobi: Nairobi University Press.

Ngugi, J.K. & Mugo H.W. (2017*). Internal factors affecting procurement process of supplies in the public sector; a survey of Kenya government ministries.* Paper presented at 5th International Public Procurement Conference. Seattle, USA.

Orodho, J.A. (2014). *Techniques of Writing Research Proposals And Reports In Education And Social Sciences* (1st ed.). Nairobi: Masola Publishers.

Osterlund, J. & Loven, E. (2015). Information versus inertia: a model for product change with low inertia. *Systems Research and Behavioral Science,* 22(6), 547-560.

Prajogo, D., Huo, B. & Han, Z. (2017). The effects of different aspects of ISO 9000 implementation on key supply chain management practices and operational performance: *An International Journal of Supply Chain Management,* 17(3), 306-322.

Robinson, C.J. & Malhotra, M.K. (2015). Defining the concept of supply chain quality management and its relevance to academic and industrial practices. *International Journal of Production Economics,* 96(3), 315-337.

Rogers, P.A. (2015). "Optimising supplier management and why co-dependency equals mutual success", *Journal of Facilities Management,* 4(1), 40-50.

Sanders, N.R. & Premus, R. (2015). Modeling the relationship between firm IT capability, collaboration, and performance. *Journal of Business Logistics,* 26(1), 1-23.

Simatupang, T.M. & Sridharan, R. (2014). *Benchmarking supply chain collaboration: an empirical study.* Benchmarking, 11(5), 484-503.

Spekman, R.E., Kamauff, J.W. & Myhr, N. (2017). An empirical investigation into supply chain management a perspective on partnership. *International Journal of Physical Distribution & Logistics Management,* 28(8), 630-650.

Yang, F., & Zhang, X. (2017). The impact of sustainable supplier management practices on buyer-supplier performance: An empirical study in China. *Review of International Business and Strategy, 27*(1), 112-132.