



EFFECTS OF INVENTORY OPTIMIZATION ON PERFORMANCE OF GOVERNMENT MINISTRIES IN KENYA

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ABSTRACT

The study main objectives were to determine effect of strategic electronic sourcing practices on performance of government ministries in Kenya. The study specific objectives were to establish the effects of inventory optimization on performance of Government Ministries in Kenya. The specific objectives were; to establish the effect of lead time on performance of Government Ministries in Kenya, to determine the effect of customer service level on performance of Government Ministries in Kenya, to evaluate how organizational policy affects performance of Government Ministries in Kenya and to find out how ICT integration affects performance of Government Ministries in Kenya. The study was anchored on theory of constraints, resources based theory, institutional theory and innovation diffusion theory. The study targeted 1315 employees in procurement department from 21 ministries in Kenya governments. Cluster and random sampling technique was used to select a sample size of 310 respondents. The research utilized primary data obtained through the use of questionnaires. Cronbach's alpha coefficient was used to determine reliability. Descriptive techniques were used to analyze quantitative data in which frequencies and proportions were used in analyzing the views of the respondents regarding different items presented in the study. In addition, inferential statistical methods were employed especially regression analysis and correlation analysis, to draw conclusions from the study data. The findings showed that organization policy, customer service, ICT integration and lead time had a positive and significant effect on Performance of government ministries. There is therefore need for government ministries to have clear policies on regular assessment of supplier's capabilities.

Key words; *lead time, customer service level, organizational policy, ICT integration, inventory optimization and performance*

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INTRODUCTION

Inventory optimization is a critical management issue for most companies including large companies, medium-sized companies, and small companies. Effective inventory flow management in supply chains is one of the key factors for success. The concept of inventory optimization in previous years has attracted attention from people in academia and industries, owing to the recent fall of some organizations as well as dismal performance recorded by others. In traditional settings, inventories of raw materials, work-in-progress components and finished goods were kept as a buffer against the possibility of running out of needed items (Ambekar & Kapoor, 2019). However, large buffer inventories consume valuable resources and generate hidden costs. Consequently, many companies have changed their approach to production and inventory management. This approach to inventory management brings considerable cost savings from reduced inventory levels. As a result, inventories have been decreasing in many firms. The main strategy being adopted in organizations is inventory optimization, and currently being adopted by many organizations at the global level (Li, Feng & Sun, 2015).

The inventory policy of distributors and retailers is strongly influenced by the nature of the demand for their goods. Special goods consumers are willing to wait for special orders to provide exactly the product they want; therefore, an extensive inventory is not required which is what is experienced locally in most African countries Kenya being included. Industrial purchasers making new-task buys are in somewhat the same situation (Klein, Rossin, Guo & Ro, 2010). Consumers of convenience goods and industrial purchasers making straight re-buys have little brand or dealer loyalty. When confronted with stock-out, these customers easily switch supplier. Distributors and retailers of convenience goods maintain extensive inventories to avoid lost sales and lost customers. When the demand schedule has been

determined an economic order quantity (EOQ) model and break-even analysis, two popular analytical techniques may be used to minimize total inventory maintenance costs this being the case in most of organizations in Kenya and Grain Bulk Handlers at large. Therefore, Inventory optimization provides a planned method of purchasing and storing the material to prevent stock out in a firm, while at the same time cutting costs and improving performance (Uppal & Mishra, 2014).

In Kenya, the importance of inventory management continued to grow with Fast Moving Consumer Goods Companies opting for this mode to deliver their products across the country and beyond and not so much on other manufacturing sectors (Njambi & Katuse, 2013). More so, majority of those firms adopted third part inventory (3PL) in their business and did not care much to have improved inter inventory management. According to Njambi and Katuse (2013), then, in an era of shrinking product life cycles, proliferation of product lines, shifting distribution chains and rapidly changing technological advancement, use of inventory had become an essential ingredient for organizations in gaining competitive advantage. This was so since inventory management balances two basic objectives: Quality of Service and Low Cost of doing business as every other firms' objective lies on quality service and minimum production cost.

Statement of the problem

State corporations are one of the most crucial corporations in Kenya's economy. They contribute a significant percentage of the Gross National Product (GNP) and employ tens of thousands of workers. However, a lot of concern has been raised by members of public and development partners on the lack of strategic focus in procurement plans, strategic policies and including lack of adherence the currently laid policies. Major scandals in Kenya, like in other countries, revolve around ineffective procurement procedures which could have been avoided by

incorporating strategic policies in the public procurement cycle (Ayoyi and Odunga, 2015).

Most government ministries in Kenya do not use inventory optimization techniques. This is making most of them to incur unnecessary cost resulting from poor inventory management. To a great extent, some have experienced poor performance due to shortage of some necessary material which is vital to keep the organizational functioning. According to Gudum (2002), the uncertainty and variability of the timing and content of information flow and goods flow leads to uncertain planning, increased costs, stock outs and delays. Therefore, there is the need to take measures especially on inventory to deal with uncertainties and dynamics on the operational level of business. However, in order for this to be effective, there is the need for strategies applied at the tactical and strategic levels of 2 organizations which will steer their supply chain strategy to achieve competitive strategy and excellence. Despite all the efforts by the Government ministries in Kenya to adopt inventory optimization strategies, in Kenya, still inadequacies are observed in their performance. It is not clear the extent to which inventory optimization effects tend to influence the performance of the government ministries, particularly the Ministry of Industrialization and Enterprise Development, thus; the importance of carrying out this study.

