ROLE OF FLEET MANAGEMENT ON SUPPLY CHAIN PERFORMANCE IN LOGISTICS FIRMS BASED IN NAIROBI INDUSTRIAL AREA, KENYA

NJOROGE KELVIN GIATHI

The Strategic JOURNAL of Business & Change MANAGEMENT
ISSN 2312-9492 (Online), ISSN 2414-8970 (Print)
Vol. 3, Iss. 3 (24), pp 402-425, Aug 25, 2016, www.strategicjournals.com, ©Strategic Journals

ROLE OF FLEET MANAGEMENT ON SUPPLY CHAIN PERFORMANCE IN LOGISTICS FIRMS BASED IN NAIROBI INDUSTRIAL AREA, KENYA

[1]Njoroge Kelvin Giathi, [2]Dr. Kabare Karanja

[1]Student, Jomo Kenyatta University of Agriculture & Technology (JKUAT), Kenya
[2]Lecturer, Jomo Kenyatta University of Agriculture & Technology (JKUAT), Kenya

Accepted August 19, 2016

ABSTRACT

Fleet management plays a very significant role as it manages the flow of goods along the supply chain and therefore helps in controlling supply chain costs. The researcher carried out this study with the general objective of establishing the role of fleet management on supply chain performance. Other objectives included: To assess the role of Information Communication Technology on supply chain performance and to determine the role of customer relationship management on supply chain performance. A cross sectional survey research design was used in the study whose targeted study population comprised of 65 respondents who were all employees of the 20 logistics firms' in the industrial area of Nairobi. The researcher used random sampling method to get the respondents to participate in the study since it gave every respondent a chance to participate in the study; a sample size of 80% was used in the study. Data was collected by use of questionnaires which were administered by the researcher and the collected data was edited, coded, classified and tabulated using Statistical Package for Social Sciences 23 (SPSS 23). Descriptive statistics and regression analysis results revealed that ICT and Customer Relationship Management affected supply chain performance in logistics firms in Kenya. According to the regression analysis results it was concluded that ICT had the greatest effect. Customer relationship management had the least effect on supply chain performance. The study recommendations included: logistics firms should heavily invest in ICT e.g. installation of onboard vehicle communication systems, vehicle safety technology and fleet management systems. Customer relationship management to be enhanced by use of strategies such as timely deliveries, effective safety measures for customer consignments and proper management of customer complains.

Key Words: *Information Communication Technology, Customer Relationship Management, Fleet Management, Supply Chain Performance, Logistics Firms*

Background of the study

Today's highly competitive business dynamics demand entrepreneurs to focus their efforts in maintaining a supply chain that runs like a well-oiled machine, fleet management have proved to be a critical component of oiling the supply chain since it manages the transport function throughout the supply chain. Superb supply chain performance isn't just a goal but a necessity in today's business world; most businesses are outsourcing distribution and transportation services from third party logistics companies to reduce major investment such as hiring and managing fleet personnel and purchasing fleet trucks. Outsourcing is advantageous but firms need to cautious to prevent their supply chains from collapsing by outsourcing transportation from 3PLs who have an inefficient fleet management function, indeed poor transportation management can bring supply chain to its knees. Supply chain fleet managers are the uncelebrated heroes of today's economy. They play a very significant role by orchestrating the vital link between supplier and consumer; they are responsible for ensuring the uninterrupted flow of commerce despite numerous challenges affecting productivity, safety and customer satisfaction.

A report by World Bank (2005) on issues in trade logistics in Kenya showed that transport costs and delays are significant in supply chain and that the fleet running costs in Africa amount to75% of the operating costs while in Europe it amounts to 60%.Kenya was seen to be far from being an efficient sub regional logistics hub. It was established that it is more expensive for express carriers to move cargo between east Africa than to or from Europe. A Study by Turku School of Economics and Business administration in Finland in 2004 rated Belgium, Switzerland and Hongkongas the leading countries in Overall logistics perception index with Kenya ranked at position 70 which is an indication of low level of logistics service and specifically in regard to transportation which is a risk to the supply chain.

