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DETERMINANTS OF PROCUREMENT PERFORMANCE IN COMMERCIAL STATE CORPORATIONS IN KENYA: A CASE OF KENYA PORTS AUTHORITY

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ABSTRACT

The purpose of the study was to examine the determinants of procurement performance in commercial state corporations in Kenya. The study adopted a descriptive research design, with a population of 80 respondents at Kenya Ports Authority. A questionnaire with both open ended and closed questions were used to collect raw data from the respondents. The census technique was carried out and primary data was collected through the use of questionnaires. Data was analyzed with the help of SPSS. Descriptive statistics were used to analyze the data in frequency distributions and percentages. It was notable that there exist strong positive relationship between the indepedent variables and dependent variable. The study recommended for most efficient ways of inventory management is the use of Just-in-Time system. The study recommended that there is need to appraise the suppliers annually and ensure the suppliers are paid in time. There is need to resolve immediate problems that would disrupt the work and do recognize contributions and accomplishments of the suppliers. The study recommended for the adoption of supply chain forecasting enhancing procurement performance in the state corporations. There is need the organization to have the correct forecasting methods thus reduction of stock outs in the organization. The original equipment manufacturer can be used to predict demand beyond a 4 week. Further, the existing literature indicated that as a future avenue of research, there is need to undertake similar research in other private organizations and public sector in general in Kenya in order to establish whether the explored factors can be generalized.

Key Words: *Inventory Management, Supplier Management, Outsourcing, Supply Chain Forecasting, Procurement Performance*

INTRODUCTION

Increasing focus on global expansion in the marketplace has fostered greater attention on streamlining the supply chain management functions of business. The issue of sustainability in inventory management is gaining attention in both academic literature and industry practice as an area of opportunity. Companies and public sector across geographical and industry boundaries are implementing sustainability initiatives in the inventory management in response to pressures from customers, regions of operation, investors and even employees (Melnyk, Davis, Speakman & Sandor, 2010).

Public procurement is concerned with how public sector organizations spend taxpayers' money on goods and services (Hall, 2009). Public procurement is guided by principles of transparency, accountability, and achieving value for money for citizens and taxpayers. Globally, in many developed nations, public sector expenditure is substantial. Government organizations across the world tend to spend between 8 per cent and 25 per cent of GDP on goods and services (OECD, 2006). In the UK, public procurement expenditure is approximately £150 billion (DEFRA, 2007).

Globally, in many developed nations, public sector expenditure is substantial. Government organizations across the world tend to spend between 8 per cent and 25 per cent of GDP on goods and services (OECD 2006). In the UK, public procurement expenditure is approximately £150 billion (DEFRA 2007). Government is often the single biggest customer within a country, and governments can potentially use this purchasing power to influence the behavior of private sector organizations (Charles 2007). In particular, it has been noted that public procurement can be a lever to deliver broader government objectives, such as stimulating innovation in supply markets, using public money to support environmental or social objectives, and for supporting domestic markets (McCrudden, 2008).

Thai (2011) noted that by 2013, all the East African Countries, Uganda, Kenya, and Tanzania had enacted government procurement codes as Acts of Parliament and have been implemented since. In Uganda, a new law to regulate public procurement was introduced in the year 2002 (Tukamuhabwa, 2012). The new procurement law was introduced to not only bring coherence and uniformity in public procurement in county governments but also to improve efficiency, transparency and accountability and value for money in procurements. It also eliminates corruption and allows for fair competition (GOU, 2003). European Union (2010) concurs with this statement by noting that the European Union public sector procurement should follow transparent open procedures ensuring fair conditions of competition for suppliers.

The state corporations in Kenya are annually procures billions of shillings worth of systems, supplies, and services in support of the government operations. As a result, modernization of procurement practices and processes presents government with a clear opportunity to leverage significantly improved value for money from its total spend on goods and services. According to McKinsey report (2009), government purchases of goods and services account for about 5%-8% of the GDP in OECD countries. In order to combat the mounting fiscal deficits, governments across the world have come under immense pressure to reduce their spending. One of the challenges of public procurement is inefficient cost cutting, lack of transparency even during negotiations, and hence competitive pricing will only have a limited impact on savings (Gabbard 2004). As a result, public sector buyers will be forced to revisit procurement practices and built an efficient and agile supply chain.

State corporations in Kenya have gone under a lot of reforms through government task forces and session papers to make them more efficient, effective in the performance of their mandate and to reduce the financial burden of the corporations on the public coffers. A lot of effort has gone in trying to make these corporations not only self-reliant but to make sure they can fund the government through the residual surplus after covering their costs of operations from the revenue they earn. Effective and functioning corporate governance is at the core in ensuring this is achieved as this would be to the benefit of the whole country as it moves towards the achievement of Vision 2030 (SCAC, 2010).

