

EFFECTS OF INVENTORY MANAGEMENT PRACTICES ON PERFORMANCE OF MANUFACTURING FIRMS IN NAIROBI CITY COUNTY, KENYA**MUIRURI Esther Njeri ¹, DR. OCHIRI George ²****^{1,2} Jomo Kenyatta University of Agriculture and Technology****Abstract**

The general purpose of the study was to establish the effects of inventory management practices on performance of manufacturing firms in Nairobi City County, Kenya. This research study adopted a descriptive research design approach. The researcher preferred this method because it allows an in-depth study of the subject. The target population for the study was from employees in the procurement, finance and production departments from manufacturing firms in Nairobi City County in the steel, food and plastic industries. The study employed stratified random sampling technique in coming up with a sample size of 133 respondents from a target population of 202. Semi structured questionnaires were used to collect the data. Pilot study was carried out to establish the reliability and validity of research instruments. The instruments were designed appropriately according to the study objectives. Data gathered from the questionnaires administered were analyzed by the help of SPSS and Microsoft Excel. The outputs were presented inform of statistical diagrams, tables and tables. The study used multiple linear regression and correlation analysis to show the relationship between the variables. The study made recommendations to the management in order to address the research problem. The study found that lead time, top management support, supplier evaluation, e-procurement are statistically significant to performance of manufacturing firms with an R^2 value of 68.2%. This study established that lead-time, top management support, supplier evaluation and e-procurement support are positively related to performance of manufacturing firms. The study recommends that factors that lead to lead time variability need to be looked into with a view of managing the variability as this has effect on the overall performance. The study recommends that top management in the manufacturing companies should take responsibility for the active role in the implementation of inventory management practices. The manufacturing firms should train their supplier evaluation committees or procurement managers on how best to evaluate the suppliers. Employees need to be trained on usage of the e-procurement system so as to enable them to operationalize the system.

Key Words: Lead Time, Top Management Support, Supplier Evaluation, E-Procurement and Performance.

Introduction

This chapter entails background of the study, which outlines the effect of inventory management practices on performance of manufacturing firms. This chapter also outlines the statement of the problem. Further, this chapter outlined the objectives, which the study focused on, and the research questions which the study answer. Finally, this chapter outlines the justification of the study, scope of the study and limitations of the study. Organizations are required to stock optimal amount of stock at all times. Inventory is essential in the manufacturing sector since firms hold inventory as finished goods, work in progress or raw materials for further processing (Fellows & Rottger, 2013). Inventory is a necessary evil as overstocking of inventory results to large amount of capital being tied up which could otherwise be utilized for other profitable investments.

On the other hand, lower stock inventory can hamper the operations of a manufacturing firm resulting to stock outs costs which includes lost sales, poor reputation, idle time and idle machinery .An inventory system is therefore important since organizations need to set policies, controls, and monitor levels of inventory and determine what levels should be maintained, when stock should be replenished, and how large orders should be in order to keep inventory costs as minimum as possible while maintaining high customer service level (Jacobs, Chase & Aquilano, 2012). Inventory is a critical asset in any organization though according to Barnes (2014) inventory is looked at as a liability under the just-in-time (JIT) control system. Barnes agrees with the way accountants treat inventory as an asset to the organization. In the statement of financial position, inventory appears under the current assets of the organization regardless of whether it's for profit or not for profit organization. Inventory plays a major role and its management goes a long way in helping a firm to grow as it relates to its external customers as well as the internal customers (Gibson, 2013).

Ogbo (2011) argues that the major objective of inventory management and control is to inform managers on how much of a good to reorder, when to reorder, how frequently orders should be placed and what the appropriate safety stocks are required to minimize stock outs. Most manufacturing industries overlook these facts hence causing late deliveries, dissatisfaction to customers and loss of sales orders to their organization.

