

EFFECTS OF THIRD PARTY LOGISTICS ON SUPPLY CHAIN

PERFORMANCE IN KENYA

(A CASE OF EAST AFRICAN BREWERIES LIMITED COMPANY)

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ABSTRACT

The purpose of the study was to establish the effects of 3PL on supply chain performance in East African Breweries Limited. The study specifically sought to determine the effect of inventory control, distribution management, transportation management and warehousing services on supply chain performance in East African Breweries Limited. The study adopted descriptive research design. The study targeted all the 1653 employees in EABL. The sampling frame in this study was 242 staff in procurement department, 388 in production, 357 in logistics, 108 in finance, 334 in sales & marketing and 224 in quality assurance department. The study adopted stratified random sampling technique to select the sample size of the study where the population was grouped into stratus. From each stratum the study took a 10% sample to give a sample size of 165 respondents. The study collected primary data through a questionnaire. A pilot study of the questionnaire was done prior to the actual data collection to test for validity and reliability. The questionnaire was administered to the respondents through drop and pick later method. The study generated qualitative and quantitative data. Both descriptive and inferential statistics were adopted for the study. Descriptive statistics included use of frequency distribution tables and measures of central tendency, measures of variability and measures of relative frequencies while inferential statistics included regression analysis. Data was presented using tables, charts, graphs. Inferential statistics was used to determine the relationship between the variables. The study found out that inventory control, distribution management, transportation management influenced supply chain performance to a great extent but warehousing management services influenced supply chain performance to a moderate extent. The study concluded that there is a positive and statistically significant relationship between supply chain performance and inventory control, distribution management, transportation management services provided. The study recommended that there is need to strategically analyze the needs of the company and the non-core business so as to make informed decisions of the right logistics services to outsource. There is need for the management of EABL to improve transport efficiency as this could change the overall performance of the logistics system.

Background to the Study

Increasing focus on global expansion in the marketplace has fostered greater attention on streamlining the supply chain management functions of business. Many companies choose to outsource part or all of their logistic functions to third parties in an attempt to achieve operational efficiencies within the supply chain. This also allows companies to concentrate on core business activities (Nemoto & Tezuka, 2002). Logistics has been called the last frontier that even at the present time, the improvement of logistics has been the primary source of firms to make new profits and maintain competitive advantage. There are also several instances where the logistics system has become the cause of bottlenecks in the firm's overall management. The potential for reducing total cost and for improving the quality of services provided to customers can be increased through the elimination of these bottlenecks. An efficient logistics system could offer possibilities to reduce road congestion and environmental pollution, which could result in increased macroscopic economic productivity (Green, Turner, Roberts, Nagendra & Wininger, 2008).

Since the 1980s, along with the trend to outsource non-core activities, companies have increasingly turned to third-party logistics providers (3PL) both in the USA (Knemayer & Murphy, 2004) and in Europe (Van Laarhoven *et al.*, 2000). Globalisation and emerging technological advancements have led third party logistics (3PL) to become an important source of competitive advantage, especially for supply chain organizations (Asthana, 2013). This impact together with the increasing need to serve customers efficiently and effectively and reduce the operation costs has prompted many firms to acquire the services of 3PL service providers (Skjoett, 2007). Rao and Young (2013) explain that the steady increase in uptake of 3PL services is pegged on the realized benefits it could offer to improve supply chain performance.

Third Party Logistics (3PL)

3PL is also referred to as third party logistics, contract logistics, integrated logistics, and outsourced logistics (Knemeyer & Murphy, 2005). There are various definitions and interpretations of 3PL. First, Council of Logistics Management (2003) defines logistics, is the process of planning, implementing, controlling the efficient and effective flow, storage of goods, services and related information from the point of origin to the point of consumption for the purpose of conforming to customer's requirements. Logistics management tries to have the "right product", in the "right quantity", at the "right place", at the "right time", with the "right cost. Hertz and Alfredsson (2012) define third party logistics service provider as "an external provider who manages, controls, and delivers logistics activities on behalf of a shipper".

The 3PL industry evolved in the 1970's when during a time of expanding globalization and an increased use of information technology (Song & Regan, 2001). These trends resulted in increased demands on firms, and possibilities for companies to operate more competitively in the marketplace. The first generation 3PL's (1970's- 1980's) offered services such as transportation, brokerage, and shipping. Second generations 3PL's (1980-1990) were mostly asset or non-asset based companies with increased service offerings. The third generations 3PL's (2000 onwards) were mostly web-based 3PL's with increased supply chain integration (Nemoto & Tezuka, 2007).

