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INFLUENCE OF INVENTORY MANAGEMENT PRACTICES ON PERFORMANCE OF FLOUR MANUFACTURING FIRMS IN NAIROBI KENYA

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ABSTRACT

The purpose of this study was to establish the influence of inventory management practices on performance of flour manufacturing firms in Nairobi Kenya. The specific objectives of the study were: To find out how inventory management technique influence performance of flour manufacturing firms and to establish how the inventory management systems influence performance of flour manufacturing firms. The researcher used descriptive research method. The study used structured questionnaire in collection of data. The study adopted stratified random sampling while simple random sampling was used to identify respondents within the strata. The population was 220 and the exact sample size was 140. The study employed a regression model as well as descriptive statistics that were presented in percentages, means, standard deviations, and frequencies. The study conducted a multiple regression analysis to determine the relationship between variable of the study and firm performance. The study presented the findings in form of frequency tables and figures. Results revealed that inventory management practices influences firm performance in flour manufacturing firms in Nairobi Kenya positively. The results showed a positive and significant correlation between firm performance and inventory management practices in the flour firms. From the findings, the study revealed that inventory management techniques affects firm performance in a positive manner. Moreover, the study showed that inventory management systems had impact on firm performance. The study recommended that when inventory is mismanaged, leads to unnecessary expenditure in the working capital. Proper inventory management practices reduce storage capital. Additionally, obsolescence and waste of products are reduced. Consequently, organizational profits increase. Such approach leads to improved customer satisfaction. Therefore the adoption proper inventory management practices will lead to low operation cost thus improvement of the performance of the flour manufacturing firms.

Key Words: *Inventory Management Technique, Inventory Management Systems*

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INTRODUCTION

According to Santler (2012), inventory management practices refers to all the processes involved in developing and managing the inventory levels of raw materials, semi-finished materials (work-in- progress) and finished goods so that adequate supplies are available and the costs of over or under stocks are low. Accurate inventory underpins the rest of your business from making sure you can come through on promises to your customers, to getting your accounting right for those all-important audits, whilst inaccurate inventory causes inefficiency across your business (Laran, 2014). It is therefore very important to manage inventory in an effective and efficient manner. But what exactly do these two terms mean?

Inventory represents the aggregate of those items which are either held for sale in the ordinary course of business, for sale or for use in the process of production (Saleemi, 2013). Inventory management is the process of maintaining inventory data on the quantity, location, and condition of supplies and equipment due-in, on-hand and due-out, to determine quantities of material and equipment available and/ or required for issue and facilitate distribution and management of materials. It is used to evaluate the amount of inventory used hence amount of inventory to be ordered. Inventory represents one of the most important assets that most businesses possess, because the turnover of inventory represents one of the primary sources of revenue generation and subsequent earnings for the company's shareholders/owners (Axsater, 2013).

In global perspective according to Callahan, (2014) inventory management practices play an important role in perfection of stores efficiency and general firm's performance. This is a key business consideration in the attempt to achieve supply chain optimization. Inventory management is an important topic of discussion and practice globally as various authors have written journals, articles and books on the topic with a view of improving the process in order to effectively manage businesses and optimize the supply chain processes. In United States of America (USA), most of the most successful companies such as Walmart which also operates in Canada and United Kingdom (UK), Apple and Dell have mastered the art of effective inventory management practices.

In Africa the inventory management practices have undergone significant developments from manual system to automated system. Inventory management procedures are generally used for distribution of products in Africa like medicine. Sasol which is a South African company involved in manufacturer of chemicals has an establishment of high end techniques in demand, forecasting and store control as an inventory management practice. In Ghana, a study by (Peters, 2012) evaluated the inventory management practices of 199 small and medium scale enterprises.The researcher found that 56.3% of respondents prepared their inventory level on a monthly basis, while 39.7% of the respondents never kept record of their inventory levels. Furthermore, only 17% of respondents bought their raw material from foreign companies.In Uganda, another African country, (Abanis,2012) investigated the inventory management practices of 386 SMEs.The authors found that the majority of respondents reviewied their inventory levels on a monthly basis and applied inventory management practices.The results also indicted that most of these enterprises reviewied their inventory budgets and inventory turnover regularly.

