INFLUENCE OF VENDOR MANAGED INVENTORY ON ORGANIZATION PERFORMANCE IN A MANUFACTURING INDUSTRY: A CASE OF UNILEVER KENYA LIMITED

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International Academic Journal of Information Sciences and Project Management (IAJISPM) | ISSN 2519-7711

Received: 25th February 2015

Accepted: 2nd March 2015

Full Length Research

Available Online at: http://www.iajournals.org/articles/iajispm_v1_i4_19_29.pdf

Citation: Obura, C. O. (2015). Influence of vendor managed inventory on organization performance in a manufacturing industry: A case of Unilever Kenya limited. *International Academic Journal of Information Sciences and Project Management, 1* (4), 19-29

ABSTRACT

Increased complexity and highly integrated supply chain in current business environment has increased pressure for companies to adapt to current competitive pressure. One of the supply chain tool in addressing these issues is by implementing Vendor Managed Inventory (VMI). Strategic alliance between a firm and its supplier is one of the characteristics of vendor managed inventory. VMI permits supply chain partners to reduce or eliminate safety stock and other just in case inventories. Thus replacing inventory with information lead to real competitive advantage. The purpose of this study is to establish influence of vendor managed inventory on organization performance. The study adopted Unilever group of companies as its core study since it is one of the manufacturing company that deals with high purchase of inventories for use in the supply chain. In seeking reasons for VMI on organization performance, this study reviewed the relevant literature theories and developed a conceptual framework that seek to address issues perceived as critical to understanding the study topic. A descriptive research design, random stratified sampling, qualitative ant quantitative method was used to obtain sample of respondents and questionnaires administered on them. From the findings in the regression analysis, the value of adjusted R squared was 0.956 an indication that there was variation of 95.6 percent on Organizational performance due to changes in Top management commitment, Strategic supplier partnership, ICT systems, and Information sharing affects at 95 percent confidence interval. This shows that 95.6 percent changes in Organizational performance could be accounted to the variables of the study. The study further recommends that manufacturing companies should look forward to forming strategic alliances, use ICT Systems and establish effective information sharing governance framework and a supportive environment for information sharing.

Key Words: *Top management commitment, strategic supplier partnership, ICT systems, information sharing*

INTRODUCTION

Vendor managed inventory (VMI) has been described as an inventory and supply chain management tool in which the supplier has taken the responsibility for making decisions as to the timing and amounts of inventory replenishment (Lee, 2000). The advantages of using VMI to the downstream member, usually a large retailer, have been well documented. The main advantages of VMI were reduced costs and increased customer service levels to one or both of the participating members. VMI greatly reduced inventory- carrying costs and stockout (which is a situation in which the demand or requirement for an item cannot be fulfilled from the current inventory) problems while, at the same time, it offered the ability to synchronize both inventory and transportation decisions.

Information sharing plays vital roles in inventory management, particularly in Vendor Managed Inventory system. An effective VMI can be achieved by integration technology, enabling network application, customizable replenishment logic, and linkage to internal applications. The models for VMI are many as the number of successful VMI partnerships continues to grow the current wave of interest in VMI was probably stimulated by the highly visible arrangements between Wal-Mart and some of its suppliers, like Procter and Gamble (P&G) and Rubbermaid. P&G started managing diaper inventory for Wal-Mart in the late 90s. Globally, Supply chain partners share their vision of demand, requirement and constraint to set the common objectives. A typical VMI program involves a supplier which monitors inventory levels at its customer's warehouses and assumes responsibility for replenishing that inventory to achieve specified targets through the use of highly automated electronic messaging systems. Thus a systematic evaluation of the profit implications of a VMI program on both trading partners will certainly facilitate future supply chain coordination (Bernardin, 2003). There is need for coming up with better methods of managing and measuring how resources are utilized by various jobs or products, and therefore eliminate any wastage in the value chain.