3PL typically specializes in integrated warehousing and transportation services that can be scaled and customized to customer needs based on market conditions and the demand and delivery service requirements for their products and materials (SkjoettLarson, 2007). 3PL is evolving from a predominately transactional role to one that is more strategic in nature. Some of the characteristics of 3PL's are that they

perform a variety of outsourced logistics matters, provide customized services, and handle multiple activities. These may involve transportation, distribution, warehousing, material handling, inventory control, packaging and inspection (Bolumole, 2001).

According to Sowinski (2005), some of the services offered by 3PL's in the current market are: dedicated contract transportation and transportation procurement, inventory management, logistics management and consulting, freight audit and consulting, shipment tracking and tracing, reverse logistics and value added services. Farris (2004) asserts that from 3PL providers, a company can benefit from the knowledge and expertise of specialized firms with assets and contacts unavailable otherwise while the downside is some loss of control when entrusting critical segments of a business to others.

Germany and United States of America (USA) were the first countries to adopt and practice the use of 3PL to improve supply chain performances (Boyson *et al.*, 2009).

Over time these 3rd party logistics service providers (3PLs) expanded their services to cover specific geographies, commodities, modes of transport and integrated their existing warehousing and transportation services, becoming what we now know today as a "3PL" (Christopher, 2012).

In the USA, the most renowned retail stores Wal-Mart and Bentonville Ark are best in practice firms that adopted the use of 3PL service providers. Gibson and Cook (2011) explains that with the adoption of 3PL services, Wal-Mart has managed to implement real-time integration of distribution system into 'host' system leading to accurate and timely data reporting – adding value to the distribution and marketing operations of the retail store. This has also resulted in reduced inventory costs through improved management. To the Bentonville Ark, adoption of 3PL services has it to implement

more scalable logistics operations and total logistics costs could now be clearly identified.

In the United Kingdom, Seas Holdings the acquisition of 3PL service providers has enabled the company to improve customer service through shorter shipment times. This has also seen productive gains through logistics being managed more effectively through the application of technology. Murphy (2011) reports that Kingfisher plc (UK) flexibility to respond quickly to changing market trends, changing business environments, and peak periods without major disruptions to distribution operations all emanate from experienced and qualified 3PL service providers the company has chosen to work with.

Coca cola South Africa gives credit of its supply chain performances improvement to economies of scale through sharing resources, volume shipping discounts, and increased shipment visibility by the use of 3PL services (Rao & Young, 2013). Gibson and Cook report that this is an approach Procter and Gamble in South Africa is also exploring to improve its logistical and supply chain activities. In Uganda, Uganda Breweries Limited use of 3PLs has leveraged the relationships and volume discounts, which has resulted in lower overhead and the fastest possible service (Rao & Young, 2013).

Kenya has a good number of successful companies that use 3PL service providers. In the public sector, companies such as East African Breweries Limited, Kenya Airports Authority, Kenya Pipeline Company use 3PL to coordinate and integrate their supply chain operations. In the private sector, Nakumatt Holdings and Tusker Mattresses Retail Chain in the retail industry and Simba Cement Company and Savannah Cement

Company in the Cement manufacturing industry are best example of companies in Kenya that have employed the services of 3PL (Samson, 2012; Owano, 2013).

According to Saliba (2013) Kenya retail industry has managed to stay on the competitive edge through acquisition of services of skilled and experienced 3PL service providers such as DHL and Kuenhe Nagel. These case companies discussed success story are not without teething problems though. Relationships issues, how to share resources, property rights and confidentiality of the information are some of the issues that have arisen overtime (Rao & Young, 2013). The authors however opine that if well managed, the benefits overrule the costs related to 3PL services. It is recommended that firms which aim to develop SCM should utilize 3PL, and that firms which plan to introduce 3PL, should employ SCM. It is believed that SCM and 3PL have positive interactive effects, or synergy effects (Nemoto & Tezuka, 2002; Nemoto & Tezuka, 2007).

Statement of the Problem

The need for a company to adopt the 3PL services is based on the rationale that a company cannot be best in everything – some have to be left to other experts. Van Damme (2012) explains that cost reduction, staff reduction, integration of supply chain and the ability to give first party to concentrate on production are reasons why a company outsource to 3PL providers. When a company does not have required expertise and financial capital to undertake its own operations, then acquiring 3PL provider services through outsourcing and contracting help to prevent unimaginable losses to the company and improve its supply chain performance.