Statement of the Problem

Inventory in majority of manufacturing industries constitutes the most significant part of current assets (Songet, 2016). Manufacturing firms attain significant savings from effective inventory management which amounts between 50% - 60% of total costs while a potential saving of 6% on total cost through effective inventory management is achievable (Chen, 2015). According to David and David (2012), better inventory management reduces the chances of uncertainties or

lack of stocks and the costs that relate to stock outs and this enables any firm to attain a competitive advantage over competitors, thus performing well financially.

Kontus (2014) further states that successful inventory management minimizes inventory, lowers cost and improves profitability. An optimal inventory level can be based on consideration of the incremental profitability to the opportunity cost of carrying the higher inventory balances. The Vision 2030 stipulates that the manufacturing sector should account for 20 per cent of GDP by 2030, achieving this ambitious goal largely depends on a competitive manufacturing sector (RoK, 2015). However, the sector's contribution to the GDP has stagnated at an average of 10 per cent for more than ten years (KAM,2015) with a growth of 3.1 percent, significantly lower than the overall economic growth of 5.0 percent (WB, 2014).

According to KNBS, (2015) report it is evident that in 2014 manufacturing sectors were lagging behind in terms of annual growth compared to other sectors with 4.8% growth unlike agriculture, building and construction and Information Technology which had 15.8% ,13.1% and 12.7% respectively. These negative trends reflect structural issues such as struggling with low productivity and structural inefficiencies in the supply chains as suggested by firm-level analysis based on data from the census of industrial production and the (World Bank's Enterprise Survey, 2014). KAM (2014) reiterates that the declining performance is disturbing for business and indicates eroded competitiveness and compromises the government's aspirations of 20% growth that will enable Kenya to become prosperous. If this problem is not addressed it will cause low economic development leading to lack of achievement of the vision 2030.

A study conducted by Githendu, Nyamwange and Akelo (2014) indicated that stock shortages are a headache for most organizations as expressed and it leads to customers' dissatisfaction which eventually leads to low performance of a firm and therefore organizations ought to ensure that their inventory is monitored from time to time to avoid stock outs. Inventory management according to Onyango (2013) is a fundamental pillar in an organization and it should be taken seriously. However, to date in most organizations, both analysts and managers have been relatively unsuccessful in convincing top management to give this area the due consideration that it logically deserves (Ogbo, 2014). Most of the above past studies focus on inventory management automation on organizational performance. Therefore, the current study intended to bridge the knowledge gap by examining the effects of inventory management practices on performance of manufacturing firms in Nairobi City County.

Objectives of the Study

- i. To analyze how lead time affects the performance of manufacturing firms in Nairobi City County, Kenya.
- ii. To evaluate the effect of top management support on the performance of manufacturing firms in Nairobi City County, Kenya.

- iii. To determine the effect of supplier evaluation on the performance of the manufacturing firms in Nairobi City County, Kenya.
- iv. To assess the effect of e-procurement on the performance of the manufacturing firms in Nairobi City County, Kenya.

Theoretical Review

The Theory of Economic Order Quantity

Economic order quantity is defined as an accounting formula that determines the point at which the combination of ordering costs and inventory costs are the least (Dave-Plasecki, 2015) EOQ is used as part of continuous review system in which the level of inventories is monitored at all times and fixed quantity is ordered each time the inventory reaches a specific reorder point (Lysons, 2012). This mostly widely used model was developed by F.W. Haris in 1913. But still R.H. Wilson is given credit for his early in-depth analysis of the model. Lead time as an EOQ model informs the need of buying a larger quantity in fewer orders in order to enjoy economies of scale, minimization of the ordering costs and the lead time. The model is used to mark the optimum size of delivery and to choose the cheapest delivery which guarantees minimization of total costs of investments in inventories as well as the reduction of the lead time taken to deliver. This theory is relevant to the study because continuous improvement in inventory management is a key component in effective and efficient performance in the manufacturing industry.