A number of studies have been carried out in this area. Globally, Bai and Zhong (2012) studied on improving inventory management in small business in Sweden Koumanakos (2013) studied the effect of inventory management on firm performance in manufacturing firms in Greece. Regionally, Asare and Prempeh (2016) studied the impact of efficient inventory management on profitability in selected manufacturing firms in Ghana. Augustine and Agu (2013) examined the effect of Inventory Management on organizational effectiveness in Nigeria. Locally, Ndunge (2013) examined inventory management and productivity of large manufacturing firms. Mwangi

(2013) examined inventory management and supply chain performance of non-governmental organizations in the agricultural sector. Nevertheless, there are limited numbers of studies relevant to discrete components of inventory optimization and organizational performance of government ministries. Therefore, this study intends to fill the existing research gap by establishing the effects of inventory optimization on performance of Government Ministries in Kenya, with specific focus on the Ministry of Industrialization and Enterprise Development.

Objectives of the study

The general objective of this study was to establish the effects of inventory optimization on performance of Government Ministries in Kenya. The specific objectives were;

- To establish the effect of lead time on performance of Government Ministries in Kenya.
- To determine the effect of customer service level on performance of Government Ministries in Kenya.
- To evaluate how organizational policy affects performance of Government Ministries in Kenya.
- To find out how ICT integration affects performance of Government Ministries in Kenya.

LITERATURE REVIEW

Resources Based Theory

According to Barney (1991), the resource-based view examines the link between a firm's internal characteristics and performance. As the basis for a competitive advantage, the resource-based view considers the application of a bundle of tangible and intangible resources (Penrose, 1959; Wernerfelt, 1984). In order to make to competitive advantage sustainable, resources are required to be heterogeneous and immobile (Barney, 1991; Peteraf, 1993). Moreover, to create a competitive advantage, resource need to fulfil the criteria of being valuable, rare, inimitable and non-substitutable (Barney, 1991).

Building on this, the resource-based view enables firms to determine their core competencies which are also critical for the creation of the latter (Espino-Rodríguez & Padrón-Robaina, 2006).

Institutional Theory

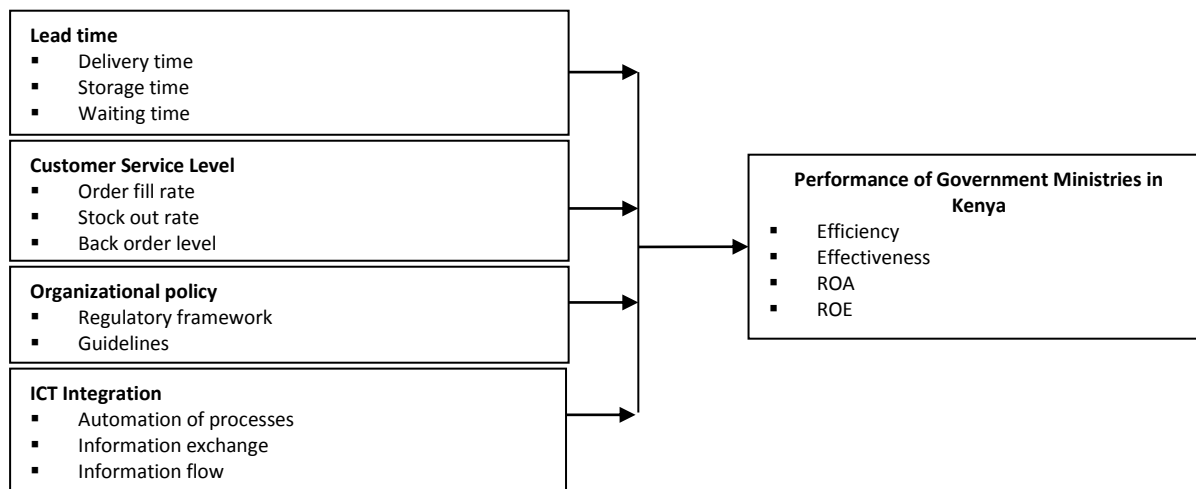
The proponents of this theory Engwall (2003) and Söderlund, (2004) argue that Project management has had a tendency to treat projects in isolation), although they also found out that recent research has begun addressing this. The importance of context for example is in particular by institutional factors such as experiences from past activities, politics, and institutional norms, values and routines, an argument also developed by Hodgson and Cicmil (2007). There is benefit in focusing management attention to the development of an appropriate institutional context for projects, rather than being about the activity of managing projects.

Innovation Diffusion Theory

The Diffusion of innovations theory was proposed by Rogers in 1962; referred to in Einstein (2008). According to Rogers, Diffusion of Innovations theory is a theory of how, why, and at what rate new ideas

and technology spread through cultures, operating at the individual and firm level. Based on Diffusion of Innovations theory at the firm level (Einstein, 2008), innovativeness is related to such independent variables as individual (leader) characteristics, internal organizational structural characteristics, and external characteristics of the organization. Individual characteristics describe the leader attitude toward change

The Innovation diffusion theory (Rodgers, 1995) is a model grounded in business study. Since 1940's the social scientists coined the terms diffusion and diffusion theory (Dean, 2004). This theory provides a framework with which it can make predictions for the time period that is necessary for a technology to be accepted. Constructs are the characteristics of the new technology, the communication networks and the characteristics of the adopters. Innovation diffusion can be seen as a set of four basic elements: the innovation, the time, the communication process and the social system. Here, the concept of a new idea is passed from one member of a social system to another.



Independent Variables

Dependent Variables

Figure 1: Conceptual framework

Empirical Review of Literature

In the study on the effects of inventory management practices on cost reduction, Rajeev (2010) empirically examined the relationship between lean supply, inventory control and data recording systems as independent variables and cost reduction as dependent variable with reference to machine tools small-scale enterprises at Bangalore, India. The findings of the study indicated positive relationship between independent variables and dependent variable. On the contrary, Roumiantsev (2015) analyzed the impact of inventory management on financial performance, by empirically examining the relationships between inventory control systems, lead times and lean supply as independent variables and financial performance of manufacturing firms as dependent variable in Germany. They found that there was no evidence that inventory control systems are associated with financial performance, but the other independent variables indicated a positive relationship with the dependent variable. In the study on the effects of inventory management on performance.

