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STRATEGIC OUTSOURCING SERVICES AND SUPPLY CHAIN PERFORMANCE OF HOSPITALS IN KENYA

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ABSTRACT

Outsourced logistics service providers specialize in the logistics functions described as third logistics providers. These organizations are popular in the private sector as solution providers to firms interested in outsourcing some or all aspects of their supply chain management functions. The main objective of this study was to determine the influence of outsourced distribution services on performance of Level four and five hospitals for five County governments in Kenya. The study was guided by the following specific objectives; Effects of inbound logistics influence of distribution channel management, to determine the influence of third party logistics management and to analyze the influence of integrated transport systems on performance of level four and five hospitals in County Government of Kenya. The study involved 96 staff working in level four and five hospitals in Kenya. The study adopted the descriptive research design. The study established that Reporting 3PL warehouse management systems (WMS) give county health facilities full visibility into stock levels, including which stock is moving off the shelf, how long things are stored for, and much more. This visibility is very reassuring for product managers who want to see where their products are at all times. The study recommended that county hospitals should use 3PL report so that they experience improvements in order fill rate and order accuracy.

Key Words; *Inbound Logistics, Distribution Channel Management, Third Party Logistics Management, Integrated Transport Systems and Performance*

INTRODUCTION

The study analyzed the influence of outsourced distribution services on performance of Level four and five Hospitals in Kenya. This chapter aims at providing sufficient information for better understanding of the study. Specifically the chapter provides information on global perspective of Outsourced Distribution Services, regional perspective and then narrows down to the local issues that the study was to address. It highlights on the background information, statement of the problem, general and specific objectives, and research questions, justification of the study, the scope of the study and the limitations of the study

According to Lysons & Farrington (2012) distribution outsourcing is often defined as engaging a third party provider to perform services for the host organization that were previously performed in-house. Third party provider refers to any entity outside the traditional supplier-carrier-consumer relationship. Within any organization, public or private, there may be valid business and strategic reasons to outsource parts of the operation so that the business can focus on its core capabilities (Liao & Rao, 2010). This process requires both an objective evaluation of internal performance and capacity, followed by a search for reliable partners that can deliver responsive services (Mwangi, 2016).

Distribution Services providers typically specialize in integrated operation, warehousing and transportation services which are scaled and customized to customers' needs based on market conditions, such as the demands and delivery service requirements for their products and materials (Cooper, 2014). The services go beyond logistics and include value-added services related to the production or procurement of goods such services that integrate parts of the supply chain(Potter & Christopher, 2015).When this integration occurs, the provider is then called a third-party supply chain management provider or logistics service provider (Mallik, 2010).

According to Kebo (2013) outsourced logistics service providers specialize in the logistics functions described as third logistics providers. These organizations are popular in the private sector as solution providers to firms interested in outsourcing some or all aspects of their supply chain management functions (Wallenburg & Goldsby, 2011). The outsourced logistics partners act as a supply chain integrator that assembles and manages the resources, capabilities, and technology of its own organization with those of complementary service providers to deliver a comprehensive distribution services. They provide a single interface for the client and are the primary distribution services providers (Johnston & Cheng, 2012).

According to Serem (2014), the distribution of vaccines and medicines has for a long time shown potential for outsourcing. Today, a number of counties have started contracting local transport companies or third party logistics providers (3PLs) to supplement their in-house distribution operations (Yadav, 2011). Key aspect of logistics that has proved of great importance for pharmaceuticals is distribution. Distribution is an important activity in the integrated supply-chain management of pharmaceutical products (USAID, 2014). As logistics management is gaining momentum in other industries, pharmaceutical sector has also realized the importance of logistics as a source of strategic advantage. Pharmaceutical and healthcare companies operate within a highly dynamic market. Several factors relate to the efficacy of distribution of pharmaceuticals (Yadav, 2014). Members of the pharmaceutical supply chain have various global regulatory requirements to meet, while handling, storing, and distributing environmentally sensitive products enhances their responsibility. Their focus is to provide cold chain management for temperature sensitive pharmaceuticals to ensure that the quality

and efficacy of the products will not be compromised (MOH, 2012)

The current logistics infrastructure in China is adequate to meet the increasing demands of both local and foreign customers. Since third-party logistics (3PL) industry is in trajectory move, most of the local manufacturing companies have outsourced logistics services to provide major logistics services to their customers (Sumaedi et al., 2016). The manufacturing companies are also the suppliers of products who provide various logistics services to their local and foreign customers associated with product delivery (Liao & Rao, 2010).

According to Johnston, & Cheng (2012) Logistics providers in the United States provide outsourced fulfillment services, acting as an outsourced distribution center to support customers wholesale or retail operations. Kaluarachchi (2010) states that In addition to receiving and filling orders, logistics providers pick and pack orders according to your supply chain needs, from cross docking to repackaging incoming shipments to support manufacturer's distribution retail outlets. This includes supporting web based stores through electronic linkages from your web site to the warehouse management system (Mohamed & Azizan, 2015).

Across sub-Saharan Africa, tens of thousands of health centers serve rural communities; many are located hundreds of kilometers from regional facilities supplying vaccines and related supplies (Yadav, 2011). The Dangote Foundation and the Bill & Melinda Gates Foundation are contracted to improve vaccine distribution and supply chain management. Following a government-managed RFP process, a contract for outsourced distribution directly to health facilities was awarded to eHealth Africa, an NGO which beat out a number of private sectors LSPs. (Mamad & Chahdi, 2013). Vaccines are now transported directly from state or zonal cold stores to an estimated 300 health facilities in fully monitored cold chain vehicles. E-Health Africa has provided critical support including facility mapping, route optimization, vaccine handling training and driver certification, temperature monitoring, data and stock management (Mamad & Chahdi, 2013).