Kenya Port authority was established through an act of parliament in 1978 after the collapse of the East African Community. It is commonly known as the port of Mombasa and is one of the most modern and vibrant port in Africa. Mombasa Port handles all types of ships and cargo services, not only for Kenya, but also Uganda, Rwanda, Burundi, DR Congo, Ethiopia, Southern Sudan, north eastern Tanzania and Somalia. The port has 19 deep-water berths — six handle containers and 13 conventional cargos. Two oil jetties are for refilled and crude oil, with the capacity to handle tankers of up to 80,000 Dead Weight Tonnage. Mombasa is the second largest port in Africa (Durban in South Africa is the largest) in tonnage and containers handled. Total cargo traffic through the port averages 16 million tons a year. After Durban, Mombasa is also the second best connected port in the region, with 17 shipping lines calling and direct connectivity to more than 80 ports Kenya Ports Authority also owns and operates Inland Container Depots (ICDs) or 'dry ports' in Nairobi and Kisumu. The ICDs are connected to the port by a special rail service (railtainer) that transports containerized imports and exports. Expansion of the port is high on the Government's agenda. Its annual cargo turnover is projected to reach 30 million tons by 2030.In this regard, the Transport ministry, through KPA, has started developing port infrastructure at Kilindini harbour to expand the ship turning basin, dredge the channel to increase the depth of the berthing areas and construct additional cargo termini.

Statement of the Problem

Commercial State corporations in Kenya have performed poorly compared to their private counterparts. The problem of poor performance of commercial Parastatals represents a drain on the exchequer and also results into non delivery on intended services. This has a negative implication on the welfare of Kenyan Citizens and may also imply that Vision 2030 is not met. The Presidential Task Force on Parastatal Reforms (PTPR) of 2013 identified 17 commercial state corporations that made losses in the Financial year 2011/12 compared to twelve in 2010/11 and sixteen in 2009/10 (PTPR, 2013). This represents 24%, 27% and 35% respectively of all commercial oriented state corporations. The pattern of stock of publicly guaranteed debt to State Corporations in Kenya shows a decline in 2015 from 2016, but has been on an upward trend since then.

According to Mukunga and Karanja (2017) state corporations experience major challenges in the execution of procurement performance. In Kenya, the central government spends about KES 234 billion per year on procurement. However, on annual bases, the government losses close to KES.121 billion about 17 per cent of the national budget due to inflated procurement quotations (KISM 2010). According to Public ProcurementOversight Authority (PPOA 2009), most of the tendered products/services in many State Corporation have a mark-up of 60 per cent on the market prices. In the year 2010, the Ministry of Transport lost 4.2 billion Kenyan shillings, in the year 2011, a total of Ksh.33,061,925 is said to have been embezzled from "Kazi Kwa Vijana funds" (Daniel 2010). The inefficiency and ineptness of overall

implementation of procurement performance in many state corporations contributes to loss of over Ksh.50 million annually (Tom, 2009). According to Victor (2012), procurement expenditure could be minimized through proper implementation of procurement performance. A relatively well-developed body of research by Daniel (2010), Victor (2012) and Tom (2009) explored implementation of procurement performance in public sector organizations in general and left a major knowledge gap on determinants of procurement performance in State Corporation. It's hence against this background this study was undertaken to examine the determinants of procurement performance in State Corporation in Kenya.

Objectives of the Study

The general objective was to examine the determinants of procurement performance in commercial state corporations in Kenya. The specific objectives were:-

- To examine the influence of inventory management on procurement performance in commercial state corporations in Kenya
- To determine the influence of supplier management on procurement performance in commercial state corporations in Kenya
- To establish the influence of contract management on procurement performance in commercial state corporations in Kenya
- To assess the influence of Supply chain forecasting on performance of the commercial state corporations in Kenya

LITERATURE REVIEW

Theoretical Review

Stochastic Inventory Theory

This theory relates to the inventory management in the state corporations in Kenya. In 1958, Stanford University Press published *Studies in the Mathematical Theory of Inventory and Production* (edited by Kenneth J. Arrow, Samuel Karlin, and Herbert Scarf), which became the pioneering road map for the next forty years of research in this area. One of the outgrowths of this research was development of the field of supply-chain management, which deals with the ways organizations can achieve competitive advantage by coordinating the activities involved in creating products — including designing, procuring, transforming, moving, storing, selling, providing after-sales service, and recycling.

According to Odadi (2012) for most order quantity/reorder point inventory systems, the stochastic model, which specifies the demands as stochastic processes, is often more accurate than its deterministic counterpart the EOQ model. However, the application of the stochastic model has been limited because of the absence of insightful analytical results on the model. This paper analyzes the stochastic order quantity reorder point model in comparison with a corresponding deterministic EOQ model. Based on simple optimality conditions for the control variables derived in the paper, a sensitivity analysis is carried out, and a number of basic qualitative properties are established for the optimal control parameters.

The main results include the following: in contrast to the deterministic EOQ model, the controllable costs of the stochastic model due to selection of the order quantity (assuming the reorder point is chosen

optimally for every order quantity) are actually smaller, while the total costs are clearly larger; the optimal order quantity is larger, but the difference is relatively small when the quantity is large; the cost performance is even less sensitive to choices of the order quantity; the relative increase of the costs incurred by using the quantity determined by the EOQ instead of the optimal from the stochastic model is no more than 1/8, and vanishes when the ordering costs are significant relative to other costs (Padget, 2016).