According to Asvin (2008) today more goods are transported worldwide than ever before while globalization and liberalization of markets will lead to even more trade in future. From 1970 to 2000 the inland transportation within the European Union has almost doubled. Therefore the success of global supply chain of different products is hinged on effective fleet management to ensure smooth movement of goods across the supply chain. Coyle et al (2015), argues that transportation is a critical ingredient for overall supply chain performance and in general the fleet management function is viewed as the glue that holds the supply chain together. Supply chains may become transport driven as opposed to demand driven than they were during 1990s and early 21st century. Schorpp (2011) argues that there is need for dynamic replaning in fleet management to react in the short term on newly occurring requests and other changing information. The primary objectives are the minimization of empty travelled distance, the minimization of delay and high vehicle utilization.

Over the years different players in the supply chain have recognized the critical role played by the fleet management function which have been termed as a glue in the supply chain by Coyle et al (2015).More goods are transported worldwide than ever before while globalization and liberalization of markets will lead to even more trade in future according to Asvin (2008).However supply chain fleet managers are the uncelebrated heroes of today's economy and therefore global supply chains are at risk of poor performance for failing to fully acknowledge the critical role played by fleet management function which manages the transport costs thus keeping supply chain costs monitored and without it the

supply chain costs would escalate to unmanageable levels.

According to Cecere (2015), we are living in times when growth of global supply chains have stalled and many supply chains are stuck in driving supply chain performance which is attributed to poor fleet management with low ICT application, ineffective vehicle routing and poor customer service. Globally the application of ICT in fleet management is as low as 46% according to a survey done by Bloomberg (2014) while another survey by Saddle Creek Corporation (2011) revealed that the customer service offered by logistics service providers is relatively low. Transportation has been cited as a burning platform for firms working towards cutting supply chain costs. Fleet management function is not faring well globally with a substantial number of vehicles operating along the distribution networks with multiple mechanical issues which puts the supply chain at risk.

Fleet management in Kenya is not in any way different form the global perspective as it manifests numerous inefficiencies as well which are of significant impact in the local supply chains. A research conducted by Gitahi and Ogollah (2014) revealed that there is poor fleet management in UNHCR Kenya where transport and logistics was viewed as an area in which cost appear out of line with the benefits and services accruing to the refugees. A report released by World Bank (2013) revealed that poor fleet management in the year 2011-2012 saw the UNHCR lose Ksh 20,000,000 due to escalating cost of repairs and this can be reduced if proper fleet management is put in place. The report further indicated that UNHCR is losing over Ksh 5,000,0000 each year since 2010 as the fuel management system is not functioning as it should which indicates a failure in fleet management.

Masika (2012) argues that a few cooperative societies in Kenya have their own means of transport inform of pick-ups, trucks and lorries and the vehicle fleet is underutilized and in poor mechanical conditions .As a result of this poor fleet management the cooperatives incur high transport costs which make the dairy products to have uncompetitive prices which is a manifestation of a failing supply chain occasioned by poor fleet management. According to Mukhungu (2014) the haulage capacity of Mumias sugar company is poor since there lacks enough fleet of trailers to ferry adequate cane to the millers and this is one of the reasons for occasional sugar shortages and regular price fluctuations. A survey conducted by World Bank in 2005 revealed that in the sugar supply chain of South Africa, Zambia and Kenya, the transportation of cane is critical as it accounts for approximately 21% of the costs of growers and the costs are escalated by poor fleet management.

According to Lysons and Farrington (2006), logistics is that part of the supply chain process that plans, implements and controls effective flow and storage of goods, services and related information from the point of origin to the point of consumption in order to meet customers' requirements. Therefore a logistics firm is a company that stores and delivers the products of other businesses. A logistics firm may specialize on export and import of goods in and out of a country or concentrate on ground transportation within a country or a region. Logistics companies need to have a means of freight transport at their disposal. According to Council of Supply Chain Management Professionals (2014) a third party logistics company refers to a firm that provides multiple logistics services for use by customers such as transportation, warehousing, cross docking, inventory management, packaging, and freight forwarding. The logistics firms referred to in this study are third party logistics providers based in industrial area of Nairobi who provide logistics services to different businesses in Kenya and the neighboring countries.

The study involved third party logistics firms based in the industrial area of a Nairobi who mainly offer transport based third party logistics services. According to the information acquired from the registrar of companies (2015) there are twenty registered transport based third party logistics service firms in the industrial area of Nairobi. The logistics firms based in industrial area of Nairobi operate large fleets of vehicles which have made them to establish appropriate fleet management structures to ensure they are able to serve their customers well and leap maximum benefit from the transportation business.