According to Yadav (2014), the medical supplies are distributed from the KEMSA's Supply Chain Centre to the door steps of each of the public facilities and testing sites. Presently, KEMSA serves Hospitals; KEMSA has the requisite transport system in place which includes outsourced transport and courier service. This ensures timely dispatch of all commodities ordered by health facilities from any corner of the country. Currently, KEMSA is responsible for all in-country distribution of health products, in addition to forecasting, procuring supplies, and providing service delivery (USAID, 2014).

The Kenyan County health system services are comprised of various specialized skills, expertise and services offered by health facilities of different categorization starting with level one to five. Level four and five Hospitals facilities are the secondary referral level and offer a broad spectrum of specialized curative services (Ministry of Health, 2013). At this level, facilities are able to offer advanced services and expertise both for curative and diagnostic services. Referrals at this level are mainly from level one to three facilities that mainly offer primary health care services. The referral system links the different levels of care based on the expected services being provided through the system. The levels of care include all facilities public and private, and Faith-Based Organizations (FBO) (MOH, 2012).

Referral coordination is done at the different levels of health service delivery and includes all four types of referrals according to the Kenya Health Sector Referral Strategy. The coordination of the referral system is done at the national and county levels by a referral coordinating unit or team, and the sub-county and facility levels have an appointed referral

coordinator. The sub-county-level referral coordinators ensure reinforcement of the referral system among the different levels of care (MOH, 2012).

Statement of the problem

The level four and five hospitals timely deliveries function is riddled with gaps and challenges that deter effective performance with supply chains operating with limited transport capacity, which limits their ability to make last mile deliveries, and results in referral hospital collecting commodities from the next tier, KEMSA and pharmaceutical manufacturers in the supply chain (Yadav, 2014).

According to Okech and Steve (2015), with the current complex network of distribution within Level four and five Hospitals a system analysis concluded that distribution costs in the public health sector are at 30% to 50% percent above the budget requirements, with ineffective and inefficient in logistics at 20% of this cost and additional storage cost during high demands increasing to 36%, while shipment consolidation delays up to 5days. Freight payment for deliveries from manufacturers at (42%), warehouse management & operations (33%) which leads to order fulfillment delays, inventory replenishment takes 2-3 days (Ministry of Health, 2013). The higher costs were attributed to insufficient logistics infrastructure, limited information systems, and a complex network of distribution in this system, lead times were long, facility managers had very little visibility into the status of their orders, and warehouses were under-utilized, stockouts or reduction the stock levels to below minimum levels (MOH, 2012).

According to Sumaedi et al. (2016), to effectively supply level four and five hospitals with vaccines, a well-managed transport system is a critical component of the supply chain for many health systems in the region. Current practices and resources are inadequate to ensure reliable and sustainable transport support the distribution of vaccines and other medical commodities. (Raue & Wieland, 2015), the level four and five hospitals in-house transport system does not meet good distribution practices, hence the study will fill this gap by establishing the factors influencing outsourced distribution services on performance of level four and five hospitals in Kenya.

Objectives of the study

The general objective was to determine the influence of outsourced distribution services on performance of Level Four and Five Hospitals in Kenya**.**

The specific objectives were:

- To establish the effects of inbound logistics on performance of level four and five hospitals in Kenya
- To evaluate the influence of distribution channel management on performance of level four and five hospitals in Kenya
- To determine the influence of third party logistics management on performance of level four and five hospitals in Kenya
- To analyze the effect of integrated transport systems on performance of level four and five hospitals on performance of level four and five hospitals in Kenya

THEORETICAL LITERATURE

Adaptive Structuration Theory

The adaptive structuration theory (AST) assisted the study in determining the influence of In-bound logistics on performance of level four and five hospitals for five County governments in Kenya. The theory was first proposed by Anthony Giddens in his constitution of the society in 1984, which was an attempt to reconcile social systems and the micro/macro perspective of organizational structure. Desanctis and Poole borrowed from Giddens in order to propose AST and the rise of group decision support systems in 1996. AST provides the model whereby the interaction between advancing information

technologies, social structures, and human interaction is described, and which social structures, rules, and resources provided logistics activities include inbound logistics to the sourcing, expediting and receiving of goods, that is coming to the organization AST is a viable approach in studying how Inbound logistics affects warehouse management because it examines which focuses on buying and scheduling the inflow of materials, tools and final goods, from suppliers to the production unit, warehouse or retail store (Rose & Rose, 2012).

AST is relevant in today's Inbound Logistics practice due to the expanding influence that advancing technologies have had with regard to the human interaction aspect of AST and its implication on socio-biologically inspired structuration in security software applications (Ramakrishna, 2011). The theory presents specific advances in inbound logistics are oriented towards utilisation of resources and raw materials, within the manufacturing or assembly plant. As against this, outbound logistics stresses on the outflow of finished goods or product from the firm to the final consumer show that AST is being used as a driving force of effective warehouse management within organizations.

Network theory

The Network theory assisted the study in determining the effect of distribution channel management on performance of level four and five hospitals for five County governments in Kenya. Network theory provides a useful framework for analysis of a business situation, and it adds a new level of complexity to understanding the relationship perspective Chen, Ellinger, and Tian, (2011). Network relations create information sharing that enables buyers and sellers to establish distribution points, transportation costs and customer service targets.

Actors is an essential function within relationships that are required to form meaningful network structures, in which the network must have activities and the resources required to carry out those activities, Cao & Zhang, (2011). In the export business, actors connect with each other socially to bring various beneficial types of producers, retailers and consumers together within regional fruit and vegetable networks Priem and Swank, (2012) and establish a network position Ekkprawatt and Chaw alit, (2011). The configuration increases both the performances of the network, in terms of responsiveness, reliability and costs (2011).