Decision Theory

Decision theory as discussed by Jurison (2015) indicates that a manager should be accountable to decisions. Managers should be concerned about the outcome of their actions by weighing the risks of taking any of the options to reduce the risks of the outcome. This is achieved by identifying values, uncertainties and other things that might influence the decisions. According to Dickert, Fielder, Andreas and Nicklisch (2013), one might decide between giving up resources to influence the well-being of others often without expecting direct benefits. Decision theories can be basically grouped into; normative and descriptive decision theory. While normative theory explains how decisions should be made, descriptive theory explains how decisions are made. The inventory manager needs critical thinking in his decision making in order to ensure that manager maintains optimal quantity of stocks that balances between holding costs and stock out costs. Top management is also responsible of ensuring that staff responsible of inventory management possesses relevant training and that any functional conflict between production, finance and procurement departments is resolved in order to ensure proper management of inventory. This theory is relevant to the study because top management support is a key component in effective and efficient performance in the manufacturing industry.

Stakeholders Theory

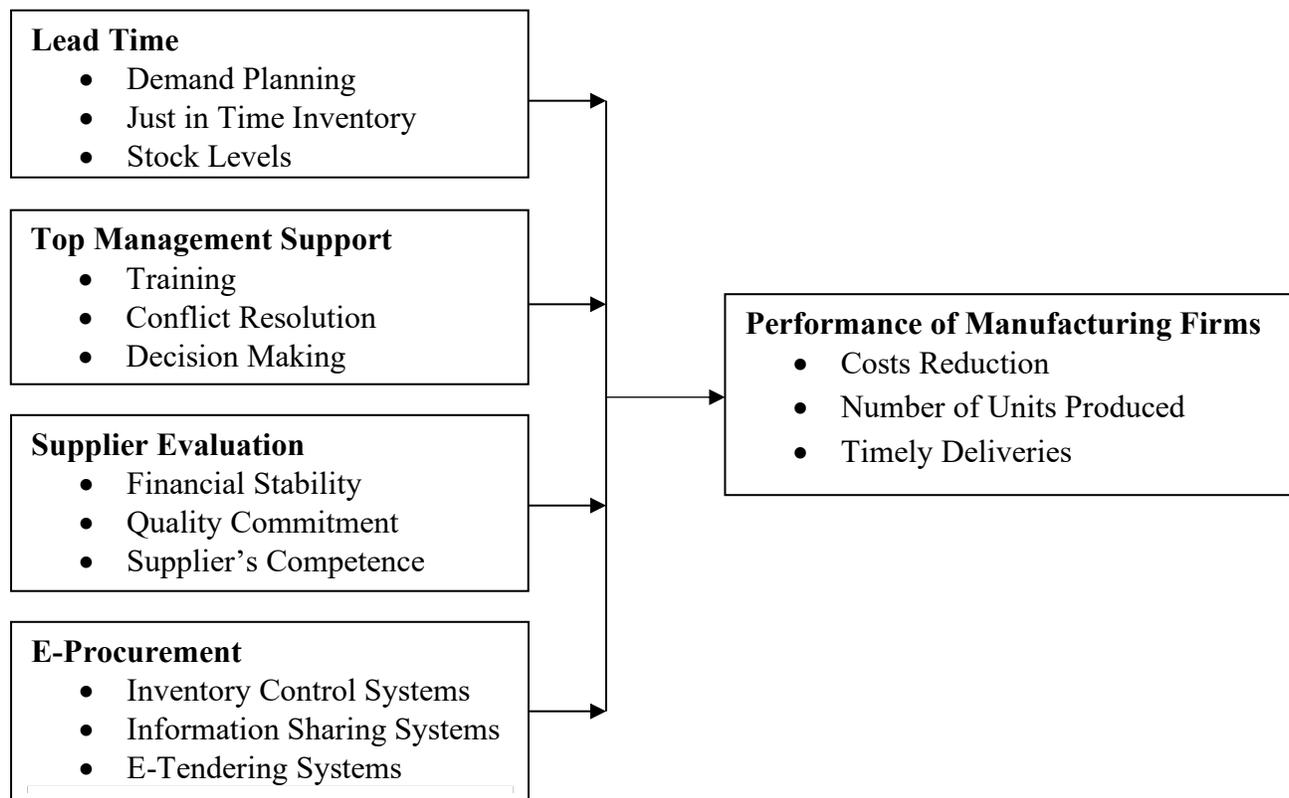
Stakeholder theory originated by Freeman (2014) is defined as any group or individual who can affect or is affected by the achievement of the organization 's objectives. Stakeholder theorists suggest that managers in organizations have a network of relationships to serve that include the suppliers, employees' and business partners. According to Freeman and Phillips (2012) each stake holder is given an important say in making important decisions. The stakeholder theory argues about the importance of paying special attention to each of each stake holder who may directly or indirectly affect the operations of the organization. This theory assists in explaining the effect of supplier evaluation on the performance. They are responsible of making delivery of inventories required by the manufacturing firms. Supply of substandard materials results to the production of low quality products which ultimately result to bad reputation and loss of sales. On the other hand, highly priced raw materials results to high production costs, late deliveries hampers production resulting to idle time, idle machinery and other related stock out costs and therefore supplier evaluation is important in order to ensure that only competent suppliers are given the opportunity to supply. This theory is relevant to the study because continuous supplier evaluation is a key component in effective and efficient performance in the manufacturing industry.

