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**ROLE OF THIRD-PARTY LOGISTICS SERVICES ON SUPPLY CHAIN
PERFORMANCE IN DISTRIBUTION SECTOR IN KENYA: A CASE OF BOLLORE
TRANSPORT & LOGISTICS KENYA LIMITED**

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Abstract

Purpose: The main objective of the study was to determine the role of third-party logistics services on supply chain performance in distribution sector in Kenya.

Methodology: The study adopted a descriptive research design. The target population of the study was all employees working within Bollore Transport & Logistics Kenya Limited Nairobi office. The study sampled 41 respondents out of 138 staff who work in the Logistics and transport department and 40 respondents participated in the final study. The researcher adopted the simple random sampling method because it gives every member of the population equal chances of being selected. A questionnaire was developed and pre-tested as the main tool for collecting primary data and was delivered to the respondents directly with the help of research assistants and picked later at the agreed date. The questionnaire contained both open and close ended questions. Data analysis was analysed by use of statistical package for social science version 24 (SPSS) analysis software and t-Trend analysis. The findings were presented using descriptive statistical tools like graphs, tables and other measures of central tendency while qualitative data was analyzed to establish patterns, trends and relationships from the information gathered.

Results: The results of the study revealed that the four variables studied explain 83% of variance and that other factors not included in this research contribute 17% of variance in the dependent variable. The study also established that ICT integration leads in improving financial performance in supply chain performance within distribution sector in Kenya while organizational policy adds little value on financial performance of firms within supply chain.

Unique Contribution to Theory, Practice and Policy: The study recommends that the Government should implement distribution legislation to remove the unwanted and unfair clearance procedures that firms undergo delays 3PLs to achieve their targeted lead -times to customers. The Third Party Logistics Services (3PLs) providers need to build a culture of information sharing among its personnel, and with external clients hence reduce logistics obstacles of lack of knowledge within the supply chain sector.

Key Words: *Third-Party Logistics Services, Supply Chain Performance, and Bollore Transport & Logistics Limited*

1.0 INTRODUCTION

As Chopra, Meindl and Kalra (2009) puts it, “third party logistics services and their providers in supply chain performance and distribution sector can be found ‘everywhere’. Some are genuinely capable to perform; others are struggling to meet the customer demands, while others are limited with growth. Many scholars have discussed about different concepts of supply chain performance touching on advanced inventory management controls, integrated information and communication technology, organizational policy and shorter lead-times as services provided, and their impact on customer satisfaction with theoretical frameworks. They also have presented various analytical models that can be used to unravel the puzzle of efficiency, effectiveness and profitability within supply chain performance in the distribution sector. “Logistics services are regarded as “component” services,” according to Axelsson and Wynstra, (2002) and thus interdependencies and interfaces among supply chain processes and relationships should be considered when designing and implementing 3PL services.

For firms to continuously reduce costs they begin to do outsourcing one or more logistical functions to third party logistics service provider. This has become a widespread practice in logistics industry all over the world. Third party logistics service providers (3PLs) have the resources, scope, scale, and best practice experience in offering services such as ICT integration, reducing lead times, providing better organization policies, warehousing, distribution and transportation, thus providing services more efficiently and less expensively than what companies can do in-house their strategic goals. According to Leenders, Fearon, Flynn and Johnson (2002), many tasks associated with the logistics function as well as the entire supply chain function itself have been heavily outsourced, and the tasks typically outsourced include; freight auditing, transport, warehousing, leasing, maintenance and repair, freight brokering, consulting and training

The principle reasons for firms providing 3PL services can be attributed to globalization of sourcing, manufacturing and distribution leading to an increase in the complexity of material movement. Competition has also forced companies towards more responsiveness and a reduction in inventories. There is an increased need for small but frequent shipments with 100 percent reliability, requiring core competence in logistics management. Some have outsourced activities that they previously dealt with to save on time, progress and get cost advantage, Jacobs (2009). In Kenya, there has existed the difficulty of resource constraints that require companies to concentrate only on their core competence of manufacturing or new product development activities which has led to a sprout of various logistics companies to provide third party logistics services. In the 3PLs industry, some service providers have high standardized service offerings. This enables the provider to benefit from increased economies of scale, risk sharing and volatility smoothing. However, providing standardized services in a cheaper way is no longer sufficient for 3PL firms. Additional practices for management and control of 3PL relations include doing surveys on customer satisfaction, gaining access to LSP information systems, planning together and implementing performance improvement projects and organizing 3PL forums where the client organization shares information with regard to logistics strategy objectives, according to Wilding and Juriado (2004).

Organizations that embrace 3PLs in their supply chain management efforts stress certain supply chain management concepts to a higher extent compared to firms that exclude 3PLs in their supply chain management efforts (Jayaram & Tan 2010). Good outsourcing decisions can result in lowered costs and competitive advantage, whereas poorly made outsourcing

decisions can lead to a variety of problems, such as increased costs, disrupted service and even business failure. The context of an integrated supply chain is a multi-form collaboration within a framework of key resource flows and constraints according to Donald J Brown *et al.* (2008). Within these contents, supply chain structure and strategy results from efforts to operationally align an enterprise with customers as well as supporting distributive and supplier networks to gain competitive advantage. The origin of business ideas was grounded on functional specialization; however, firms develop the practice of outsourcing work to businesses that are specialists in the performance of specific functions. According to Shepherd (2011) and Freytag, Clarke, and Evald (2012), the decision made by oil and gas companies on whether to outsource logistics activities or not, depend on make or buy decisions. The two most common traditional logistics services provided are transport and warehousing. The for – hire transportation industry consists of hundreds and thousands of carriers who specialize in product movement between geographic locations.