Daugherty (2011) state that the cost-benefit analysis, considering the priorities clarified by the decision support system, resulted in a final configuration of distributed nodes as the best solutions are customer pick-up and last mile delivery. This theory instigates the construct of distance which is in the second research question. This therefore stimulated the researcher to try to find out how the distribution channel management on supply affects the chain performance of level four and five hospitals.

Transaction Cost Theory

The Transaction Cost Theory assisted the study in determining the effect of third party logistics management on performance of level four and five hospitals for five County governments in Kenya. The transaction cost approach to the theory of the firm was created by Ronald Coase. Transaction cost refers to the cost of providing for some good or service through the market rather than having it provided from within the firm (Ronald, 1937). Coase describes in his article "The Problem of Social Cost" the transaction costs he is concerned with: In order to carry out a market transaction it is necessary to discover who it is that one wishes to deal with, to conduct negotiations leading up to a bargain, to draw up the contract, to undertake the inspection needed to make sure that the terms of the contract are being observed, and so on (Ronald, 1937).

In transaction cost theory, the unit of analysis is the transaction used to describe the economic activity and the governance structures in business relationships Riordan and Williamson, (2010).

Transaction cost theory explains that transaction costs include coordination, monitoring, contracting deals, opportunistic behavior risk and information sharing Williamson, (2009). The second attention is focused on influence of logistics outsourcing level on a delivery channel in and collaborative networking in a multi-stage industrial channel presented. Out-sourcing logistics provider if well incorporated in supply chains management of manufacturers enables reduction in logistics costs.

Business Process Reengineering Theory

The business process reengineering (BPR) assisted the study in determining the effect of Integrated Transport Systems on performance of level four and five hospitals for five County governments in Kenya. BPR theory is a business management strategy, originally pioneered in the early 1990s, focusing on the analysis and design of work flows and business processes within an organization. BPR theory aimed to help organizations fundamentally rethink determining the distribution policy in an integrated system yields more economic savings in transportation costs by simultaneously considering the suppliers plans, as the batching decisions are made for the set of suppliers at the same time, in order to maximize the vehicle's capacity utilization while taking into account the customer's due dates (Kaluarachchi, 2010). BPR theory seeks to help companies radically restructure their organizations by focusing on the ground-up design of their business processes.

BPR theory is also known as business process redesign, business transformation, or business process change management. In order to achieve the major improvements, BPR theory is seeking for the change of structural organizational variables, and the use of IT is conceived as a major contributing factor to achieve benefits. The distribution part of the supply chains where multiple smaller shipments are merged to full truck loads, the aforementioned integrated system can be defined as a dummy cross dock accordingly, aiming at improving the performance of the whole supply chain BPR theory derives its existence from different dimensions like organization, technology, strategy and people (Desel, Pernici & Weske, 2014).

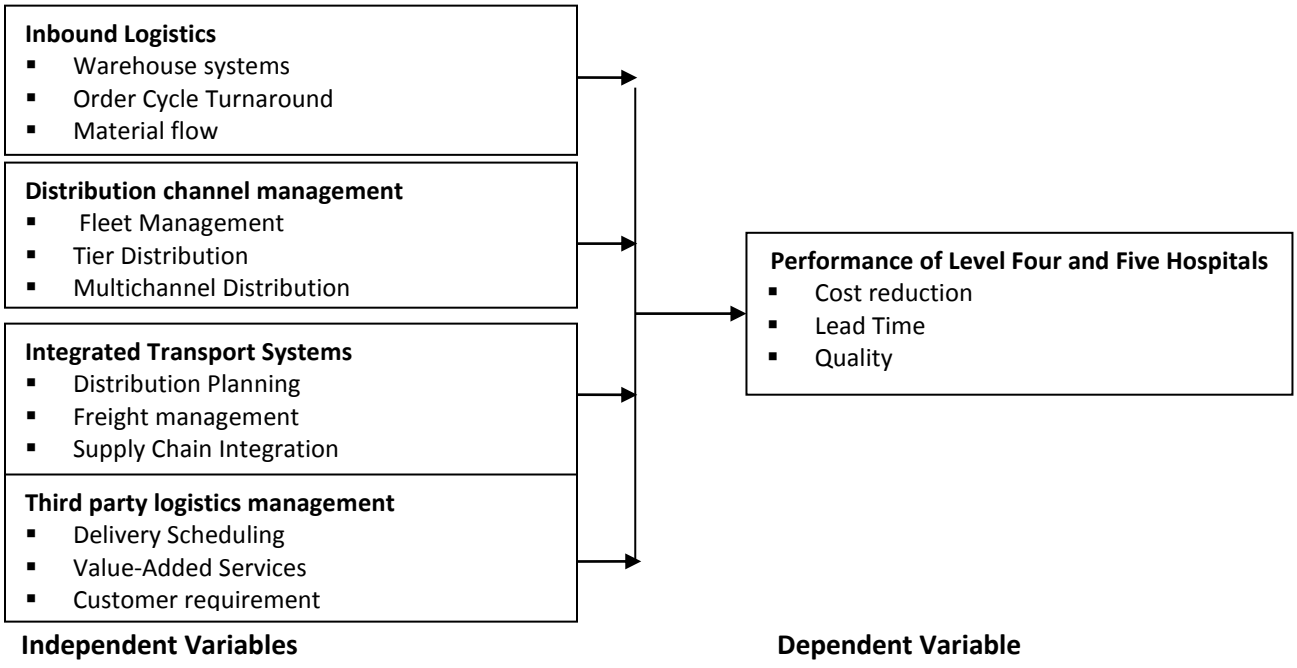

Figure 1: Conceptual Framework

Empirical Literature

According to Beers and Zand (2014), empirical analysis on Suppliers raw products transport management and manufacturing operations management. The studies found that the assembling plant does not produce all the parts that are required for the assembly. It typically procures the required parts from a set of suppliers, such as an engine supplier, a tyre supplier. The studies hence concluded that a supplier should produce one or several types of parts which satisfy the demands of one or several assembling plants.