Lean Theory

Lean theory is an extension of ideas of just in time. Womack (2013), elaborate just in time as a pull based system designed to align the production and business processes throughout the supply chain. The theory eliminates buffer stock and minimizes waste in production process (Green & Inman, 2015). Inventory leanness positively affects the profitability of a business firm and is the best inventory control tool. According to Eroglu and Hofer (2011), Firms that are leaner than industry average generally see positive returns to leanness. Bicheno (2014) assessed the impact of lean theory on financial performance. Lean theory elaborates on how manufacturers gain flexibility in their ordering decisions, reduce the stocks of inventory held on site and eliminate inventory carrying costs. Scholarly studies indicate that companies successfully optimize inventory through lean supply chain practices and systems to achieve higher levels of asset utilization and customer satisfaction leading to improved organizational growth, profitability and market share (Balle & Balle, 2015). Operational, tactical and strategic benefits of e-procurement can hence become realized and hence improved performance of the manufacturing firms in Kenya. This theory is relevant to the study because e-procurement in inventory management is a key component in effective and efficient performance in the manufacturing industry.

Conceptual Framework

Conceptual frameworks are used to explain how the independent variables affect the dependent variable. The relationship between independent variables and the dependent variable is of profound importance.



Independent Variables

Dependent Variable

Figure 1: Conceptual Framework

Research Methodology

The study adopted descriptive research design. The unit of analysis for the study was manufacturing firms in Nairobi City County while the unit of observation was employees in the manufacturing firms. The study population ranged from the employees in the manufacturing firms who are directly involved in the area of the study.

Table 1: Target Population

| Stratum | Frequency | Percentage |
|-------------------|------------------|-------------------|
| Steel Industry | 26 | 13 |
| Food Industry | 40 | 20 |
| Plastics Industry | 136 | 67 |
| Total | 202 | 100 |

For the purpose of this study, the sampling frame included the Top-level management, Middle level management and Lower level management. The study used stratified random sampling technique in choosing the sample size from the target population. A Sample size of 66.5% of the total population was considered which was obtained using Slovin's formula

Table 2: Sampling and Sample Size

| Stratum | Frequency | Formula | Sample Size | Percentage % |
|-------------------|------------|--------------|-------------|----------------|
| Steel Industry | 26 | 133/202(26) | 17 | 12.78% |
| Food Industry | 40 | 133/202(40) | 26 | 19.55% |
| Plastics Industry | 136 | 133/202(136) | 90 | 67.67% |
| Total | 202 | | 133 | 100.00% |

Primary data was collected using structured and unstructured questionnaires. The researcher delivered questionnaires to respondents to proceed by briefing them about the purpose of the questionnaires and asked them to fill them on their convenient time. The researcher pre-tested the questionnaires to determine reliability and the validity of the data to be collected. The data collected was coded and entered in the computer using SPSS and MS excel. The data presentation was done by the use of charts and tables. The purpose of presentation was to highlight the results so as to make data more illustrative.

