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LEAN INVENTORY MANAGEMENT STRATIGIES ON PERFORMANCE OF DEVOLVED GOVERNMENT IN NYERI COUNTY, KENYA

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ABSTRACT

This study was carried out to establish the influence of lean inventory management strategies on performance of devolved government in Nyeri County. The study sought to explore demand management and Performance of a devolved government in Nyeri County. The research design involved a descriptive research design since it measures both the qualitative and quantitative data collected. The unit of analysis has 12 departments which are the user departments of all the goods procured by the procurement department, which has a speculation of 125 respondents. The descriptive research design was adopted. A sample of 70 respondents was adopted. The unit of observation includes procurement officers, heads of all user departments, medical officers. Data was collected using a structured questionnaire tabulated on a 5 Likert scale administered through "drop and pick" method. Regression analysis was used to analyze the independent and dependent variables. The dependent variables in the Lean inventory management strategies are: Demand management, Performance of a devolved government in Nyeri County, Kenyaon adoption of EDI systems, cost & waste management and Just in Time Philosophy and independent variable is performance of devolved government in Nyeri County. The findings are presented in tables. It is clear that there is a significant that lean inventory management strategy has a positive influence on performance of a procuring Entity. The study on focused on devolved government of Nyeri. Therefore, the researcher recommends further research on other forms of government set ups and other industries that are located all over the country. The researcher has also recommended that future research to expand on the domain of SCM practices by considering additional dimensions and also seek to utilize multiple respondents to enhance research.

Key Words: lean inventory management strategies, demand management, Performance of a devolved government

INTRODUCTION

The supply chain is a set of coordinated activities and decisions utilized to economically incorporate manufacturers, transporters, suppliers, warehouses, retailers, and customers so as to ensure that the right product or service is dispersed at the right time, to the right locations and at the right quantities, in order to reduce overall costs at the same time satisfy customer service level desires (Jaskanwal, Deep &Rajdeep, 2013). Supply chain best practices relate to supply chain coordination, supplier relationship, sharing and Performance of a devolved government in Nyeri County, Kenya, customer relationship, just-in-time and geographical proximity. Functional Supply chain best practices relay to issues about materials management and its supply, internal operations, customers and overall distribution (Christopher &Towill, 2000).

Lean supply chain practices is a set of activities performed by firms to effectively promote the management of its supply chain, Li (2010) proposed that supply chain practices to be a multi-dimensional assembly that incorporates both downstream and upstream sides of the supply chain. He defined it as an organized approach to enhancing value to the consumers by pinpointing and eliminating waste of materials, time and effort through continuous improvement in pursuit of excellence (Lassale, 2005).

Lean inventory management is all about refining how a company handles its supply chain and manufacturing processes, and it's not just for companies looking to conserve capital or navigate uncertain markets. A lean inventory approach leverages continuous improvement methods to reduce waste — of time, materials and work (Duke, 2018). That improves efficiency, saves money and ultimately enables companies to provide more value to customers. The first step in achieving the goal of becoming a lean manufacturer is to identify and attack the seven wastes. As Toyota and other world-class organizations have come to realize, customers will pay for value-added work, but never for waste. Toyota has long been recognized as the automotive industry leader in manufacturing and production (Carlo, 2020). This system, more than any other part of the company, is responsible for having made Toyota the company it is today. It's ironic that Toyota got its inspiration for the production system in the United States.

In Africa, Lean supply chain practices is a set of activities performed by firms to effectively promote the management of its supply chain, Li (2010) proposed that supply chain practices to be a multi-dimensional assembly that incorporates both downstream and upstream sides of the supply chain. He defined it as an organized approach to enhancing value to the consumers by pinpointing and eliminating waste of materials, time and effort through continuous improvement in pursuit of excellence (LaSalle, 2005).

According to Safaricom (2013) Kenya has got firms which have achieved excellent supply chain performance through the implementation of effective lean procurement methodologies through the development of a strong relationship with its stakeholders ,process standardization in its supply chain , effective Performance of a devolved government in Nyeri County, Kenya methods usage ,effective supplier relationships that ensure best value in terms of cost ,quality ,service and innovation an finding new and highly innovated ways of doing things to benefit the customers .Operational excellence also means getting good returns one the working and fixed capital used to produce goods.