Chan and Zhang, (2011), in their study on different distribution strategies and different transportation cost and time concluded that direct delivery has the shortest distance, and therefore the lowest transportation cost and the shortest delivery time. The studies also identified that delivery through a cross-dock has the longest distance, and therefore the highest transportation cost and the longest delivery time.

According to Kebo, (2013) empirical research on The relationship between distribution strategy and inventory cost the studies found that direct delivery can only consolidate the products from the same supplier to the same plant, low delivery frequency and high plant inventory are incurred. The studies recommended that cross-dock combine products from different suppliers, which leads to high delivery frequency and low plant inventory.

According Mamad & Chahdi (2013), studies on the implementation of mass customization processes affects logistics performances, mainly due to the variety of products: in order to prevent stockouts the study revealed that scheduling of assembly and delivery tends to increase the level of inventories. Mass customized distribution is rapidly growing as a specific field of research Rose & Rose (2012). In the field, few studies offer a guide to the design or redesign of the distribution channel management to accomplish the target of customization (Mallik, 2010) by showing only specific applications without an overall view on the problem. The need for a reference model deals with a business environment that pushes organisations to move from a conventional logistics to a direct-to-customer distribution (Raue & Wieland, 2015) and in particular where e-commerce could open unexplored markets.

According to empirical research Wagner and Kimberling (2010), distribution channel management requirement assumes a greater significance if combined with the large investments in infrastructures to coordinate transportations and deliveries on short notice, trying to contain costs. The studies concluded that the result is that most organisations tends to offer built-to-order customized products, using direct deliveries by external logistics providers, with a relevant effect on the final price to customers (Mohamed & Azizan, 2015).

Granville (2012), notes that the sphere of logistics management involves a multitude of different factors which include; transportation management, freight and inventory management, materials handling and order fulfillment. Thus the study recommending that, an effective outsourced logistics system should contributes immensely to the achievements of the business and marketing objectives of a firm. Technological advances and economic liberalization have created new opportunities for countries to harness global markets for economic growth and development. But expanded supply chains and global production networks put a new premium on moving goods in a predictable, timely, and cost-effective way (Krishnamurthy& Sellamuthu, 2010).

According to Handfield (2007), logistics outsourcing creates time and place utilities in the products and thereby helps in maximizing the value satisfaction to consumers. By ensuring quick deliveries in minimum time and cost, it relieves the customers of holding excess inventories. It also brings down the cost of

carrying inventory, material handling, transportation and other related activities of distribution. Lead time is a very important component in a customer's perception of business performance; it has become an order qualifier (Rushton, 2014)

Gil-Saura & Ruiz-Molina (2011), the empirical research on integrated transport systems based on both horizontal and vertical integration. The studies identified that in some sense, horizontal integration represents a precondition for successful vertical integration the main strategies for the horizontal integration of goods transport systems is shown to be intermodality together with its complements, interconnectivity and interoperability. The studies by Derek & Eyaa, (2012) supported the funding by further stating that the main strategy for vertical integration consists of running demand-led logistics chains in which high-quality and relatively cost client door-to-door intermodal transport services are covered to end-users (Chen & Tian, 2011). In general, apart from covering attractive services, integrated transport systems are also expected to improve the overall utilization of transport infrastructure and thus to convert it from an extremely passive to a high value-added 'entity.

METHODOLOGY

The study adopted the descriptive research design. The target population of this study constituted the five counties with the highest number of level 4 and 5 hospitals in Kenya with a total target population of 96 health facilities. To determine the sample size of each category of employees working in Level 4 and 5 hospitals in supply management department and drugs management proportionate stratified sampling was used. The study collected primary data for analysis obtained by the use of structured questionnaires. Descriptive statistics was used to portray the sets of categories formed from the data. The mean, standard deviation and variance on the dependent and independent constructs was used to show how clustered or dispersed the constructs were. The study used multiple linear regression analysis to test the statistical significance of the various independent variables.

RESULTS

The study targeted a sample of 78 staff in procurement in 5 selected County Government of Kenya. Out of the 78 distributed questionnaires 75 were filled and returned. This translated to a response rate of 96%. This response was good enough and representative of the population and conformed with Mugenda and Mugenda (2012) that a response rate of 70% and above is excellent. According to Mugenda (2012) and also Kothari (2012) a response rate of 50% is adequate for a descriptive study also asserted that return rates of 50% are acceptable to analyse and publish, 60% is good and 70% is very good. Based on these assertions from renowned scholars 80% and above response rate was adequate for the study (Mugenda 2011).

Descriptive Statistics

The measures used to describe the data set are measures of central tendency and measures of variability or dispersion.

Inbound Logistics

Warehouse systems

The respondents were required to indicate the level of Inbound Logistics practices within their facilities using a five point Likert scale and the results were as follows: the respondents provided that the uses of database configured to support warehouse operations influenced inbound operations with 54.67% of respondents strongly agreeing 25.33% of the respondents agreeing and only 1.33% of the respondents, further the study refilled that ensuring the documented processes and procedures are embedded in the WMS and are consistently applied influenced inbound operations with 20.00% of the responds strongly agreeing and 50.67% of the

respondents agreeing with only 2.67% of the responds disagreeing with the statement. The study further found that Organisation management should monitor progress through the day with 54.67% of the responds strong agreeing, 26.67% of the responds agreeing and only 9.33% of the responds were neutral. This implied that management of the warehouse operations influence warehouse operation to support effective distribution systems.