Results and Discussion

Descriptive and inferential statistics have been used to discuss the findings of the study. The study targeted 133 employees in the manufacturing firms, 128 of the respondents filled and returned the questionnaire, forming a response rate of 96%, as per Table 3.

Table 3: Response Rate of Respondents

| Response | Frequency | Percentage % |
|--------------|------------|--------------|
| Returned | 128 | 96 |
| Unreturned | 5 | 4 |
| Total | 133 | 100 |

The cronbach's alpha was computed in terms of the average inter-correlations among the items measuring the concepts. A value of at least 0.7 is recommended. Cronbach's alpha is the most commonly used coefficient of internal consistency and stability.

Table 4: Reliability Results

| Variable | No. of Items | Respondents | α =Alpha | Comment |
|------------------------|--------------|-------------|-----------------|----------|
| Lead Time | 9 | 8 | 0.893 | Reliable |
| Top Management Support | 9 | 8 | 0.987 | Reliable |
| Supplier Evaluation | 9 | 8 | 0.974 | Reliable |
| E-Procurement | 9 | 8 | 0.976 | Reliable |

Correlation Analysis

From the descriptive findings, it is observed that the mean scores are above average. The results of the correlation analysis were as shown in Table 5. The results revealed that there was a strong positive correlation between lead time and performance of manufacturing firms as shown by $r=.810$, statistically significant $p=0.001<0.05$; there was a positive correlation between top management support and performance of manufacturing firms as shown by $r = .798$, statistically significant $P=0.002$; there was a positive correlation between supplier evaluation and performance of manufacturing firms as shown by $r =.802$, statistically significant $P=0.001$; there was a positive correlation e-procurement and performance of manufacturing firms as shown by $r=.800$, statistically significant $P =0.001$. This implies that lead time, top management support, supplier evaluation, e procurement significantly influence the performance of manufacturing firms. The findings concur with Agus and Noor (2013) who established that inventory management enabled the manufacturing firms to perform better.

Table 5: Correlation Coefficients

| | Performance | Lead Time | Top Management Support | Supplier Evaluation | E Procurement |
|------------------------|-------------|-----------|------------------------|---------------------|---------------|
| Performance | 1 | | | | |
| Lead Time | .810** | 1 | | | |
| Top Management Support | .798** | .356 | 1 | | |
| Supplier Evaluation | .802** | .512 | .534 | 1 | |
| E-Procurement | .800** | .288 | .434 | .274 | 1 |

Regression Analysis

Model Summary

Model summary is used to analyze the variation of dependent variable due to the changes of independent variables. The study analyzed the variations of performance of manufacturing firms due to the changes of lead time, top management support, supplier evaluation and e procurement. R squared was 0.682 implying that there was 68.2% variation of performance of manufacturing firms, due to the changes of lead time, top management support, supplier evaluation and e procurement. The remaining 31.8% imply that there are other factors that lead to performance of manufacturing firms which were not discussed in the study. R is the correlation coefficient which shows the relationship between the study variables. From the findings, the study found out that there was a strong positive relationship between the study variables as shown by 0.682. The findings concur with Munster and Vestin (2012) who established that inventory management practices enabled the manufacturing firms to perform better.

Table 6: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|---|----------|-------------------|----------------------------|
|-------|---|----------|-------------------|----------------------------|

| | | | | |
|---|-------------------|-------|-------|-------|
| 1 | .826 ^a | 0.682 | 0.657 | 0.009 |
|---|-------------------|-------|-------|-------|

Analysis of Variance

The analysis of variance ANOVA is used to determine whether the data used in the study is significant. From the ANOVA statistics, the processed data (population parameters) had a significance level of 0.001. This shows that the data is ideal for making conclusions on the population’s parameter as the value of significance (p-value) is less than 5%. The F calculated was greater than F critical (59.501 >2.445). This shows that lead time, top management support, supplier evaluation and e procurement significantly affect the performance of manufacturing firms. The findings concur with Kader and Akter (2014) who established that inventory management practices enabled the manufacturing firms to perform better.