Kenya has only just recently started to embrace inventory management practices in a serious manner with universities having an influx of students taking the supply chain management course as this sector is gaining more and more importance in the market. Inventory management practices in the flour manufacturing firms are carried out by people who have specialized in the area showing that it is considered as an important function. Kenyan

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companies face competition from international companies. Such a competition has initiated the need to develop better resource management techniques (Ntayi et al., 2013). The main method of doing this is ensuring flour manufacturing firms have effective inventory management practices.

Statement of the Problem

Effective inventory management practices are significant functions within flour manufacturing firms. The flour manufacturing firms need to master effective inventory management practices to boost efficiency, eliminate costs and enhance the firm's performance. Flour manufacturing firms achieve important savings from proper inventory management practices which amounts to around 55%-65% of the total expenditure (KIM, 2013). When flour manufacturing firms are able to maintain accurate inventory levels, they enjoys a successful business operation and they are able to fulfill customer orders effectively.

(Okello 2015) after reviewing and analyzing the annual reports and the financial statements of many flour manufacturing firms, noted that they incurred losses. The analysis from the report closely showed the firms had inefficient inventory management practices in place hence poor organizational performance. (Sophie 2017) also surveyed some flour manufacturing firms and the survey revealed frequent stock-outs of raw material for production purposes.30% of the surveyed flour manufacturing firms lacked some stocks despite being available in the global market. This is a problem because inefficient inventory management practices in the flour manufacturing firms results in unbalanced inventory and inflexibility which may lead to stock outs and sometimes unnecessary pile up of stocks leading to interrupted production and sales of finished products; this results to a challenge in maintaining sufficient stocks of materials in periods of short supply and anticipate price changes thus affecting the performance of flour manufacturing firms (Greene, 2011)

When flour manufacturing firms do not have proper inventory management practices in place, this leads to failure in smooth sales operation, efficient customer satisfaction, longer lead times low firm profitability resulting to poor organisational performance (Pandley, 2014). This study sought to fill the existing knowledge gap by introducing the link between inventory management practices and firm's performance in flour manufacturing industry. This therefore triggered the need to investigate the influence of inventory management practices on performance of flour manufacturing firms in Nairobi Kenya.

Objectives of the study

The General objective of this study was to find out influence of inventory management practices on performance of flour manufacturing firms in Nairobi Kenya. The specific objectives were:-

The specific objectives of the study were:

- To determine how inventory management techniques influence performance of flour manufacturing firms in Nairobi Kenya
- To establish how the inventory management systems influence performance of flour manufacturing firms in Nairobi Kenya.
- To examine how inventory management policies influence performance of flour manufacturing firms in Nairobi Kenya.
- To assess how staff competency on inventory management influence performance of flour manufacturing firms in Nairobi Kenya.

LITERATURE REVIEW

Lean Theory

Lean theory is an extension of ideas of just in time according to Kros (2016). Falasca, and Nadler (2011) elaborate just in time as a pull-based system designed to align the production and business processes

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throughout the supply chain. Green and Inman (2015) assessed the impact of lean theory on financial performance. They say that theory may eliminate buffer stock and minimize waste in production process in flour manufacturing firms. Eroglu and Hofer (2011) found that leanness positively affects profitability of a business firm. They argue that inventory leanness is the best inventory control tool. The theory elaborates on how flour manufacturers gain flexibility in their ordering decisions, reduce the stocks of inventory held on site and eliminate inventory carrying costs. At the aggregate level, the empirical strength of the lean explanation lies both in the timing and the magnitude of the adoption. However in the theory, inventory constrains a firm's ability to respond to fluctuations in demand.

Contingency Theory on Organizational Performance

According to Hoffer (2013) contingency theory implies that flour manufacturing firms adapt to changes in their environment by modifying their approach to competition in order to maintain or enhance performance. The willingness and ability of flour manufacturing firms to deal with changes in their operating environment has been documented as a cornerstone of firm strategy and performance. Contingency theory provides a basic rationale for emphasis on flexibility-based strategies that represent a strategic response to emerging threats argued that firms utilize resources as necessary to achieve specified objectives within a specific competitive environment and under specific conditions (Porter, 2010).