The finding of this study was in line with that of Mwangi (2016), those logistics activities include inbound logistics or outbound logistics. Inbound logistics allows for the sourcing, expediting and receiving of goods that is coming to the business organization.

Table 1: Warehouse Systems

Statement	1	2	3	4	5
Uses a database configured to support warehouse operations.	1.33%	8.00%	10.67%	25.33%	54.67%
Describing a variety of standard warehouse operating elements.	4.00%	6.67%	16.00%	64.00%	9.33%
Ensuring the documented processes and procedures are embedded in the WMS and are consistently applied.	2.67%	8.00%	18.67%	50.67%	20.00%
Organisation management to monitor progress through the day.	2.67%	9.33%	6.67%	26.67%	54.67%
Respond to problems in a timely way, and report data for performance analysis.	1.33%	5.33%	13.33%	60.00%	20.00%

Order Cycle Turnaround

The study sought the respondent's level of agreement with the following statements that relate to the Influence of Order Cycle Turnaround on performance of level four and five hospitals in Kenya. From the findings, majority of the respondents strongly agreed that enabling a seamless link to order processing reduces the order cycle time supported by a mean of 3.75 and standard deviation of 0.82, the study further provided that tracking where products are stocked, which suppliers they come from, and the length of time they are stored enabled to monitor stock levels which was supported by mean of 3.88 and standard deviation of 0.85.

To a great extent that when organisations automated inventory storage systems increases labor productivity and picking accuracy supported by a mean of 4.16 and standard deviation of 0.98. The findings of this study reveal that streamlining inventory systems improves inventory performance while reducing the order picking time. The findings of this study are in agreement with those of Mangan & Lalwani (2016) that Cycle time measures are an important category in a balanced set of process measures. Cycle time reduction efforts can improve the turnaround time of key activities and also improve staff productivity and the overall cost of the procurement function.

Table 2: Order Cycle Turnaround

Statement	Min.	Max.	Mean	Std
Enabling a seamless link to order processing	1.00	4.00	3.75	0.82
Organisations logistics management tool in order to pick, pack, and ship product out of the facility.	1.00	3.00	4.21	0.94
Tracking where products are stocked, which suppliers they come from, and the length of time they are stored.	1.00	3.00	3.88	0.85
Applications include MRO, order picking, consolidation, kitting, parts handling,	2.00	4.00	3.80	0.92
automated inventory storage systems to increased labor productivity and picking accuracy	1.00	4.00	4.16	0.98

Distribution Channel Management

Fleet Management

Table 3 showed the respondent's response of the level to which the agreed with the given statements that relate to the improved Fleet Management on performance of level four and five hospitals in Kenya. From the findings, majority of the respondents strongly agreed that Fleet systems support Identification of fleet needs is dependent on the nature of emergency within a mean score of 4.09 and standard deviation of 0.87, the respondents further contributed that Fleet manager should carry out preventative measures to address cargo damage and loss which was supported by a mean of 3.77 and standard deviation of 0.79. Further the study indicated that to great extend the respondents supported that organizations carry out the tracking of procurement costs, scheduling of maintenance and servicing tasks of their fleet with a mean of 4.23 and standard deviation of 1.03 the finding in this study therefore indicates that fleet management enables organization to implement strategies to maintain repairs and security of their trucks. The findings in this study were in agreement with those of Yadav (2011) that effective fleet management aims at reducing and minimizing overall costs through maximum, cost effective utilization of resources such as vehicles, fuel, and spare part. Fleet management underpins and supports transport related activities through the management of the assets that are used.

Table 3: Fleet Management

Statements	Min	Max	Mean	Std
Organisation carry out The tracking of procurement costs, scheduling of maintenance and servicing tasks	1.00	3.00	4.23	1.03
Manage transactions and measuring of fleet performance via reports	1.00	4.00	4.24	0.92
Fleet Security and Control to a fleet management system gives a fleet card	2.00	4.00	4.17	1.00
Fleet manager carry out preventative measures to address cargo damage and loss.	1.00	3.00	3.77	0.79
Fleet systems support Identification of fleet needs is dependent on the nature of emergency	2.00	4.00	4.09	0.87

Multichannel Distribution

Various statements on Multichannel Distribution were identified and the respondents were asked to indicate the extent they agreed with each of the identified statements. The respondents said that application of multi-channel distribution management system reaches its full potential with 32.00% of the respondents strongly agreeing, 40.00% of the respondents agreeing and 17.33% of the respondents been neutral with only 1.33% disagreeing to the statement. The study revealed that the logistic strategy provided customers with multiple ways to purchase the same product whereby 58.67% of the respondents strongly agreed, 22.67% of the respondents agreeing and only 4.00% of the disagreed with the statement. The respondents to a great extent noted that the manufacturer might use indirect channels such as retailers and distributors as well as selling directly to hospitals using e-commerce where 50.67% of the respondents strongly agreed, 28.00% of the respondents agreeing, 14.67% of the respondents were neutral 5.33% of the respondents disagreeing to the statement .the finding in this study implies that distribution management enable better establishment of supply channel based on specific customer needs for competitive advantage. The findings in this study agreed with those of Wagner (2010), that a multichannel distribution system then is when a merchant decides to strategically distribute their products to customers via multiple channels, such as directly through physical stores, an online marketplace like Amazon, or through another large retail chain.