Supply Chain Operations Reference Model

This theory guided the study in establishing the relationship between supplier management and procurement perfomance in state corporations. The Supply Chain Operations Reference model provides a unique framework that links performance metrics, processes, best practices, and people into a unified structure (Sulek *et al.*, 2006). The framework supports communication between supply chain partners and enhances the effectiveness of supply chain management, technology, and related supply chain improvement activities. Business value, whether real or perceived, is derived from the predictability and sustainability of business outcomes. It lives, healthy or sick, in those gaps between expected vs. perceived vs. actual performance (McManus, 2002). Value is articulated by measuring what is being managed. The SCOR model helps refine strategy, define structure (including human capital), manage processes, and measure performance (Larsson *et al.,* 2008).

An organization's annual strategic priorities are manifest in SCOR's vertical process integration. Organizations that have applied SCOR to help with supply chain problem solving, process improvement, process redesign, or business process engineering, have demonstrated that SCOR is an effective enabler for aligning an organization's portfolio of improvement projects with strategic goals and objectives. SCOR processes extend from your supplier's supplier to your customer's customer. This includes all customer interactions from order entry through paid invoice; all product (physical material and service) transactions, including equipment, supplies, spare parts, software, etc.; and all market interactions, from understanding aggregate demand to the fulfillment of each order (Lee *et al*., 2003). The purpose of a process reference model, or business process framework, is the ability to describe your process architecture in a way that makes sense to key business partners. It is especially useful for describing value chains that cut across multiple departments and organizations, providing a common language for managing such processes.

According to Cooper, Lambert and Pagh (1997), SCM is "the performance of key business processes from end users to original suppliers that provides products, services and information that add value for customers and other stakeholders. The SCOR model (Supply chain council, 2003) divides supply chain management into several main business processes and further even more sub-processes. While it accentuates on the process view of the supply chain, this model also presents supplier and customers connections to illustrate the whole chain.

For many customers it is not enough, however just to live up to their expectations. This in itself does not create satisfaction; it 'only' removes dissatisfactions. Creating satisfaction demands more. This 'more' is what Kano calls 'exciting quality'. We have chosen to call it 'value-added' quality because this describes more directly that the producer has added one or more qualities to the product or service in addition to those the suppliers expects and that these extra qualities five the supplier extra value (Brun, 2011). The organization would therefore find this theory relevant in relation to the organization focus objective to focus on building supplier confidence,

encouraging participants to get to know suppliers almost as well as they themselves so that they can anticipate their changes, needs and problems in order to respond appropriately. This theory supports the role of the supplier management on procurement perfomance in the state corporations.

Transaction Cost Theory (TCT)

Transaction Cost Theory was first developed by Ronald Coase in 1937. TCT states that a firm's ownership decision is based on minimizing the sum of its transaction and production costs. Transaction costs occur in the exchange between client and vendor. Williamson (1994) also asserts that transaction costs are comprised of the costs of seeking the suppliers, inspection of goods and establishing and formalizing the terms of agreement, including the means to both guarantee compliance with the terms and protect against the potential expropriation of the investments made, to ensure that contract conditions are fulfilled. These aspects form the pillar to successful outsourcing from third party providers given the delivery by each party to the relationship.

According to Espino-Rodriguez and Gil-Padilla (2006) the greater the transaction costs, that is, the costs of information, negotiation and supervision of compliance entail, the less the tendency to outsource the activity. The primary factors producing transactional difficulties include: bounded rationality; opportunism; small numbers bargaining; information impactedness (McIvor, 2003). This theory implies that firms should consider cost implications of outsourcing initiatives for appropriateness. Management should outsource if the cost of doing the process is expensive than can be done by a service provider. According to the transaction cost theory, firms do exist to maximize profit by reducing their transaction costs; outsourcing to third party logistics service providers helps to minimize a firm's costs because as they grow in their capability they offer services at lower costs to their clients (Bolumole *et al.,* 2007). It is generally accepted that transaction cost analysis is useful for assessing and taking a decision concerning outsourcing in logistics (Andersson, 1997).

QueuingTheory

This theory would guide the study in investigating the effect of supply chain forecasting on procurement perfomance in the state corporations. According to Sundarapandian (2009), queuing theory is a mathematical study of waiting lines or queues. The theory enables mathematical analysis of several related processes, including arriving at the back of the queue, waiting in queue (a storage process) and being served in front of the queue (Sundarapandian, 2009). The theory permits the derivation and calculation of several performance measures including the average waiting time in the queue or the system, the expected number waiting or receiving service, and the probability of encountering the system in certain states such as empty, full having an available server or having to wait a certain time to be served (Boucher & Couture-Piché, 2015).

Queuing model can be utilized to model the material handling system variations and genetic algorithm can be implemented to solve the integrated optimization problem. It is also demonstrated that the proposed optimization approach can significantly improve a production system with respect to total travelling time, total work-in-progress in the system, utilization and quantity of material handling equipment and required area (Sundarapandian, 2009).In this study, the queuing theory is used to explain the association between warehouse management and organizational performance. The use of the queuing theory helps organization to optimize facilities layout design and material handling systems while minimizing storage cost (Sundarapandian, 2009). Warehouse management in an orgnization helps to reduce the

number of staff required, storage area as well as time taken to store or retrieve various materials for use.