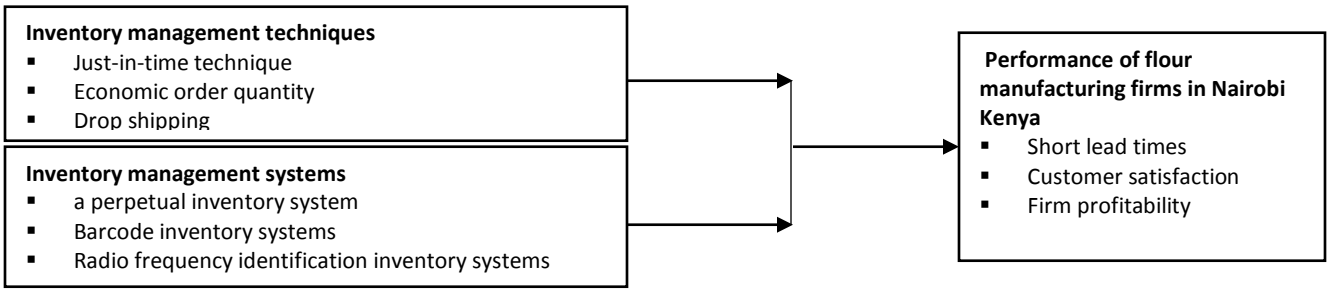

Figure 1: conceptual framework

Inventory management techniques are key consideration for effective inventory management in organisations. Mutiso and Sembi (2016) sought to establish influence of inventory management techniques on performance of Public Health Hospitals in Kitui County. The objectives of the study were: to find out the influence of just-in-time on performance Public health hospitals; establish how economic order quantity influences performance of t Public Health hospitals; find out the influence of drop shipping on performance of Public Health hospitals.

The final one was to establish influences of demand variability on performance of the Public Health hospitals in Kitui County, Kenya. Findings of the study were overstocking and under stocking of inventory of the Public Health Sector in Kitui County was due to inadequate application of inventory management techniques, Scheduled time for deliveries, insufficient staff, scheduled time for receiving, issuing and unorganized storage facilities, lack of information sharing between the customer and supplier thus affecting effective inventory management of the Public Health Sector; demand variability rating greatly influenced inventory management. From the analysis firms should ensure that proper inventory management techniques are in place to avoid poor organizational performance.

According to study by Maraka *et al* (2015) on inventory management systems impact on manufacturing performance: a study on Malaysian

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manufacturing industry, they state that for effective inventory management systems in organizations the main purposes should be achieving specific business objectives by maximizing on the systems for effective inventory management. A study by Benjamin sought to investigate on the influence of inventory management systems on the performance of the energy sector in Kenya with a special focus on Kenya Power Limited. The study also sought to establish the influence of electronic inventory system on the performance of Kenya Power Limited. The study found that inventory management system influences the performance of Kenya Power especially the electronic system. The study recommends that organization should have inventory management systems for inventory control to enhance efficiency in service delivery. Onchoke and Wanyoike (2016) sought to establish the Influence of inventory management systems and procurement performance of Agrochemical Distributors in Nakuru Central Sub-County. Findings of the study revealed that Internal Inventory Security Procedural Practices, Inventory Auditing and Computerized Inventory Control both individually and collectively have significant positive influence on Procurement.

Other researchers such as Galbraith and Schendel (2013) support the use of return on assets (ROA), return on equity (ROE) and profit margin as the most common measures of performance. Return on Assets (ROA) is derived by dividing net income of the fiscal year with total assets. Return on Equity (ROE) means the amount of net income returned as a percentage of shareholders equity. It measures a firm's profitability by revealing how much profit a company generates with the money shareholders have invested. Ricardo (2011) emphasize that successful organizations are those with the highest return on equity and those who have established performance management system aligning" every aspect of the organization from top management to the factory floor. On the other hand, Nicholas (2012) argues that many organizations do not give a balanced picture of organizational performance. There is an overemphasis on financial criteria, with pre-occupation with past performance.

METHODOLOGY

The study adopted a descriptive design to justify the relationship between the independent and dependent variables. The target population for this research study was 220 employees working in procurement, warehousing, and finance and sales departments from the selected 12 flour manufacturing firms in Nairobi region. Since the population was heterogeneous, stratified random sampling was used in the study. The main instrument for data collection was questionnaires.