Cacioppio (2011) empirically examined the relationships between cost control, lean supply and order fulfillment as independent variables and performance as dependent variable among a sample of pharmaceutical manufacturing firms in Canada and found that there is a positive relationship between all independent variables and dependent variable. Similarly, Tracey (2015) confirmed that by conducting a study on impact of supply chain management (SCM) capabilities on organization performance by empirically examining the relationship between competitive position, cost control and customer satisfaction as independent variables and organization performance as dependent variable. The study's findings revealed that a positive relationship exists between the independent variables and dependent variable.

Anichebe and Agu (2013) did a study on effects of Inventory Management on Organizational Effectiveness in selected organizations in Enugu. The Findings indicate that there is a significant relationship between good inventory management and organizational effectiveness. Inventory management has a significant effect on organizational productivity. There is a highly positive correlation between good inventory management and organizational profitability.

Edwin and Florence (2015) studies the Effect of Inventory Management on Profitability of Cement Manufacturing Companies in Kenya. The variables used included inventory turnover, inventory conversion period, Inventory levels, storage cost, size of firm, gross profit margin, Return on assets and growth of the firm. The results provided a negative relationship between inventory turnover, inventory conversion period and storage cost with the profitability of the company. In addition, inventory level was found to be directly related to firm's size and storage cost. The study recommends that the Cement manufacturing firms in Kenya should strive to ensure that the right stock is kept in their warehouses to hedge against excessive holding cost and stock-outs.

A study by Nasir, Mohamad, Suraidi,, Nabihah and Raja (2016) found that inventory management at a textile chain store in Malaysia had a few inventory problems such as unorganized inventory arrangement, large amount of inventory days / no cycle counting and no accurate records balance due to unskilled workers. Inventory management is therefore a critical contributor to the competitiveness of country retail outlets. The demand for products could only be satisfied through the proper and cost-effective delivery of goods and services (Ittmenn & King, 2010).

Ogbo, Onekanma and Wilfred (2014) carried out a study on the effect of the effective system of

inventory management on organization performance in the seven-up bottling company, Nile Mile Enugu. A total of eighty-three respondent constitute the sample for the study. The result of the analysis showed that flexibility in inventory control management is an important approach to achieving organizational performance. It was found that organizations benefit from inventory control management by way of easy storage and retrieval of material, improved sales effectiveness, and reduced operational cost.

METHODOLOGY

This study utilized a descriptive survey research design. The study targeted 84 directors of finance, ICT, procurement and inventory departments from 21 ministries in Kenya governments. The study chose employee from the four departments since they were the one directly involved in the procurement

practices and procedures from the Kenyan State Corporations (GoK, 2014). From the target population of 84 directors from 21 ministries, a sample size 69 respondents were selected based on the Taro Yamane (1973) sample size formula. The cluster sampling technique was used to select the employees in procurement department. Questionnaires were used for collecting primary data. This study used descriptive statistics in carrying analysis of the collected data.

RESULTS

Lead time

The study sought to establish the views of the respondents concerning lead time. The views of the respondents were assessed on a 5-point Likert scale to determine their degree of agreement or disagreement with the aspects of customer service. The findings were presented in Table 1.

Table 1: Lead time

		SD	D	N	A	SA	Mean	SD
the ministry has multiple suppliers of various products and services	N	35	25	0	0	0	1.42	0.50
	%	58.3	41.7	0	0	0		
The ministry tries as much as possible to reduce variability	N	0	2	21	17	20	3.92	0.91
	%	0	3.3	35	28.3	33.3		
There is always a smooth workflow in the ministry	N	3	11	20	17	9	3.30	1.09
	%	5	18.3	33.3	28.3	15		
	N	0	5	14	19	22	3.97	0.97
There is proper queue control to avoid delays	%	0	8.3	23.3	31.7	36.7		
	N	0	6	25	10	19	3.70	1.03
Some processes are expedited to avoid delays	%	0	10	41.7	16.7	31.7		
The ministry uses multi modal transportation to avoid delays	N	9	8	13	15	15	3.32	1.38
	%	15	13.3	21.7	25	25		
the ministry has multiple suppliers of various products and services	N	0	5	14	19	22	3.97	0.97
	%	0	8.3	23.3	31.7	36.7		
The ministry tries as much as possible to reduce variability	N	0	5	14	19	22	3.97	0.97
	%	0	8.3	23.3	31.7	36.7		
There is always a smooth workflow in the ministry	N	0	2	21	17	20	3.92	0.91
	%	0	3.3	35	28.3	33.3		
Lead time							3.68	0.72

The findings in Table 1 revealed that 35 (58.3%) and 25 (41.7%) of the respondents strongly disagreed and disagreed respectively that ministries do not outsource many suppliers which reduces lead time giving a mean response of 1.42 (SD = 0.500) showing strong disagreement by majority of the respondents. The findings also showed that 17 (28.3%) and 20 (33.3%) of the respondents agreed and strongly agreed respectively that ministries tries to reduce inconsistency which provides lead time services while 2 (3.3%) and 21 (35%) of the respondents disagreed and were not sure of this respectively giving a mean response of 3.92 (SD = 0.910) indicating agreement by majority of the employees.

Furthermore, 17 (28.3%) and 9 (15%) of the respondents agreed and strongly agreed respectively that smooth workflow by ministries helps in lead time while 3 (5%), 11 (18.3%) and 20 (33.3%) of the respondents strongly disagreed, disagreed and were not sure of this respectively thus giving a mean response of 3.30 (SD = 1.090) indicating neutrality by majority of the respondents.

