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ABSTRACT

The study sought to establish the effect of Vendor Managed Inventory (VMI) on organizational performance of supermarkets in Mombasa County. The study specifically sought to establish the effect of quality control and Supply Relationship Management on organizational performance of supermarkets in Mombasa County. In trying to establish the effect of the independent variables (quality control, and Supplier Relationship Management) on the dependent variable (organizational performance of Supermarkets) adopted Deming's Quality Management Theory and the Agency Theory. A descriptive survey design was adopted as the major research design. All the supermarkets in Mombasa County constituted the study target population. In this regard, both simple and stratified random sampling techniques were used to arrive at the study sample population. Questionnaires were the major tool of data collection in the study and constituted of both closed-ended and open-ended questions. In this case, both qualitative and quantitative data was collected in the study. The quantitative data collected was analyzed for both inferential and descriptive statistics by use of the SPSS Version 23 software. Descriptive statistics consisted of the percentage, mean and standard deviations for the research items under each variable. On the other hand, the inferential statistics entailed the ANOVA test and correlation analysis to predict the existing relationship between the dependent and the independent variables in the study. The qualitative data from the open-ended questions was organized into sub-topics and then re-coded back into the SPSS Software for more descriptive statistics. Statistical tables were used to present the study results. In this case, the study findings established that there existed a positive correlation between independent variables (Quality Control and Supplier Relationship Management) and dependent variable (Organizational Performance of Supermarkets). The study further recommended retail firms in Mombasa County to develop and implement sound quality control measures and at the same time invest in rigorous training of its staff so that they can accurately perform quality inventory control and retail firms in Mombasa County to consider fully integrating VMI to enhance the level of Supplier Relationship Management within and outside the organization.

Key Words: Quality Control and Supplier Relationship Management

Introduction

In the most recent decade, the expanded density of transport, necessities of customers in the form of higher quality speed and amount, have upgraded the requirement for inventory system management as an essential instrument to accomplish the competitive advantage. According to Archetti *et al.* (2011), firms have expanded the interests for the development of exercises as new adjustments of supply chains with littler halfway or complex mediations. The idea store network administration and mainly organize production network management chiefs used to underline the part of the coordination of various components of the inventory system. Managers have tried to focus not only on the fragments but on the whole chains but also the customers (Schiller, 2014).

Amongst other inventory management systems, VMI has been described as an inventory and supply chain management tool in which the supplier has taken the responsibility for making decisions on the timing and amounts of inventory replenishment. This tool has also been called a continuous replenishment process, continual replenishment or automatic replenishment (Stadtler, 2015). The advantages of using VMI to the downstream member, usually a large retailer, have well been documented (Irungu & Wanjau, 2011). Dong, Dresner and Yao (2014) noted that the main advantages of VMI were reduced costs, and increased customer service levels to one or both participating members. VMI has greatly reduced inventory-carrying costs and stock-out problems while, at the same time, it offered the ability to synchronize both inventory and transportation decisions (Wambua *et al.*, 2015). Further, Govindan (2013) noted that VMI advantages included improved customer service, reduced demand uncertainty, reduced inventory requirements and reduced cost based on a case study at Johnson and Johnson.

Mombasa County is home to Kenya's second-largest city, after the capital Nairobi, with an estimated population of about 1.2 million people in 2016 (Mwaniki, 2017). Its metropolitan region is the second largest in the country and has a population of approximately two million people. Administratively, Mombasa is the capital of Mombasa County. Being a regional cultural and economic hub, Mombasa has an extra-large port and an international airport, and is an important regional tourism center. Located on the east coast of Kenya, in Mombasa County and the former Coast Province, Mombasa's situation on the Indian Ocean made it a historical trading center, and it has been controlled by many countries because of its strategic location. Over the years, Mombasa County has become a home to a varied retail companies in Kenya (Mwaniki, 2017).

In this regard, the dominant players include Nakumatt, which is privately owned with a turnover of over 20 billion Kenya shillings per annum. It is the leading player in the sector with over 19 branches in Kenya as well as regional presence through a branch in Uganda and another in Rwanda (Kamau, 2014). Nakumatt has been noted as a ground breaker in East and Central Africa as it is the first retailer to have its stores open round the clock. Tuskys Supermarkets is another major chain in Kenya, ranking second, by sales, in the retail industry. The oldest and once leading supermarket chain, Uchumi, is also a major player in the industry. Other key retail chains include: Ukwala, Eastmatt and Naivas Supermarkets which are amongst the newest players in the industry (Ochieng & Wanjihia, 2014). In the 1990's, Uchumi spearheaded the hypermarket concept in Kenya. The introduction of the hypermarket concept and specialty shops has been a runaway success. It was credited for having revolutionized the retail food sector by giving customers a variety of products to choose from and introducing the concept of self-service. It has also

been a major outlet for local manufacturers and suppliers of fresh produce (over 2500 suppliers with an 85 to 15 ratio in favor of local suppliers vis-à-vis imports).