FINDINGS

Inventory Management Techniques

The questions were measured on a scale of 1-5, with 1 indicating strongly disagree, 2-Disagree, 3-Neutral, 4-Agree and 5 indicating strongly agree to the question that was asked. From these results a mean of 1 indicated that the respondents strongly disagreed with the statement, a mean of 2 indicated that the respondent disagreed with the question that was asked, a mean of 3 indicate that the respondent were not sure about the question that was asked, a mean of 4 indicated that the respondent were in agreement about they question that was asked and a mean of 5 indicate that the respondent were in strong agreement with the question that was asked. The standard deviation gives the variations of the responses from the mean. The smaller the standard deviation the better the results as it indicates that the responses were not far away from the mean response.

The results showed that on whether the firm embraces inventory management techniques 1.6% strongly agreed 6.7% agreed while 58.7% where neutral while 15% disagreed finally 18% strongly

disagreed. On whether economic order quantity shortened lead time hence availability of materials 4.8% strongly agreed 17% agreed while 36% where neutral 30% disagreed while 12.2% strongly disagreed. 3.4% strongly agreed that economic order quantity helped in inventory planning 5% agreed 60.3% were neutral 13% disagreed finally 18.3 strongly disagreed that J.I.T helped in inventory planning. 1.5% strongly agreed that the firm minimized storage cost by use of Economic Order Quantity. 6.9% of the respondents agreed with the statement that the firm minimizes storage costs by use of inventory management techniques. 13% of the respondents were neutral on whether economic order quantity minimizes storage costs. 65.6% disagreed with the statement that economic order quantity minimized storage cost, 13% of the respondents strongly disagreed with the fact that Just in time minimizes storage costs the mean was 3.82 while standard deviation was 0.802

On whether the firm reduced wastage of inventory by use of just in time 3.1% of the respondents from the findings strongly agreed that the technique reduces wastage of inventory. While 6.9% of the respondents agreed that just in time reduced wastage of inventory. 44.3% were neutral on whether inventory was being reduced by use of just in time 33.6% disagreed that inventory wastage was being reduced by use of just in time. Finally 12.2% strongly disagreed with the fact that just in time reduced inventory wastage mean was 3.45 and standard deviation was 0.905. On whether the firm clearly does drop shipping making inventory available 3.1% strongly agreed, 7.6% agreed drop shipping made inventory available . 34% were neutral while 31.3% disagreed that drop shipping made inventory available. 23% strongly disagree that forecasts made inventory available by use.

Descriptive results for each of the indicator of inventory management techniques were analyzed and presented as in the Table 1.

Table 1: Percentage response on Inventory Management Techniques

Statement	Mean	Std. Deviation	N
The firm embraces Just-in-Time Technique	4.0700	.51747	100
Just –in-Time technique helps in inventory management	3.1200	.93506	100
The firm minimizes storage cost by use of just-in-time technique	4.2100	.57375	100
The firm undertakes Economic order Quantity as an inventory control technique	4.8000	.42640	100
Economic order quantity shortens lead time hence availability of materials	3.5800	.94474	100
The firm minimizes storage costs by use of Economic order Quantity	4.7900	.40936	100
The firm minimizes storage cost by use of economic order quantity	3.1400	.97463	100
The firm has flexible structures when it comes to application of economic order quantity as an inventory management technique	2.2500	1.35866	100
The firm embraces drop shipping as an inventory technique	2.7400	1.18594	100
Drop shipping reduces the cost of inventory	2.0900	1.40773	100

Inventory management Systems

Descriptive results for each of the indicators of inventory management systems were analyzed and presented below. Regarding the statement on the respondents' knowledge on perpetual inventory system as inventory management system 87.8% of respondents were aware of the system. 12.2% of the respondents were not aware of perpetual inventory system mean being 1.12 the standard deviation

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0.329. For the statement about effect of inventory management systems on firm performance 87% of the respondents agreed that inventory management systems had effect on service delivery. While 12% of the respondents disagreed. The findings showed that 77.1% of the respondents agreed that flour manufacturing firms had a specific inventory management system while 22.9% disagreed the firm had a specific inventory management system.