STATEMENT OF THE PROBLEM AND CONCEPTUALIZATION

Lack of demand visibility has been identified as an important challenge for supply chain management. Many companies are struggling to make VMI work for them and although some companies promote VMI, many are retreating from the concept, and especially manufacturing companies are skeptical about the benefits of VMI (Chase et al, 2009). Culturally, many companies have not yet recognized the importance of the supply chain and will not give supply chain managers the necessary authority to implement, and will not make the necessary investments. A major challenge for manufacturing companies is that usually, only part of their customer base is involved in VMI. This means that the manufacturers need to set up their operations in a way that both VMI and non-VMI customers simultaneously can be efficiently served. In-spite of having various studies undertaken on inventory management on organizational performance; there has been little research on the influence of vendor managed inventory on organizational performance. Thus the research will uniquely be positioned to establish the missing link on the influence of vendor managed inventory on organizational performance in manufacturing company with special reference to Unilever group limited in Kenya.

RESEARCH OBJECTIVES

1. To establish the influence of top management commitment on organizational performance

2. To determine influence of strategic supplier partnership on organizational performance

3. To assess the influence of ICT systems on organizational performance
4. To examine extent of information sharing influence on organizational performance.

The study sought to assess the influence of vendor managed inventory on organizational performance in manufacturing industry with reference to Unilever group limited in Kenya. The researcher targeted the three cadres of employees at the head office of Unilever group limited including chief procurement officers, logistics officers and stores and disposal staff in the industry. The study used the conceptual framework as illustrated by figure 1 below to test the relationship between the independent and the dependent variables.

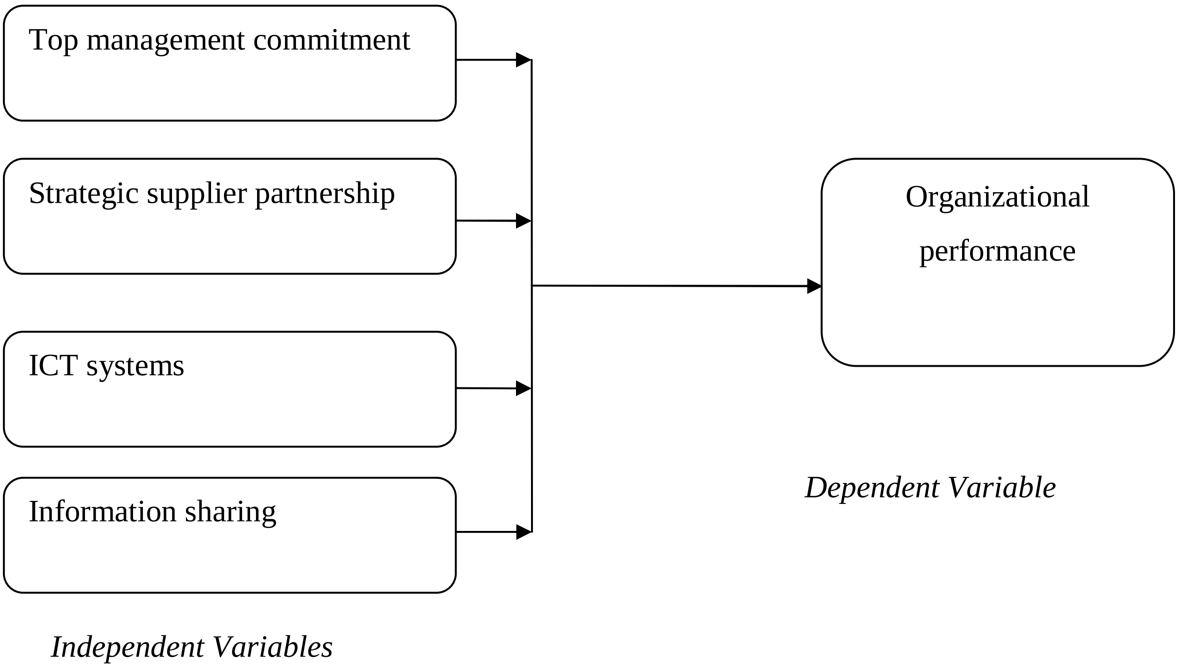

Figure1: Conceptual Framework

RESEARCH MATERIALS AND METHODS

This research problem was studied through the use of a descriptive research design. Descriptive research uses a preplanned design for analysis (Mugenda and Mugenda, 2003). According to (Schindler, 2003), a descriptive study is concerned with finding out the what, where and how of a phenomeom. Lumpkim, (2001), define research design as a plan and structure of investigation so conceived as to obtain answers to research questions and to control variance. The research design was both quantitative and qualitative with the aim of determining the relationship between the independent and dependent variables. Inferential statistics and measures of central, dispersion and distribution were used in this study. The qualitative approach was used in order to gain a better understanding and more insightful interpretation of the results from quantitative study.