Table 7: Analysis of Variance

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|--------|-------------------|
| 1 | Regression | 18.986 | 4 | 4.747 | 59.501 | .001 ^b |
| | Residual | 9.812 | 123 | 0.080 | | |
| | Total | 28.798 | 127 | | | |

The regression equation was;

$$Y = 1.114 + 0.652 X_1 + 0.626 X_2 + 0.538 X_3 + 0.447 X_4$$

The equation above reveals that holding lead time, top management support, supplier evaluation and e-procurement constant, the variables will significantly influence performance of manufacturing firms as shown by constant = 1.114 as shown in Table 8.

Lead time is statistically significant to performance of manufacturing firms as shown by ($\beta=.652$, $P=0.000$). This shows that lead time had significant positive relationship with performance of manufacturing firms. This implies that a unit increase in lead time will result to increase in performance of manufacturing firms. The findings concur with Smaros *et al.*, (2013) who established that demand visibility can be improved among the manufacturing firms by having clear predefined lead times hence perform better.

Top management support is statistically significant to performance of manufacturing firms as shown by ($\beta=.626$, $P=0.002$). This indicates that top management support had significant positive relationship with performance of manufacturing firms. This implies that a unit increase in top management support will result to increase in performance of manufacturing firms. The findings concur with Ryan *et al.*, (2013) who established that leadership at the top can be used improve performance of manufacturing firms.

Supplier evaluation is statistically significant to performance of manufacturing firms as shown by ($\beta=.538$, $P=0.002$). This shows that supplier evaluation had significant positive relationship with performance of manufacturing firms. This implies that a unit increase in supplier evaluation

will result to increase in performance of manufacturing firms. The findings concur with Shiati *et al.*, (2012) who established that supplier selection should include evaluating them so as to guarantee the performance of supply chain across the manufacturing firms.

E-procurement is statistically significant to performance of manufacturing firms as shown by ($\beta=.447$, $P=0.010$). This implies that e-procurement had significant positive relationship with performance of manufacturing firms. This shows that a unit increase in e procurement will result to increase in performance of manufacturing firms. The findings concur with Sharma (2013) who established that e-procurement was an enabler of efficient supply chain and there consequently improving the performance of manufacturing firms.

Table 8: Beta Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|------------------------|-----------------------------|------------|---------------------------|-------|------|
| | B | Std. Error | Beta | | |
| 1 (Constant) | 1.114 | .215 | | 5.181 | .005 |
| Lead Time | .652 | .101 | .567 | 6.455 | .000 |
| Top Management Support | .626 | .108 | .549 | 5.796 | .002 |
| Supplier Evaluation | .538 | .092 | .412 | 5.848 | .002 |
| E-Procurement | .447 | .098 | .384 | 4.561 | .010 |

The optimal regression model is as shown below

Performance of manufacturing firms = 1.114 + 0.652 Lead Time + 0.626 Top Management Support + 0.538 Supplier Evaluation + 0.447 E-Procurement.

Conclusions

Based on the study findings, the study concludes that performance of manufacturing firms can be improved by lead time management, top management support, supplier evaluation and e-procurement. The findings enabled the study to come up with the conclusions based on each variable under the study. Lead time affects the performance of manufacturing firms. The ability to deliver quickly influence sales and thereby revenue and an extended lead time is one of the major problems that manufacturing firms face. Managers should embrace demand planning while inventory managers should thorough monitor the stock levels closely in a bid to maintain optimal stocks in the warehouses. The study therefore concluded that Lead time is statistically significant to performance of manufacturing firms. This study concludes that lead time is positively related to performance of manufacturing firms.

Top management support influences the performance of manufacturing performance. The management of organizations should support the organization activities so as to improve their performance. They should be actively involved and available to provide guidance where

problems arise. Top management support is statistically significant to performance of manufacturing firms. This shows that top management support had significant positive relationship with performance of manufacturing firms. This study concludes that top management support is positively related to performance of manufacturing firms.