It was further revealed that 19 (31.7%) and 22 (36.7%) of the respondents agreed and strongly agreed respectively there is proper queue control by ministries which reduces delays in offering services while 5 (8.3%) and 14 (23.3%) of the respondents disagreed and were not sure on this thus giving a mean response of 3.97 (SD = 0.970) indicating agreement by majority of the respondents.

The findings further revealed that 10 (16.7%) and 19 (31.7%) of the respondents agreed and strongly agreed respectively that ministries respond rapidly to some processes to reduce delays and enhance lead time while 6 (10%) and 25 (41.7%) of the respondents disagreed and were not sure regarding this thereby giving a mean response of 3.70 (SD = 1.030) indicating agreement by majority of the respondents.

The findings also showed that 15 (25%) and 15 (25%) of the respondents agreed and strongly agreed

respectively that ministries uses various mode of transportation which reduces delay which aids in lead time while 9 (15%), 8 (13.3%) and 13 (21.7%) of the respondents strongly disagreed, disagreed and were not sure respectively regarding this. The mean response was 3.32 (SD = 1.380) indicating neutrality by majority of the respondents.

The findings further revealed that 19 (31.7%) and 22 (36.7%) of the respondents agreed and strongly agreed respectively that ministries they ensured quality and time limit is met and generate ideas for lead time while 5 (8.3%) and 14 (23.3%) of the respondents disagreed and were not sure regarding this thereby giving a mean response of 3.97 (SD = 0.97) indicating agreement by majority of the respondents.

The findings also showed that 19 (31.7%) and 22 (36.7%) of the respondents agreed and strongly agreed respectively that ministries tries to reduce inconsistency which provides lead time services while 5 (8.3%) and 14 (23.3%) of the respondents disagreed and were not sure of this respectively giving a mean response of 3.92 (SD = 0.910) indicating agreement by majority of the employees.

The findings also showed that 17 (28.3%) and 20 (33.3%) of the respondents agreed and strongly agreed respectively that ministries do not outsource many suppliers which provides lead time while 2 (3.3%) and 21 (35%) of the respondents disagreed and were not sure respectively regarding this. The mean response was 3.92 (SD = 0.91) indicating agreement by majority of the respondents.

The overall mean response was 3.68 (SD = 0.720) which showed agreement by majority of the respondents regarding Lead time. In conformity with the findings, Steen & Siegel, (2005) posited that 3rd party logistics have enabled many organizations to obtain cost savings and to concentrate on their core competencies.

Customer Service

The study sought to establish the role of customer service on performance of government ministries at EABL.

Table 2: Customer Service

		SD	D	N	A	SA	Mean	SD
We deliver orders on time to our customers	n	44	16	0	0	0	1.27	0.446
	%	73.3	26.7	0	0	0		
We ensure that all orders are efficiently and effectively delivered to customers	n	0	0	8	39	13	4.08	0.591
	%	0	0	13.3	65	21.7		
When we promise to fulfill orders we do it	n	0	2	18	20	20	3.97	0.882
	%	0	3.3	30	33.3	33.3		
We show sincere interest in solving customers problems related to order fulfillment	n	0	5	22	23	10	3.63	0.863
	%	0	8.3	36.7	38.3	16.7		
We keeps statement related to orders accurately	n	0	0	6	28	26	4.33	0.655
	%	0	0	10	46.7	43.3		
We promptly response to customer orders regardless of the order size	n	10	16	25	9	0	3.55	0.946
	%	16.7	26.7	41.7	15	0		
We frequently response to customer orders	n	12	5	15	25	3	3.03	1.235
	%	20	8.3	25	41.7	5		
Customer Service							3.74	0.34

The findings showed that 44 (73.3%) and 16 (26.7%) of the respondents strongly disagreed and disagreed respectively that ministries offer services to customers in time giving a mean response of 1.27 (SD = 0.446) indicating strong disagreement by majority of the respondents. The findings also showed that 39 (65%) and 13 (21.7%) of the employees agreed and strongly agreed respectively that ministries ensure efficiency and effectiveness in delivery of orders to customers while 8 (13.3%) of the respondents were not sure of this thus giving a mean response of 4.08 (SD = 0.591) indicating agreement by majority of the respondents.

Furthermore, the findings show that 20 (33.3%) and 20 (33.3%) of the respondents agreed and strongly agreed respectively that ministries ensures that order fulfillment to customers are met while 2 (3.3%) and 18 (30%) of the respondents disagreed and were not sure of this respectively. The mean response was 3.97 (SD = 0.882) which indicated agreement by majority of the respondents. In addition, 23 (38.3%) and 10

(16.7%) of the respondents agreed and strongly agreed respectively that ministries ensures commitment and sincerity in solving order fulfillment problems giving a mean response of 3.63 (SD = 0.863) while 5 (8.3%) and 22 (36.7%) of the respondents disagreed and were not sure regarding this respectively.

The findings further showed that 28 (46.7%) and 26 (43.3%) of the respondents agreed and strongly agreed respectively that ministries ensures custody of statements regarding orders accurately giving a mean response of 4.33 (SD = 0.655) indicating that majority of the respondents agreed with this while 6 (10%) of the respondents were not sure of this. Also, 10 (16.7%), 16 (26.7%) and 25 (41.7%) of the respondents strongly disagreed, disagreed and were not sure respectively in ministries promptness in responding to customer's orders while 9 (15%) of the respondents agreed thus giving a mean response of 3.55 (SD = 0.946) indicating agreement by majority of the respondents.