Over the years, a comprehensive carrier network has emerged providing shippers a broad assortment of services, utilizing all available forms or modes of transport and related technology. The proposition of third- party logistics services is based on specialization, efficiency and economies of scale. Several outsourcing engagements are growing globally and will continue growing in terms of contracts and contracts value, and therefore improvements in both national and international logistics service provision is the main features of economic growth, according to Price waterhouse Coopers (2007). Value is created by a carrier’s capability to provide shared logistics services for multiple shippers and distributors. In addition to transportation, a large number of service companies have traditionally provided warehouse services, reduced lead times, offered ICT integration to improve on service delivery modified organizational policies. These are referred to as public warehouses, these firms provide product storage, supplemented with other specialized services. Two sufficient benefits are gained when shippers use public warehouses. Some warehousing firms have implemented the ISO 9001: 2001 certification process. This is essential to the clients and suppliers for they will receive good services due to the good and effective Quality Management Systems put in place. (MithellCotts, 2016).

In the words of Serem (2002), outsourcing can result in union grievances over job losses or changes hence posing a serious threat to the organization in the Kenyan republic, Kenya National Shipping Line Ltd as it was initially known when it was formed in 1989 under the Merchant Shipping Act and as the only National Carrier of the Kenya Government was to serve the East African region. At the time, the Shareholders included the Kenya Government through Kenya Ports Authority (KPA) with Majority shares together with two foreign investors DEG and UNIMAR. Later in 1997 the company's shareholding was re-organized to bring into the fold a strategic partner Mediterranean Shipping Company (MSC) through Heywood Shipping Co. Ltd as additional shareholder. Kenya Information Guide (2017).

Aside from the direct shipping business, Bollre Transport & Logistics Kenya Limited also offers Agency services to special cargo or chartered vessels docking in Mombasa from anywhere in the world like the tramp vessel Agency. The company operates under slot charter system with MSC, also a strategic partner/shareholder but is not an Agent of any shipping line and has now been merged into one company as Bollre Transport & Logistics Kenya Limited. The operations of the company are currently based within Europe and Northwest continent together with East Africa. These include ports of call such as Felixstowe, Barcelona, Antwerp, Hamburg, Bremen, Rotterdam, La Spezia, Trieste, Le

Havre, Lisbon, Lexoies, together with Dar es Salaam and Tanga in East Africa. There is effective Agency network in all these areas.

Bollore Transport & Logistics Kenya Limited

KNSL was a full member of the East African Conference until its abolition and now operates under a slot charter agreement with MSC. At the headquarters of Kenya National Shipping Line based in Mombasa, control and effective communication is exercised with all the Agents in East Africa as well as those in Europe and Northwest continent. It has since changed its brand names several times and now rebranded as Bollore Transport & Logistics Kenya Limited. The company also has a branch in Nairobi to serve its clients from the Kenyan capital and to effectively handle inland cargo destined for Inland container Depot Embakasi (ICDE) in Nairobi from overseas. The company also handles transshipments through their Th Bill of Lading (TBL) either in East Africa or Europe. The company is lately exploring possible avenues of adding other ports of call to serve the clients even better. With weekly sailings from Felixstowe, KNSL accepts FCL bookings to/from Mombasa, Nairobi, Kampala and Dare Salaam. Other hinterland destinations such as Uganda, Rwanda, Burundi, Congo and Southern Sudan maybe accepted upon request. Transit time approx. 30 days and 20'DV and 40'DV / HC containers are readily available.

Statement of the Problem

The third-party logistics industry in Kenya has become one of the most competitive area of venture where firms goes for each other's throat to outdo the competitors who are always found right at the door step to customers. 3PLs are under constant pressure to expand and differentiate their services because of several different directions and strategies that they need to follow in order to be competitive. Iyer (2011) noted that despite the vast literature on supply chain performance in the petroleum industries that has often caused fuel shortages, much less is known about factors affecting proper forecasting. The study further revealed that the reason that causes shortages are not the same reasons that causes surplus, a fact that is often overlooked. This raises the question of which services adds value to the supply chain performance and which one does not.

Kenya had various problems related to transport and distribution in the past which led to the formation of SDV Transami (K) Ltd in early 1989 and now Bollore Transport and Logistics Kenya Limited. The formation of this company aimed at solving the logistical problems that the region was encountering. Efficiency and effectiveness of offering these logistics services to secure high financial performance has been the greatest achievement dream that organizations yawn to accomplish to put them on a competitive edge, but it has however remained a distant destination to land due to the ever-changing customer requirements.

Lwiki, Ojera, Mugenda and Wachira (2013) conducted a survey in eight (8) sugar manufacturing firms in Kenya and established that there is generally positive correlation between each of inventory management practices. The level of inventory management practices were the main determinants of specific performance indicators. The study further argued that there is a strong correlation between Return on Equity and lean inventory management practices coupled with supplier partnerships, and therefore finally concluded in their study that the accomplishment of sugar manufacturing firms was consequently due to the inventory management practices applied. This study therefore sought to answer one of the many research questions of what is the role of inventory management practices as a service on the supply chain performance in the distribution sector within Bollore Transport &

Logistics Kenya limited. Then can we achieve efficient and effective operations that can lead to customer satisfaction to curb shortages and stock outs if the four variables are carefully blended together.

Many companies fail to meet strict delivery deadlines due to lack of information and this pose a challenge as third-party logistics provider's go through many facets of logistics requirements, making operational design a more complex task. According to O'Neill (2008) the advances in information technology have made communication tools easier for users, allowing its presence in components to extend in the supply chain. Another significant communication tool is the internet-based information and communication technology (ICT), as mentioned by Tan and Gosh (2009). The complex structure of logistics means that total cost analysis justifies the performing of specific activities at consecutive levels of supply chain. Despite having so many providers of 3PL services, clients still complain of delays due to poor inventory management, lack of ICT integration, stringent organization policies, and delayed lead times. Therefore, this study sought to establish the role of 3PL services on supply chain performance in the distribution sector in Kenya.

2.0 LITERATURE REVIEW

Theoretical Review

Theory of Constraints (TOC)

Theory of constraints (TOC) is an overall management philosophy introduced by Eliyahu M. Goldratt (1984). According to Qui, Fredendall and Zhu (1999), despite (TOC) origins as a manufacturing approach the Theory of Constraints methodology is now regarded as a systems methodology with strong foundations in the hard sciences. The theory further defines a constraint as anything that prevents the system from achieving its goal. There are many ways that constraints can show up, but a core principle within TOC is that there are not tens or hundreds of constraints. The model explains the impact on profitability from decision making by supply chain in terms of time. It aims at increasing throughput by managing other competing factors that are bottlenecks. With scarce resources, managing proper inventory can be problematic and cause high labor and maintenance costs coupled with obsolescence on stock in warehouses.