The core business of EABL is basically to manufacture though they still need to procure materials for production. Therefore there is need for the company to know what

functions to outsource so that they can concentrate on their core functions. The functions to be outsourced may include warehousing, inventory management, transport and distribution services. Moreover, there has been rapid change of environment in the manufacturing sector in Kenya which has been occasioned by the need to remain competitive, responding to customer needs and technological changes. However, according to authors such as Kroes and Ghosh, (2010); Jiang and Qureshi (2006), the results of logistics outsourcing is still vague and an unexplained puzzle hence the basis of this study.

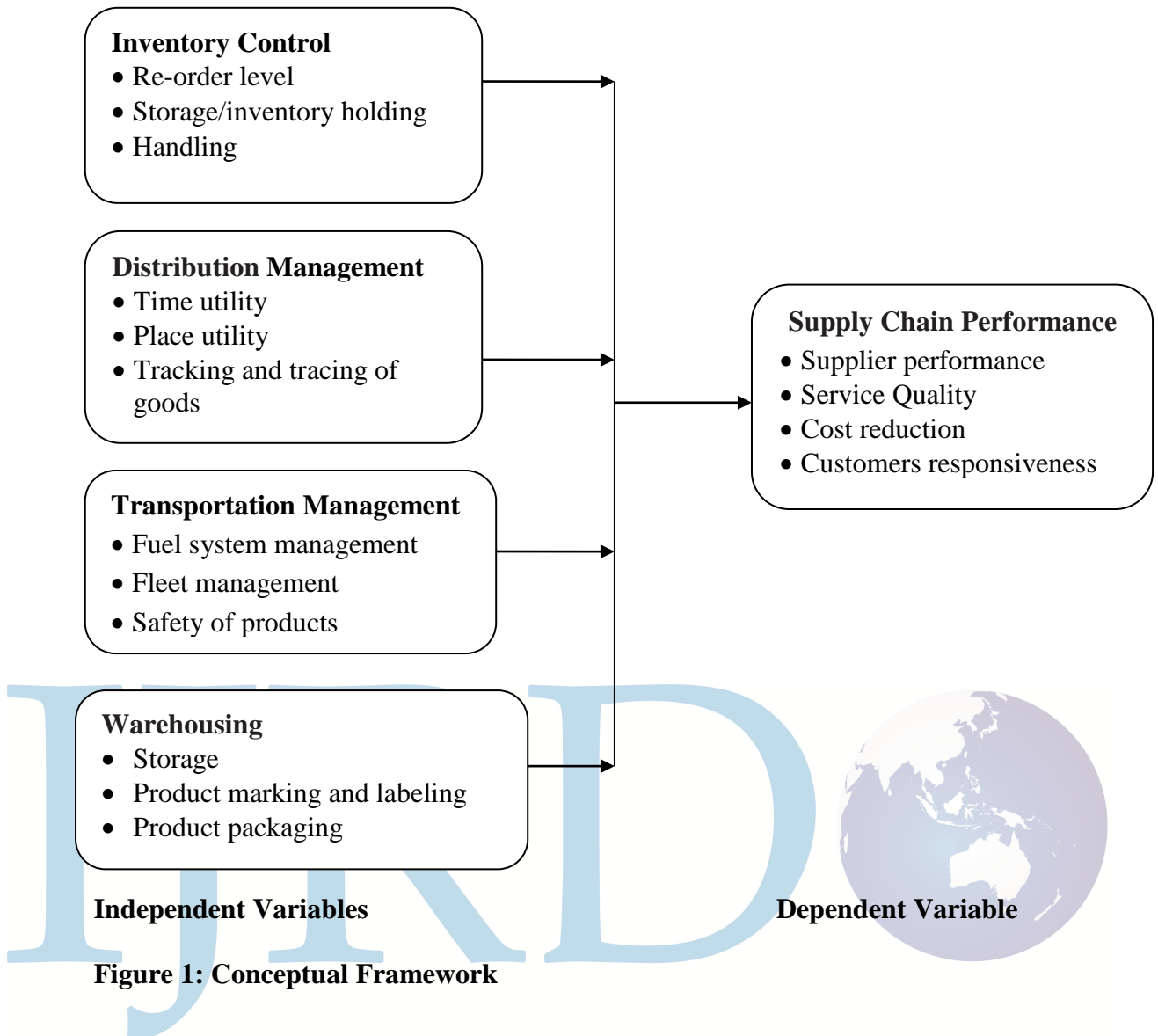
A review of the studies conducted in Kenya on the effects of 3PL on supply chain performance in Kenya shows that Baraza and Oyuchio (2001) looked at why companies in Kenya are quickly adopting use of 3PL approach while Marrieta (2011); Samson (2012) and Owano (2013) investigated the driving factors to emergence of 3PL approach in Kenya. The aforementioned studies still leave gaps that need to be addressed. First, Baraza and Oyuchio (2001) study was done over ten years ago and could not be relied on considering that business environment is dynamic and evolving. Secondly, Marrieta (2011); Samson (2012) and Owano (2013) sought to understand the principle behind 3PL and driving factors to its development and growth in Kenya, the studies however did not correlate 3PL to supply chain performance in Kenya. These gaps therefore justify the necessity to fill the research gap. It is against this background therefore that the study sought to determine the effect of 3PL on supply chain performance, with a specific focus on East African Breweries Limited.