Moreover, it was revealed that 25 (41.7%) and 3 (5%) of the respondents agreed and strongly agreed respectively that ministries often responds to customer orders while 12 (20%), 5 (8.3%) and 15 (25%) of the respondents strongly disagreed, disagreed and were not sure of this thus giving a mean response of 3.03 (SD = 1.235) that indicated overall neutrality by majority of the respondents. Finally, customer gets the product in very less rates because logistics companies have reduced the role of local dealers (mean = 3.97, SD =0.882). The results on

customer service had an aggregate mean of 3.74 and standard deviation of 0.34. Though majority of the respondents agreed on most items on customer service there were still gaps to do with customer service. In line with the results, Kumar (2007) claimed that many successful 3PL companies have established a good customer relationship with their clients.

Organization Policy

The study sought to determine the role of organizational policy on performance of government ministries at EABL.

Table 3: Organization Policy

		SD	D	N	A	SA	Mean	SD
We involve our suppliers in policy formulation in supply chain process	n	3	0	17	20	20	3.90	1.04
	%	5	0	28.3	33.3	33.3		
Our organization policies have Inter organizational systems for supply chain process	n	9	34	12	5	0	2.22	0.80
	%	15	56.7	20	8.3	0		
Our organization policy ensures all parties are involved in risk identification and sharing	n	0	15	23	17	5	3.20	0.92
	%	0	25	38.3	28.3	8.3		
Tender evaluation committee composition is interdepartmental in my organization leading to enhanced transparency and accountability.	n	1	25	12	17	5	3.00	1.06
	%	1.7	41.7	20	28.3	8.3		
Our organization policy ensures employees in supply chain process have supplier relation competencies	N	0	10	12	26	12	3.67	0.99
	%	0	16.7	20	43.3	20		
Penalties are clearly spelt out for non-adherence to procurement policies and procedures leading to reduced procurement malpractice	N	0	12	13	26	9	3.53	0.98
	%	0	20	21.7	43.3	15		
Key documents required for supplier selection/vetting is clearly documented and communicated therefore leading to supplier credibility and authentication	N	2	18	12	22	6	3.20	1.09
	%	3.3	30	20	36.7	10		
Organization Policy							3.40	0.51

The findings in table 3 showed that 20 (33.3%) and 20 (33.3%) of the respondents agreed and strongly agreed respectively that ministries ensures suppliers involvement in formulation of policy in supply chain process while 3 (5%) and 17 (28.3%) strongly disagreed and were neutral respectively regarding this thus giving a mean response of 3.90 (SD = 1.040).

However, 9 (15%) and 34 (56.7%) of the respondents strongly disagreed and disagreed respectively that ministries have ensured their organization policy have inter-organization systems for supply chain process while 12 (20%) and 5 (8.3%) of the respondents held a neutral view and agreed respectively thus giving a

mean of 2.22 (SD = 0.800) that showed that majority of the respondents disagree regarding this.

The findings further show that 15 (25%) and 23 (38.3%) disagreed and held a neutral view that ministries ensures that all parties are involved risk management process while 17 (28.3%) and 5 (8.3%) of the respondents agreed and strongly agreed respectively with this statement thus giving a mean response of 3.20 (SD = 0.920) indicating that majority of the respondents held a neutral view regarding this. The findings showed that 1 (1.7%) and 25 (41.7%) strongly disagreed and disagreed respectively that ministries ensures transparency and accountability in composition of tender evaluation committee by involving interdepartmental while 12 (20%), 17 (28.3%) and 5 (8.3%) of the respondents held a neutral view, agreed and strongly agreed respectively regarding this giving a mean response of 3.00 (SD = 1.060) indicating that majority hold a neutral view.

On the other hand, 26 (43.3%) and 12 (20%) of the respondents agreed and strongly agreed respectively that the ministries has clear policies to employees in supply chain department in regard to supplier relation competencies while 10 (16.7%) and 12 (20%) of the respondents disagreed and held a neutral view regarding this thus giving a mean response of 3.67 (SD = 0.990) showing that majority of the respondents do not agree with the statement. The findings show that 26 (43.3%) and 9 (15%) of the

respondents agreed and strongly agreed respectively that ministries clearly spills out penalties of non-adherence to procurement policies which leads to reduction of procurement malpractices while 12 (20%) and 13 (21.7%) disagreed and held a neutral view regarding this thus giving a mean response of 3.53 (SD = 0.980) indicating agreement by majority of the respondents regarding this.

The findings also show that 22 (36.7%) and 6 (10%) of the respondents agreed and strongly agreed respectively that clear documentation and communication of key documents required by the ministries on selection/vetting of suppliers to enhance authentication and credibility while 2 (3.3%), 18 (30%) and 12 (20%) of the respondents strongly disagreed, disagreed and held a neutral view regarding this thus giving a mean response of 3.20 (SD = 1.090) indicating neutrality by majority of the respondents. From these findings, organization Policy overall response was 3.40 (SD = 0.510) indicating that though the department implements certain aspects of Organization Policy, not all the aspects are implemented. Consistent with the results, Mello and Stank (2005) found that organizational policy plays an important role in forming suppliers' behaviors.

ICT integration

The study sought to determine the role of ICT integration on performance of government ministries at EABL.