According to Tristich (2004), there is at least one but at most only a few in any given system and that constraints can be internal or external to the system. An internal constraint is in evidence when the market demands more from the system than it can deliver. If this is the case, then the focus of the organization should be on discovering that constraint and find ways to uncover it and potentially remove it. The underlying premise of the theory of constraints is that organizations can determine their success by variations on three main measures; throughput, operational expense, and inventory. Inventory is all the money that the system has invested in purchasing things which it intends to sell. Operational expense is all the money the system spends in order to turn inventory into throughput.

It is necessary for a supply chain to make continuous improvements until the limit of throughput is reached. Logistics is an important part for engaging in any business whether in production, transportation, warehousing or communication. This makes the organization of logistical processes in companies a crucial issue on the one hand and a profitability booster on the other hand, according to Uraikin (2017). Throughput is the rate at which the system generates money through sales. Before the goal itself can be reached, necessary conditions

need to be fulfilled first. These typically would include safety, quality, legal obligations, etc. For most businesses, the goal itself is to make money. However, for many organizations both in public and private sector, profit making is a key condition for pursuing the goal so as to attain self-sustainability. Whether it is the goal or a necessary condition, understanding how to make sound financial decisions based on throughput, inventory, and operating expense is a critical requirement

Technology Acceptance Model (TAM)

This theory was introduced by Fred Davis in (1985). According to Davis (1989), the model suggested that user's motivation on any technology is explained by three factors; perceived easy of use, perceived usefulness and attitude toward using. The theory was preferred over the Theory of Reasoned Action (TRA). Forman & Goldfarb (2006) have proved TAM to be robust model that is frequently used to study acceptance of Information Communication Technology (ICT). "TAM is viewed as Information system theory which helps to understand the adoption and use of internet," according to Gibbs, Sequera and White (2007). The theory helps to understand how adopters come to accept or reject the use of ICT in their businesses. However, TAM can be criticized as less comprehensive compared to the diffusion approach which has more innovation and characteristics including time as an essential element of the theory (Gibbs et, al., 2007). Gibbs et, al. (2007) further criticized that TAM for not accounting for influence and personal control factors on behavior, including the lack of consideration to other factors such as external influence from competitors. It can be concluded that TAM is a useful model, which should be integrated into a broader scope which would include variables related to both human and social change processes, and to the adoption of the innovative model, according to Legris, Ingham, Collerette, (2003). The study sought to know how ICT integration is perceived by employees within the supply chain and within distribution sector to be of essence to facilitate operations and if it is widely accepted and embraced by personnel within this sector.

System theory

System theory was introduced by L. von Bertalanffy in the 1930's as a modelling mechanism that accommodates the interrelationships and fall backs between separate fields. According to Richardson (2004), a system is a set of related components that work together in a particular environment to perform whatever functions are required to achieve the system's objective. This theory brings together various components of supply chain including human resource, capital information, materials as well as financial resources that will form a large system of supply chain or network. This study linked this theory on how the organizational policy would support staff on achieving efficient supply chain performance or vice versa since implementation of a new system is always characterized by resistance from a section of people within the supply chain for different reasons. According to Nollet and Beaulieu (2005), system theory states that for a holistic perspective, system theory must be employed to understand the internal and external factors that shape up an organization supply chain performance. The main focus of this theory is to address strategic issues and political forces related to supply chains as a whole in contrast to functional approach regarding individual supply chain firms. Implementation of turning fixed costs into variables such as electronic payment systems for financial controls and better client service will only be successful if the users embrace the system and work together towards its success and therefore the study

sought to understand the challenges within the organizational policy that affects full policy implementation.

Empirical Review

A study carried out to investigate the effect of inventory management practices on organizational performance in public health institutions in Kenya indicated that inventory investment and inventory records accuracy have a positive influence on organizational performance whereas inventory shrinkage has a negative effect on organizational performance (Oballah, Waiganjo & Wachiuri, 2015). Their study was carried out at Kenyatta National Hospital and adopted a descriptive design and had a target population of 74 respondents among them senior store managers, stock controllers, pharmacists, stores and supplies officers, stores clerks and assistants. The data analyzed was collected using a questionnaire as the research instrument and analyzed using descriptive statistics.

Another study carried out by Zhang, Donk, and Vaart, (2011) set out to review and classify survey-based research that connects information and communication technology supply chain management and supply chain performance. The study offered a systematic review for further development of the understanding of the relationship of supply chain management, ICT and supply chain performance. The paper recommended that specific attention in further survey studies should consider aspects of supply chain management and performance dimensions. Roberts (2000) analyzed the ability of willingness to cooperate, and suggested that ICT integration increase teamwork integration in two ways, firstly by facilitating and speeding knowledge transfer, both tacit and explicit, and secondly, by reinforcing the levels of trust and confidence that normally develop in face to face meetings. This raises the question of where does the fear of employees' redundancy come from among staff in the introduction and adoption of new ICT systems to enhance supply chain performance.

A paper by Oelze, Hojmosse, Habisch, and Millington (2016) indicates that failure to manage supply chains reasonably can have a negative significant impact on an organization's reputation and financial performance. The study developed a conceptual framework that focused on organizational learning and outlined specific channels through which organizations create learning processes and build appropriate capabilities to successfully implement social and environmental supply chain policies. The study conducted 57 interviews from a cross-sectional sample of a total of sixteen companies and found that organizational learning is important for the successful implementation of sustainable supply chain management. Implementing sustainable policies in supply chains is a significant challenge for businesses.

A study on integrated supply chain network design models by Lemmens, Decouttee, Vandaele and Bernuzzi (2016), conducted literature review on model-based supply chain network design and studied the applicability of the models to the design of vaccine supply chains. The study sought to find out if decisions at strategic, tactical and operational levels of the reviewed literature are able to address vaccine supply chain key issues on limited shelf life, cold chain distribution and accessing remote areas. The study went ahead to provide an overview of how uncertainty is incorporated in reviewed literature and incorporates disease epidemics, tender procurement, lead time variability and demand variability and considered economical, technological and value key performance indicators that are to be satisfied by the design. The study recommended that future vaccine supply chain networks need to be sustainable by taking preferences of different stakeholders.