Table 4: Multichannel Distribution

Statements	1	2	3	4	5
The Manufacturer might use indirect channels such as retailers and distributors as well as selling directly to Hospitals using e-commerce	1.33%	5.33%	14.67%	28.00%	50.67 %
Identifying and solving logistics issues which help of JIT system help in cutting cost	2.67%	8.00%	9.33%	60.00%	20.00 %
Application of multi-channel distribution management system reaches its full potential.	1.33%	9.33%	17.33%	40.00%	32.00 %
the logistic strategy to provide customers with multiple ways to purchase the same product	4.00%	6.67%	8.00%	22.67%	58.67 %

Third Party Logistics Management

Delivery Scheduling

The study sought the respondent's level of agreement with the following statements that relate to the Influence of Delivery Scheduling on performance of level four and five hospitals in Kenya and results presented on Table5. From the findings, majority of the respondents strongly agreed that Generating and integrating delivery schedule, acquiring and managing the information shared commonly by all delivery people's influence delivering schedules planning with 49.33% of the respondents strongly agreeing 29.33% of the respondents agreeing and only 9.33% of the respondents disagreed, the studies further indicated that employing the multi-agent problem solving framework for the delivery scheduling problem enabled solving delivery scheduling constrains with 32.00% of the respondents strongly agreeing, 38.67% of the respondents agreeing, 18.67% of the respondents were neutral with only 4.00% disagreeing. The respondents contributed that the efficient use and management of scheduling knowledge of various levels for 3rd part logistics reduce operational inconvenience within the distribution channel with 37.33% of the respondents strongly agreeing 36.00% of the respondents agreed and 2.67% of the respondents disagreed to the statement This finding is in line with that of Mangan & Lalwani (2016), stating that by employing the distributed cooperative problem solving framework for the delivery scheduling problem, we achieved an easy incorporation of various evaluation parameters in the process of scheduling, efficient use and management of scheduling knowledge of various levels.

Table 5: Delivery Scheduling

Statements	1	2	3	4	5
Generating and integrating delivery schedule, acquiring and managing the information shared commonly by all delivery persons	1.33%	9.33%	10.67%	29.33%	49.33%
Employing the multi-agent problem solving framework for the delivery scheduling problem	4.00%	6.67%	18.67%	38.67%	32.00%
Incorporation of various evaluation parameters in the process of scheduling of different hospital deliveries.	1.33%	9.33%	8.00%	56.00%	25.33%
The efficient use and management of scheduling knowledge of various levels for 3rd part logistics reduce operational inconvenience?	2.67%	6.67%	17.33%	36.00%	37.33%

Value-Added Services

Table 6 showed the respondents response of the level to which the agreed with the given statements that relate to the improved Value-Added Services on performance of level four and five hospitals in Kenya. From the findings, majority of the respondents strongly agreed that logistics operations in the organisation provide a dedicated distribution performance which was supported by a mean of 3.77 and standard deviation of 0.84, the study indicated that enabling a variety of logistics delivery models that improve customer service while mitigating inventory and transportation costs improves on value added service, which was supported by a mean of 3.99 and standard deviation of 0.89,further to a moderate extent respondents indicated that Health Facilities and value-added warehousing services help vendors reduce their global inventory footprint of finished goods which was supported by a 3.91 and standard deviation 0.93.

The finding in this study revealed that added services in the health facilities enhance a better collaboration within the health facilities and the vendors. This finding is in agreement to that of Wallenbur &Raue, (2011) that expeditor's value-added services range from simple to complex, enabling a variety of logistics delivery models that improve customer service while mitigating inventory and transportation costs.

Table 6: Value-Added Services

Statements	Min.	Max.	Mean	Std
Logistics operations in your organisation provide a dedicated distribution performance	2.00	4.00	3.77	0.84
Distribution services in your organisation ensure medical commodities are distributed within the right response time	1.00	4.00	4.03	0.97
Health Facilities and value-added warehousing services help vendors reduce their global inventory footprint of finished goods	2.00	4.00	3.91	0.93
Enabling a variety of logistics delivery models that improve customer service while mitigating inventory and transportation costs.	1.00	3.00	3.99	0.89

Integrated Transport Systems

Resource Planning

The finding presented in Table 7 showed that respondents stated that better planning allowed the fixing of production schedules over longer time-frames which was supported by a mean of 3.79 and standard deviation of 0.87

The study identified that on resource optimization the logistics operations requirements base on the customer requirements on time and place of delivery to avoid time wastage and added distribution cost which was supported by a mean of 4.00 and standard deviation of 0.95, the study further indicated that advance warning is given to marketing and sales of impending shortages, allowing rationing and redistribution supported by a mean of 3.92 and standard deviation of 0.98.

Logistics systems allow for systematic approach to the resource utilization though effective management. The finding concur with those of that Raue & Wieland (2015), this is a process of estimating individual activity resource need or cost and then adding these up together to come up with a total estimate. Bottom-up estimating is a very accurate means of estimating, provided the estimates at the schedule activity level are accurate.