The target population for this study included procurement officers, logistic officers and Stores and disposal staff a total of 80employees. Ngechu (2004) defines a population as a well-defined or set of people, services, elements, and events, group of things or households that are being investigated. The researcher elected this group of employees because they were in a position to provide information necessary to measure the supply chain performance. This study used a random stratified sampling method to select a sample from the population and arrived to a total of 32 employees as the sample size. The study used questionnaires to collect primary data for the purpose of analyzing the influence of Vendor managed inventory on organization performance at Unilever Kenya Limited.

The study adopted structured questionnaire because they are simple to understand, time saving and easy to analyze (Mugenda and mugenda, 2003). Structured questionnaires contained both open ended and closed ended questions. The unstructured questions made it easy for the researcher to holistically understand the respondents` point of view. The structured questions were used in an effort to conserve time and money as well as to facilitate easier analysis; each questionnaire was coded and only the researcher knew which person responded. Quantitative data was collected using the administered questionnaire. The researcher dropped the questionnaire and picked them later from the respondents in instances where they were not able to fill them immediately. a pilot study was conducted which enabled the researcher to access the clarity of the instrument and its ease of use. The pretesting considered two employees from each category. The result of the pilot study assisted in; determining participants interests, discovering if the questions had meaning for the participants, checking for participants modification of a questionnaire`s intent, examined questions continuity flow, collecting early warning data on the item variability and fixing the length and timing of the instrument.

Validity was ensured by having objective questions included in the questionnaire and by pre-testing the instrument used through a pilot study to identify and change the ambiguous questions and techniques. Reliability on the other hand refers to a measure of the degree to which research instruments yield consistent results (Mugenda and Mugenda 2003). Reliability was ensured by pre-testing the questionnaire with a selected sample from some respondents from the Unilever limited Kenya who were not included in the final analysis. Data was analyzed in a way that was easily understood by the common man. Content analysis was used to analyze the qualitative data while descriptive analysis such as mean, frequencies and percentages was used to analyze the data. The inferential statistics such as correlation and regression model was used. the organized data was interpreted on account of concurrence to objectives using assistance of computer packages especially statistical package for social scientists (SPSS) version 21 to communicate research findings. The study used ANOVA to test the level of significant of the variables on the dependent variable at 95% level of significance. Data was presented in the form of frequency distribution tables, graphs and pie charts that facilitated description and explanation of the study findings. The regression equation was: **($Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$)**

Where:

Y is Organization Performance,
β_0 is Constant, explaining the level of performance given,
β_1 is the Slope or change in Y, given one unit change in X1, X1 represents top management commitment, X2 is the Strategic supplier partnership, X3 is ICT Systems, X4 represents information sharing and **ε** represents the error term explaining the variability of the quality of performance as a result of other factors not counted for.

REGRESSION ANALYSIS

In this study a multiple regression analysis was conducted by so as to investigate the influence of vendor managed inventory on organization performance in manufacturing industry. The research used statistical package for social sciences to code, enter and compute the measurements of the multiple regressions.

Table 1: Multiple regression between Organizational performance (dependent variable) and the combined effect of the selected predictors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.982	0.964	0.956	.0324

R-Square (coefficient of determination) is a commonly used statistic to evaluate model fit. R-square is 1 minus the ratio of residual variability. The adjusted R2, also called the coefficient of multiple determinations, is the percent of the variance in the dependent explained uniquely or jointly by the independent variables. 95.6% of the changes in the organizational performance variables could be attributed to the combined effect of the predictor variables.

Table 2: Analysis of variance results of the regression analysis between organiational performance and predictor variables

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	2.588	4	0.647	3.740	.001[b]
1	Residual	4.325	25	.173		
	Total	6.913	29			

Critical value =2.14

From the ANOVA statics, the study established the regression model had a significance level of 0.1% which is an indication that the data was ideal for making a conclusion on the population parameters as the value of significance (p-value) was less than 5%. The calculated value was greater than the critical value (3.740>2.14) an indication that Top management commitment, Strategic supplier partnership, ICT systems, and Information sharing all affects Organizational performance. The significance value was less than 0.05 indicating that the model was significant.