For the statement on whether the perpetual inventory system enabled demand planning and shortened lead times 2.3% agreed while 74.8% of the respondents disagreed, 9.2% were neutral and 13.7% strongly disagreed mean was 4.00 and standard deviation was 0.568. For the statement on whether the barcode system had control over inventory 3.1% of the respondents strongly agreed 4.6% agreed 31.3% of the respondents were neutral. 47.3% disagreed and finally 13.7% strongly disagreed and the mean was 3.64 and standard deviation was 0.886. On whether perpetual inventory system enabled prevention of shortages and stock outs. The system enabled prevention of shortages and stock outs 3.1% of the respondents strongly agreed that periodic review system enabled prevention of stock out 11.5% agreed that the system prevented stock outs. 29 % were neutral while 42% disagreed. 14.5% of the respondents strongly agreed. Moreover, 8.4% agreed while 24.4% the respondents strongly disagreed with the system's ability to prevent shortages hence mean resulting to that the system enabled the prevention of shortages thus mean was 3.53 and 0.979.

Table 2: Percentage response on Inventory management Systems

Statement	SD	D	N	A	SA
The firm has a perpetual inventory system for inventory management	0	0	0	58	42
Perpetual inventory system is an effective method of inventory management	0	0	1	50	49
Perpetual inventory system improves inventory management	0	0	0	53	47
Barcode system provides better inventory management data	0	4	2	65	29
Bar code system promotes better decision making on inventory management practices	0	6	40	35	19
Bar code system is extremely versatile	2	8	13	36	41
Radio frequency identification system provides speed and convenience in inventory management	8	20	25	35	12
Radio frequency identification system provides security to inventory in stores	0	4	14	65	17
Radio frequency identification system contributes to inventory management on firms performance	1	1	3	23	72

Inventory Management practices and organizational Performance

The study sought to investigate whether inventory management practices had an influence on performance of the flour manufacturing firms. When it came to whether inventory management practices directly affected firm performance 88.5% of the respondents agreed while 11 % of the respondents disagreed mean was 1.11 and standard deviation was 0.320.

For the statement on whether Inventory management practices entails careful planning by the organization to enhance good performance 4.6% strongly agreed 3.8% agreed 12.2% were neutral 70.2% disagreed while 9.2% strongly disagreed mean was 3.76 and standard deviation was 0.851. For the statement on whether inventory management practices helped to determine quantities of material and equipment available in the organization 2.3% strongly agreed 7.6% of the respondent agreed while 35.9% were neutral 43.5% disagreed finally 10.7% of the respondents strongly disagreed mean was 3.53 and standard deviation was 0.871.

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For the statement on whether Inventory management practices enhanced good service delivery in an organization 3.1% of the respondents strongly agreed 7.6% agreed 25.2% were neutral while 46.6% disagreed and 17.6 strongly disagreed mean was 3.68 and 0.955.

For the statement on inventory management practices helps do reduce holding cost and wastage 7.6% of the respondents strongly agreed 7.6% agreed 32.8% were neutral while 37.4% disagreed and finally 14.5% strongly disagreed the mean was 3.44 while standard deviation was 1.075.

Table 3: Percentage response on Inventory Management practices and organizational Performance

Statement	SD	D	N	A	SA
Inventory Management practices helps the firm in maintaining inventory data on the quantity, location, and condition of supplies	0	6	6	46	42
Inventory management practices helps to determine quantities of material and equipment available in every organization.	0	0	0	56	42
Inventory management practices entails careful planning by the organization to enhance performance	1	25	43	24	7
Inventory management practices enhances good performance in an organization	0	0	1	59	40
Inventory management practices help in reduce holding cost	64	31	0	1	4
Inventory management practices helps in reducing wastage in the firm	0	0	0	41	59
Inventory management practices enhances availability of goods at the right time, right quality and quantity	0	3	0	66	31

Performance of flour manufacturing firms

The study sought to determine inventory management performance among the institutions reached attributed to the adoption of inventory management techniques, inventory management systems, inventory management policies and warehouse staff competency. Findings in table 4 revealed improved financial performance across the 5 year period running from the year 2014 to 2018. In procurement costs, a majority of respondents affirmed having decreased from less than 10% in 2014 (41.9%), to decrease by 10% in 2017 (39.0%) and decrease by (36.2%) 2018. Market share also recorded positive growth with a majority affirming to less than 10% in 2016 (36.1%) then more than 10% in 2017 (41.1%) in 2018 (37.5%)A similar trend was recorded in stock out levels, decrease from less than 10% (44.15) in 2014, to more than 10% in 2016 (36.4%) 2017 (30.4%) and 2018 (27.3%). Firm profitability further recorded positive growth with a majority affirming to less than 10% in 2014 (37.9%) and 2015 (35.9%), to 10% in 2016 (25.9%) and 2017 (35.3%) then by more than 10% in 2018 (36.2%).