Conceptual Framework

Third party logistics services are engaged in one way or another in efforts to pursuing creative or new solutions to meet customer demands and improving on their operational efficiency and effectiveness. Every effort made to attain this is aimed at making strategies and methods of how to improve on service delivery in supply chain performance in distribution sector within logistics industry. Supply chain is frequently equated to 100 percent product delivery to customers within distribution. All firms in neo-classical supply chain performance recognize the three primary economic factors of production as raw materials, labor and capital. All products both (goods and services) are a mixture of these three components and need to be assembled at one point or another so as to transform them into finished products hence the need for provision of logistics services by either manufacturing organizations or to sub contract third party logistics providers to bring them together either at factories, warehouses, stores etc. In this study the conceptual framework used is presented in Figure 1

Independent Variables

Dependent Variables

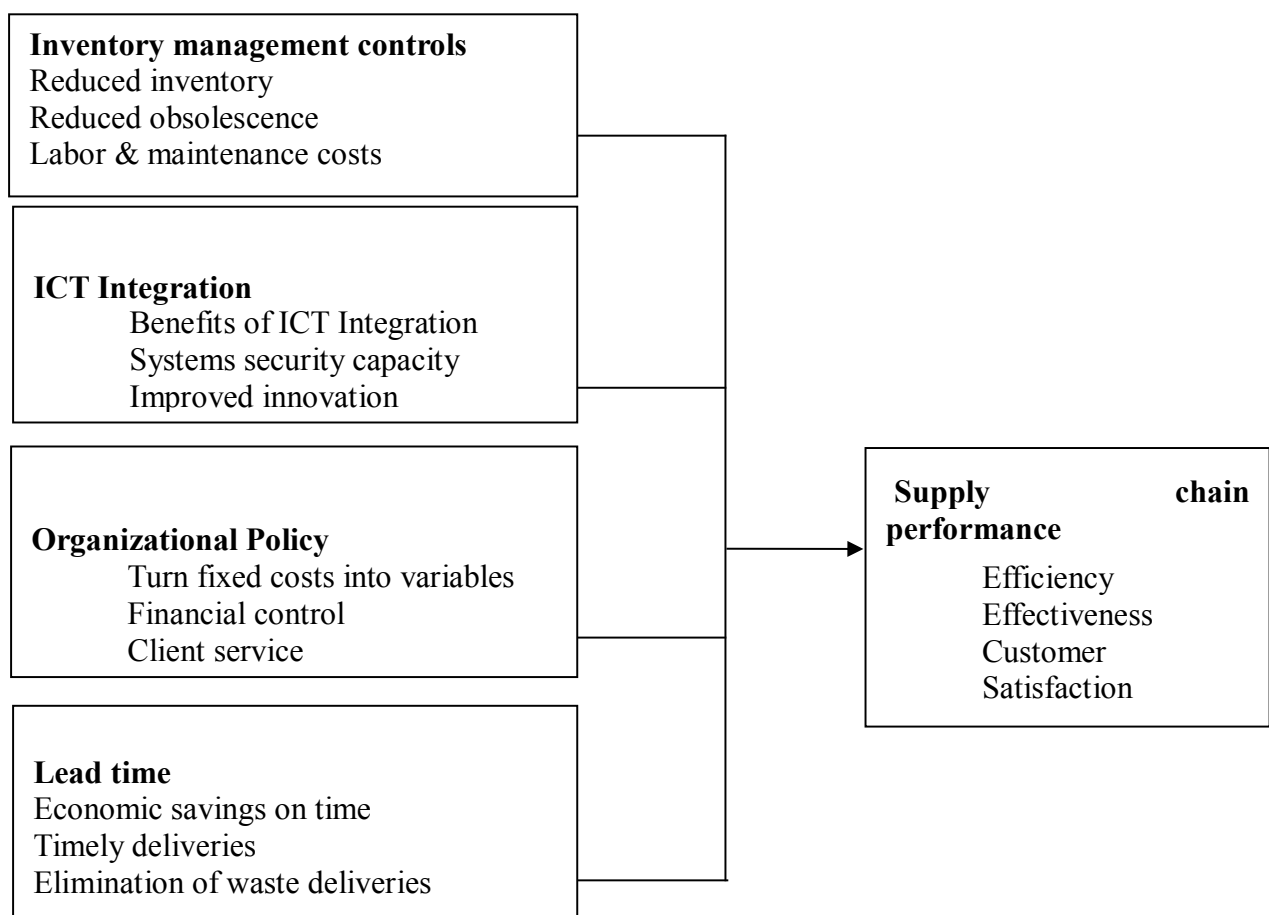


Figure 1: Conceptual Framework

3.0 RESEARCH METHODOLOGY

The study adopted a descriptive research design. The target population of the study was all employees working within Bollore Transport & Logistics Kenya Limited Nairobi office. The

study sampled 41 respondents out of 138 staff who work in the Logistics and transport department and 40 respondents participated in the final study. The researcher adopted the simple random sampling method because it gives every member of the population equal chances of being selected. A questionnaire was developed and pre-tested as the main tool for collecting primary data and was delivered to the respondents directly with the help of research assistants and picked later at the agreed date. The questionnaire contained both open and close ended questions. Data analysis was analysed by use of statistical package for social science version 24 (SPSS) analysis software and t-Trend analysis. The findings were presented using descriptive statistical tools like graphs, tables and other measures of central tendency while qualitative data was analyzed to establish patterns, trends and relationships from the information gathered.