Table 3: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.543	1.033		1.494	.001
	Top management commitment	.281	.108	.203	2.602	.000
	Strategic supplier partnership	.321	.127	.227	2.528	.001
	ICT systems	.316	.125	.216	2.528	.002
	Information sharing	.376	.113	.251	3.327	.004

From the data in the above table the established regression equation was:

$$\mathbf{Y = 1.543 + 0.281X_1 + 0.321X_2 + 0.316\,X_3 + 0.376\,X_4}$$

From the above regression equation it was revealed that holding Top management commitment, Strategic supplier partnership, ICT systems, and Information sharing to a constant zero, the Organizational performance would be at 1.543, a unit increase in Top management commitment would lead to an increase in Organizational performance by a factors of 0.281, a unit increase in Strategic supplier partnership would lead to increase Organizational performance by factors of 0.321, a unit increase in ICT systems would lead to increase an in Organizational performance by a factor of 0.316, and a unit increase in Information sharing would lead to a increase in Organizational performance by a factors of 0.376 and . All the variables were significant as their significant value was less than ($p<0.05$). The P-value was 0.001 and hence the relationship was significant since the p-value was lower than 0.05.

This infers that information sharing contributed most to the organizations `s performance followed by ICT Systems then strategic supplier partnership while top management commitment contributed the least to organizations performance.

RESULTS, ANALYSIS, DISCUSSIONS AND CONCLUSIONS

The study targeted a total of 32 respondents in collecting data. From the data collected, 30 out of 32 sample respondents filled in and returned the questionnaires making the response rate of 94%. Earl, (2002) asserts that in a descriptive research, a response rate of above 50% is adequate for analysis. This response rate is adequate for analysis and reporting.

Top Management Commitment

Top management is when there is direct contribution by the people acquiring top rank positions in definite and significantly vital aspect of an organization (Angulo et al, 2007). The study sought to establish whether top management commitment influences organizational performance. From the research findings, majority of the respondents as shown by 90% agreed that top management commitment influences organizational performance whereas 10% of the respondents were of the contrary opinion. the study further established that that top management commitment influences the organization's performance to a great extent as shown by the majority of the respondent by 43%, 33% of the respondent indicated to great extent, 17% of the respondent indicated to a moderate extent whereas 7% of the respondent indicated not at all.

Top management commitment leads to effective adoption of vendor managed inventory in organizations, Resistance to change is reduced as a result of top management commitment, and there is improved inter-organizational coordination as a result of top management commitment to vendor managed inventory. Lack of manager's commitment to performing their roles leads to the lower ranks of employees missing support and guidance through encouragement of entrepreneurial attributes, top managers must demonstrate their willingness to give energy and loyalty to the implementation process for the initiated project to succeed. And Good governance has been key to successful functioning of all organizations. These findings are in line with the findings by (Loughrin, 2008), that the level of trust between suppliers and manufacturers in any business establishment is key to their success

Strategic Supplier Partnership

Strategic Supplier partnership is a commitment by both customers and suppliers, regardless of size, to a long term relationship based on clear, mutually agreed objectives to strive for world class capability. From the findings majority of the respondents as shown by 90% agreed that strategic supplier partnership influences organization`s performance whereas 10% of the respondents were of contrary opinion. This implies that strategic supplier partnership influences organizational performance.

The study revealed that strategic partnership influences organization performance to a great extent. The study further notes that in the organization, the quality of products is improved as a result of strategic supplier partnership, supplier partnership reduces defects as a result of early involvement in the design process. The study also established that; strategic alliance enabled the company to capitalize on the individual strengths of each participating organization, provided local contacts and links to local communities/stakeholders who may be critical to the success of the program the organization would want to launch or implement, limited the participating organization's liability to the scope of project involved and that the level of trust between suppliers and manufacturers in any business establishment is key to their success. These findings are in line with the findings by (Loughrin, 2008), that the level of trust between suppliers and manufacturers in any business establishment is key to their success.

ICT Systems

Information Technology is a set of tools, processes and methodologies (such as coding, data communication, data conversion, storage and retrieval, system analysis and design, system control) and associated equipment employed to collect, process and present information (Cory Janssen, 2013). Technology plays a much more vital role among the drivers. majority of the respondents as shown by 97% agreed that ICT Systems influences organization`s performance whereas 3% of the respondents were of contrary opinion. This implies that ICT Systems influences organizational performance.