Conceptual Framework

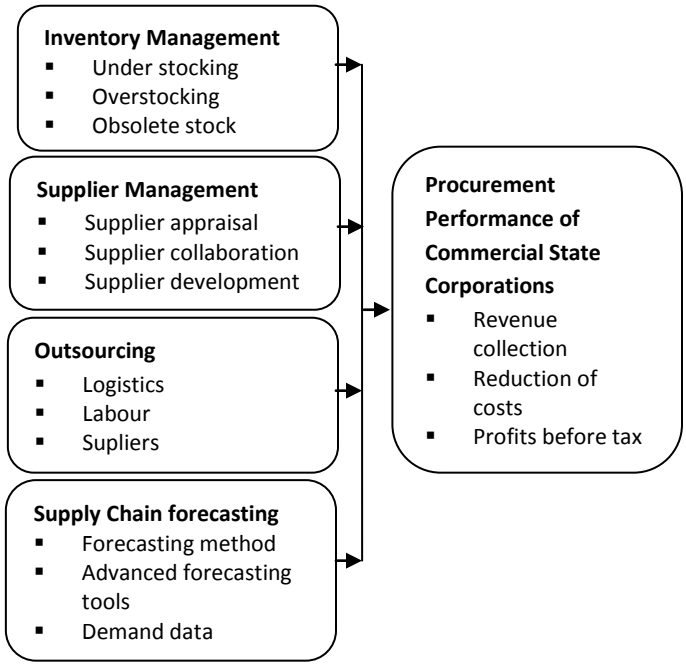

Figure 1: Conceptual Framework

Inventory Management

Better management of inventories would release capital for use elsewhere productively. Hence Inventory control implies the coordination of materials accessibility, controlling, utilization and procuring of material. Throughout the inventory chain from raw material through to retail stocks, inventories are planned and controlled item by item. For each item in every inventory, two questions must be answered again and again: How many of this item should be ordered and when should it be ordered? (Borade & Sweeney, 2015).

Supplier Management

Supplier management is a business process that allows a company to adequately select its vendors and negotiate the best prices for goods and services that it purchases. Senior managers also monitor the corporate supply chain to ensure that vendors familiarize themselves with the company's operating activities and manufacturing processes (Arthur 2009). According to Peters (2004) argues that SRM managers should be responsible for managing no more than three supplier relationships, in order to devote sufficient time to each. Staff involved in SRM activities would have a good combination of commercial, technical and interpersonal skills. Commercial acumen, market knowledge, analytical abilities and project management expertise are important. But "softer" skills around communication, listening, influencing and managing change are critical to developing strong and trusting working relations. SRM managers understand their suppliers' business and strategic goals and are able to see issues from the supplier's point of view, while balancing this with their own organizational requirements and priorities.

Outsourcing

With the increasing globalization, outsourcing has become an important business approach, and a competitive advantage may be gained as products or services are produced more effectively and efficiently by outside suppliers (Yang, Seongcheol, Changi & Jawon, 2007). Outsourcing allows firms to focus on their own core competences by relocating limited resources to strengthen their core product or service and to strategically use outside vendors to perform service activities that traditionally have been internal functions (Elmuti, 2004). Outsourcing can also involve the transfer of both people and physical assets to the supplier (Chase, Shanker & Aquilano, 2010).

Supply Chain Forecasting

Uncertainty fuels the need for risk management although risk, if adequately measured, may be less than uncertainty, if measurable. Forecasting may be viewed as a bridge between uncertainty and risk if a forecast peels away some degrees of uncertainty but

on the other hand, for example, may increase the risk of inventory. Therefore, forecasting continues to present significant challenges (Kinsey, 2009). According to Svensson (2013), many firms overestimates demand, it ends up with more inventory than is necessary. This can increase their labor and storage costs if workers have to move this inventory to another storage facility to make way for new inventory. If the business supplies perishable goods, they incur a further loss due to deterioration of unsold inventory. In such a case, you might need to sell inventory at a discount, which reduces your company's profit margins and income. Suppose they suddenly find inundated with large orders. This is a problem to have -- if they have enough inventory to meet demand. It's not good if they failed to forecast how much supply you would need and wind up with a shortage of inventory. In such a case, some disgruntled customers might take their business elsewhere. One option is to make a large, last-minute rush order, but this usually leads to much higher supplier prices, which reduces your profit margins and net income (Kinsey, 2009).

Performance of State Corporations

Other researchers such as Galbraith and Schendel (2013) support the use of return on assets (ROA), return on equity (ROE) and profit margin as the most common measures of performance. Return on Assets (ROA) is derived by dividing net income of the fiscal year with total assets. Return on Equity (ROE) means the amount of net income returned as a percentage of shareholders equity. It measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. Ricardo (2011) emphasize that successful organizations are those with the highest return on equity and those who have established performance management system "aligning" every aspect of the organization from top management to the factory floor. On the other hand, Nicholas (2008) argues that many organizations do not give a balanced picture of organizational performance. There is an over-emphasis on financial criteria, with pre-occupation with past performance. Performance measures are usually not linked to strategies and goals of the overall organization and they are inward looking and do not capture aspects of performance necessary to gain and retain customers or build long term competitive advantage.