4.0 FINDINGS

4.1 Background Information

4.1.1 Managerial Level of Respondents

The results of the study showed that the majority of staff working within the lower management level were many as compared to those in the senior management. Senior management represents 8% whereas lower management is represented by 92% of the respondents. This is a clear indication of a pyramid organogram with few managers at the helm of the organization that managers the wider number of staffs at the bottom. The study further revealed that the organization had few numbers of staff at the top with the majority at middle and lower level cadre who supports in day to day activities using ICT general knowhow to run the firm's business errands. These results were confirmed by a similar study by Mburu (2013) who found that 70% of staff at Kenya Revenue authority were non-managerial staff, 28% departmental heads and 2% top management. The study confirmed that ICT integration is key in success of achieving objectives with high accuracy of information and security. The study further concluded that there is quick and swift problem solving with flexibility on changing work situations.

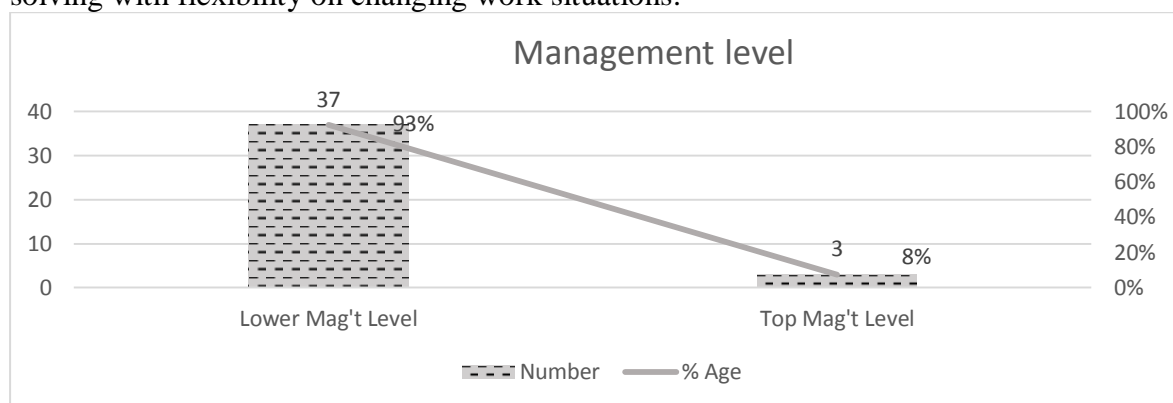


Figure 2: Percentage of Staff in Management Level

4.1.2 Education Levels of Respondents

The study discovered that 23% percent of the respondents had the minimum qualifications of ordinary certificate course training in supply chain management. From the study, many of the respondents are diploma holders with a big percentage of 55% while 15% were degree

holders and only 8% have post graduate qualifications. Staff with diploma qualification and below forms a total of 78% of the sample size. The study determined that average education gives employees average skills to manage procurement processes. According to Afshari, Bakar, Luan, Samah and Fooi (2009), Higher professional experiences exhibit transformational leadership behaviors that suggestively contribute to advanced levels of electronic technology use which will hence improve performance.

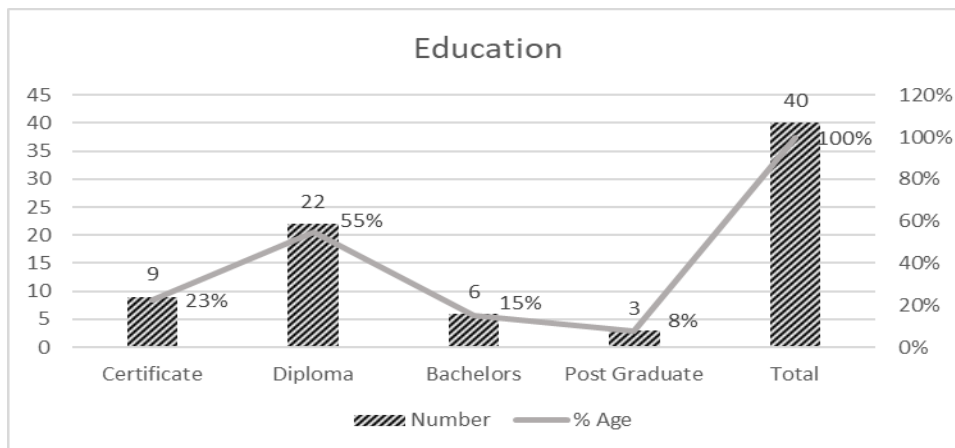


Figure 3: Highest Level of Education

4.1.3 Staff Experience in the Organization

The level of experience of staff in this study was carried out to determine the relationship of the respondent's experience both in-house and outside the Bollore Transport and Logistics Kenya limited and if staff experience helped to add value to the works done to improve supply chain performance. The statistics shows that staff had more experience in the supply chain sector gained elsewhere in their early career before joining Bollore Transport and Logistics Kenya Limited. Employees who have more experience with an organization tend to perfect the organisation's way of handling things and keep good history of events and how various problems have been handled over time. As discovered from this study, employees are able to document various work experience without referring to archive files by giving exact outcomes that took place in the past. Such experience indicates some consistence of information within their database which can be relied on for future planning of the organization with greater emphasis on which areas to improve most.

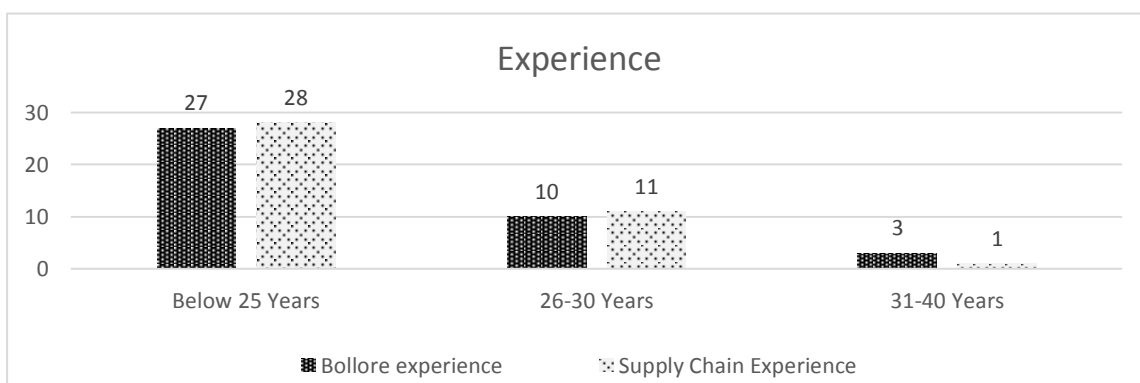


Figure 4: Percentage of Staff in Level of Experience

4.2 Descriptive Statistical Results

The study sought to establish the role of 3pl services on the supply chain performance on distribution sector in Kenya. This section provides the descriptive statistics on the variables tested. Descriptive survey design was adopted for this study. Bollore Transport and Logistics Kenya Limited Operations and Transport section has a population of one hundred and thirty-eight (138) employees in Nairobi office who were all targeted. The four departments within this section namely; Human Resource department, Finance department, Logistics & Transport department and customer care department since they have the knowledge on the services provided in supply chain performance at Bollore Transport & Logistics Kenya Limited.