Objective of the Study

1. To determine the effect of inventory control on supply chain performance in East African Breweries Limited.
2. To establish the effect of distribution (material flow) management on supply chain performance in East African Breweries Limited.
3. To examine the effect of transportation management on supply chain performance in East African Breweries Limited.
4. To assess the effect of warehousing services on supply chain performance in East African Breweries Limited.

Conceptual Framework

The conceptual framework illustrates the interaction between independent variables and the dependent variable in the study (Mugenda & Mugenda 2003). In this study, the independent variables were; inventory control, material flow (distribution), transportation, warehousing while the dependent variable was supply chain performance. The conceptual frame work is presented in the Figure 2.1.



Inventory Control

Inventory control is concerned with the acquisition, storage, handling and use of inventories so as to ensure the availability of inventory whenever needed, providing adequate provision for contingencies, deriving maximum economy and minimizing wastage and losses (Mathur, 2010). Hence, inventory control refers to a system, which ensures the supply of required quantity and quality of inventory at the required time and at the same time prevent unnecessary investment in inventories. It is one of the most vital phase of material management. Reducing inventories without impairing operating efficiency frees working capital that can be effectively employed elsewhere. Inventory control can make or break a company (Mukharji *et al.*, 2011).

Designing a sound inventory control system is in a large measure for balancing operations. It is the focal point of many seemingly conflicting interests and considerations both short range and long range. The aim of a sound inventory control system is to secure the best balance between too much and too little. Too much inventory carries financial crises and too little reacts adversely on continuity of productions and competitive dynamics (Mukharji *et al.*, 2011). The real problem is not the reduction of the size of the inventory as a whole but to secure a scientifically determined balance between several items that make up the inventory (Ross & Forsythe, 2002).

The efficiency of inventory control affects the flexibility of the firm. Insufficient procedures may result in an unbalanced inventory. Some items out of stock, other overstocked, necessitating excessive investment. These inefficiencies ultimately will have adverse effects upon profits. Difference in the efficiency of the inventory control for a given level of flexibility affects the level of investment required in inventory (Ackerman, 2000).

Any decision involving procurement storage and uses of item will have to be based on an overall appreciation of the influence of the critical ones among them. Material control necessitates the maintenance of inventory of every item of material as low as possible ensuring at the same time, its availability as and when required for production. These twin objectives are achieved only by a proper planning of inventory levels. If the level of inventory is not properly planned, the results may either be overstocking or under stocking (Mathur, 2010).

Transport Management

The work of making sure that products are affordable and available when they are needed is a complex orchestration whose many parts depend on up-to-the minute information, resilient and efficient supply chains, and reliable transportation. Transport system is the most important economic activity among the components of business logistics systems. Around one third to two thirds of the expenses of enterprises' logistics costs are spent on transportation (Carbone & Soifer, 2009).

Without well-developed transportation systems, logistics could not bring its advantages into full play. Besides, a good transport system in logistics activities could provide better logistics efficiency, reduce operation cost, and promote service quality. The improvement of transportation systems needs the effort from both public and private sectors. A well-operated logistics system could increase both the competitiveness of the government and enterprises (Tseng *et al.*, 2005).

Transport system makes goods and products movable and provides timely and regional efficacy to promote value-added under the least cost principle. Transport affects the results of logistics activities and, of course, it influences production and sale. In the logistics system, transportation cost could be regarded as a restriction of the objective market. Value of transportation varies with different industries (Carbone & Soifer, 2009). For those products with small volume, low weight and high value, transportation cost simply occupies a very small part of sale and is less regarded; for those big, heavy and low-valued products, transportation occupies a very big part of sale and affects profits more, and therefore it is more regarded.

Transportation plays a connective role among the several steps that result in the conversion of resources into useful goods in the name of the ultimate consumer. It is the

planning of all these functions and sub-functions into a system of goods movement in order to minimize cost and maximize service to the customers that constitutes the concept of business logistics. The system, once put in place, must be effectively managed (Fair *et al.*, 2011).