Empirical Review

Inventory Management

Onkundi and Bichanaga (2016) sought to establish factors influencing inventory management in Public Health Hospitals in Kisii County. The objectives of the study were: to find out the influence of stock replenishment on inventory management performance Public Health Sector; establish how information sharing influences effective inventory management performance of the Public Health Sector; find out the influence of inventory costs on inventory management performance of the Public Health Sector and establish influences of demand variability on inventory management performance of the Public Health Sector in Kisii County, Kenya. Findings of the study were overstocking and under stocking of inventory of the Public Health Sector in Kisii County was due to inadequate forecasting of requirements, Scheduled time for deliveries, insufficient staff, scheduled time for receiving, issuing and unorganized storage facilities affect information sharing between the customer and supplier thus is affecting effective inventory management of the Public Health Sector; demand variability rating greatly influence inventory management.

Supplier Management

Ojil, Kibet and Musiega (2014) research sought to assess the factors that influence the performance of supplies unit with special focus on County

Government of Kakamega. The study adopted a descriptive research design. The study established that financial stability of a supplier had a positive effect on county government supplies units in Kakamega County. The study also revealed that quality management had a positive impact on county government supplies units in Kakamega County. The study further established that reliability of supplier had a positive effect on county government supplies units in Kakamega County. The study established the performance of suppliers before awarding tenders to them had positive influence on the county government supplies units in Kakamega County. Bashuna (2013) assessed selected factors affecting effective management of the procurement function at Nakuru North Sub County Procurement Unit. This study carried out a census in the procurement units among departmental heads from all the 30 Ministry departments. The study established that management of the procurement function was found to be slightly effective. This was greatly attributed to project financing, accountability, ICT adoption and the internal control system as applied in departments.

Outsourcing

Outsourcing in many organizations are not always successful, whether they are local, regional or across board. Within the United States, problems have developed between vendors and clients that have been likened to a failed marriage (Rath, 2011). Deloitte Consulting (2014) in their survey on the success of outsourcing concluded that almost seven out of ten firms had negative experiences with outsourcing projects; one quarter of the firms brought the outsourced activity back in-house; 62% found that outsourcing required more effort than anticipated; and 48% did not have standardized methodologies. Deloitte also noted that several large firms that had outsourced somewhat hastily later discovered not only that they had failed to achieve the expected cost savings but also that outsourcing was claiming an inordinate amount of supplier management time and attention.

Supply Chain Forecasting

Boyle et al. (2008) presented findings from electronics industry, where original equipment manufacturers (OEM) could not predict demand beyond a 4 week horizon. Moon et al. (2000) presented demand forecasting from Lucent (Alcatel-Lucent), demonstrating improvement in forecasting accuracy (60% to 80-85%). Related observations (Datta, 2008) resulted in inventory markdowns. Recent and past research has shown that advanced forecasting tools enable improvements in supply chain performance (Zhao et al., 2002, Bayraktar et al., 2008, Wright & Yuan, 2008), if certain pre-requisites are optimized (ordering policies, inventory collaboration). Autoregressive models have been effective in macroeconomic inventory forecasts (Albertson & Aylen, 2003). Zhao et al. (2002) and Bayraktar et al., (2008) emphasize that the role of forecasting in supply chain is to indicate the right direction for the actors rather than being exactly right, at every moment. Choosing the correct forecasting method is often a complex issue (Chatfield & Yar 2008).

METHODOLOGY

This study was a descriptive survey designed to establish the determinants of procurement performance in the state corporations in Kenya. The target population was 90 employees of Kenya Ports Authority drawn from supply chain and related departments who were engaged in inventory management related activities. The study used a census survey since the population of 88 was small and the study aimed to reach all the employees identified to provide the information in the organization. The study collected primary data

though a questionnaire. The questionnaire had both closed and open ended questions. The regression model took the form:

$Y= \beta_{0+} \beta_1 \chi_{1+} \beta_2 \chi_{2+} \beta_3 \chi_{3+} \beta_4 \chi_{4+} \varepsilon_i$;

Where: Y = Procurement performance;

χ_1 = Inventory Management

χ_2 = Supplier Management;
χ_3 = Outsourcing;
χ_4 = Supply chain forecasting
β_0 = the intercept (value of EY when X = 0);
β_{1-n} = the regression coefficient or change included in Y by each $\chi_{,;}$
ε_i = Error term

FINDINGS

Inventory Management

The study sought to assess the influence of inventory management on procurement performance of the state corporations in Kenya. This section presented findings to statements posed in this regard with responses given on a five-point likert scale (where 5 = Strongly Agree; 4 = Agree; 3 = Neutral; 2 = Disagree; 1= Strongly Disagree). Table 1 presented the findings. The scores of 'strongly disagree' and 'disagree' had been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Neutral' was taken to represent a statement agreed upon moderately, equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' were taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5.0.