Statement of the problem

According to Cecere (2015), we are living in times when supply chain growth is stalled and many companies are stuck in driving supply chain performance. Many local and global supply chains are not performing well and the inefficiency is emanating from the fleet management function whereby the delivery trucks are unreliable, low ICT application by the Third party logistics providers, ineffective vehicle routing and poor customer service. A survey by Airmic Technical in 2013 on supply chain failures have rated poor transport network as a supply chain risk.63% of the surveyed shippers cite cutting transport costs as their primary challenge and transportation is a burning platform for firms working towards cutting supply chain costs. Low ICT application in fleet management has limited the potential of supply chain to perform to the expected levels.

The Bloomberg survey of 2014 indicates that the current ICT adoption rate in fleet management or transportation is 46% and most fleet management software have a narrow view with bias towards efficient vehicle routing. A survey by Saddle Creek Corporation in 2011 revealed that the level of customer relationship management offered by 3PLs is relatively low and thus making implementation of supply chain strategies such as cross docking difficult. A survey by fleet news in 2015 reveals that 45% of the vehicles on the roads have defects and this poses a supply chain risk since such vehicles do not guarantee timely deliveries as it may breakdown on its way to the clients. A report on crime and safety in South Africa 2015 indicates that there are multiple truck accidents arising from poor vehicle maintenance. Olaguju (2015) argues that maintenance culture of vehicles in Nigeria is poor and the situation is worsened by the near illiterate mechanics and fake spare part vendors. Sankaran (2005) argues that poor vehicle routing is a key cause of delays while Niaz et al (2014) argue that many people are unaware of some newer Vehicle Routing Problems (VRP) topics.

Makhungu (2014) argues that the haulage capacity of Mumias sugar company is poor since there lacks enough fleet of trailers to ferry adequate cane to the millers and the poor fleet management is one of the reasons for occasional sugar shortages and regular price fluctuations while a study by Masika (2012) revealed most dairy cooperatives have a vehicle fleet which is underutilized and in poor conditions, this is a manifestation of a failing supply chain. The research addressed the poor state of fleet management to safeguard the supply chains from the deteriorating performance which could eventually lead to more inefficiency if not solved in good time.

Objectives of the study

General objective

To find out the role of fleet management on supply chain performance in logistics firms based in Nairobi industrial area.

Specific objectives

- To assess the role of Information Communication Technology on supply chain performance in logistics firms based in Nairobi industrial area.
- To determine the role of customer relationship management on supply chain performance in logistics firms based in Nairobi industrial area.

LITERATURE REVIEW

This chapter gives a brief explanation of theories related to fleet management and a summary of the identified elements of fleet management affecting supply chain performance from various researchers and the findings obtained from the different parts of the world.

Theoretical Review

A number of theories and models have been put forward by different scholars that help in explaining the various critical elements of fleet management which affect supply chain performance. These theories include: Technology acceptance theory, RATER model, Travelling Salesman Problem (TSP) model and theory of replacement. The Supply Chain Operations Reference model was used to explain supply chain performance.

Technology Acceptance Theory

The theory was proposed by Davis in 1986 and according to Legris et al (2003) it has proven to be the best theoretical model in helping to explain and predict user behavior of information technology. According to Park (2009), this is one of the well-known models related to technology acceptance and use. The technology acceptance theory uses two variables namely: perceived usefulness and perceived ease of use. Based on perceived usefulness, the theory focuses on the extent to which technology will lead to better performance while under perceived ease of use the theory focuses on the efforts required to operate the new technology. Lee et al (2007) cites the technology acceptance model as a very powerful model in technology applications. In the field of fleet management information technology have been applied due to the perceived benefits while some logistics firms are yet to fully embrace technology. The researcher used the technology acceptance theory to explain the application of information communication technology in fleet management and the benefits arising from the technology adoption.

RATER Model

The model was developed by a group of American authors namely: Parasuraman, Zeithem and Belly in 1977 as an approach towards assessing the quality of customer service. According to Obulemile (2014) the model is a customer service measurement model as well as a customer management model and it's the most widely used generic measure of customer service quality as it clearly highlights the essential dimensions of quality customer service which also form the building blocks of CSM. The dimensions include: *Reliability*-ability to perform promised service dependably and accurately, *Assurance*-ability to inspire trust and confidence to customers, *Tangibles*-good physical representation or image of the service, *Empathy*-care and individualized attention provided to customers and *Responsiveness*-willingness to provide prompt service. According to Nyeck et al (2002), the RATER model remains the most competitive attempt to conceptualize and assess the quality of customer relationship management. The researcher used the model to illustrate the role of customer relationship management in supply chain performance.