Kenya manufacturing firms face problems of fluctuating inventories, inaccurate forecast, poor responsiveness to customer's needs and lack of proper ICT application systems resulting to poor performance (Ondiek & Odera, 2012). This was confirmed by Ondiek & Odera (2012) who observed that New Kenya Cooperative Creameries (KCC) faced problems of erratic deliveries, reduced consumer effective demand and high cost of production due to poor strategic inventory management systems techniques leading to declined performance. Kagira (2012) also noted that Kenya Tea Development Agency managed factories faced problems of fluctuating inventory

levels, poor demand management and lack of proper inventory control systems due to poor strategic inventory management systems. It is therefore important for gas manufacturing firms in Nairobi County to have sound, effective and well-coordinated inventory management systems because the business environment is rapidly changing, highly competitive and this drastically affects the performance of the organization.

Statement of the Problem

The organization has been faced by lean inventory management strategies which stems from poor demand management through forecasting has led to holding of high stock levels and at times keeping low stocks which cannot solve the present demand at a particular moment. This has led to unmanageable stockholding costs, obsolescence of stock and stoppages of production process. The organization has a challenge of Performance of a devolved government in Nyeri County, Kenyabetween its suppliers. This has led to bullwhip effect as uncertainties associated with poor information flow (Rosedyl, 2000). The organization has faced increased lead time which has affected the internal processes since it has led to procrastination on completion of assignments. (Walker, 2011). The organization is also facing high cost of inventory challenges that has led to inability to achieve objectives on cost saving. This has emanated from storage cost, holding costs amongst many others.

From the study on a total population of 125 respondents and a sample of 70 respondents analyzed it is clear adoption of lean inventory management strategies has an influence in the performance of an organization represented as 56%.In few of the foregoing most citations of the literature available are from foreign countries hence the need to do a study in Kenya's context to bridge the existing gap (Michael, 2015).

Objectives of the Study

i. To examine the influence of demand management on performance of devolved county government in Nyeri County, Kenya.

ii. To determine the influence of cost and waste management on performance of devolved county government in Nyeri County, Kenya.

LITERATURE REVIEW

Theoretical Review

Adaptive structuration Theory

Adaptive Structuration Theory (AST) is relevant to current control procurement practice because of the growing influence of advancing technologies on the human contact aspect of AST and its implications for socio biologically inspired internal structures in safety software applications (Ramakrishna 2005). AST theory illustrates how specific breakthroughs in Performance of a devolved government in Nyeri County, Kenya are government and organizations progress in developing business alignment, IT strategy, and development, demonstrating how AST is being used as a catalyst for effective management within businesses. The study applies Theory to determine how Performance of a devolved government in Nyeri County, Kenya affects the complexity of procurement procedures (Ramakrishna 2005). De Sanctis and Poole (1994) assert that AST is a valid methodology for examining the role of sophisticated technologies ineffective procurement. AST takes a two-pronged approach to the procurement management process. The types of structures supplied by sophisticated technologies in procurement activities and 2) the patterns that arise naturally via human action as these technologies are used in procurement operations.

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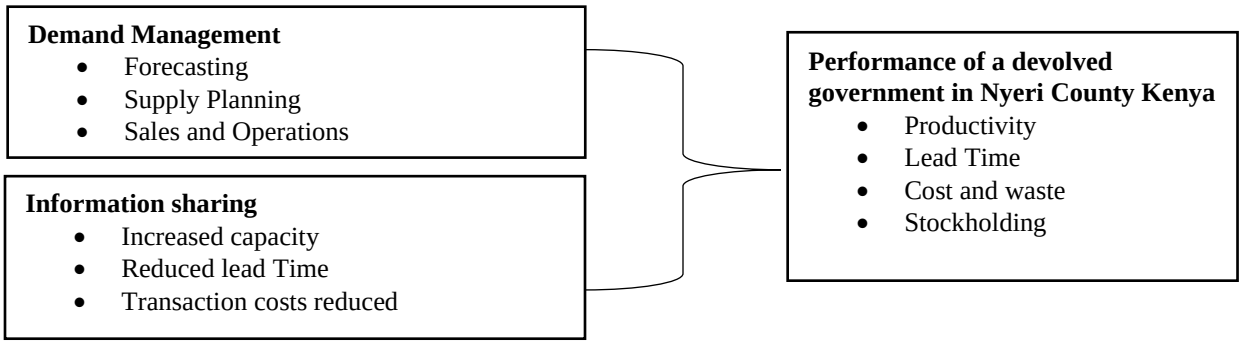
Lean Theory