Distribution Management

Activities of distribution performance cycle come under the scope of outbound logistics. Distribution includes all activities that enable the transfer of material and/or economic power over tangible and/or intangible goods from one economic subject to another (Phelan, 2009). Domschke and Schield (2004) emphasize that distribution encompasses a system of all activities that are related to the transfer of economic goods between manufacturers and consumers. It includes coordinated preparation of manufactured goods according to their type and volume, space and time, so that supply deadlines can be met (order fulfillment) or estimated demand can be efficiently satisfied (when producing for an anonymous market) (Domschke & Schield, 2004).

Distribution systems are usually divided into: (a) acquisition distribution system (b) logistic, i.e. physical distribution system (Segetlija, Mesarić & Dujak, 2010). The authors pointed out that this division is not completely accurate, since both of these subsystems exhibit certain common starting points. Acquisition distribution system management includes the management of distribution routes, i.e. distribution channels. Logistic distribution system is focused on bridging the space and time by transportation and storage, as well as order processing and shipment, supply logistics, i.e. the movement of materials. Ayers and Odegaard (2008) also assert that an effective SCM requires an understanding of the needs of each customer and segment and the correct channel to reach them.

A third-party logistics partner with an established global network can offer the possibility of expanding distribution to a larger population and can provide inbound services from manufacturing to consumption sites globally. This can provide a competitive advantage versus competitors insofar as it offers readily available capabilities rather than creating one's network and capabilities from scratch (Boyson *et al.*, 2009). A 3PL provider with the right footprint of physical locations and transportation modes can offer high-speed services. Customer experience should no longer be viewed as a term used in marketing; this is now a term as relevant in the supply chain given how distribution impacts customers (Abdallah, 2004).

Companies may develop an efficient distribution system based on an offer of logistic service provider. In such a case the outsourcer becomes responsible for scheduling all distribution routes to the scattered customers. An effective distribution strategy is also one that changes to meet shifting market needs. Third-party logistics partners can play a crucial role in increasing supply chain agility. Through years of servicing the high tech and retail industries, 3PL providers have developed significant expertise in dealing with high-volatility demand. They can provide both proven business processes and flexible resources (people, space, and transportation assets) required to deal much more effectively with sudden demand spikes, label changes. The flexibility of 3PL provider networks can translate to improved delivery performance during demand spikes, faster time-to-market and smoother product introductions (Patel & Aran 2005).

Warehousing Management

The warehouse is a point in the logistics system where a firm stores or holds raw materials, semi-finished goods, or finished goods for varying periods of time' (Coyle *et al.*, 2003). According to Lambert & Stock (2003), there are three basic functions of

warehouse: movement, storage and information transfer. Movement is necessary to store a product properly. Movement can be divided into three activities: one is receiving inbound goods from transportation carriers and performing quality and quantity checks. Two is transferring goods from the receiving docks and moving them to specific storage locations throughout the warehouse; and three shipping the goods outbound to customers by some forms of transportation.

Storage is the second function of warehousing. It can be performed in two different ways: one, temporary storage means that storing a product which is necessary for inventory replenishment. Two, semi-permanent storage is used for inventory in excess of immediate needs. It is the safety or buffer stock. The last function of warehouse is the information transfer. When the product is moved and stored, this function occurs at the same time. It is important for the management to have timely and accurate information in order to administer the warehouse activity. The information can cover a lot of things like inventory levels, throughput levels, and data of the customer, facility space utilization and also about the personnel (Lambert *et al.*, 2008).

A warehouse management system is a key part of the supply chain and primarily aims to control the movement and storage of materials within a warehouse and process the associated transactions, including shipping, receiving, put away and picking. The systems also direct and optimize stock put away based on real-time information about the status of bin utilization. A warehouse management system monitors the progress of products through the warehouse. It involves the physical warehouse infrastructure, tracking systems, and communication between product stations (Piasecki, 2005).

The management of a warehouse is the main function of a warehouse management system. These systems keep record of the storage capacity, i.e., the specification of the

existing storage bins (location management); and the stored units (inventory management). In addition to this, it should also include several control functions to optimize the storage activities. Warehouse functions play an important role in the success of a company. There is need to critically pay attention to warehousing needs particularly on costs caused by the activity that occurs in the process of warehousing (Chow *et al.*, 2006).

Supply Chain Performance

Business organizations need to capitalize on Supply Chain (SC) capabilities and resources to bring products and services to the market faster, at the lowest possible cost, with the appropriate product and service features and the best overall value (Kurien & Qureshi, 2011). Performance measures are important to the effectiveness of SC. Supply Chain Performance Measures serve as an indicator of how well the SC system is functioning. Measuring SC performance can facilitate a greater understanding of the SC and improve its overall performance (Charan *et al.*, 2008).