4.2.1 Inventory Management Controls

The study sought to examine the role of inventory management controls on supply chain performance in the distribution sector in Kenya. Inventory separates demand from supply so that users are not affected by the limitations in supply chain and it is the fluid that lubricates the wheels of the supply chain, according to Wild (2007). The findings in this study were in concurrence with these findings and indicated that an increase in inventory management control yields more on financial performance. It was determined in this study that good control of inventory management helps firms to keep lean stock and helps firms to avoid to tie money in stock.

Table 1: Effect of Obsolescence on Supply Chain Performance

Statement	Str. Disagree	Disagree	Neutral	Agree	Str. Agree	Total
Increased govt' intervention	0	10	3	1	26	40
DL increase order processing	2	12	13	12	1	40
DL reduce complaints	1	10	14	13	2	40
There is Uniform DL	0	6	17	15	2	40
Proper resources utilization	1	11	13	13	2	40
DL reduce conflict of interest	1	8	17	12	2	40
DL promotes timely delivery	2	9	9	17	3	40
Politics hinder DL implement. 04	4	5	13	11	7	40
Increased Confidentiality	1	7	13	15	4	40
Mean percentage (%)	3.89	21.67	31.3	30.3	13.6	100

4.2.2 Information and Communication Technology Integration

The study sought to examine the role of ICT integration on supply chain performance and its positive or negative influence on efficiency and effectiveness. It also wanted to determine if there is greater accomplishment on consistency and accuracy of data while checking on the enhanced security of information used. The study also aimed at seeking to know if there is prompt attention to requests with quick and reliable problem solving and decision making with staff being flexible to work change with improved complaint handling. There was a

higher response rate of most of the respondents agreeing that ICT integration was capable of supporting the organization in achieving efficiency and effectiveness and enables staff to achieve results on timelines.

Table 2: Response Rate Results on ICT Achievement on Timelines

Statement	Str.				Str.	
	Disagree	Disagree	Neutral	Agree	Agree	Total
Has +ve influence on efficiency	2	0	6	15	17	40
Greater work accomplishment	1	4	12	9	14	40
Accuracy is realized	2	2	8	19	9	40
Enhanced security of info.	0	8	6	13	13	40
Promote attention to requests	0	4	12	14	10	40
Reliable problem solving	1	3	7	18	11	40
Staff flexibility to change	2	8	10	9	11	40
Improved complaint handling	2	3	6	19	10	40
Mean percentage (%)	3.13	10	20.93	36.25	29.67	100

4.2.3 Organizational Policy

The study sought to examine the role of Organizational policy on staff training and its effect on services provided on supply chain performance. competitive advantage cannot be understood by looking at a firm as a whole. It stems from the many discrete activities a firm performs in designing, producing, marketing, delivering, and supporting its product. each of these activities can contribute to a firm's relative cost position and create a basis for differentiation, according to Christopher (2016). The study discovered that regular training of staff for service differentiation was lacking hence staff are used to the normal operationalization of activities without any motivation of innovation. Similarly, this study also discovered the same that staff were not given regular training on new trends of supply chain performance. Majority of staff are subjected to on-job training skills which is not enough more especially with the ever changing SCP work trends.

Table 3: Staff Training Effect on Efficiency and Effectiveness

Statement	Str.				Str.	
	Disagree	Disagree	Neutral	Agree	Agre e	Total
Lack adequate training	22	0	5	12	1	40
Need stakeholder awareness	5	10	5	9	1	40
Increased public awareness	13	7	13	2	5	40
Firm to invest in data collection	12	6	18	3	1	40
Invest in SCP knowledge	19	10	3	8	0	40
Disseminates SCP information	10	8	16	5	1	40
Awareness on environ. Products	10	10	12	6	2	40
Designed good guidelines	13	8	9	9	1	40
Mean percentage (%)	32.5	16.88	25.31	16.88	3.75	100

4.2.4 Lead times

The study sought to examine the role of Lead times on supply chain performance in the distribution sector in Kenya and how lead times affect efficiency and effectiveness. Staff in the procurement department often lead to delays, Lynch (2013); by failure to properly plan, failure to submit “Requests for Quotations (RFQs) on time, late preparation of tender documents, also receiving incomplete documents from bidders or through underestimation of procurement lead times and approving authority taking too long to review and approve the tender.

Table 4: Lead Time Effect on Efficiency and Effectiveness

Statement	Str. Disagree	Disagree	Neutr al	Agree	Str. Agree	Tot al
Has +ve influence on efficiency	02	00	6	15	17	40
Greater work accomplishment	04	04	12	9	14	40
Accuracy is realized	02	02	8	19	9	40
Enhanced security of info.	00	08	6	13	13	40
Promote attention to requests	00	04	12	14	10	40
Reliable problem solving	01	03	7	18	11	40
Staff flexibility to change	02	08	10	9	11	40
Improved complaint handling	03	03	6	19	10	40
Mean percentage (%)	3.13	10	20.93	36.25	29.67	100

4.3 Pearson’s Correlation

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (Supply Chain Performance) that is explained by all the 4 independent variables (Inventory Controls, ICT integration, Organization Policy and Lead Time). The four independent variables that were studied, explain 83% of variance as represented by the R^2 . This therefore means that other factors not studied in this research contribute 17% of variance in the dependent variable.

