



**INFLUENCE OF INVENTORY LEAD TIME ON THE PERFORMANCE OF RETAIL
OUTLETS; A SURVEY RESEARCH ON SUPERMARKETS IN KISII TOWN, KENYA**

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Abstract

There is a notion that inventory lead time influences performance of retail outlets. However, a survey of literature reveals very little, if any, the extent to which inventory lead time influences performance of retail outlets. Therefore, this study aimed to investigate the effects of inventory lead time on the performance of retail outlets, specifically supermarkets. This study targeted six supermarkets in Kisii town including Nakumatt, naivas, oshwal, kisiimatt, Tuskys and Fomat supermarkets, due to the fact that these supermarkets deal with a wide range of products with deeper assortments, they need a proper inventory management model. Based on the findings, the performance of retail outlets was hampered by unnecessary and extended lead time of getting goods and services. It can therefore be concluded that long lead time at Kisii retail outlets had a negative effect on the performance of retail outlets. Thus, the study recommends that: Retail Outlets in Kisii and Kenya as a whole and their management should reduce inventory lead time to conform to the effective and productive performance models. The management should do this by computerizing the process to speed up the inventory process and finally get the work done. Further, the management should maintain eternal vigilance to ensure that the inventory process is safeguarded so as to improve the overall performance of the supermarkets.

Keywords: Lead time, Retail outlets, Supermarkets

INTRODUCTION

Successful inventory management involves creating a purchasing plan that will ensure that items are available when they are needed (but that neither too much nor too little is purchased) and keeping track of existing inventory and its use. Two common inventory management strategies are just in time method where retail outlets received items as they are needed rather than maintaining high inventory levels and material requirement planning (MRP) which schedules material deliveries based on sales forecast (Wangui, 2010).

The competitive inventory management environment is rapidly changing as globalization and technology force retail outlets to constantly seek ongoing improvement in all areas in terms of their knowledge, flexibility and performance. Inventory, for example, is receiving growing attention as an area in which efficiency and productivity increases can be made in order to improve customer service and to lower costs. However, inventory is often not an area of core competence for many organizations. The practice has evolved from simply a cost cutting measure to a core strategic business activity, aimed at enabling companies to focus on their core business (Wangui 2010).

Most of the supermarkets in Kenya are embracing automated inventory management so as to be effectively and efficiently managed their inventory to enable them to achieve their overall goal of profit maximization. Supermarket software is the premium retail store management system in Kenya with integrated point of sale and back office functions. The system supports the simplified operations of the entire store through receiving sales, inventory management and replenishment. This software has a role based on security which ensures access to specific functionality is limited to the appropriate levels (Kuria and Wanjau, 2011).

These retail outlets have been affected in one way or the other by the advanced technologies which allows for improved customer service and timely feedback about products. Retail outlets satisfy the ultimate customers by offering time, place, possession and form utilities.

In Kisii town, the supermarkets are commonly referred to as anchor stores and they include; Nakumatt supermarket, Naivas supermarket, Tuskys supermarket, Ukwala supermarket. The smaller supermarkets in this town include Oshwal, Kisii matt and Format supermarkets. All these supermarkets are located on areas that entail high customer traffic which is as a result of the large number of shoppers from current and potential customers. This is greatly due to the urban greed factor which refers to the spaces open to the public or pass.

STATEMENT OF THE PROBLEM

The performance of retail outlets largely depends greatly on the service levels provided by inventory management seen through the provision of required services levels in terms of quantity and order rate fill to both internal and external customers, (Berman and Evans, 1979). This therefore raises a number of questions;

- 1) To what extent does inventory management influence performance of retail outlets?
- 2) What components of inventory management are significant in influencing the performance of retail outlets?

Therefore, this study aims to investigate the effects of inventory management on the performance of retail outlets, specifically supermarkets.

STUDY OBJECTIVES

Specifically the study sought to:

1. Determine the effect of Economic order quantity (EOQ) on the performance of retail outlets.
2. Evaluate the influence of Lead time on the performance of retail outlets.
3. Investigate the effect of Inventory level planning on the performance of retail outlets.

RESEARCH QUESTIONS

1. Does the Economic Order Quantity (EOQ) affect the performance of retail outlets?
2. Does the Lead time influence the performance of retail outlets?
3. Does the Inventory Level planning affect the performance of retail outlets?