Various performance metrics are in place for measuring effectiveness of SC. Different perspectives of Supply Chain Performance Measures (SCPM) are cost and non-cost perspective; strategic, tactical or operational focus (Gunasekaran *et al.*, 2004); business process perspective and financial perspective (Beamon & Balcik, 2008). The earlier focus of performance measurement was on financial perspective which is gradually changing to non-financial perspectives.

The non-financial metrics and measures are discussed in the context of the following supply chain activities/ processes: plan, source, make/assemble, and delivery/customer (Gunasekaran *et al.*, 2004). In metrics for order planning, one of the methods is the order entry. This method determines the way and extent to which customer

specifications are converted into information exchanged along the supply chain. Second is order lead-time; the total order cycle time also called order to delivery cycle time, refers to the time elapsed in between the receipt of customer order until the delivery of finished goods to the customer. The reduction in order cycle time leads to reduction in supply chain response time, and as such is an important performance measure and source of competitive advantage (Christopher, 2011); it directly interacts with customer service in determining competitiveness. The third aspect is the customer order path; the path that an order traverses is another important measure whereby the time spent in different channels can be determined. By analyzing the customer order path, non-value adding activities can be identified so that suitable steps can be taken to eliminate them (Gunasekaran *et al.*, 2004).

Another non-financial measure of supply chain performance is the evaluation of supply link. Traditionally supplier performance measures were based on price variation, rejects on receipt and on time delivery. For many years, the selection of suppliers and product choice were mainly based on price competition with less attention afforded to other criteria like quality, reliability. More recently, the whole approach to evaluating suppliers has undergone drastic change. The evaluation of suppliers in the context of the supply chain (efficiency, flow, integration, responsiveness and customer satisfaction) involves measures important at the strategic, operational and tactical level (Beamon & Balcik, 2008).

Strategic level measures include lead time against industry norm, quality level, cost saving initiatives, and supplier pricing against market. Tactical level measures include the efficiency of purchase order cycle time, booking in procedures, cash flow, quality assurance methodology and capacity flexibility. Operational level measures include ability in day to day technical representation, adherence to developed schedule, ability

to avoid complaints and achievement of defect free deliveries (Gunasekaran & Kobu, 2007; Beamon & Balcik, 2008).

Research Gaps

A review of the various studies shows that manufacturing firms seek different third party logistics; and the reasons why companies decide to outsource logistics services vary greatly. However, majority of these studies have been conducted mostly in developed countries where companies have extensively adopted or hired logistics service providers on various logistics services. Locally, Nyaberi and Mwangangi (2014) conducted a study on the effects of logistics management practices on organization performance in Rift Valley bottlers limited in Uasin Gishu County. Njambi and Katuse (2013) conducted a comparative study on how using third party logistics can deliver distribution efficiency and its contribution to competitive advantage for organizations.

None of these studies have looked at the effect of 3PLs on supply chain performance in the Kenyan manufacturing sector whose growth has been steady in recent years.

According to Kenya Association of Manufacturers report (2014), the sector grew by 4.6% in the third quarter of 2013, compared to 2.6% in the same quarter of 2012. Growth in the first and second quarters in 2013 was 4.2% and 4.3%, compared to 2.1% and 1.4%, respectively, in the previous year. Given the importance of third party logistics and steady growth of the manufacturing sector in Kenya, there is need to establish the effect of 3PL on supply chain performance of manufacturing firms in Kenya. The research evidence provided by this study would influence the strategic decisions made by the manufacturing firms in Kenya on outsourcing of 3PL's in a sector which is a major part of the government's Vision 2030 economic development plan to transform Kenya into a middle-income country.

Methodology

The study adopted descriptive research design. Robson (2002) points out that descriptive study portrays an accurate profile of persons, events or situation. Chandran (2004) also states that descriptive study describes the existing conditions and attitudes through observation and interpretation techniques. The target population was staff in East African Breweries Limited (EABL). EABL has a total of 1,653 employees as per the end of 2015. The sampling frame in this study included all the 1653 employees in the six departments; this included both the management and the general staff. Stratified random sampling technique was used to select the sample. This was guided by Mugenda and Mugenda, (2003), who revealed that a sample of between 10% and 30% would be a representative sample size of the target population. The sample size was therefore 165 respondents. The study collected primary data. The data was collected using a questionnaire. The questionnaire had both closed and open-ended questions. Both descriptive and inferential statistics were adopted for the study. The quantitative data was analyzed using descriptive and inferential statistics. The descriptive statistics included frequency distribution tables and measures of central tendency (the mean), measures of variability (standard deviation) and measures of relative frequencies. The inferential statistics included a regression model which established the relationship between variables. The model took the form:

$$Y = \beta_0 + \beta_1 \chi_1 + \beta_2 \chi_2 + \beta_3 \chi_3 + \beta_4 \chi_4 + \epsilon$$