Table 7: Resource Planning

Statements	Min.	Max.	Mean	Std
Better planning allows the fixing of production schedules over longer time-frames	2.00	4.00	3.79	0.87
The warehouse Integrated systems handle many different inventory types of inventory with correct information.	2.00	4.00	3.57	0.80
The logistics operations requirements base on the customer requirements on time and place of delivery	1.00	3.00	4.00	0.95
Advance warning is given to marketing and sales of impending shortages, allowing rationing and redistribution	1.00	4.00	3.92	0.98

Supply Chain Integration

Table 8 showed the respondents response of the level to which the agreed with the given statements that relate to the Supply Chain Integration on performance of level four and five hospitals. From the findings, majority of the respondents strongly agreed that Integrated systems co-ordinate the functions of manufacturing, distribution, purchasing to the finally delivery at health facility which was supported by 24.00% of the respondents strongly agreeing, 62.67% of the respondents agreed while 5.33% of the respondents were neutral and only 2.67% of the respondents disagreed, the respondents further indicated that integrates corporate functions and keeps everybody in the picture particularly marketing, distribution and manufacturing radar enables quick response during crisis with 60.00% strongly agreeing , 21.33% of the respondents agreed and 8.00% of the respondents been neutral. The study indicated that Supply Chain integration in organisation allows management trade-offs between different priorities in supply chain department and other department for streaming operations with 66.67% of the respondents agreeing , 14.67% of the respondent were neutral 6.67% of the respondent were disagreed. This implied that integrating SupplyChain enable effective department of the organisation to collaboratively work together in ensuring flow of material, information and finance is not interrupted. This finding is consistent with that of Wallenburg (2011): Supply chain integration is a close alignment and coordination within a supply chain. A supply chain refers to everything required to produce a product from raw materials, to manufacturing, shipping and support services.

Table 8: Supply Chain Integration

Statements	1	2	3	4	5
Integrated systems co-ordinate the functions, manufacturing, distribution, purchasing to the finally delivery at health facility	2.67%	5.33%	5.33%	62.67%	24.00%
Scheduling within short time-frames avoids crisis management	4.00%	8.00%	10.67%	52.00%	25.33%
Organisation Allows management trade-offs between different priorities in supply chain department and other department.	4.00%	6.67%	14.67%	66.67%	8.00%
integrates corporate functions and keeps everybody in the picture particularly marketing, distribution and manufacturing	4.00%	6.67%	8.00%	21.33%	60.00%

Performance of Level Four and Five Hospitals

The performance in cost reduction level for the selected counties was on upward trends as the cost saving approach reduced the logistics operating in comparison to the year 2014 the cost reduced was too low at 0.07m the changed to 0.15m in the year

2015, the cost reduction improved to 0.9m in the year 2017 and finally to 1.5m the year 2018 third quarter. This implied that the implementation of the sourcing of logistics services enabled the health facilities to transfer unnecessary cost to the contracted transporters.

The Lead Time (days) for the delivery of the pharmaceutical for the level 4 & 5 health facilities in the year 2014 was 11 days which is against the set standards of operations of delivery set time of maximum of 3 days, while in the year 2015 was at 10 days, the year 2016 was at 7 days and in 2017 and 2018 was at 6 days and 1-3 days respectively this was an indication that the contracted transporters had right operating systems, truck systems and facilities to delivery with the stipulated time.

This implementation of strategic distribution sourcing strategies contributed to performance of the level 4 & 5 hospitals on quality management practices through ensuring that quality products are delivered and in the right conditions and right place, as indicated in the table 9 Quality (customer complaints) was a great challenges in the year 2014 with at least 20 complaints in every delivery made, in the year 2015 was at 14 complaints, in 2016 was 14, 2017 was at 9 and finally the third quarter of 2018 was 3 complaints per every delivery.

This was an implication that delivery was carried using the rights trucks for the cold chain distribution and trucks that met required standard which was ensured through a distribution planning and a performance based distribution.

Table 9: Performance of Level Four and Five Hospitals

Indicators	**Performance**				
Year	**2014**	**2015**	**2016**	**2017**	**2018**
Cost reduction (ksh)	0.07 m	0.15 m	0.156 m	0.9 m	1.5 m
Lead Time (days)	11 days	10 days	7 days	6 days	1-3 days
Quality (customer complains)	20	18	14	9	3

INFERENTIAL ANALYSIS

Correlation analysis

The study undertook correlation matrix analysis to determine the influence of outsourced distribution services on performance of level four and five hospitals in Kenya. The study conducted a Pearson Moment Correlation analysis, which is represented by r. For all the study variables: Inbound Logistics, Distribution channel management, Third Party Logistics management and Integrated Transport Systems.

The results indicated that Inbound Logistics and Distribution channel management has positive influence on performance of level four and five hospitals as attributed by the correlation coefficient of 0.780 and a p-value of 0.00 and correlation coefficient of 0.782 and a p-value of 0.00 respectively. In addition, Third Party Logistics Management and Integrated Transport Systems are positively correlated to performance of level four and five hospitals with Pearson correlation values of 0.826 , 0.754 and p-values of 0.000 respectively. This correlation matrix implies that the independent variables; Inbound Logistics, Distribution channel management Third Party Logistics Management and Integrated Transport Systems impacts on the Performance of level four and five hospitals in County Government of Kenya.

Table 10: Correlations Analysis

		Supply Chain performance	Inbound Logistics	Distribution channel mgnt	Third Party Logistics Mgnt	Integrated Transport Systems
Supply Chain performance	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	75				
Inbound Logistics	Pearson Correlation	.780**				
	Sig. (2-tailed)	.000				
	N	75	75			
Distribution channel mgnt	Pearson Correlation	.782**	.934**			
	Sig. (2-tailed)	.000	.000			
	N	75	75	75		
Third Party Logistics Mgnt	Pearson Correlation	.826**	.947**	.912**		
	Sig. (2-tailed)	.000	.000	.000		
	N	75	75	75	75	
Integrated Transport Systems	Pearson Correlation	.754**	.923**	.873**	.891**	
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	75	75	75	75	75

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

Regression analysis

Regression analysis was done to measure the strength of relationship between the four studied independent variables and the dependent variable. Table 11 presented the model summary in explaining the study phenomena. The coefficient of determination also known as the R square showed that Inbound Logistics, Distribution channel Management, Third Party Logistics Management and Integrated Transport Systems has a 73.7 % variation on the dependent variable that is Performance of level four and five hospitals. This results further meant that the model applied to link the relationship of the variables was satisfactory. The results indicate that, the higher the R squared, the better the model fits the data being presented. In this case 73.7 % of R squared was satisfactory.