Majority of respondents were found to be neutral that the organization had ensured there was no obsolete and excessive inventory to reduce operational costs (3.11); The organization had ensured that there was no overstocking to reduce taxes paid to the inventory stored (3.190); The organization had ensured that there was no holding on to obsolete products in the stores (3.908); The organization had ensured that there was elimination of obsolete stock promptly and use of space for something more profitable (3.723); The organization ensured that there was inventory management staff were properly trained on the inventory management practices (3.689). The study findings were in agreement with literature review by Thummalapalli (2010) stated that the the basic object of inventory management is to maximize customer service through maintaining appropriate amount of inventory with minimum possible cost.

Table 1: Inventory Management Statistics

Inventory Management	Mean	Std. Dev
The organization has ensured there is no obsolete and excessive inventory to reduce operational costs	3.111	.213
The organization has ensured that there is no overstocking to reduce taxes paid to the inventory stored	3.190	.237
The organization has ensured that there is no holding on to obsolete products in the stores	3.908	.908
The organization has ensured that there is elimination of obsolete stock promptly and use of space for something more profitable	3.723	.568
The organization ensure that there is inventory management staff are properly trained on the inventory management practices	3.689	.485

Supplier Management

The study sought to assess the influence of supplier management on procurement performance of the state corporations in Kenya. This section presented findings to statements posed in this regard with responses given on a five-point likert scale (where 5 = Strongly Agree; 4 = Agree; 3 = Neutral; 2 = Disagree; 1= Strongly Disagree). Table 2 presented the findings. The scores of 'strongly disagree' and 'disagree' were taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Neutral' had been taken to represent a statement agreed upon moderately, equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' were taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5.0. Table 2 presented the findings.

From the study results, majority of the respondents were neutral that that they appraised the suppliers annually as shown by a mean of 3.451, they ensured the suppliers are paid in time as shown by a mean of 3.655; they do get after sale service from their suppliers annually as shown by a mean of 3.236; the suppliers do fail to honor the orders issued as shown by a mean of 3.111; their suppliers offer credit facilities as shown by a mean of 2.819; they resolve immediate problems that would disrupt the work as shown by a mean of 2.876; they do recognize contributions and accomplishments of the suppliers as shown by a mean of 2.902; Use of a supplier audit system reduces the procurement costs as shown by a mean of 3.269; they consult with suppliers on challenges affecting them as shown by a mean of 3.300 and keep suppliers informed about management actions affecting them as shown by a mean of 3.243. This implied that supplier management influence procurement performance in the state corporations in Kenya.

The study findings were in agreement with literature review by Ansari (2009) that supplier management allows firm to make better use of their suppliers capabilities and coordinating operational activities through joint planning also results to inventory reduction, smoothing production, improve product quality, and lead time reduction Browne (2004) contends that supplier relationship management is a comprehensive approach to managing an enterprise's interactions with the organizations that supply the goods and services it uses.

Table 2: Supplier Management Statistics

Statement	Mean	Std
We do appraise the suppliers annually.	3.451	.670
We ensure the suppliers are paid in time	3.655	.439
We do get after sale service from your suppliers annually	3.236	.897
The suppliers do fail to honor the orders issued	3.111	.284
Our suppliers offer credit facilities..	2.819	.186
Resolve immediate problems that would disrupt the work.	2.876	.337
Use of a supplier audit system in the county reduces the procurement costs	2.902	.782
Recognize contributions and accomplishments of the suppliers.	3.269	.441
Consult with suppliers on challenges affecting them.	3.300	.908
Keep suppliers informed about management actions affecting them	3.243	.494

Outsourcing

The study sought to assess the influence of outsourcing on procurement performance of the state corporations in Kenya. In this regard responses were given on a five-point likert scale (where 5 = Strongly Agree; 4 = Agree; 3 = Neutral; 2 = Disagree; 1= Strongly Disagree). The scores of 'strongly

disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Neutral' had been taken to represent a statement agreed upon moderately, equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' have been taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5.0. Table 3 presented the findings.

With a grand mean of 3.2252, a majority of respondents were neutral with most statements posed as regards influence of outsourcing on procurement performance in the organization. The respondents were neutral that outsourcing of services at organization relieves the company from worrying about the massive capital that would have invested (M=3.453); The outsourced personnel at organization had a remarkable technical savvy (focus on core competencies) because it was their line of specialty (M=3.850); The technical capacity was embraced in outsourcing at organization results to staff reduction resulting to reduced spend (M=3.560); Technical capacity was important because of outsourcing, organization had developed business relationships and became competitive (M=3.345); Organization served as a bench mark to other players in the market through risk transfer (M=3.803). Outsourced services transferred risks at organization (M=3.580). The study findings indicated that outsourcing influence procurement performance in the state corporations Gupta *et al.,* (2009) state that in creating competitive advantage, a firm needs the ability to make good use of resources. The concept of core competence has been developed to support more efficient identification and utilization of an organization's strength. A related study by (Dorasamy *et al.*, 2010) shows a significant relationship between outsourcing of functions and risks. Risk has been well-defined as a measure of the likelihood and severity of adverse effects (Haimes, 2009).