Statement of the Problem

According to Williams *et al.* (2014), integration of the Vendor Management Inventory (VMI) system in the supply chain does reduce inventory cost by 12-15 percent. Zhao *et al.* (2016) indicated that global retail outlets of the world such as Wallmart, Foodex and Safeway's have years after integration of VMI systems along the supply chain management and have realized a 13% increase in its gross profit. Further, a South African retail outlet-Shoprite recorded a 18 percent increase in total revenues after a full integration of the VMI system in their supply chain (Njura, 2015). According to Wisner (2016), the Vendor Managed Inventory system can diminish the bullwhip effect that is linked up with incorrect forecast of demand, improve the set-up time of machines, help to better planning of production, decrease administrative costs of customers, increase the service level, truckload rate and decrease risk of stock out. It is also able to reduce the time needed for managing the inventory level, set up the minimum order to optimize loading, improve plans to minimize costs or disruptions in the whole supply chain, detect deficiencies or surplus in the goal financial statements and give more trust in the relationship of both sides (Ross, 2016).

In the recent past, retail companies in Kenya such as Uchumi have entered into contracts with various suppliers where they have been observed to supply directly from the shelves. Most of these retail companies have been faced with challenges ranging from overstocking to stock run-outs (Sikomwe *et al.*, 2014). This has resulted to massive losses to these retail companies to an extent that some have resulted in shutting down some of their major

outlets. According to Nyakango (2016), Uchumi Company for example lost revenue worth Ksh. 250 million because of stock outs in its various outlets and incurred Ksh1.9 billion in warehouse charges; because of various factors at play including investment in more stock that led to tying up the much limited and scarce working capital.

In a nutshell, literature on inventory management is wide. However, in Kenya, there are relatively very few studies that have specifically focused on inventory management as a research area. In this regard, some of the most prevalent studies done in this area of inventory management in Kenya (Ochieng & Wanjihia, 2014; Nyakango, 2016; Irungu & Wanjau, 2011; Kariuki & Noor, 2015) have touched on effect of Vendor Managed Inventory but none of these studies was conducted specifically on organizational performance of the retail industry in Mombasa County in Kenya. It is from this that the researcher seeks to undertake this study and establish the effect of VMI on organizational performance of supermarkets in Mombasa County in Kenya.

Objectives of the Study

The major objective was to establish the effect of Vendor Managed Inventory on organizational performance of supermarkets in Mombasa County. Specific objectives were:

- To find out the effect of quality control on organizational performance of supermarkets in Mombasa County.
- To establish the effect of supplier relationship management on organizational performance of supermarkets in Mombasa County.

LITERATURE REVIEW

Theoretical Review

Deming's Quality Management Theory

To expound on the effect of quality control on organizational performance of supermarkets in

Mombasa County, the researcher adopted Deming's Quality Management Theory. Considered by many to be the father of the total quality management movement, Deming's quality Management Theory is based on the simple concept that continual improvement can help increase quality while decreasing costs. Applying the principle of Deming's Theory, management of inventory on the retail outlets is not a series of unrelated processes, but is an entire system, and when viewed as an entire system, opportunities to improve efficiencies are more easily identified (Sallis, 2014).

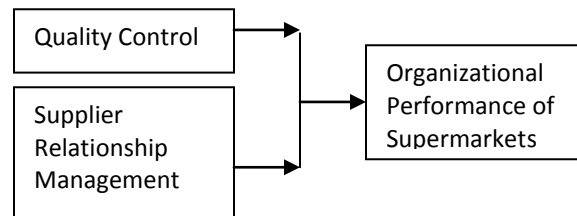
Deming also suggested that the idea of tolerance limits is a detriment to the quality of a product. Tolerance limits are the degrees of variance from the goal that management considers acceptable. According to him, quality control was the most important thing in this regard, Deming suggested that those tolerance limits hinder quality because, if enough products are within the tolerance limits, management won't make any changes to the process. Deming further argued that that by focusing on the goal, management would be continually tweaking the process until they consistently produce perfect products (Sallis, 2014).