ASSUMPTIONS OF THE STUDY

In this research project the following assumptions held:

1. All respondents cooperated by providing reliable information
2. All the supermarkets remained operational during the study period
3. There were certain factors influencing inventory management that were unique to the retail outlets in the study area

TEST OF HYPOTHESIS

Table 1: Hypothesis

HYPOTHESIS STATEMENT	HYPOTHESIS TEST
HO1: There is no relationship between inventory management on performance of retail outlets	$HO1 \neq 0 < H1 = 1$ $H_{A1} = 0 < H1 = 1$ Reject HO1 if $H_{A1}: 0 < H1 = 1$ otherwise fail to reject HO1
HO2: There is a negative relationship between organizational factors and performance of retail outlets	$HO2 \neq 0 < H2 = 1$ $H_{A2} = 0 < H2 = 1$ Reject HO2 if $H_{A2}: 0 < H2 = 1$ otherwise fail to reject HO2

CONCEPTUAL FRAMEWORK

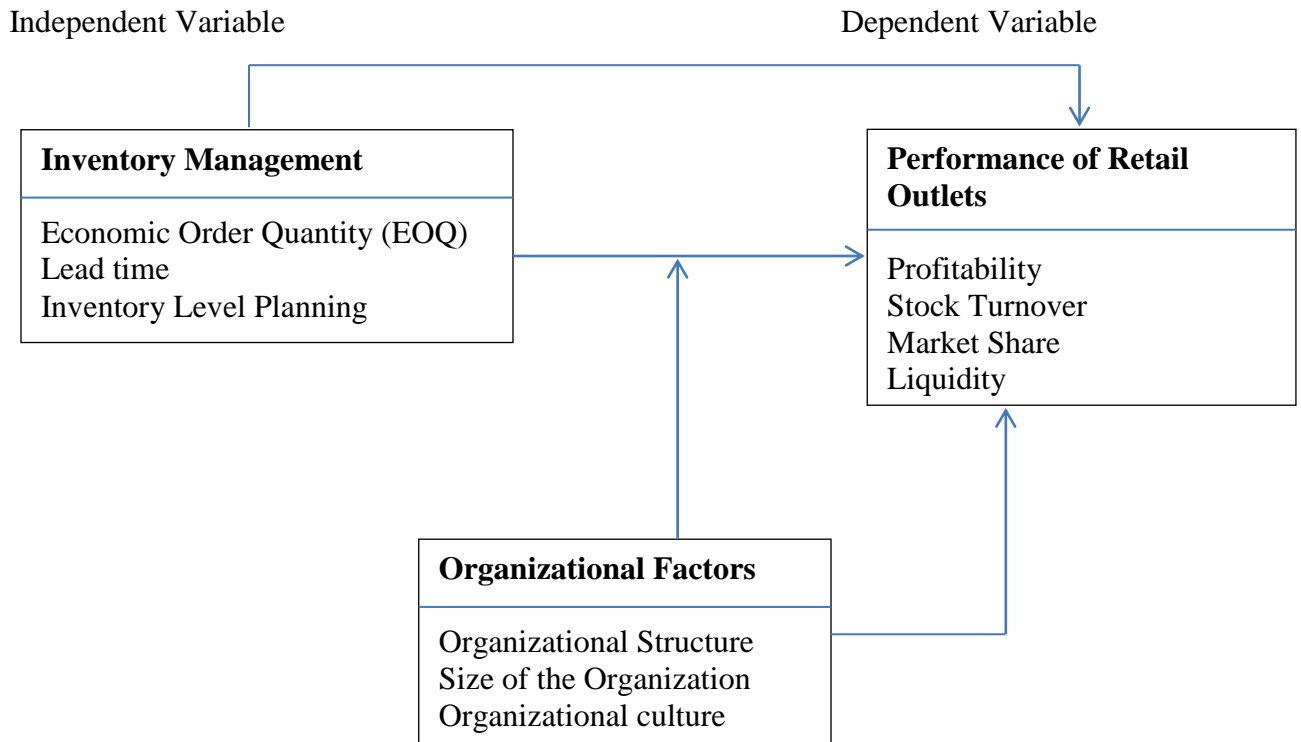


Figure 1: Conceptual Framework

RESULTS AND DISCUSSIONS

Inventory Lead-Time on Performance of Retail Outlets

The inventory management components are assigned weights from 5-1 representing strongly agree, agree, neutral, disagree and strongly disagree respectively. The values obtained from the respondents are analyzed in the table below.