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



Demand Management

The economic Order quantity (EOQ) has been defined Ogbo (2011) as the ordering quantities which minimizes the stability of cost between inventory preserving prices and re-order charges. Ogbo (2011) pressured further that with the intention to calculate a basic EOQ, positive

assumptions are essential that there is a known, regular, stock conserving costs, steady ordering prices; the price of call for are recognized, there is a known regular charge according to unit, replenishment is made straight away, this is, the whole batch is delivered straight away, no stock-outs are allowed etc. The rationale of EOQ ignores buffer shares that are maintained to cater for versions in lead-time and call for (Ogbo, 2011). In line with Salawati et al. (2012) economic order quantity is the order amount that minimizes overall inventory holding prices and ordering fees. It's far one of the oldest classical manufacturing scheduling models. The framework used to decide this order amount is also known as Barabas EOQ version or Barabas formulation. The inventory control formulation is normally a success wherein stock requirement for the complete year is able to be mounted by way of the company. Economic order amount allows businesses to plan their stock replenishment on a well-timed foundation including monthly, quarterly, 1/2 every year or yearly foundation. By so doing, it allows firms to have minimal garage prices or 0 within their warehouses due to the fact stock is coming in and going out immediately (Schonberger, 2008).
Mandal (2012) states that monetary Order amount (EOQ) applies simplest while demand for a product is regular over the year and each new order is added in complete when inventory reaches zero. There is a set cost for each order located, no matter the range of units ordered. There's also a cost for each unit held in garage, occasionally expressed as a percent of the purchase price of the item. The EOQ, seeks to find a stability among preserving an excessive amount of or too little stock. The EOQ method receives pretty complicated, and to utilize it, an agency have to recognise the subsequent records ; annual 12 usage in units, ordering value in greenbacks according to order, annual sporting cost fee as a decimal of a percent, unit value in dollars and the order amount in gadgets. The EOQ method seeks to locate the order quantity that has the lowest overall price of carrying the stock (Mandal, 2012)

Information Sharing

Knowledge of the tools and method is often not the problem, according to Bhasin and Burcher (2006), but rather difficulties of coordinating the work and making people believe in them. In his article, Philip Atkinson states that most organization fail to create a culture that will sustain lean and any other program of organization improvement. He states that failing to plan for equates to planning to fail. Firms should pay equal attention to creating the right culture, conditions and circumstances which can become the foundation of implementing change. Implementing lean methodologies also requires extra resources which most of the firms are not willing to spend. Financial resources are needed for employee training programs, external consultants, ICT Integration and coordination etc. Sometimes even production of firms may be interrupted as a result of the employees training in the new techniques. The managers would rather refuse unnecessary loss of resources especially if they do not anticipate immediate returns (Pius Achangaet al., 2008).
The complexity and challenges associated with this process are quite similar across all organizations regardless of their portfolio's size (Waller & Esper, 2014). However, there are slight differences for organizations with adequate physical space compared to those with a limited one because the former will have a receiving area for goods while the former may be forced to send them straight to the stock area. Another notable difference in the way the inventory management process might be applied by different organizations is that wholesale distributors tend to deal with finished products, while manufacturers start by handling raw materials (Arslan, 2017).Depending on where an organization fits in the supply chain, the efficiency of the process is of paramount importance, thus the need to have effective tools, techniques, and quality measures cannot be easily overlooked.

To have an effective inventory management process, an organization has to apply several methodologies. One of the commonly used ones in stock review. This involves conducting an analysis of goods at hand versus the need level regularly. Capable of being done manually or using an automated system, this methodology provides an organization with the lowest stock level they should not pass to maintain a good flow of goods (Turban, Pollard & Wood, 2018).Another effective methodology for inventory management is the Just in Time (JIT) approach that entails releasing goods only ordered by customers. The effectiveness of this strategy is highly dependent on the ability of an organization to conduct a thorough market analysis to establish the buying patterns of potential customers, as well as the supply and demand of goods (Arslan, 2017).

Empirical Review

Demand management

There have been persistent arguments over what stimulates aggregate demand in any country, of which Nigeria is one. Scholars also argue that aggregate demand either limits or expands specialization of labor. Early economic development proponents have also argued that aggregate demand is subject to change due to change in government spending or a reduction in taxes. This is so because a reduction in taxes, for example, leads to increase in disposable income, which stimulates aggregate demand. This is also true of increase in government expenditure. Yet there is no consensus as to which of these actions clearly affect the aggregate demand in an economy, whether an increase in government expenditure or a reduction in taxes. It has been argued that the fiscal operations of the government were not effective in restoring macroeconomic stability. Osakwe (1983) points specifically at the increasing Federal Government expenditure as a major factor which, via its effects on money supply causes price instability. The Empirical Determinants of Aggregate Demand and its Effect on the Nigerian Populace Okunrounmu (1992) attribute the observed persistent economic problem of the period to inappropriate fiscal management. Akpakpan (1994) argues that the failure of the government to reactivate the economy through the use of fiscal policy means that the government never used fiscal policy as an instrument of economic management. This implies that change in government spending does not determine or affect aggregate demand. These views have not been thoroughly investigated. But we need concrete facts to be able to guide future policies. This study is an attempt to contribute toward this. The general debate is that aggregate demand in any economy determines capacity utilization in industries within and outside an economy. This is because if, for instance, aggregate demand is low, there will be a fall in capacity utilization in the industries within an economy. That is to say, that aggregate demand either limits or expands specialization of labour. It is therefore, necessary to have a glimpse of the tripod upon which aggregate demand pivots. Man is the nucleus of aggregate demand and supply. Hence, the study of the behaviour of the population is very vocal. The tripod upon which aggregate demand pivots is the fiscal policies of the government, capacity utilization and the relative population of any country. This does not limit the fact that there are other supportive variables that stimulate aggregate demand. Since 1980's, the Nigerian economy has been facing serious economic depressions resulting in both domestic and external instability whereby aggregate demand becomes too low.