4.3.1 Regression Analysis

The researcher conducted a multiple regression analysis so as determine the role of third-party logistics service provider on supply chain performance in the distribution sector in Kenya. The researcher employed R-Statistical package to analyze the data and results presented in Table 5.

Table 5: Regression Results

Coefficients:				
	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.43808	0.63658	0.688	0.4959
Inv_Control	-0.14114	0.17518	-0.806	0.4259
ICT_Int	0.75175	0.16382	4.589	5.52e-05***
Org_Policy	-0.04296	0.12413	-0.346	0.7313
Lead_Time	0.31284	0.11842	2.642	0.0122*

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.'
 Residual standard error: 0.3096 on 35 degrees of freedom
Multiple R-squared: 0.8327, Adjusted R-squared: 0.8136
 F-statistic: 43.57 on 4 and 35 DF, p-value: 3.994e-13

4.3.2 Multiple Regression Analysis

From Table 6, ICT integration and Lead times are the factors that provide positive and significant relationship to the financial performance of the SCP within distribution sector. Interestingly Inventory control and Organizational policy show negative impact but have significant relationship with Financial Performance. This means that in the distribution sector, Inventory control and unfavorable organizational policy could hurt the financial performance of supply chain performance within distribution sector in Kenya. With all factor under the study, the regression equation ($Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$) was interpreted to mean

$$Y = 0.438 - 0.141X_1 + 0.752X_2 - 0.043X_3 + 0.313X_4$$

Y= Financial performance of distribution sector companies, X_1 is Inventory Control; X_2 is ICT Integration; X_3 is Organization Policy; and X_4 is the Lead Time. The above model means that if all factors (Inventory Control; ICT Integration; Organization Policy; and Lead Time) are constant, overall financial performance of supply chain performance of companies in the distribution sector in Kenya will be 0.438. The data findings also show that a unit increase in Inventory control will reduce performance by 0.14.; a unit increase in ICT Integration will increase financial performance by 0.752; a unit increase in Organization Policy will reduce financial performance by 0.043, and a unit increase in Lead Time will lead to a 0.313 increase in financial performance. of Distribution Sector in Kenya. This means that the most significant variable is ICT Integration followed by Lead Time.

Table 6: Regression Results-Modified

Coefficients:				
	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.331	0.550	0.602	0.551
Inv_Control	-0.151	0.171	-0.884	0.382
ICT_Int	0.753	0.161	4.657	4.26e-05***
Lead_Time	0.312	0.117	2.666	0.011*

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.'
 Residual standard error: 0.3096 on 35 degrees of freedom
Multiple R-squared: 0.8322, Adjusted R-squared: 0.818
 F-statistic: 59.5 on 3 and 36 DF, p-value: 4.9984e-14

From the modified table we notice the coefficients are almost similar to the original table including even the standard errors, and P-values. The interesting aspect is while the R^2 remained at 83% the adjusted the R^2 improved slightly from 81% to 82% implying that organization Policy was an independent variable that did not fit the model since the coefficients do not change considerably. From the modified we also notice that if the three factors (Inventory Control; ICT Integration; and Lead Time) are constant, overall financial performance of SCP companies in the distribution sector in Kenya will be 0.33. The data findings also show that a unit increase in Inventory control will reduce performance by 0.15.; a unit increase in ICT Integration will increase financial performance by 0.75; and a unit increase in Lead Time will lead to a 0.31 increase in financial performance. This means that the most significant variable is ICT Integration followed by Lead Time. Results remain the same but with an improved adjusted R^2 .

4.3.3 Analysis of Variance of the Model (ANOVA)

At F critical at 5% level of significance only Organization Policy was not significant as indicated in Table 4.8. The rest of the independent variables in the model were relevant. This shows that the overall model was significant even without Organization Policy variable. It also implies that Organization Policy does not contribute significantly to the overall supply chain performance within distribution sector in Kenya. However, going by the ANOVA results of Table 7, when Organizational policy is dropped from the equation and we get the following results in Table 8.

Table 7: ANOVA

Response: Financial Performance					
	Df	Sum Sq	Mean Sq	F value	Pr(> t)
Inv_Control	1	0.397	0.397	4.142	0.0495*
ICT_Int	1	15.635	15.635	163.069	59.85e-15***
Org_Policy	1	0.007	0.007	0.073	0.7882
Lead_Time	1	0.669	0.096	6.979	0.0122*
Residuals	35	3.356			

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05

When organization Policy is dropped the new ANOVA Table will be as shown in Table 4.9

Table 8: ANOVA Without Organizational Policy

Response: Financial Performance					
	Df	Sum Sq	Mean Sq	F value	Pr(> t)
Inv_Control	1	0.397	0.397	4.246	0.0466*
ICT_Int	1	15.635	15.635	167.156	4.298e-15***
Lead_Time	1	0.665	0.665	7.1063	0.0114*
Residuals	36	3.367	0.094		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.'

4.3.4 Multicollinearity

Multicollinearity corresponds to a situation where the data contain highly correlated predictor variables. Multicollinearity is an important issue in regression analysis and should be fixed by removing the concerned variables. In this study Multicollinearity was assessed using the variance inflation factors (VIF). A VIF value that exceeds 5 indicates collinearity. In this

study, there is no collinearity since all variables have a value of VIF well below 5 as shown in the Table 9.

Table 9:VIF results

Inventory Control	ICT Integration	Org. Policy	Lead Time
1.104506	1.628552	1.031473	1.751947

4.3.3 Diagnostic Plots

Before accepting the results of the linear regression, it is important to evaluate the suitability at explaining the data. One of the many ways is through visual diagrams. The four graphical approaches used are shown in the diagrams. The plot in the upper left shows the residual errors plotted versus their fitted values. From the plot, the residuals should be randomly distributed around the horizontal line representing a residual error of zero; The plot in the lower left is a standard Q-Q plot, which suggest that the residual errors are normally distributed. The scale-location plot in the upper right shows the square root of the standardized residuals (sort of a square root of relative error) as a function of the fitted values and it is seen that there is no trend in this plot. Finally, the plot in the lower right shows the Cook's distance (each points leverage), which is a measure of its importance in determining the regression result. There is no distances larger than 1 and hence this means that there is presence of a possible outlier and hence the model is standard.