Table 3: Outsourcing Statistics

Outsourcing	Mean	Std. Dev
Outsourcing of services at organization relieves the company from worrying about the massive capital that would have invested.	3.6583	.4320
The outsourced personnel at organization have a remarkable technical savvy (focus on core competencies) because it is their line of specialty	3.8850	1.4680
The technical capacity is embraced in outsourcing at organization results to staff reduction resulting to reduced spend.	3.4560	.5358
Technical capacity is important because of outsourcing, organization has developed business relationships and become competitive	3.5632	.5908
Organization serves as a bench mark to other players in the market through risk transfer	3.8803	.3265
Outsourced services transfer risks at organization	3.5680	.3256

Supply Chain Forecasting

The study sought to assess the influence of supply chain forecasting on procurement performance of the state corporations in Kenya. This section presented findings to statements posed in this regard with responses given on a five-point likert scale (where 5 = Strongly Agree; 4 = Agree; 3 = Neutral; 2 = Disagree; 1= Strongly Disagree). The scores of 'strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Neutral' has been taken to represent a statement agreed upon moderately, equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' have been

taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5.0. Table 4 presented the findings.

As indicated by high levels of agreement, a majority of respondents affirmed that the they had the correct forecasting methods thus reduction of stock outs in the organization (mean of 3.145); The organization was used to predict demand beyond a 4 week horizon (mean of 3.723); The forecasting accuracy demonstrated improvements and related observations results in inventory markdowns (mean of 3.332); The organization had advanced forecasting tools that could enable improvements in cost reduction (mean of 3.903). The organization had advanced forecasting tools that could enable improvements in cost reduction (mean of 3.672). The forecasting tool accuracy tools synchronized the supply and demand cycle than the use of real time information (mean of 3.612). Having years of demand data helped the organization to better predict future demand thus timely purchases-stock out reduction (mean of 3.091). The study findings were in agreement with literature review by Boyle et al. (2008) that where original equipment manufacturers (OEM) could not predict demand beyond a 4 week horizon. Moon et al. (2000) presented demand forecasting demonstrating improvement in forecasting accuracy and related observations resulted in inventory markdowns.).

Table 4: Supply Chain Forecasting Statistics

Supply Chain Forecasting	Mean	Std
We have the correct forecasting methods thus reduction of stock outs in the organization	3.145	.654
The original equipment manufacturer is used to predict demand beyond a 4 week horizon	3.723	.765
The forecasting accuracy demonstrate improvements and related observations results in inventory markdowns	3.332	.543
The organization has advanced forecasting tools that can enable improvements in cost reduction	3.902	.432
The forecasting tool accuracy tools synchronizes the supply and demand cycle than the use of real time information	3.672	.328
Having years of demand data helps the organization to better predict future demand thus timely purchases-stock out reduction	3.091	.321

Performance of Commercial State Corporations

The study sought to examine the determinants of procurement performance of the commercial state corporations, attributed to the influence of inventory management, supplier management, supply chain forecasting and outsourcing. The study was particularly interested in three key indicators, namely revenue collection, reduction of costs and profit before tax with all the three studied over a 5 year period, running from 2013 to 2017. Findings in Table 5 revealed improved performance across the 5 year period running from the year 2013 to 2017. Revenue collection recorded positive improvement with a majority affirming to less than 10% in 2012 (42.3%) and 2013 (37.7%), to 10% in 2014 (36.1%) then more than 10% in 2015 (41.1%) and 2016 (37.5%). A similar trend was recorded in cost reduction, improvement from less than 10% (44.1%) in 2012, to more than 10% in 2013 (36.4%), 2014 (40.4%) and 2015 (37.3%).

Profit before tax further recorded positive improvement with a majority affirming to less than 10% in 2013 (37.9%) and 2014 (35.9%), to 10% in 2015 (35.9%) and 2016(35.3%) then by more than 10% in 2017 (36.2%). It could be deduced from the findings that key performance indicators had considerably improved as influenced by among other inventory management practices attributes, the influence of inventory control, inventory investment, process auditing and warehouse management. Revenue collection, reduction of costs and profits before tax have particularly improved by at least 10 percent across in the organization pointing to the significance of inventory, supplier management, supply chain forecasting and outsourcing in the supply chain process to enhance procurement performance in the commercial state corporations.