Agency Theory

To expand on the effect of firm-supplier relationship on organizational performance of supermarkets in Mombasa County, the researcher adopted agency theory. The agency theory is a supposition that explains the relationship between principals and agents in business (Kondo, 2015). In this regard, the theory was significant in expounding on the relationship between the firm and the suppliers. Agency theory is basically concerned with resolving problems that can exist in agency relationships due to unaligned goals or different aversion levels to risk. The most common agency relationship in finance occurs between shareholders (principal) and company executives

(agents). Agency theory addresses problems that arise due to differences between the goals or desires between the principal and agent. This situation may occur because the principal isn't aware of the actions of the agent or is prohibited by resources from acquiring the information (Gordon, 2015).

Conceptual Framework



Independent Variables Dependent Variable
Figure 1: Conceptual Framework

Quality Control

Quality control (QC) is a procedure or set of procedures intended to ensure that a manufactured product or performed service adheres to a defined set of quality criteria or meets the requirements of the client or customer (Sachan *et al.*, 2014). QC is like, but not identical with, quality assurance (QA). According to Fox (2013), QA is defined as a procedure or set of procedures intended to ensure that a product or service under development (before work is complete, as opposed to afterwards) meets specified requirements. QA is sometimes expressed together with QC as a single expression, quality assurance and control (QA/QC).

To implement an effective QC program, an enterprise must first decide which specific standards the product or service must meet. Then the extent of QC actions must be determined (for example, the percentage of units to be tested from each lot (Fox, 2013). Next, real-world data must be collected (for example, the percentage of units that fail) and the results reported to management personnel. After this, corrective action must be

decided upon and taken (for example, defective units must be repaired or rejected, and poor service repeated at no charge until the customer is satisfied). If too many unit failures or instances of poor service occur, a plan must be devised to improve the production or service process and then that plan must be put into action. Finally, the QC process must be ongoing to ensure that remedial efforts, if required, have produced satisfactory results and to immediately detect recurrences or new instances of trouble (Park, 2015).

Supplier Relationship Management

Grunfleh & Tarafdar (2015) defined Supplier Relationship Management (SRM) as the practice and process for interacting with suppliers. Most supply professionals view SRM as an organized approach to defining what they need and want from a supplier and establishing and managing the company-to-company (or procurement-to-sales) link to obtain these needs. According to O'Brien (2014), Supplier Relationship Management (SRM) is an approach used for engaging with suppliers on a level that reflects the priorities of the customer organization and how best these needs can be achieved. It is a differentiation process that recognizes that not all suppliers are the same and therefore not all customer-supplier relationships should be dealt with through a single strategy (O'Brien, 2014).

Whilst much of the emphasis is placed on the role and situation of the customer and supplier, the products and services being procured are extremely influential in how the organizations view and interact with each other (Walumbe, 2016). By understanding and responding appropriately to this triangulation it is possible to yield the greatest value from both the products/services and the enterprises involved. The holistic nature of this approach requires the consent and engagement of the whole organization. True SRM cannot be

achieved through the Procurement Function acting alone. At the partnership level, this means the involvement of the executive team; at the very minimum it means functions acting in a coordinated way so that the organization does not appear disorganized or schizophrenic to the outside world (O'Brien, 2014). Given the complexities described above, SRM needs to be considered as part of a much wider portfolio of procurement resources that collectively deliver the value and contribution that more and more organizations are demanding of the function. It therefore requires careful development at speeds often dictated by the activities of the organizations involved (Walumbe, 2016).

Formal or not, academic and consulting company research shows that organized approaches to supply and suppliers produce positive sourcing results. Supplier relationship management acts as a focal point between the organization and the final consumers (Stewart & Gapp, 2014). Organizations that have problems with their supply chain networks or channels can adopt Supplier Relationship Management practice to enhance their supply chain efficiency. According to Walumbe (2016), "inefficient supply chains were the major cause of poor organizational performance". He further insisted that organizations with integrated supply chains recorded high profits than those who paid little attention to supply chains.

RESEARCH METHODOLOGY

The study adopted a descriptive research design; that enabled the researcher to keep track of the activities in the research process to ensure that the objectives of the study are achieved. The target population in this study included all employees in 3 Nakumatts, 1 Uchumis, 2 Naivas, 4 Tuskys Supermarkets and 10 other Minimarts in Mombasa County and the inventory managers, lead merchandisers, the procurement team, product line

managers and the general staff members. The study population was first categorized sub-groups following the heterogeneous nature of the target population. Elements in the sub-groups were further randomly picked to form the sample population of the study. This ensured that the subgroups within the population were represented and were well accounted for. The groups used were based on classification of the employees in terms of their job position.