Supply Chain Operations Reference (SCOR) model

According to Poluha G (2007) the Supply Chain Operations Reference (SCOR) model was developed

by the Supply Chain Council (SCC) as a standardized reference model for supply chains. The SCOR model is intended to provide uniform definitions, concepts, processes and metrics to describe any supply chain regardless of its complexity or configurations. Poluha G (2007) further argues that the SCOR model facilitates the evaluation and comparison of supply chain performance across companies or industries and in so doing it helps the management to identify the opportunities for improvement. According to the Supply Chain Council (2010) the SCOR model has the following supply chain performance attributes among others: supply chain reliability, responsiveness, agility, costs and asset management. The researcher used the SCOR model to explain the various attributes of supply chain performance.

Conceptual Framework

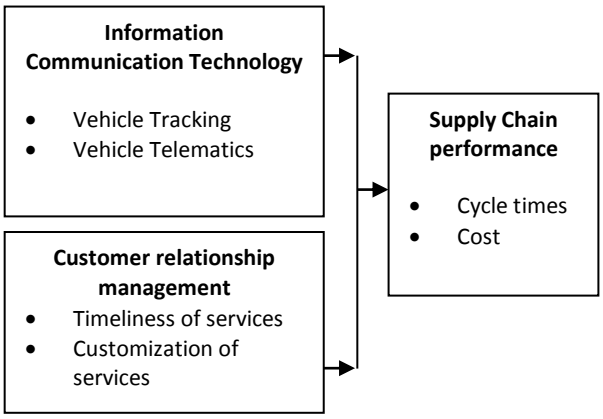

Figure1 Conceptual Framework

Independent variables

Information Communication Technology (ICT) is fundamental for effective fleet management in these digital days where every aspect of business has a digital platform; this affects the supply chain performance to remarkable levels. Robust ICT infrastructure is critical for supply chain performance as it helps in vehicle tracking, facilitates communication between drivers and the fleet staff in the office and also helps drivers in navigating unfamiliar routes through online guidance which helps to manage supply costs and safety.

Customer relationship management is the very foundation of business success. In any business a customer is the most important person and therefore logistics firms must invest heavily in improving their customer relationship management along the supply chain. Supply chain performance is greatly determined by the nature of customer relationship management e.g. handling of customer complains, timeliness of deliveries, courtesy of fleet staff, handling of customer consignments and customer recognition. Improving customer relationship management translates to a well performing supply chain.

Dependent variable

Supply chain performance is determined by how well the different elements of fleet management are managed. A well performing supply chain is marked by reduced cycle times and costs which can only be attained by an effective and efficient fleet management since transportation is a glue that holds the different parties in the supply chain together.

Literature Review of Past Studies

Information Communication Technology

According to Samia (2015) ICT refers to all the technology used to handle telecommunications, broadcast media, intelligent building management systems, audiovisual processing and transmission systems, and network-based control and monitoring functions. Information Technology has become an important dimension of third party logistics service providers (3PLs) business as their competitive

advantage increasingly depends on the ability to create value for customers through ICT applications. Recent industry developments have contributed to widen the technological gap between large and small 3PLs.According to Stough (2001) use of ICT in the 3PL industry can lead to substantial cost savings and efficient supply chains. Such technologies are able to improve business processes and interconnections with other trading partners operating in the supply chain. Application of ICT allows information exchange in real time improving the ability of planning transport and logistics activities and the level of customer service and it have increasingly forced manufacturers and distributors to focus on their core business and, at the same time, to outsource their transport and logistics activities.

Since the physical movement of goods is as important as the flow of information between different players in the supply chain it have become important for the integration of all the business processes through ICT and Internet technologies, under this strong pressure, 3PLs are devoting increasing importance to ICT in the management of their businesses. Stough (2001) argues that although transport and logistics companies have used telecommunication systems and networks for some time, the sector may not be considered a leader in the field of technological innovation since it has not fully incorporated as much IT as some sectors. In the 21st century the main transport and logistics service firms are in a position to provide a variety of information via the Internet and to secure transactions online with customers.