Where: Y = Supply chain performance

χ_1 = Inventory control

χ_2 = Distribution management

χ_3 = Transportation management

χ_4 = Warehousing management

β_0 = the constant

β_{1-n} = the regression coefficient or change included in Y by each χ

ϵ = error term

The qualitative data generated from the open ended questions was categorized in themes in accordance with research objectives and reported in narrative form along with quantitative presentation. The quantitative data was presented using tables, charts and graphs.

Findings of the study

Supply Chain Performance

The study sought to determine the extent to which the outsourced third party logistics enhanced supply chain performance aspects in the organization.

Table 1: Supply Chain Performance

Statements	Mean	Std. Deviation
Third party logistics services has improved suppliers performance	3.40	0.836
Third party logistics services has improved the quality of services offered at different levels along the supply chain	4.02	0.737
Third party logistics services has reduced costs in the supply chain	4.05	0.759
3PL service providers have improved the company's ability to respond to changing customer needs	4.07	0.769

The study findings show that the respondents agreed that third party logistics services had improved suppliers performance to a moderate extent as shown by the mean score of 3.40. However, the respondents agreed that 3PL service providers had improved the company's ability to respond to changing customer needs; had helped reduce costs in the supply chain; and had improved the quality of services offered at different levels

along the supply chain; this is shown by the mean scores 4.07, 4.05 and 4.02 respectively.

According to Mazzawi (2002), the objective in outsourcing is to cut costs and deliver enhanced, properly managed service levels. A study by Jiang et al. (2006) on the effects of outsourcing of logistics services on the firm level performance measures, found out that there was improved cost efficiency but no change in the productivity and profitability of the outsourcing firms.

Other Benefits EABL has Achieved from Third Party Logistics Services

The respondents further stated that outsourcing logistics operations to a 3PL provider had improved customer satisfaction through accurate, well-managed inventory and supply chain solutions. There is also access to expertise in the logistics field that the company does not have; and had increased access to world-class resources, processes, services, and technologies. The respondents indicated that third party logistics services helped the company eliminate infrastructure capital and investment; helping the company invest the capital in other core areas.

The above findings corroborates with those Jiang et al. (2006) who found out that outsourcing of logistics services improved cost efficiency but no change in the productivity and profitability of the outsourcing firms. The study concluded that the firms invested freed resources to further improve core competencies; and utilized the cost savings to lower prices at the cost of higher profits to gain competitiveness in the market.

Regression Analysis

A multivariate regression model was applied to determine the form of relationship between third party logistics and supply chain performance in EABL. The predictors

were inventory control, distribution management, transportation management and warehousing management services. The results are presented below.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.792 (a)	0.627	0.554	0.289

a Predictors: (Constant), inventory control, distribution management, transportation management, warehousing management

The Adjusted R^2 is the coefficient of determination and tells us how the dependent variable varies with the independent variables. The results in Table 4.10 show an adjusted R^2 value of 0.554. This implies that there was a variation of 55.4% between the supply chain performance in EABL and the predictors. This is to mean that the independent variables: inventory control, distribution management, transportation management and warehousing management explained 55.4% of supply chain performance in EABL at a 95% confidence level.

Table 3: ANOVA- Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.700	4	3.175	4.733	0.002(a)
	Residual	78.507	117	0.671		
	Total	91.207	121			

a Predictors: (Constant), inventory control, distribution management, transportation management, warehousing management

b Dependent Variable: Supply chain performance

The study used ANOVA to establish the appropriateness of the regression model to give reliable results. An f-significance value of $p=0.002$ was established. This shows that the regression model has a less than 0.002 likelihood (probability) of giving a wrong prediction. Hence the regression model has a confidence level of above 95%.

The value of the critical F is 2.45, this value is less than the calculated F value of 4.733 thus the regression model is reliable.