Table 2: Inventory Management Component

Component	5	4	3	2	1	Mean
EOQ	15	10	8	4	3	3.25
Lead-time	12	10	6	8	4	3.45
Inventory Level Planning	8	4	8	16	4	2.9

Evident from the above table, the highest mean is 3.75 representing the effective management of lead time in the five supermarkets. The lowest mean is 2.9 representing inventory level planning. From this information, it can be deduced that most supermarkets observe lead-time management while placing orders while as inventory level planning is the least embraced technique.

Organizational factors on Performance

Same as the inventory management components, the organizational factor on the performance have also been analyzed as below:

Table 3: Organizational factors and Performance of Retail Outlets

Organizational factors	5	4	3	2	1	Mean
Size	12	9	6	4	9	3.05
Culture	15	6	4	5	10	3.275
Structure	20	5	8	5	2	3.9

The effect of organizational structure on the performance of retail outlets was observed as the highest mean with 3.9 while the influence of the organizational size on the performance of the retail outlets had the least mean of 3.05. This implies that organizational structure is the most influencing factor of the organization on the performance an organization.

Content Analysis

Content analysis is "a wide and heterogeneous set of manual or computer-assisted techniques for contextualized interpretations of documents produced by communication processes in the strict sense of that phrase (any kind of text, written, iconic, multimedia, etc.) or signification processes (traces and artifacts), having as ultimate goal the production of valid and trustworthy inferences".

Content analysis has come to be a sort of 'umbrella term' referring to an almost boundless set of quite diverse research approaches and techniques. Broadly, it can refer to methods for studying and/or retrieving meaningful information from documents. In a more focused way, content analysis refers to a family of techniques for studying the "mute evidence" of texts and artifacts.

Regarding performance improvement, the respondents advised the adoption of new technological skills relating to inventory management such as Just-in-Time, MRP and VMI if introduced and effectively utilized will reduce administrative cost, inventory carrying cost, inventory ordering costs among other logistical costs related to inventory management. This in turn will increase the overall performance of the supermarkets in term of profitability, increased market share and improve stock turnover rate.

Test For Hypothesis

The study was based on the premise that there is a relationship between inventory management and performance of the supermarkets. However, organizational factors had to be included in the study owing to their potential influence. Three relevant hypothesis were set in regard to this to guide the study through as shown in the conceptual framework and tests arranged systematically as per the set of chapter one.

Chi-Square Analysis

The chi-square analysis helps in checking the relationship between inventory management and the performance of retail outlets that is, supermarkets. The formula aims at answering our question of study: *what is the effect of inventory management on the performance of retail outlets?* Since the data was based on a tabular format, then the degrees of freedom (ν) will take the formula $V=(r-1)(c-1)$ where r is the number of rows and c is the number of columns.

Table 4: Effect of inventory management on the performance of supermarkets

Observed Values	Observed	Mean
15	3	9
12	4	8
8	4	6

Table 5: Effect of inventory management on the performance of supermarkets

Observed Value (O)	Expected value (E)	(O-E)	(O-E) ²	(O-E) ² /E
15	9	6	36	4
12	8	4	16	2
8	6	2	4	0.67
3	9	-6	36	4
4	8	-4	16	2
4	6	-2	4	0.67
				13.34

In arriving at the degrees of freedom, we used the formula; $(r-1)(c-1)$. The degrees of freedom $V = (3-1)(2-1)$ is equal to 2. Therefore, at 99% confidence level and V being equal to 2, the critical value of chi-square is equal to 7.277. We compare the critical value from the chi-square table with the calculated value for us to conclude. In this case the critical value is less than the calculated value hence we reject the null hypothesis 1. This implies that there is a relationship between inventory management and performance of retail outlets.

Table 6: Influence of Organizational factors on the Performance of the Supermarkets

Observed Value (O)	Observed values (O)	Mean
12	9	10.5
15	10	12.5
20	2	11

In arriving at the degrees of freedom, we used the formula; $(r-1)(c-1)$. The degrees of freedom $V = (3-1)(2-1)$ is equal to 2. Therefore, at 99% confidence level and V being equal to 2, the critical value of chi-square is equal to 11.345. The critical value is compared with the chi-square table with the calculated value for us to conclude. In this case the critical value is less than the calculated value hence we reject the null hypothesis 2. This implies that there is a relationship between inventory management and performance of retail outlets.