In fleet management, the computerization of dispatching time and route has been one of the greatest innovations discovered when it comes to the transportation business. The GPRS has helped haulage companies to track down their trucks and their current status which enhances supply chain performance. This has also added security on truck drivers, the company and the goods as well. This kind of automation has rendered an easier task in the world of fleet management and it has enabled provision of a wireless solution for monitoring the handling and transportation of goods and the management of delivery schedules and trucking services based on the clients' needs. Logistics firms are now searching for more recent and effective innovation in ICT for the safety and security of their drivers and goods during transport. Heng et al (2006) argues that it has become an important issue to track vehicles especially with haulage firms to effectively monitor their movements. GPS fleet tracking puts the fleet manager in control by providing him/her with the ability to monitor and enforce driver speeding right from the office. GPS makes it easy to set speed thresholds via web. When a driver exceeds the pre-set speed threshold, the GPS fleet tracking system lets the fleet manager know through a text message or email alert so that immediate action can be taken. The speed control promotes safe driving which leads to fewer accidents thus the company is not subjected to unnecessary loses. Use of a Mileage Tracking and Fleet Management application in a business that has a large fleet of vehicles helps to show you the location of every vehicle in your fleet, down to a specific parking spot. You can see real-time driving routes and locations for each driver in your fleet. Drivers can also share trips on Facebook, Twitter and Google Maps/Earth.

A report published by the Italian ministry of Technology innovation in 2004 shows that large logistics companies have largely invested in ICT and have actively developed information systems and applications. Trucks are fitted with computer software that measures its diagnostics and takes regular readings of different systems in the truck. This is primarily centered on the engine, but the OBD-II includes sensors for the chassis, frame and

other parts of the truck too. At each reading, the software records a particular acronym or code that represents the functionality of that system. This information is stored within the OBD-II system and can be retrieved by attaching a computer to the port. The mechanic then downloads the codes and translates them to determine exactly what was going on at each point of inspection. This helps to calculate when and how damage occurred to a part of your truck. Such technologies have made it easy to keep the driver updated about any happening in the truck. A publication by the University of New Hampshire (2008) underscores the different technologies of vehicle tracking and safety technologies that enhance effective fleet management. A research by Waiyaki (2013) shows how application of ICT has enabled KPLC to track their vehicles especially when stolen.

Fleet managers are at ease in handling safety of their fleets and customers consignments with the use of Vehicle Safety Technology (VST).It's a special technology developed to ensure the safety and security of automobiles and passengers. The term encompasses a broad umbrella of projects and devices within the automotive world. Notable examples include car-to-computer communication devices which utilize GPS tracking features, geo-fencing capabilities, remote speed sensing, theft deterrence, damage mitigation, and vehicle-to-vehicle communication. One of the vehicle safety technologies is DADS (Driver Alertness Detection System) is a cloud based service that monitors a driver's state of alertness in real time to reduce the risk of road accidents caused by drowsiness and fatigue. Using the data collected by the certified camera, the service greatly helps drivers determine if they are alert enough to drive. The camera is able to capture information from the driver's face which is analyzed by the software. If the system detects that the driver's state of alertness is declining, audible and visual signals warn the driver up to two hours before reaching a critical state, This helps to prevent accidents by alerting drivers often before the driver even realizes the situation is getting dangerous, failure to install such a software on trucks may leave the fleet manager at a desperate situation where the drivers behaviors or safety is not well monitored which puts the entire supply chain at a risk.VST also includes Electronic Stability Control (ESC) which helps to avoid a crash by significantly reducing the risk of your car going into a skid during a sudden emergency maneuver such as avoiding an obstacle in front of you. ESC identifies this risk early and stabilizes the car by braking individual wheels thus preventing a car crash which would cause damage of goods in the supply chain.

According to Odadi (2012) in logistics firms ICT is very critical e.g. Supply Chain Information Systems (SCIS) are used to trace and locate the position of a particular inventory which then informs certain decisions. Manufacturers know the importance of fast and efficient delivery of goods to the intended users and it is of utmost importance for the manufacturers and suppliers to transport the goods to the people at the accurate time without any hassle. Shipping and logistics companies understand this fact and therefore offer high quality logistics and air freight services, providing the ideal balance of time, space, frequency and cost which are well achieved by appropriate ICT systems.