Analysis of Variance

ANOVA statistics of the processed data at 5% level of significance shows that the value of calculated F was 49.014 and the value of F critical at 5% level was 2.41 since F calculated is greater than the F critical (49.014 >2.41), this showed that the overall model was significant in explaining the variation in the dependent variable.

Beta Coefficients

The established regression equation was:

Y= 1.121 + 0.811X1+0.422X2+ 0.237X3+ 0.161X4+ ε

From the findings in the regression analysis, if the factors (Inbound Logistics, Distribution channel Management, Third Party Logistics Management. and Integrated Transport Systems) were held constant, performance of level four and five hospitals in the level 4&5 hospitals in the selected counties would be at 1.121.

Regression results revealed that Third Party Logistics has significance influence in productivity in performance of level four and five hospitals in Kenya as indicated by β_1=0.811, p=0.000<0.05, t= 4.392. The implication is that as increase in Third Party Logistics lead to increase in level four and five hospitals performance by β_1=0.811 This implied that an increase in Third Party Logistics identification would lead increase in firm's performance.

Regression results revealed that Integrated Transport Systems has significance influence in productivity in performance of level four and five hospitals in Kenya as indicated by β_2=0.422, p=0.001<0.05, t= 3. 517.The implication is that as increase in Integrated Transport Systems lead to increase in level four and five hospitals performance by β_2=0.422, This implied that an increase in Integrated Transport Systems would lead increase in firm's performance

Regression results revealed that Distribution Channel Management has significance influence in productivity in performance of level four and five hospitals in Kenya as indicated by β_3=0.237, p=0.002 <0.05, t= 1. 626.The implication is that as increase in Distribution channel management lead to increase in level four and five hospitals performance by $\beta_{3=}$ 0.237. This implied that an increase in Distribution channel management identification would lead increase in firm's performance.

Regression results revealed that Inbound Logistics has significance influence in productivity in performance of level four and five hospitals in Kenya as indicated by β_4=0.161, p=0.003<0.05, t= 0. 816.The implication is that as increase in Inbound Logistics lead to increase in level four and five hospitals performance by $\beta_{4=}$ 0.161. This implied that an increase in Inbound Logistics identification would lead increase in firm's performance.

Table 11: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.858[a]	.737	.722	.510

Table 12: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	51.052	4	12.763	49.014	.000[b]
Residual	18.228	70	.260		
Total	69.280		74		

Table 13: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.121	.286		3.917	.000
	Third Party Logistics Mgnt	.811	.185	.871	4.392	.000
	Integrated Transport Systems	.422	.120	.563	3.505	.001
	Distribution channel mgnt	.237	.145	.287	1.626	.002
	Inbound Logistics	.161	.198	.207	.816	.003

CONCLUSION

The study concluded that better visibility through an inbound logistics management program promotes better inventory management. The existing safe stock or expected shipments were identified and seen throughout the health facility stock keeping unit which provides safeguards against possible delays. Furthermore, the visibility into inbound logistics helps to prevent cases of overbilling, overstocking and understocking. Thus, county health facilities maximize and optimize the warehouse space while providing an undisrupted flow of products to the patients.

The study concluded that general process of distribution companies include Distribution channel management various units may be involved in a process. Distribution channels can be short or long and depend on the amount of intermediaries required to deliver a product or service. Therefore the county hospital should ensure that deliveries are made within the short and economical routing without compromising with the quality process of delivery.

The study concluded that the 3PL managing third party logistics (3PL) providers is vital to keeping the overall supply chain running effectively. Making the most of these relationships can be the difference between marginal performance of level four and five hospitals and true competitive advantage. Outsourcing to a 3PL provides flexibility and scale that enable the company to meet varying levels of customer demand. The capital and one-time expense of implementing a company-run distribution operation taking space, hiring staff, installing equipment, implementing software are resources and energy usually better used on growing the top line. A 3PL offer economies of scale that minimize upfront capital, fixed cost and much of the management burden of logistics.

The study concluded that Integrated Transport Systems is important in the movement of cargo through a multi-modal transport system, by reducing overall costs and improving the cost competitiveness.

RECOMMENDATIONS

The study recommended that county health facilities should ensure Better visibility through an inbound logistics management program that promotes better inventory management. The process should provide existing safe stock or expected shipments are identified and seen throughout the hospital stock to provide safeguards against possible delays.

County district hospitals should develop a robust distribution channel strategy, the health facilities should identify which channel works best for the product been distributed. The longer the channel, the less profit, more cost organization is likely to receive from a sale.

The study recommended that county hospitals who use 3PLs report that they experience improvements in order to fill rate and order accuracy. This is a win-win for the retail and the customer.

The study recommended that successfully integrated transport system involves the coordination and optimization of timetables, to ensure that users do not have undue waiting times between different modes. The central aim should always be the decrease in time of the user's journey from the origin to destination.

Areas for Further Study

This study was carried in five Counties thus further research can be undertaken in other counties to establish if the findings of this study are same in other counties. The current study further relied on primary data and therefore future similar studies should be developed using secondary or empirical data. Regression analysis indicated an R squared of 73.7% an indication that other factors exit not covered by the current study that significantly affect outsourced distribution services and therefore future studies should endeavor to uncover these other factors.

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