Supplier evaluation affects the performance of the organization. The management should choose reliable suppliers who are in a position to deliver the required supplies at the right quantities and at the right time. Supplier evaluation is statistically significant to performance of manufacturing firms. This shows that supplier evaluation had significant positive relationship with performance of manufacturing firms. This study concludes that supplier evaluation is positively related to performance of manufacturing firms.

E-procurement provides an easy and fast way of acquiring organization resources. It does not involve a lot of paper work so it is the suitable way of procurement. The organization should adopt e-procurement methods so that to be more efficient and effective. E-procurement is statistically significant to performance of manufacturing firms. This shows that e-procurement had significant positive relationship with performance of manufacturing firms. This study concludes that e procurement is positively related to performance of manufacturing firms.

Recommendations

The study recommends that factors that lead to lead time variability need to be looked into with a view of managing the variability as this has effect on the overall performance. There is need for every organization or supply chain to establish sources of variability so that the variability can be reduced. This calls for serious attention to enable the organization focus on formulation of policies and achievement of the strategic pillar of operational excellence. Organizations need to find ways of reducing lead time variability so that lead time can be managed. Dealing with international suppliers, an importer must be aware of all sources of lead time variation including the production lead time, shipping lead time, customs brokerage turnaround time as well as receipt and inspection velocity.

The study recommends that top management in the manufacturing companies should take responsibility for the active role in the implementation of inventory management practices. They should allocate more resources towards quality improvement and they should ensure that they set quality goals and distribute them throughout the organization. The person in charge of quality management should report directly to the chief executive officer.

The manufacturing firms should train their supplier evaluation committees or procurement managers on how best to evaluate the suppliers. This will enable the firms to get the right suppliers which will lead to harnessing the benefits associated with the practice that is shortened lead times, customer satisfaction and higher profit margins. In measuring performance firms

should be aware of all the performance measures and understanding what factors influence them to be able to deal with each one of them as it demands. For instance, firms should take into consideration what criteria is related to performance and capitalize on them like the employee capabilities will lead to production of quality products. Supplier evaluation is greatly influencing performance because of the positive relationship that the study unraveled therefore it could be useful for firms take supplier evaluation seriously.

Employees need to be trained on usage of the e-procurement system. This will enable them to operationalize the system. There is also need for manufacturing organizations to integrate the various functions so that e-procurement can thrive. The websites of the firms need to be regularly updated with the latest information concerning procurement activities. Suppliers should be encouraged to submit their quotations online.

Areas For Further Research

This study focused on establishing the effects of inventory management practices on performance of manufacturing firms in Nairobi City County. The study recommends that another study should be done to establish other factors not dealt with in this study (accounting for 31.8%) that affects the performance of manufacturing firms in Nairobi City County. The study also recommends that the study should be replicated in other counties within Kenya for generalization of research findings.

References

- Agus, A & Noor, Z.M (2013). *Supply chain management and performance*. An Empirical Study. A working paper university of Malaysia.
- Baily, P., Farmer, D., Crocker, B., Jessop, D., & Jones D. (2016). *Procurement Principle and Supply Chain*. Prentice, Hall.
- Barnes, D. (2014). *Operations Management. An International Perspective*. United Kingdom: Thomson Learning.
- Bicheno, J. (2014). Supplier partnerships. *National institute for manufacturing management. Information and Management*, 4(9), 142–150.
- Chen, C. J. (2015). Information technology, organizational structure, and new product development: the mediating effect of cross-functional team interaction. *IEEE Transactions on Engineering Management*, 54(4), 678-698.
- Chen, J. L. (2012). The synergistic effects of IT-enabled resources on organizational Performance: A Survey of Supermarkets in Kakamega Town. *International Journal of Business and Commerce*, 3(1), 71-82.
- Dave P., (2015). “*Optimizing Economic Order Quantity (EOQ)*”, Solution Magazine, January 2015 issue.