It was deduced from the findings that performance of the flour manufacturing firms had considerable improved with the adoption of inventory management techniques, inventory management systems, inventory management policies, warehouse staff competency. Inventory management techniques and inventory management systems have particularly improved organization performance by at least 10 percent across most of the institutions pointing to the significance of inventory management practices in the inventory management.

According to Ghaith (2014) argues that the main goal or objective of any business organization is to make and maximize profit while other secondary objectives include going concern, growth, corporate social responsibilities, and benefits to employees and so on. Kim (2014) adds that though other objectives are also considered very important as listed above, but profit maximization is usually the ultimate because it maximizes the shareholders wealth which is the

ultimate aim of investing in a business. People will naturally prefer to invest in a highly profitable business. Table 4 presented the findings.

Table 4: Performance of flour manufacturing firms

Procurement costs					
	2014	**2015**	**2016**	**2017**	**2018**
Decreased by less than 10%	41.9	37.9	33.8	29.7	26.1
Decreased by 10%	33.2	29.6	24.8	31.3	34.7
Decreased by more than 10%	39	36.2	31.5	30.0	26.2
Stock –outs					
	2014	**2015**	**2016**	**2017**	**2018**
Decreased by less than 10%	42.3	37.7	31.6	30.7	29.5
Decreased by 10%	36.8	32.9	30.1	28.2	25.3
Decreased by more than 10%	41.9	37.4	35.3	32.1	30.5
Firm profitability					
	2014	**2015**	**2016**	**2017**	**2018**
Increased by less than 10%	44.1	35.2	33.4	25.7	27.1
Increased by 10%	31.7	32.6	30.2	33.9	35.6
Increased by more than 10%	23.5	32.2	36.4	40.4	37.3
Market share					
	2014	**2015**	**2016**	**2017**	**2018**
Increased by 10%	36.2	31.3	35.9	35.3	30.7
Increased by more than 10%	25.9	32.8	32.9	39	36.2

CONCLUSIONS

One of the main problems in the flour firms is overstocking. This is so as even outdated products can be found in the warehouses an example of this is the out dated inventory. Surplus or obsolete Inventory can be reduced without risking customer's service therefore the study concludes that through use of techniques such as economic order quantity technique, will lead to reduction of waste and obsolescence and even under and over stocking will be reduced hence improved firm performance.

The study concluded that by use of inventory management systems, flour manufacturing firms will have the opportunity to have a system for management of inventory. Perpetual inventory system can be used to continually update inventory records and accounts for addition and subtractions when inventory items are received, sold from stock, moved from one location to another. Use of barcode scanners and radio frequency identification can also be considered as options hence efficiency in service delivery improving the performance of the firms.

It is clear that Inventory management practices directly affect performance of flour manufacturing firms and in order to improve both as based on the various objectives the following needs to be done. The scholars and academicians should familiarize themselves with inventory management practices so as to properly apply the practices in their area of work to have better organizational performance. The research recommended proper use of inventory management techniques and systems. Additionally, there will be reduction of wastage and obsolescence

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which will in turn lead to an increase in the organizational profits. Such helps to satisfy customers by providing them with the products they need at the appropriate time. Therefore flour manufacturing firms need to adopt the above inventory management practices.

This study was carried out taking flour manufacturing firms in Nairobi region into consideration. There is need to carry out further studies in other manufacturing and service industries as well to compare the results with those found in this study. In addition there is need to determine other effects of inventory management practices on service delivery. However, from the findings above the study suggested that further research on inventory management system and moreover on perpetual inventory system should be carried out in order to totally explore its role on the inventory management in Kenyan manufacturing industries.

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