Information sharing

Contemporary studies regarding ICT use in the field of public child welfare indicates that line workers rate the current technology available as user unfriendly (Peckover, Hall, & White, 2009), and often view technology as a managerial method of control and tracking productivity (Tregeagle & Darcy, 2008). However public child welfare has adopted ICT in the forms of data bases (U.S.

Department of Health and Human Services, 2015), data processing systems (California Child Welfare Indicator Project, 2015), mobile technology (Bowen, 2014), assessment tools (Johnson, 2004) and others. Public child welfare can view ICT projects as financially risky (Jang, 2014). Furthermore there are numerous identified concerns with ICT in public child welfare. These concerns for ICT in public child welfare include: ICT being designed primarily for research purposes instead of immediate line worker benefit (Tregeagle & Darcy, 2008), or ineffective ICT which duplicates work, lowers morale, and has high financial expenditure (Ince & Griffiths, 2011), loss of worker client engagement and relationship (Hall, Peckover, & White, 2010). Possible gains for incorporation of ICT involve: ability to capture, store and analyze comprehensive 13 data (Naccarato, 2010), increased worker efficiency and access to case records (Barker, Warburton, Hodgkins, & Pascal, 2014), increased worker availability to clients (Bowen, 2014), and increase in worker client engagement (Tregeagle & Darcy, 2008). Currently there is no fundamental understanding across agencies as to how or why to use, or not use forms of ICT. Examination and identification of themes present in use, purpose and implementation practices of ICT in child welfare may enlighten key elements for success in these areas

RESEARCH METHODOLOGY

This study utilized a descriptive research design. This is because the descriptive research design is able to measure both qualitative and quantitative data. Research design involves collection of data related to situations, events, products, people and individuals and then organizes, depicts, tabulates and makes a description of the outcome. Russell (2013) recommends a descriptive research design in the examination or investigation of the views and attitudes of individuals as they are without making any changes or interventions.

The unit of analysis was County Government of Nyeri. On the other hand the unit of observation will be procurement officers, heads of user departments and officers from the medical departments within Nyeri County. A sample of 72 firms (or 57% of the population) was selected for the study using stratified sampling method. This number is justified given that the study by (Wainaina & Bolo (2007) on Supply Chain Management used a sample of 75 respondents from the other user departments. Questionnaires will be used in the collection of primary data. Moreover, the questionnaire will contain a structured questionnaire on a 5 Likert scale

RESEARCH FINDINGS AND DISCUSSIONS

Response rate

The research sample composed of 75 respondents, out of which 71 questionnaires were received back, with four (4) being either not filled or not returned at all. This translated to 95.1% response rate which was acceptable for data analysis.

Descriptive Analysis of the Variables of the Study

Demand management

Table 1 indicates that Demand management used to be rated agree and that was indicated through overall mean of 3.8, Accuracy of the information influence performance of a firm. Response still indicated that Organization uses VMI to enhance Supplier relationship influence performance of a firm (mean 3.7), The organization uses VMI to reduce risk of obsolescence and redundancy (mean 3.8), Supplier appraisal influence performance of a firm (mean3.9), Vendor management inventory system eases management's work for inventory replenishment (mean 3.4), Supplier appraisal influence performance of a firm.