- Davila, A. & Palmer, R. (2014). Moving Procurement Systems to the Internet: The Adoption and Use of E-Procurement Technology Models, *European Management Journal*, 2(1), 11-23.
- Dickert, S., Fiedler, S., Andreas, S. & Nicklisch, A. (2013). *Social value orientation and information search in social dilemmas: An eye-tracking analysis*. *Organizational Behavior and Human Decision Processes*, 12(2), 272– 284.
- Eroglu, C., & Hofer, C. (2011). Lean, leaner, too lean? The inventory-performance link revisited. *Journal of Operations Management*, 2(9), 356–369.
- Eyson, K., (2006). *Purchasing and Supply Management* (7thedition) England and Ferrington brain Pearson education limited.
- Fellows, P. & Rottger, A. (2013). *Business Management for Small-Scale Agro-Processors. Agricultural Management, Marketing Management and Finance Service (AGSF)*. FAO of the United Nations, Agricultural Support Systems Division. Rome: Food and agricultural Organization of the United Nations.
- Freeman, R.E & Philips R.A. (2012). *Stakeholders Theory: Alibertari and defense*. *Business Ethics Quarterly*, 1(2), 331-349.
- Freeman, R.E. (2014). Strategic management: A Stakeholder Approach, MA: Pitman, Marshfield. *International Review of management and Business Research*, 3(1), 23-45.
- Gibson, C. (2013). *Financial Reporting & Analysis. Using Financial Accounting Information* (13th ed.). South-Western Cengage, USA: South-Western Cengage Learning.
- Githendu, D., Nyamwange, O. & Akelo, E. (2014). *Inventory Management by Simulation Analysis - A Case Study of a Water Engineering Company*. University of Nairobi, Department of Management Science. Nairobi: Unpublished Report.
- Gonzalez, J.L. & Gonzalez, D. (2014). *Analysis of an Economic Order Quantity and Re-Order Point Inventory Control Model for Company XYZ*. California Polytechnic State University. San Luis Obispo: Unpublished Project.
- Green, K. W., & Inman, R. A. (2015). Using a JIT selling strategy to strengthen supply chain linkages. *International journal of production research*, 4(3), 37-53.
- Jacobs, F. R., Chase, R. B., & Aquilano, N. (2012). *Operations and supply chain management*. Global Ed: The McGraw-Hill/Irwin series operations and decision sciences. New York: Mc Graw-Hill.
- Jurison, J. (2014). *Re-evaluating productivity measures*, *Information Systems Management*, 14(1), 30-34.
- Jurison, J. (2015). The role of risk and return in information technology outsourcing decisions. *Journal of Information Technology*, 12(10), 239–247.
- Koorn, R., Smith, D., & Mueller, C. (2013). *e-Procurement and Online Marketplaces*, Compact, Amsterdam, The Netherlands.
- Lysons, K, (2013). *Supplies Management 7th Edition* .FT Prentice Hall Financial Times
- Ogbo, A.I. (2011). *Production and Operations Management*". Enugu: De-verge Agencies Ltd.

- Oke A. Munshi N. & Walumbwa F.O. (2015). *The influence of leadership on innovation Processes and activities*. *Organizational Dynamics*, 38(1), 64–72.
- Okello, J. O. & Were, S. (2014). Influence of supply chain management practices on performance of the Nairobi Securities Exchange's listed, food manufacturing companies in Nairobi. *International Journal of Social Sciences and Entrepreneurship*, 1(11), 107-128.
- Onyango, R.M. (2013). *Lean Enterprise and Supply Chain Performance of Pharmaceutical Companies in Kenya*. MBA Project. University of Nairobi.
- Sharma, S. & Rai, A. (2013). *An assessment of the relationship between ISD leadership. The management of innovation problem*. *International Journal of Innovation Management*, 4(3), 347–369.
- Song, J. & Zipkin, P. (2014). Inventory control with information about supply condition, *Management Science* 4(2), 1409-1419.
- Watson N. & Zhang Y. (2015). Decentralized serial supply chains subject to order delays and information distortion, *Manufacturing and Service Operations Management* 8(7), 152-168.