The researcher adopted a multiple regression model at 5 percent level of significance and 95 percent level of confidence to establish the direction of the association between the independent variables (Quality Control and Supplier Relationship Management) and the dependent variable (Performance of supermarkets).

In this case, the regression equation was expressed as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon \dots\dots\dots (i)$$

Where:

Y= Organizational Performance of Supermarkets

Table 1: Reliability test

Variable	Cronbach's Alpha	No. of items
Quality Control	.832	4
Supplier Relationship Management	.915	4

β_0 = coefficient of intercept

X_1 = Quality Control

X_2 = Supplier Relationship Management

ϵ =error term

$\beta_1 \dots \beta_2$ = Regression coefficients of the independent variables

RESULTS AND FINDINGS

Reliability Test

Reliability of an instrument is the ability to produce consistent and stable results. One of the most common reliability coefficient is the Cronbach's alpha which estimates internal consistency by determining how all items on a test relate to all other items and to the total test - internal coherence of data. The reliability is expressed as a coefficient between 0 and 1. The higher the coefficient, the more reliable is the test. According to Gugiu and Gugiu (2017), a standard minimum value of alpha of 0.7 is recommended. In this study, all the alpha values were more than 0.7 as indicated in Table 1.

Supplier Relationship Management on Organizational Performance of Supermarkets.

Regression Analysis

Further, the researcher undertook a linear correlation to test for collinearity of Flow of information, Demand forecast, Quality Control and

Table 2: Model Summary

Model	R	R Square	Model Summary			Change Statistics		
			Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig. F Change	
1	.794 ^a	.630	.553	.331	.630	8.099	.001	

a. Predictors: (Constant), Flow of information, Demand Forecast, Quality Control, Supplier Relationship Management.

The model used in this study explained 63.0 percent of variances in organizational performance of supermarkets in Mombasa County. This implied that there exists a positive relationship between independent variables (Flow of information, Demand Forecast, Quality Control, Supplier Relationship Management) and dependent variable (Organizational Performance). On the same, a further research should be undertaken to establish

the factors influencing the remaining 37 percent of the organizational performance of supermarkets in Mombasa County.

From the ANOVA results in Table 3, the model used in the study was statistically significant in predicting the effect of flow of information, demand forecast, quality control and supplier relationship management on organizational performance of supermarkets in Mombasa County ($p=0.001<0.05$).

Table 3: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	3.546	4	.886	8.099	.001 ^b
Residual	2.079	19	.109		
Total	5.625	23			

a. Dependent Variable: Organizational Performance of Supermarkets

b. Predictors: (Constant), Flow of information, Demand Forecast, Quality Control, Supplier Relationship Management

Table 4: Coefficients^a

Model	Unstandardized Coefficients	Standardized Coefficients			t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.351	.882		2.664	.001
	Flow of Information	.586	.130	.669	4.300	.003
	Demand Forecast	.421	.293	.472	3.411	.013
	Quality Control	.689	.123	.595	4.646	.001
	Supplier Relationship management	.769	.194	.784	5.786	.000

a. Dependent Variable: Organizational Performance of Supermarkets

$$Y = 2.351 + 0.689X_3 + 0.769X_4$$

If all independent variables were at constant zero, then organizational performance of supermarkets in Mombasa County would be 2.351. This implied that organizational performance of supermarkets in Mombasa County would still be effective if there was no flow of information, demand forecast, quality control and supplier relationship

management. In this case, a unit increase in flow of information would likely result to a 0.586 increase in organizational performance of supermarkets in Mombasa County. Further, a unit increase in demand forecast would likely result in 0.421 increase in organizational performance of supermarkets in Mombasa County. Also, a unit increase in quality control would result in 0.689 increase in organizational performance of

supermarkets in Mombasa County. Lastly, a unit increase in supplier relationship management would likely result in 0.769 increase in organizational performance of supermarkets in Mombasa County. This implied that the nature of the relationship between the independent variables (flow of information, demand forecast, quality control and supplier relationship management) and dependent variable (organizational performance) was positive. At 5% level of significance, all the independent variables were statistically significant ($p=0.001<0.05$). However, supplier relationship management was the most significant factor ($p=0.000 < 0.05$) while demand forecast was the least significant ($p=0.013 < 0.05$). This concurred to the earlier findings of Ochieng & Wanjihia (2014) who established that supplier relationship management was the most significant variable influencing organizational performance.