Table 1: Demand Management

	Items	Mean	Interpretation	Rank
1	Organization uses VMI to enhance Supplier relationship influence performance of a firm	3.7	High	4
2	Accuracy of the information influence performance of a firm	3.8	High	4
3	Supplier appraisal influence performance of a firm.	3.9	High	4
4	Vendor management inventory system eases management's work for inventory replenishment.	3.4	High	4
5	The organization uses VMI to reduce risk of obsolescence and redundancy	3.8	Moderate	3
	Average mean	**3.9**	**High**	**4**

Information Sharing

Table 2 indicates that information sharing was rated agree and that was indicated by overall mean of 3.6, implying that Nyeri county government, highly conducted effective information sharing. Response still indicated that Nyeri County Government have information sharing on areas procurement officials understand the rules and regulations pertaining to his or her profession and organization (mean 3.2), Suppliers have been sensitized and trained on utilization of e-procurement systems (mean 3.8), Organization sensitizes staffs in procurement department on the benefits of lean procurement (mean3.8), **O**rganization provides comprehensive information to suppliers and procurement staffs on lean procurement methodologies. (mean 3.4), all procurement transactions and processes are subject to scrutiny (mean 3.2).

Table 2: Information Sharing

	Items	Mean	Interpretation	Rank
1	Employees were knowledgeable on outsourcing and downsizing	3.7	High	4
2	Organization uses Information systems, EDI, ERP and e-procurement systems.	3.8	High	4
3	Organization sensitizes staffs in procurement department on the benefits of lean procurement	3.8	High	4
4	**O**rganization provides comprehensive information to suppliers and procurement staffs on lean procurement methodologies.	3.4	High	4
5	Suppliers have been sensitized and trained on utilization of e- procurement systems.	3.2	Moderate	3
	Average mean	**3.6**	**High**	**4**

Correlation Analysis

The results of correlation analysis are as shown in Table 3. The findings indicated that there was strong positive and significant relationship between Demand Management on performance of Nyeri County Government in Kenya. With a Pearson correlation coefficient r=0.684, p-value <0.05 which was significant at 0.05 level of significance. This implies that improved Demand Management on performance results in increase of performance of Nyeri County Government in Kenya. There was strong positive and significant relationship between Information sharing

and performance of Nyeri County Government. With a Pearson correlation coefficient r=0.485, p-value <0.01 which was significant at 0.01 level of significance. This implies that increased Information sharing results in increase of performance of Nyeri County Government in Kenya.

Table 3: Correlation Analysis

		PNCG	DM	IS
PNCG	Pearson Correlation	1		
	Sig. (2-tailed)	0		
DM	Pearson Correlation	**.684***	1	
	Sig. (2-tailed)	0.036		
IS	Pearson Correlation	**.485****	0.023	1
	Sig. (2-tailed)	0	0.805	

Regression Analysis

Table 4 Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.	R-Squared
1	Regression	26.481	5	5.296	1.947	.004	0.379
	Residual	158.217	66	2.72			
	Total	184.698	71				

Table 5 Regression of Beta Coefficient and Significance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.239	0.886		3.657	0
Demand management Practice	0.279	0.124	0.248	2.258	0.026
Information Sharing	0.911	0.36	0.463	2.534	0.013

The ANOVA test is used to determine whether the model is important in predicting the performance of Nyeri County Government units. At 0.05 level of significance the ANOVA test indicated that in this model the independent variables namely; Demand management, Information sharing , Cost and waste Managment and just in time philosophy were predictors of Performance Of Nyeri County Government as indicated by significance value=0.005 which is less than 0.05 level of significance (p=0.001<0.05).

From the findings in table 4.10 above; at 5% level of significance, Demand management Practice is a significant predictor of performance of Nyeri County Government where (p=0.026<0.05). Information Sharing was a significant predictor of performance of Nyeri County Government where (p=0.013<0.05).

Conclusion

The study concludes that demand management influences on performance in Nyeri County Government.Hence concluding that Demand management considerably has an effect on

organizational overall performance in Nyeri County Government. So that Nyeri County Government requires extraordinarily positive Demand management in the specific buying or deciding to buy stage ,such as nice purchasing forecasting to lead the association on aggressive edge.

Further, the study was indicated that information sharing effects on performance in Nyeri County Government ,hence concluding that information sharing is effectively improves performance in Nyeri County Government.An ethical procurement practice is an important factor that needs consideration because procurement manager deals with in cost and waste managmenet, bidder evaluation, contract awarding and sing it in business supplier. So dealing with this my need that procurement manger should treat them in fair and unbiased manner. This leads the firm in competitive advantage and improves performance.

Recommendations of the Study

The researcher recommended that the Nyeri County Government should effectively plan and analyze the need assessment to gain the greatest competition power. This also recommended that the firm should plan well and find out for this factors, like why, when, and where to pay the product. The researcher recommended that Nyeri County Government should train their employees ethical practices and assess them to be knowledgeable people in the ethical code of conduct so that they avoid immoral and illegal practices such as bribery, favoritism, illegal sourcing etc. so that procurement activities be transparency and fair competition between the parties of the contract.

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