Table 5: Performance of Commercial State Corporation

Revenue Collection	**2012**	**2013**	**2014**	**2015**	**2016**
Increased by less than 10%	42.3	37.7	31.6	30.7	29.5
Increased by 10%	31.8	32.9	36.1	28.2	33
Increased by more than 10%	25.9	29.4	32.3	41.1	37.5
Reduction of Costs	**2012**	**2013**	**2014**	**2015**	**2016**
Increased by less than 10%	44.1	35.2	33.4	25.7	27.1
Increased by 10%	31.7	32.6	30.2	33.9	35.6
Increased by more than 10%	23.5	32.2	36.4	40.4	37.3
Profits Before Tax	**2012**	**2013**	**2014**	**2015**	**2016**
Increased by less than 10%	37.9	35.9	31.2	25.7	33.1
Increased by 10%	36.2	31.3	35.9	35.3	30.7
Increased by more than 10%	25.9	32.8	32.9	39	36.2

Multiple Regression Analysis

Table 6: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.843	.710	.697	.001

Table 7: ANOVA Results

Model	Sum of Squares	d.f	Mean Square	F	Sig.
Regression	13.654	4	3.4135	60.523	.000[a]
Residual	3.890	69	.0564		
Total	17.544	73			

NB: F-Critical Value = 13.765

From the study findings on the regression equation established, taking all factors into account (independent variables) constant at zero procurement perfomance of the commercial state corporation will be 27.578. The data findings analyzed showed that taking all other independent variables at zero, a unit increase in inventory management will lead to a 0.746 increase in procurement perfomance of the commercial state corporation; a unit increase in supplier management will lead to a 0.652 increase in procurement perfomance of the commercial state corporation, a unit increase in outsourcing will lead to 0.635

increase in perfomance of the commercial state corporation and a unit increase in supply chain forecasting will lead to 0.554 increase in procurement perfomance of the commercial state corporation.This infers that inventory management contributed most to perfomance of the commercial state corporation. Based at 5% level of significance, inventory management had a .000 level of significance; supplier management show a .002 level of significance, outsourcing show a .005 level of significance and supply chain forecasting show a .007 level of significance hence the most significant factor was inventory management.

Table 8: Coefficient Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	β	Std. Error	**β**		
(Constant)	27.578	3.765		7.325	.000
X_1_Inventory Management	.746	.132	.465	5.654	.000
X_2_Supplier Management	.652	.133	.454	4.908	.002
X_3_Outsourcing	.635	.136	.355	4.675	.005
X_4_Supply chain forecasting	.554	.142	.332	3.908	.007

CONCLUSION

Based on the study findings, the study concluded that procurement performance of the commercial state corporations in Kenya is affected by the independent variables. The inventory management is the first important factor which influences procurement performance of the commercial state corporations in Kenya. The regression coefficients of the study showed that inventory management had a significant influence on procurement performance of the commercial state corporations in Kenya. This implied that increasing levels of inventory management would increase the procurement performance of the commercial state corporations.

The supplier management was the second important factor which influences procurement performance of the commercial state corporations in Kenya. The regression coefficients of the study showed that supplier management has a significant influence on procurement performance of the commercial state corporations in Kenya. This implied that increasing levels of supplier management would increase the procurement performance of the commercial state corporations.

The outsourcing was the third important factor which influences procurement performance of the commercial state corporations in Kenya. The regression coefficients of the study showed that outsourcing has a significant influence on procurement performance of the commercial state corporations in Kenya. This implied that increasing levels of outsourcing would increase the procurement performance of the commercial state corporations.

Finally, the supply chain forecasting was the fourth important factor which influences procurement performance of the commercial state corporations in Kenya. The regression coefficients of the study showed that supply chain forecasting has a significant influence on procurement performance of the commercial state corporations in Kenya. This implies that increasing levels of supply chain forecasting would increase the procurement performance of the commercial state corporations.

RECOMMENDATIONS

The study recommended for most efficient ways of inventory management is the use of Just-in-Time system. The better management of inventories would release capital for use elsewhere productively. Hence Inventory control implies the coordination of materials accessibility, controlling, utilization and procuring of material. The inventory control includes cost minimization, profit maximization, avoidance of running out of stock and to prevent surplus stock that are unnecessary.

The study recommended that there was need to appraise the suppliers annually and ensure the suppliers were paid in time. The after sale service from the suppliers and honor the orders issued and encourage the suppliers offer credit facilities. There was need to resolve immediate problems that would disrupt the work and do recognize contributions and accomplishments of the suppliers. They should consult with suppliers on challenges affecting them and keep suppliers informed about management actions affecting them to enhance procurement performance.

The study recommended for the adoption of supply chain forecasting enhancing procurement performance in the state corporations. There was need the organization to have the correct forecasting methods thus reduction of stock outs in the organization. The original equipment manufacturer can be used to predict demand beyond a 4 week. The forecasting accuracy can be improved and related observations results in inventory markdowns. The organization should adopt forecasting tools that can enable improvements in cost reduction. Having years of demand data helps the organization to better predict future demand thus timely purchases-stock out reduction.

Areas for Further Research

The study was a milestone for further research in the field of public management in the commercial state corporations in Africa and particularly in Kenya. The findings had demonstrated influence of the inventory management, supplier management, outsourcing and supply chain forecasting on procurement performance of the commercial state corporations. The current study should therefore be expanded further in future in order to determine procurement performance of the commercial state corporations. Since the study established there could the remaining 29.00% explained by the variables or other aspects outside the model. Further, the existing literature indicated that as a future avenue of research, there was need to undertake similar research in other private organizations and public sector in general in Kenya in order to establish whether the explored factors can be generalized.

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