Table 4: Coefficients Results

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	1.087	0.401		2.713	0.008
	Inventory control	0.213	0.081	0.272	2.627	0.010
	Distribution Management	0.242	0.106	0.246	2.289	0.025
	Transportation Management	0.037	0.084	0.049	3.447	0.046
	Warehousing Management	0.003	0.006	0.045	0.442	0.660

A Dependent Variable: Supply chain performance

Results in Table 4 above shows that there is a positive relationship between supply chain performance and all the predictors as shown by the beta coefficients: inventory control ($\beta = 0.213$), distribution management ($\beta = 0.242$), transportation management ($\beta = 0.037$), warehousing management ($\beta = 0.003$). The following regression equation was established:

$$Y = 1.087 + 0.213X_1 + 0.242X_2 + 0.037X_3 + 0.003X_4$$

The study further found out that there is a significant relationship between the supply chain performance and three of the variable as shown: inventory control ($p=0.010<0.05$), distribution management ($p=0.025<0.05$) and transportation management ($p=0.046<0.05$). This therefore implies that inventory control; distribution management and transportation management services offered by third party providers significantly enhance supply chain performance in EABL. A unit increase in either of these services would definitely increase or improve the supply chain performance in the

company. However, the study found out that there is a positive but statistically insignificant relationship ($\beta = 0.03$, $p = 0.660 > 0.05$) between warehousing management and supply chain performance. This implies that an increase in warehousing management would not necessarily enhance supply chain performance in EABL.

Summary of Findings

The study found out that EABL sought services of a third party control of to facilitate movement of materials in and out of the organization. The respondents further agreed to a great extent that the company had a third party service provider to hold stock, materials, and finished products, on their behalf as well as handles the inventories of the company. The respondents indicated that inventory control services provided by the third party influenced supply chain performance of EABL to a great extent. The regression analysis results established that there was a positive and statistically significant relationship between inventory control and supply chain performance.

On distribution management, the study found out that outsourcing of 3PL had reduced the cost of distribution of products to the market and that it enhanced efficient delivery of goods in the intended markets. The respondents also agreed that the 3PL service provider ensured that the company products get to the market at the right time and it also enhanced efficient tracking and tracing of goods. On overall the respondents reported that distribution management influenced supply chain performance to a great extent. The regression analysis results showed a positive and statistically significant association between distribution management and supply chain performance.

On the effect of transport management, the respondents agreed that transport services provided by the third party enhances service quality along the supply chain; reduced operation costs of the company and enhanced efficient flow of products from the

company to the market. The study also found out that the transportation services provided by the third party were reliable and that they had enhanced warehouse efficiency. On overall the respondents revealed that transport management services by a third party influenced supply chain performance in EABL to a great extent. The regression analysis results found a positive and statistically significant relationship between transportation management and supply chain performance.

On warehousing management; the study established that EABL had 3PL provider who stores goods on behalf of the company. However, the respondents were neutral on whether there was a third party provider that helped the company in product marking and labeling; and packaging of products while on the other hand they disagreed that EABL outsourced third party services on inventory tracking in order to guide production and distribution. On overall, most respondents reported that warehousing management services by a third party influenced supply chain performance to a moderate extent. Moreover, the study found a positive but statistically insignificant relationship between warehousing management and supply chain performance.

On the extent to which 3PL had enhanced supply chain performance, the study found that the services they provided had improved suppliers performance to a moderate. However, the respondents reported that the 3PL services provided had improved the company's ability to respond to changing customer needs; had helped reduce costs in the supply chain; and had improved the quality of services offered at different levels along the supply chain. On the other hand, the respondents stated that outsourcing logistics operations to a 3PL provider had improved customer satisfaction through accurate, well-managed inventory and supply chain solutions. There is also access to expertise in the logistics field that the company does not have; and had increased access to world-class resources, processes, services, and technologies. The respondents

indicated that third party logistics services helped the company eliminate infrastructure capital and investment; helping the company invest the capital in other core areas.

Conclusions

The study concludes that there is a positive and statistically significant relationship between supply chain performance and inventory control. By the fact that third party service providers hold stock, materials, and finished products, on their behalf of EABL enhances efficiency in the supply chain through improved inventory management.

There is a positive and statistically significant association between supply chain performance and distribution management. Provision of delivery services had improved efficiency in distribution whereby company products get to the market at the right time with less damages hence improving customer satisfaction.

There is a positive and statistically significant relationship between supply chain performance and transportation management. Transportation services enhanced supply chain performance through improved quality along the supply chain, reduced operation costs of the company and enhanced efficient flow of products from the company to the market.

Recommendations

This study recommends that organizations recognize the potential contribution of 3PL firms and take advantage of opportunities to address organizational needs. There is need to strategically analyze the needs of the company and the non-core business so as to make informed decisions of the right logistics services to outsource. It's paramount to design appropriate logistics management practices in line with the organizations activities.

Transportation plays an important role in logistics system and its activities appear in various sections of logistics processes. Also transportation contributes the highest cost among the related elements in logistics systems; hence the improvement of transport efficiency could change the overall performance of the logistics system. Without the linking of transportation, a powerful logistics strategy cannot bring its capacity into full play.



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