Use of ICT Systems influences on organizational performance to a great extent and the use of information technology lowers operation cost on inventory management, information technology speeds up processes in vendor inventory management in organizations, there is reduced lead time in service delivery to customers and end users. The study further established that information systems can offer more complete and more recent information, allowing an organization to operate more efficiently. The research revealed that; use of ICT Systems influences on organizational performance to a great extent; use of information technology lowers operation cost on inventory management, information technology speeds up processes in vendor inventory management in organizations , there is reduced lead time in service delivery to customers and end users. The study further established that information systems can offer more complete and more recent information, allowing an organization to operate more efficiently. Use of information systems can help an organization achieve cost advantage over competitors or to differentiate itself by offering better customer service and that, through the use of electronic data interchange, a firm can place instantaneous, paperless purchase orders with their suppliers. This finding concurs with Davila et al. (2003) who asserts Technology plays a much more vital role among the drivers, in that: Electronic data interchange allows firm's to place instantaneous, paperless purchase orders with their suppliers.

Information Sharing

Information sharing is the exchange of data between various organizations, people and technology (Christopher, 2005). Through Vendor Managed Inventory (VMI), effort in exchanging information has enabled firm to improve performance. The study sought to determine whether information sharing influence organization performance. majority of the respondents as shown by 87% agreed that information sharing influences organization`s performance whereas 40% of the respondents were of contrary opinion. This implies that information sharing influences organization`s performance.

The study found the majority of the respondent as shown by 40% indicated to a great extent, 26.7% of the respondent indicated to a very great extent, 20% of the respondent indicated to a moderate extent whereas 13.3% of the respondent indicated not at all. This implies that information sharing influence on organization performance to a great extent. Information sharing is critical to an organization's competitiveness and requires a free flow of information among members that is undistorted and up-to-date. It is therefore necessary for organizations to have an information sharing protocol where they can both access information which will reduce lead time and improve on continuous replenishment as this is key to its competitive advantage.

The study revealed that information sharing influences on organization performance to a great extent. The study further established that there is better forecasting as a result of information sharing among trading partners, information sharing allows buyers and suppliers share inventory status information so that they can increase replenishment frequencies and reduce inventory for both firms. The study also established that information sharing is critical to an organization's competitiveness and requires a free flow of information among members that is undistorted and up-to-date. It is therefore necessary for organizations to have an information sharing protocol where they can both access information which will reduce lead time and improve on continuous replenishment as this is key to its competitive advantage. These findings concurs with (Bendoly, 2003; Lee, 2007; Rayner, 2007). An organization's ability to share this knowledge among organizational members is key to its competitive advantage.

CONCLUSIONS

From the regression analysis, the study established that a unit increase in Top management commitment would lead to an increase in Organizational performance by a factors of 0.281, thus the study concludes that top management commitment had appositive effect on vendor managed inventory influence organizational performance. The study also established that a unit increase in Strategic supplier partnership would lead to increase Organizational performance by factors of 0.321, thus the study concludes that strategic supplier partnership had appositive effect on vendor managed inventory influence organizational performance. The study further established that a unit increase in ICT systems would lead to increase an in Organizational performance by a factor of 0.316 thus the study concludes that ICT systems had appositive effect on vendor managed inventory influences organizational performance. A unit increase in Information sharing would lead to increase in Organizational performance by a factors of 0.376 thus the study concludes that information sharing had appositive effect on vendor managed inventory influence organizational performance.

RECOMMENDATIONS

Bases on the findings the study recommends that the top managers must demonstrate their willingness to give energy and loyalty to the implementation organizations strategic goals.

The study also recommends that; prior to formation strategic alliances with any supplier for any part of their business, companies must put in the ground work to establish the basis on which to proceed. The study also recommends that manufacturing companies should look forward to forming strategic alliances; this will provide reduced-cost opportunities and expertise for each participating organization. There is need to adopt ICT systems in the manufacturing sector, this it can serve as market differentiation strategy. Organizations need to establish effective information sharing governance framework and a supportive environment for information sharing.

Practitioners in manufacturing industry need to understand their organization's position and commitment to information sharing and to have confidence in the continued support of their organization where they have used their professional judgment and shared information professionally. Organizations need to fully support information sharing and institute polices that support good practice in information sharing.

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