Lester (2013) argues that fleet management software is necessary to increase efficiencies and survive in the competitive haulage business world and every logistics firm should strive to have robust fleet management software in place. Fleet management is greatly effective with the application of Fleet management software (FMS) which is computer software that enables fleet managers to accomplish a series of specific tasks in the management of any or all aspects relating to a

fleet of vehicles operated by a company, government, or other organization and thus facilitating smooth flow of goods in the supply chain. These specific tasks encompass all operations from vehicle acquisition through maintenance to disposal. It functions as a complex information system. The main function of fleet management software is to gather, store, process, monitor, report on and export information. Mikulsiki (2013) argues that fleet management software simplifies administrative and operational tasks in fleet management by providing support in areas such as: maintenance planning and control, compliance management, crew management, document management, reporting procedures, analyzing key operational data, cost and process optimization and the effective tracking enhances supply chain performance.

Customer Relationship Management

According to Baran et al (2008) customer relationship management refers to practices, strategies and technologies that companies use to manage and analyze customer interactions and data throughout the customer lifecycle, with the goal of providing better customer service. According to Sweeney group (2013) customer relationship management (CRM) involves analyzing customer data to help improve customer service by finding small problems which may be solved to retain existing customers and attract new customers. Baran et al (2008) argues that implementation of CRM greatly boosts customer satisfaction and reduces customer complaints and subsequently high customer loyalty as the business is able to customize its offerings to each customer. Good customer relationship management is critical for the implementation of supply chain strategies such as JIT and cross docking; such strategies are only manageable with a reliable and committed 3GPls provider who values CRM.

Customer relationship management has customer service at its core. Zanjirani et al (2011) argues that customer service can be viewed from the customer's side and be defined as providing customers with services that meets and in some cases exceeds their needs and expectations. In the context of logistics customer service can be defined using the seven R's. The seven R's definition views the customer service as the output of the overall logistics process and establishes seven aspects as perquisites for delivering satisfactory services to customers. It defines customer service as providing the *right* customer with the *right* product at the *right* place, *right* time and the *right* cost, in the *right* condition and the *right* quantity. The seven R's equally form a firm foundation of effective CRM. The nature of customer service offered by 3PLs determines the general performance of the supply chain. Over the years customer relationship management have grown to significant levels and it has become a critical component of every industry to seek greater satisfaction of their customers and logistics firms are no exemption in investing in customer relationship management. It's clear that a customer does a favor to the logistics firm by giving them a chance to serve him/her but the logistics firm is not doing any favor by serving the customer since the customer has the right to be served. However the nature of the service offered by the 3PLs to the different players in the supply chain determines the performance of the supply chain.

Lysons and Farrington (2006) argue that transportation is sometimes to blame for the company's inability to properly serve its customers. Transportation facilitates customer service through provision of place and time utility. Capability measures is one of the key measures of customer service, the customer service capability measures include: order cycle time, distribution system flexibility and malfunction handling capability. The order cycle time relates to the timelines of the

deliveries to the customers and logistics firms must always strive to make sure they deliver to their customers at the expected time frame failure to which customers may feel dissatisfied since the lateness of the deliveries may make the client business to incur losses. The logistics firm should have a flexible distribution system to match any variance the customer may wish to make failure to which the customer may switch to another logistics provider whose fleet is flexible to his/her needs. In regard to malfunction handling capability the customer expects his/her consignment to be delivered without any damages and should it happen the logistics firm should address the issue with the urgency it requires to prevent any discomfort from the customer that may make him/her to think of switching to another logistics provider since losing a customer is the path to a business failure. The fleet management function should deeply engage in customer tracking and evaluation activity which involves reviewing customer performance and requirements. This helps to identify where a logistics firm is not providing adequate customer service or where improved customer service could increase supply chain performance.