Table 4: ICT integration

		SD	D	N	A	SA	Mean	SD
There are direct computer-to-computer links with key suppliers for information exchange	n	35	25	0	0	0	1.42	0.50
	%	58.3	41.7	0	0	0		
Inter-organizational coordination is achieved using electronic links	n	0	3	20	20	17	3.90	1.04
	%	0	5	33.3	33.3	28.4		
We use information technology-enabled transaction processing	n	0	10	16	29	5	3.48	0.87
	%	0	16.7	26.7	48.3	8.3		
We have electronic mailing capabilities with our key suppliers	n	0	10	23	16	11	3.47	0.98
	%	0	16.7	38.3	26.7	18.3		
We use electronic transfer of purchase orders, invoices and/or funds	n	3	5	9	28	15	3.78	1.08
	%	5	8.3	15	46.7	25		
We use advanced information systems to	n	2	4	12	21	21	3.92	1.06

track and/or expedite shipments	%	3.3	6.7	20	35	35		
We electronically purchase for our product and services	n	0	10	23	16	11	3.47	0.98
	%	0	16.7	38.3	26.7	18.3		
We electronically order for receipt for payment of goods and services supplied	n	0	3	20	20	17	3.90	1.04
	%	0	5	33.3	33.3	28.4		
We electronically process payment to our supplier electronically purchase approval are done	n	0	10	16	29	5	3.48	0.87
	%	0	16.7	26.7	48.3	8.3		
ICT integration							3.81	0.59

The findings in Table 4 showed that 35 (58.3%) and 25 (41.7%) of the respondents strongly disagreed and disagreed respectively that ministries has put in place information exchange facilities for key suppliers giving a mean response of 1.42 (SD = 0.500) indicating strongly disagreement by majority of the respondents.

However, the findings showed that 20 (33.3%) and 17 (28.4%) of the respondents agreed and strongly agreed respectively that ministries uses electronic links to achieve inter-organization coordination while 3 (5%) and 20 (33.3%) of the respondents disagreed and held a neutral view regarding this thus giving a mean response of 3.90 (SD = 1.040) showing agreement by majority of the respondents.

Furthermore, the findings also showed that 29 (48.3%) and 5 (8.3%) of the respondents agreed and strongly agreed respectively that ministries have integrated Enterprise Resource Planning (ERP) which help in transaction processing while 10 (16.7%) and 16 (26.7%) disagreed and held a neutral view regarding this respectively giving a mean response of 3.48 (SD = 0.870) showing that majority of the respondents were neutral regarding this.

The findings also showed that 16 (26.7%) and 11 (18.3%) of the respondents agreed and strongly agreed respectively that ministries has Electronic Data Interchange (EDI) with key suppliers while 10 (16.7%) and 23 (38.3%) of the respondents disagreed and held a neutral perspective regarding this thereby

giving a mean response of 3.47 (SD = 0.980) indicating neutrality by majority of the respondents.

In addition, the findings showed that 28 (46.7%) and 15 (25%) of the respondents agreed and strongly agreed respectively that ministries uses an advanced electronic transfer of funds in purchase of orders while 3 (5%), 5 (8.3%) and 9 (15%) strongly disagreed, disagreed and held a neutral view thus giving a mean response of 3.78 (SD = 1.080) indicating agreement by majority of the respondents.

The findings further showed that 21 (35%) and 21 (35%) of the respondents agreed and strongly agreed respectively that ministries have global IT networking's and expertise in tracking shipments while 2 (3.3%), 4 (6.7%) and 12 (20%) strongly disagreed, disagreed and held a neutral view thereby giving a mean response of 3.92 (SD = 1.060) indicating agreement by majority of the employees.

The findings also showed that 16 (26.7%) and 11 (18.3%) of the respondents agreed and strongly agreed respectively that ministries has Electronic purchase of products and services while 10 (16.7%) and 23 (38.3%) of the respondents disagreed and held a neutral perspective regarding this thereby giving a mean response of 3.47 (SD = 0.980) indicating neutrality by majority of the respondents.

However, the findings showed that 20 (33.3%) and 17 (28.4%) of the respondents agreed and strongly agreed respectively that ministries order for receipt electronically for payment of goods and services supplied while 3 (5%) and 20 (33.3%) of the

respondents disagreed and held a neutral view regarding this thus giving a mean response of 3.90 (SD = 1.040) showing agreement by majority of the respondents.

Furthermore, the findings also showed that 29 (48.3%) and 5 (8.3%) of the respondents agreed and strongly agreed respectively that ministries have integrated Enterprise Resource Planning (ERP) to process payment to supplier if approved while 10 (16.7%) and 16 (26.7%) disagreed and held a neutral view regarding this respectively giving a mean response of 3.48 (SD = 0.870) showing that majority of the respondents were neutral regarding this.

The overall mean response was 3.81 (SD = 0.590) showing agreement by majority of the respondents with majority of the various aspects of ICT integration. The results conform with that of Sheffi (1990) which claimed that the main motivations of US 3PL users are access to necessary technological expertise and systems, better transportation solution together with cost savings and improved services.

Performance of government ministries

The study sought to establish the level of Performance of government ministries by assessing the views of the respondents regarding various aspects of Performance of government ministries.

Table 5: Performance of government ministries

		SD	D	N	A	SD	Mean	SD
Growth in profits in relation to your expectations	n	44	16	0	0	0	1.27	0.45
	%	73.3	26.7	0	0	0		
Increase in number of employees	n	0	4	10	29	17	3.92	1.03
	%	0	6.7	16.7	48.3	28.3		
Growth in capital from operations	n	0	0	9	34	17	3.98	0.95
	%	0	0	15	56.7	28.3		
Improvement in efficiency	n	1	14	5	19	21	3.75	1.22
	%	1.7	23.3	8.3	31.7	35		
Successful creation of positive reputation	n	1	6	2	36	15	3.97	0.92
	%	1.7	10	3.3	60	25		
Increase in perception of customer satisfaction	n	0	0	9	34	17	3.98	0.95
	%	0	0	15	56.7	28.3		
High level of customer loyalty	n	0	0	9	34	17	3.98	0.95
	%	0	0	15	56.7	28.3		
High level of new customers	n	44	16	0	0	0	1.27	0.45
	%	73.3	26.7	0	0	0		
Performance of government ministries							3.72	0.68