Table 7: Influence of Organizational factors on the Performance of the Supermarkets

Observed values (O)	Expected values (O)	(O-E)	(O-E) ²	(O-E) ² /E
12	10.5	1.5	2.25	0.214
15	12.5	2.5	6.25	0.5
20	11	9	81	7.36
9	10.5	-1.5	2.25	0.214
10	12.5	-2.5	6.25	0.5
2	11	-9	81	7.36
				16.148

SUMMARY OF RESULTS

Table 8: Summary of Hypotheses results

Hypotheses Statement	Hypotheses tests	Verdict
Ho1: There is no relationship between inventory management and the Performance of retail outlets	$H_{o1} \neq 0 < H_{o1} = 1$ $H_{A1} = 0 < H_{A1} = 1$ Reject Ho1 if $H_{A1} = 0 < H_{o1} = 1$ Otherwise fail to reject Ho1	Reject Ho1: This implies that there is a relationship between inventory management and the performance of the retail outlets.
Ho2: There is a negative relationship between organizational factors and the performance of retail outlets	$H_{o2} \neq 0 < H_{o2} = 1$ $H_{A2} = 0 < H_{A2} = 1$ Reject Ho2 if $H_{A2} = 0 < H_{o2} = 1$ Otherwise fail to reject Ho2	Reject Ho2: this clearly shows that there is a positive relationship between the organizational factors and the performance of the retail outlets

The research findings revealed that among the inventory management activities, the one that is embraced the most is the lead-time while inventory level planning appeared to be the least embraced activity. This was attributed to by the need for retail outlets to ensure availability of stocks in their outlets by way of having items on the stores' shelves while achieving this at the lowest cost. This is so because retail customers prefer to be able to access any item that they need at any time at a reasonable cost.

The study also revealed the adoption of technology by the supermarkets especially Naivas and Nakumatt has enabled them to enhance security of items in stock and on display while also enhancing inventory management through automatic updating of inventory levels.

In addition, a supermarket like Naivas embraced techniques like VMI which has greatly increased efficiency and effectiveness of inventory management. Another revelation from the study is that supermarkets fail to receive on time deliveries as ordered thereby causing a demand pool effects.

Discussion of Findings in relation to Research Questions

The study avails results based on its findings which have been used to provide information deemed to be capable of enhancing inventory management of supermarkets. The supermarkets substantially benefit from effective management arising from the consciously chosen inventory management activities which enables them to ensure that required items are available to their customers at all times and at reasonable prices.

One of the core competences in the supermarkets' inventory management basic framework is efficient and timely flow of information within the firm and between the firm and their suppliers respectively. This competency among others is sought by the supermarkets to enable them to meet the needs of their customers both in the short-term and in the long-term. Information accuracy and its flow among supply chain partners is crucial for the efficient and effective functioning of the supermarkets' inventory management.

This is so as to hedge the supermarket against the bull-whip effects among other drawbacks of inaccurate flow of information thereby enhancing better communication within the purchasing departments and their suppliers. This enables the firm to know their suppliers' future growth plans and the future product design capacity which enables the supermarkets to propose to their suppliers new products that can be delivered to them in response to changing customer needs.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Inventory lead time averagely took longer which negatively influenced performance of retail outlets Kisii. Further, there were many bottlenecks that created a long lead time of and the retail outlets was not silent on the issue of lead-time. The long lead time caused a freeze of schedules thus creating loss of money and it had a negative effect on firm competitiveness. Moreover, there was no semblance of lead time reduction strategies to help in better performance of retail outlets. The performance of retail outlets was hampered by unnecessary and extended lead time of getting goods and services. It can therefore be concluded that long lead time at Kisii retain outlets had a negative effect on the performance of retail outlets.

Recommendations

Retail Outlets in Kisii and Kenya as a whole and their management should reduce inventory lead time to conform to the effective and productive performance models. The management should do this by computerizing the process to speed up the inventory process and finally get the work done. Further, the management should maintain eternal vigilance to ensure that the inventory process is safeguarded so as to improve the overall performance of the supermarkets.

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