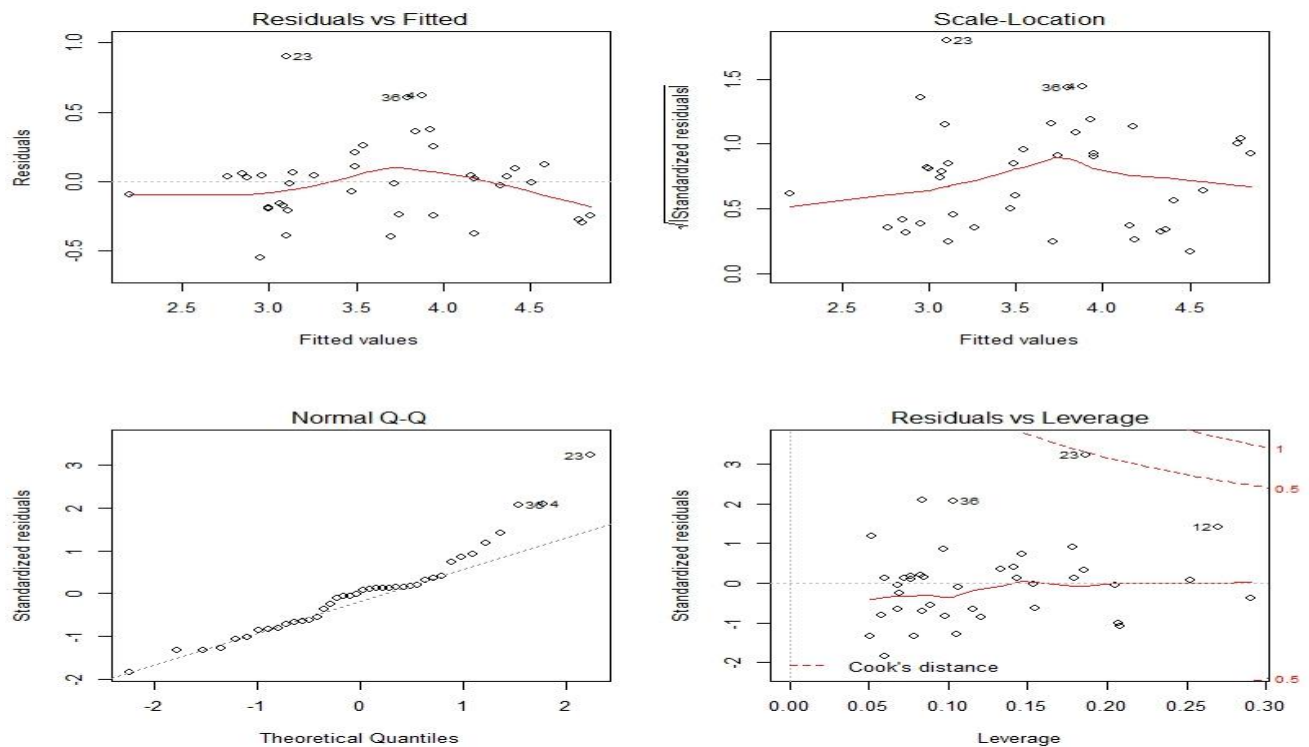


Figure 4: Diagnostic Plots

5.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The study concluded that third-party logistics service providers in the distribution sector in Kenya play a great role of improving on quality of services offered which in the long run has a direct financial performance improvement of reducing costs. Companies that outsource for services of third-party logistics service providers can get value for money when there is a strong integration of information and communication technology that directly also reduces lead time hence enabling firms to get goods to customers on timely manner. Robust inventory management controls that reduces waste and obsolesce by 3PLs is a greater achievement that makes firms to maximize on profit by both the service provider and the hiring firm.

The study also realized that Bollore Transport and Logistics Kenya limited has been in operation in Kenya for the last over 20 years where by it has learnt to maximize on profit by eliminating inefficiencies by use of most accurate data captured by timely information communication. The study also established that in the process of service delivery by 3PLs, the providing company should reduce its service to the main core services where it has to strength and capitalize on its perfection on service delivery for that particular service. The study has found out that out of the four variables under study; information and communication technology ranks as the highest determinant of financial performance since a unit increase in ICT integration will increase the financial performance by 0.752 while unit increase in inventory management control will reduce performance by 0.14. The same is also reflected that a unit increase in lead time reduction will increase financial performance of companies by 0.313 whereas an increase by one unit in organizational policy will reduce the financial performance by 0.043.

Recommendations

The study recommends that the very dynamic nature of the service delivery management may differ or change after some period of time due to the changing nature of company operations hence the views given may be limited to certain duration of time. The findings above may not be consistent for a longer period of time more especially during this new era of frequent technological changes. Government implementation of distribution legislation is highly recommended to remove the unwanted and unfair clearance procedures firms that delays 3PLs to achieve their targeted lead -times to customers. The distribution policies and legislations ought to work across all service providers for standardization and uniformity to enable a fair and level playing ground. The supply chain performance will be improved and become more efficient if the 3PLs introduce and adopt new information and communication technologies that emerge and this has to be based on the firm's capacity and financial affordability.

The 3PLs need to build a culture of information sharing among its personnel, and with external clients hence reduce logistics obstacles of lack of knowledge within the supply chain sector. By so doing, the outcome of activities can lead to efficient and successful supply chain performance that if consistently practiced, then it can lead to high standards to be used as benchmarks within the system. The supply chain performance challenges can easily be identified and mitigated upon to find quicker solutions before they turn into really limitations.

Corporate management and third-party logistics service providers can use the findings of this study to improve on their services delivered. The findings call for improving ICT as a main

source of innovation that can help improve service delivery. Technology has become of age and hence has proved that if well incorporated within the supply chain performance, then financial performance of an organization improves and the end result is profit maximization.

Various government departments charged with the function of policy making can use these findings to determine what are the most suitable policies to put in place so as to enable efficient flow of activities within the supply chain function in the distribution sector. This can help to leverage on wastes and minimization on pilferage.

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