From the findings in Table 5, 44 (73.3%) and 16 (26.7%) of the respondents strongly disagreed and disagreed respectively that ministries generate profit as they expected giving a mean response of 1.27 (SD = 0.450) indicating strong disagreement. The findings further showed that 29 (48.3%) and 17 (28.3%) of the respondents agreed and strongly agreed respectively that ministries performance attracts increase in

number of staff while 4 (6.7%) and 10 (16.7%) of the respondents disagreed and were not sure regarding this thereby giving a mean response of 3.92 (SD = 1.030) indicating agreement by majority of the respondents. Furthermore, it was revealed that 34 (56.7%) and 17 (28.3%) of the respondents agreed and strongly agreed respectively that ministries operations performance brings about growth in

capital while 9 (15%) of the respondents were not sure regarding this thus giving a mean response of 3.98 (SD = 0.950) indicating agreement by majority of the respondents.

The findings further revealed that 19 (31.7%) and 21 (35%) of the respondents agreed and strongly agreed respectively that there improvement efficiency in ministry performance while 1 (1.7%), 14 (23.3%) and 5 (8.3%) of the respondents strongly disagreed, disagreed and were not sure regarding this thereby giving a mean response of 3.75 (SD = 1.220) indicating agreement by majority of the employees. The findings also showed that 36 (60%) and 15 (25%) ministry successful creation of positive reputation is through its performance while 1 (1.7%), 6 (10%) and 2 (3.3%) of the respondents strongly disagreed, disagreed and were not sure respectively regarding this thus giving a mean response of 3.97 (SD = 0.920) indicating agreement by majority of the respondents.

Furthermore, the findings revealed that 13 (21.7%) and 10 (16.7%) of the respondents agreed and strongly agreed respectively that there is ministries

ensures increase in customer satisfaction in their operations while 5 (8.3%), 22 (36.7%) and 10 (16.7%) of the respondents strongly disagreed, disagreed and were neutral regarding this thus giving a mean response of 3.02 (SD = 1.270) indicating neutrality by majority of the respondents. Furthermore, it was revealed that 34 (56.7%) and 17 (28.3%) of the respondents agreed and strongly agreed respectively that ministries ensures high level of customer loyalty in their operations while 9 (15%) of the respondents were not sure regarding this thus giving a mean response of 3.98 (SD = 0.950) indicating agreement by majority of the respondents.

From the findings in Table 5, 44 (73.3%) and 16 (26.7%) of the respondents strongly disagreed and disagreed respectively that ministries performs in a way that will attract high levels of new customers giving a mean response of 1.27 (SD = 0.450) indicating strong disagreement. The overall mean for Performance of government ministries was 3.72 (SD = 0.680) that indicated that majority of the respondents agreed with majority of the various aspects of Performance of government ministries.

Table 6: Correlation analysis

		Performance of government ministries	Organization Policy	ICT integration	Customer Service
Performance of government ministries	r				
	p value				
Organization Policy	r	0.419**	1		
	p value	0.001			
ICT integration	r	0.440**	0.061	1	
	p value	0.000	0.645		
Customer Service	r	0.327*	0.419**	-0.076	1
	p value	0.011	0.001	0.563	
Lead time	r	0.519**	0.191	0.387**	0.029
	p value	0.000	0.143	0.002	0.824

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

The findings revealed that Organization Policy have a positive and significant relationship with Performance of government ministries, $\rho = 0.419$, $p = 0.001$ at 0.01 level of significance. Further, ICT integration had a positive and significant relationship with Performance of government ministries, $\rho = 0.440$, $p < 0.001$ at 0.01 level of significance. Moreover, Customer Service was positively and significantly correlated with Performance of government ministries, $\rho = 0.327$, $p = 0.011$ at 0.05 level of significance. Finally, Lead time have a positive and significant relationship with Performance of government ministries, $\rho = 0.519$, $p < 0.001$ at 0.01 level of significance. Finally, the inter-factor relationships showed that there were

significant and positive relationships. These findings show that the various factors complement each other for the benefit of increasing the level of Performance of government ministries.

Regression analysis

The results showed that all the four predictors (Lead time, Customer Service, ICT integration and organization policy) explained 49.3% variation of Performance of government ministries. This showed that considering the four study independent variables, there is a probability of predicting Performance of government ministries by 49.3% (R -squared = 0.493, $R = 0.702$).

Table 7: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.702a	0.493	0.456	0.50289

a Predictors: (Constant), Lead time, Customer Service, ICT integration, Organization Policy

Analysis of Variance

Study findings in Table 8 for the analysis of variance indicated that the coefficient of determination was

significant as evidenced by $F(4, 55) = 13.362$ with $p < 0.001$. Thus, the model was fit to predict performance of government ministries using lead time, customer service, ICT integration, organization policy.

Table 8: Analysis of Variance (ANOVA)

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	13.517	4	3.379	13.362	0.000b
Residual	13.909	55	0.253		
Total	27.426	59			

a Dependent Variable: Performance of government ministries

b Predictors: (Constant), Lead time, Customer Service, ICT integration, Organization Policy

Table 9: Regression Model Estimate Coefficient

	Unstandardized Coefficients			Standardized Coefficients	
	B	Std. Error	Beta	t	Sig.
(Constant)	-1.693	0.873		-1.939	0.058
Organization Policy	0.308	0.143	0.232	2.146	0.036
Customer Service	0.482	0.211	0.243	2.284	0.026
ICT integration	0.356	0.120	0.309	2.957	0.005
Lead time	0.330	0.100	0.347	3.280	0.002

a Dependent Variable: Performance of government ministries

On the first specific objective, the findings showed that organization policy had a positive and significant

effect on Performance of government ministries, $\beta_1 = 0.232$, $p = 0.036$ such that with each unit increase in

Organization Policy, Performance of government ministries would increase by 0.232 units and this effect is over 2 times, $t = 2.146$ compared to that attributed to the error. These findings support observation by Tummala et al. (2006) which established that the compatibility of supplier's policies plays a key role in developing long-term relationships.