Discussion of the Key Findings

Quality Control

Quality Control ensures that the manufactured product or performed service adheres to a defined set of quality criteria or meets the requirements of the client or customer. In this regard, the results are reported directly to the management and the process performed again to ensure conformity to the set criteria what by far impacts on customer level of satisfaction (Sachan *et al.*, 2014). The third specific objective of the study sought to establish the effect of quality control on organizational performance of supermarkets in Mombasa County. In this light, the descriptive findings revealed that, on average, the respondents agreed to the statements of effect of quality control with a mean of 3.88 at 0.78 standard deviation. Meaning that majority of the people interviewed agreed that quality control had an impact on the performance of the retail organizations they worked for. Further, inferential statistics on the same shows $\beta=0.689$, $t=4.446$ and $p\text{-value}= 0.001$. This implied that there

existed a statistically significant high positive correlation between quality control and organizational performance of supermarkets in Mombasa County. These study findings agreed to the findings of Kariuki and Noor (2015) who observed that there coexisted a positive association between quality and performance of the Kenyan retail supply chain. Further, Park (2015) suggested that quality control influenced the performance of firms in the retail sector when he indicated that an effective quality control programs had a positive impact on the performance of the retail outlet, an enterprise must first decide which specific standards the product or service must meet. Also, Sachan *et al.* (2014) argued that quality criteria are vital for the performance of any given firm for this is what ensures the company meets the requirements of the client or customer.

Supplier Relationship Management

Supplier Relationship Management enhances the supply chain efficiency. According to Walumbe (2016), integrated supply chains enable the organizations to record high profits than those who paid little attention to the supply chains. The fourth specific objective of the study sought to establish the effect of supplier relationship management on organizational performance of supermarkets in Mombasa County. In this case, the descriptive findings in the study revealed that, on average, the respondents highly agreed to the statements of effect of supplier relationship management with a mean of 4.00 and a standard deviation of 0.84. This proved that people interviewed had a strong opinion that well management of the supplier relations adequately influenced how well the supermarkets performed. Further, the inferential statistics on the same revealed that $\beta=0.769$, $t=5.786$ and $p\text{-value}= 0.000$. This implied that there existed a statistically significant high positive correlation between supplier relationship management and organizational performance of

supermarkets in Mombasa County. These findings were in line with past findings of Ochieng & Wanjihia (2014) who observed a positive correlation between supplier relationship management and performance of outlets in the retail sector. Similarly, Irungu and Wanjau (2011) did observe that Supplier/Buyer relationship management positively influenced the performance retail supply chain. Also, Walumbe (2016) suggested that inefficient supply chains in companies resulted to poor Supplier Relationship Management what he termed as the major cause of poor organizational performance. Therefore, organizations with integrated supply chains recorded high profits than those who paid little attention to Supplier Relationship Management and integration of the supply chains.

CONCLUSION

The study concluded that quality control positively influenced the organizational performance of supermarkets in Mombasa County. In this regard, adoption of VMI as an inventory Management tool influenced the level of quality control ensuring that the customer's standards were met and minimizing consumer complains what created customer loyalty and further boosted organizational profit margins. However, most of the employees were not very conversant with quality inventory control measures at their place of work.

On the same, the study concluded that, supplier relationship management positively influenced the organizational performance of supermarkets in Mombasa County. In this case, VMI integration as an inventory management tool influenced how retail organizations in Mombasa County rationalized their supplier base, what not only impacted on the level of supply chain collaboration but also the efficiency and effectiveness of the specific retail outlets. However, not all retail firms in Mombasa had fully integrated VMI hence not all practiced effective supplier relationship management.

RECOMMENDATIONS

- Retail firms in Mombasa County to develop and implement sound quality control measures and at the same time invest in rigorous training of its staff so that they can accurately perform quality inventory control. This would improve on the general purchase of inventory in the individual firms adequately impacting profits through sales.
- Retail firms in Mombasa County to consider fully integrating VMI to enhance the level of Supplier Relationship Management within and outside the organization. Full integration will also ensure that all the supply chain members especially the customers and the suppliers are deeply integrated and collaborated. This would not only boost the supplier relationship management practice but also impact on flow of information from both ends enhancing the company's level of efficiency and effectiveness.

AREAS FOR FURTHER RESEARCH

Factors: flow of information, demand dorecast, quality control and supplier relationship management in this study explained only 63 percent of the variances in organizational performance of supermarkets. In this regard, a similar study on effect of VMI on organizational performance of supermarkets should be undertaken but to involve all the supermarkets in Kenya to adequately investigate the other factors that influence the remaining 37 percent of variances in organizational performance of supermarkets. Further, a different study should be undertaken to investigate the factors affecting the integration of VMI in retail industry in Kenya. This would help shed more light on the factors that should be addressed to improve on integration of VMI as an inventory management tool in the retail industry in Kenya.

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