The second specific objective of the study was to establish the role of customer service on performance of government ministries. This was done by answering the research question stating that: Does enhanced customer service affect performance of government ministries? The findings showed that Customer Service have a positive and significant effect on Performance of government ministries, $\beta_3 = 0.243$, $p = 0.026$ such that with each unit increase in Customer Service, Performance of government ministries would increase by 0.243 units and this effect is over 2 times, $t = 2.284$, compared to that attributed to the associated error. In support of these findings, Masella, & Rangone, (2000) postulated that key objective of 3PL logistics is to balance the components rather than having internet communication of orders direct from the customers with slower less costly surface transportation.

The third specific objective of this study was to determine the role of ICT integration on performance of government ministries by answering the research question stating that: To what extent does ICT integration enhance performance of government ministries? The findings showed that ICT integration had a positive and significant effect on Performance of government ministries, $\beta_2 = 0.309$, $p = 0.005$. This means that with each unit increase in the use of ICT integration, Performance of government ministries would increase by 0.309 units and this effect is about 3 times, $t = 2.957$, compared to that attributed to the error associated with it. In line with these findings, Rajesh et al (2011) found that government ministries depend on its professional logistics service to provide

values to their clients. Further support to the findings is by Gupta et al (2013) who confirmed that customers play an instrumental role in contributing to the success of government ministries.

The fourth specific objective of this study was to establish the role of lead time on performance of government ministries by answering the research question stating that: To what extent do lead times enhance performance of government ministries? The findings revealed that lead time had a positive and significant effect on Performance of government ministries, $\beta_4 = 0.347$, $p = 0.002$. This effect is over 3 times, $t = 3.280$, compared to that attributed to the associated error. This means that with each unit increase in Lead time, Performance of government ministries would increase by 0.347 units. To corroborate the findings, Bhatnagar et al. (2005) established that the most important reasons for making decisions of outsourcing logistics are: cost savings, customer satisfaction and flexibility achieving. The results were also in line with that of Lieb and Bentz (2005) which concluded that American companies renew their 3PL contracting basin on the service consideration, cost consideration, and reliability.

CONCLUSION

Clearly, aligning the ministries policy with that of suppliers goes a long way in enhancing ministries success and profitability. This is further strengthened by top level management support for services offered by the ministry. Besides, policies are in place for regular assessment of supplier's capabilities to ensure that they meet the ministry's requirements. As such, government ministries are not on the receiving end when it comes to outsourcing its suppliers. It can therefore focus on other important areas since their supply is catered for. The findings therefore suggest that the ministries policy significantly influences the performance of government ministries.

ICT integration is an integral component in attaining improved performance of government ministries. Through ICT integration, modalities are in place to facilitate communication with the outsourced suppliers which in turn improves the performance of government ministries. Besides, IT forecasting resources come in handy when determining the correct demand fulfilment thus right lead times. ICT integration is therefore of essence in attaining performance of government ministries as it aids in forecasting the right demand schedules, facilitates communication between the parties involved and provides for the expertise needed.

Customer service is without doubt a significant contributor of performance of government ministries. There is a nexus between customer service and ICT integration since the effectiveness of customer service is strongly determined by the information technology used by the government ministries. In fact, quality customer service by government ministries is brought about by the ability of customers to acquire their services online. Besides, customers pay less for services since the role played by local dealers has been reduced. Overall, performance of government ministries is enhanced with an improvement in customer service.

Finally, lead time had a positive and significant effect on performance of government ministries. The implication is that supplier outsourcing is a rapidly expanding source of competitive advantage and supplying cost saving. Specifically, there is reduction in transportation and the ability to manage rising supplying costs. Suppliers have therefore enabled the government ministries to obtain cost savings and to concentrate on their core competencies.

RECOMMENDATIONS

There is therefore need for government ministries to have clear policies on regular assessment of supplier's capabilities. There is also need for government ministries policies on their suppliers to be clearly

communicated to all staff. Besides, it is utmost necessary for the government ministries to have a way of communicating with outsourcing entity in form of giving information and feedback based on market trends. As well, top level management support is needed in order to achieve superior performance of government ministries.

It is utmost necessary for ministries to put in place information facilities that enhance communication with the suppliers. Also, there is need for proper IT forecasting resources by the government ministries that enables correct demand fulfilment and hence right lead times. Besides, it is crucial for government ministries to have electronic customer relationship management that provides for all customer information that they need. Moreover, it was recommended for government ministries to have integrated Enterprise Resource Planning (ERP) which help in E-transaction.

It is important for government ministries to have mechanisms of offer better services to customers. Besides, government ministries need to ensure that demand fulfilment for customers are met. Moreover, government ministries should have quality customer service and have modalities that make it possible for customers to acquire their services online.

There is need for government ministries intervention between customers and suppliers so as to reduce on costs. As well, it was recommended for government ministries to respond rapidly and generate ideas for lead time. Besides, there is need for highly developed processes and critical infrastructure that manages rising supply costs.

Further Research Recommendations

Since the current research was limited to East African Breweries Limited, there was a limited sample available from the population. A larger sample and a more specific instrument might be desirable and might validate the findings of the study. Apart from extending the sample size, to strengthen the research

it is recommended that that there is a replication study to augment the findings of the study. This could provide more general picture of the utility of

organization policy, ICT integration, customer service and lead time for supply chain partners at large.

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