According to Długosz (2010), Logistics customer service in the supply chain is then a set of individual "tailor-made" solutions. However, one must go beyond that. An ideal system of logistics customer service in the supply chain should furthermore take into account the final effect of the most favorable form of the end customer service. A logistics service chain of individual links cannot be developed without paying attention to consequences it may have for the end customer.it is therefore clear that the fleet manager greatly needs to be concerned by the feeling of the customer after the transportation service is offered and therefore apply varied tailor made solutions to avoid too many customer complaints and put in place effective mechanisms to solve any complain from the customers satisfactorily. Ciesielski (2006) argues that customer relationship management is strongly anchored on the concepts of time based management (TBM) and total quality management (TQM). Lead time reduction and quality management systems have become the basis of competition amongst logistics firms which have generated numerous benefits for customers. In a competitive environment, customer service is an important means of differentiation from competitors and acquisition of customer loyalty. Setting the components of customer service and quantifying the level of service are means of keeping the logistics company's competitive advantage. In business the cost of attracting a new customer is five times higher than satisfying and maintaining the existing customers and therefore logistics firms should invest heavily in customer service.

Christopher (2007) argues that today we are witnessing the increasing importance of consumer services, which become a competitive weapon of the organization. The factors behind this growth are: the continuous changes in the customer expectations, the consumer demands more, he is more sophisticated than he was 30 years ago. According to Kisperska (2005) in the 21st century many logistics firms are aware of growing customer requirements and adopt sets of standards to evaluate their service for customer's satisfaction. A case study on a 30-year old retail business by Tilokavichai et al (2012) shows the significance of investing in customer relationship management because ever since the business introduced membership system in 2008 to create customer loyalty; call center support was set up in 2010; and sale order system was revamped in 2011 to reduce order cycle.

A research conducted on a leading third-party logistics (3PL) company in Hong Kong by University of Massachusetts in collaboration with Hong Kong Polytechnic University revealed that a long-term

relationship with clients and the loyalty of clients such as Toshiba and Sanyo Electronics have formed a platform of their success to be the best logistics provider, due to its success anchored on outstanding customer service it has come to be known as "king" of Hong Kong's 3PL, Its therefore clear that a good relationship with clients is very important for the success in business and its immense contribution need not to be ignored by any ambitious fleet manager for it gives the impetus to reach the desired profitability targets and have a well performing supply chain. When clients develop confidence in a logistics company the journey to excellence in the supply chain performance definitely becomes easier and faster. Realizing customer value is actually the most crucial factor behind business prosperity along the supply chain.

Supply chain performance

Lysons and Farrington (2006) define supply chain as a network of organizations that are involved through upstream and downstream linkages in different processes and activities that produce value inform of products and services in the hands of ultimate customer or consumer. According to Larsen et al (2007) Supply chain performance refers to the effectiveness, efficiency and flexibility of a network of organizations, people, activities, information, and resources involved in moving a product or service from the supplier to the manufacturer, through to its eventual delivery to the end user. Chopra and Meindi (2013) argue that supply chain consists of many parties directly or indirectly who aim at fulfilling customer requests. Among the parties whose contribution is underscored are the carriers or 3PLs. Coyle et al (2010) identifies transportation as a key player in the supply chain performance.

According to the Chartered Institute of Purchases and Supplies (2013), supply chain conceptually covers the entire physical process from ordering and obtaining the raw material through all process steps until the finished product reaches the end consumer. Most supply chains consist of many separate companies, each linked by virtue of their part in satisfying the specific need of the consumer. In general, a supply chain can be described as the set of linkages providing goods and services to end users and to intermediate customers. Today's Market place is shifting from individual company performance to supply chain performance. The entire supply chains ability to meet end customer needs through product availability, responsiveness and on time delivery.

According to Cecere (2014) growth has slowed, volatility has increased and the world is more global while brands are defined by innovations and services and therefore supply chain matters more than ever since it makes the difference in corporate performance. Chopra and Meindi (2015) identify transport, inventory, transportation, information, sourcing and pricing as the key drivers in the supply chain. The ultimate goal of the supply chain is to maximize the overall value generated. The value (also known as supply chain surplus) a supply chain generates is the difference between what the value of the product is to the customer and the costs the supply chain incurs in filling the customer requests.

According to Chopra and Meindi (2013), Blue Nile which is an on line retailer of diamonds have enjoyed a remarkable success in their supply chain due to effective and efficient transportation, this has enabled the company to outdo its major competitors since cutting costs on transportation enables them to sell their goods at low prices. Efficient transportation have enabled Blue Nile to eliminate the need for expensive storefronts and centralized inventory of diamonds. According to Horch (2007) supply chain performance measures can be categorized into two: Non-financial

performance measures and financial performance measures. Non-financial performance measures include: cycle time, customer service level, Inventory levels and resource utilization. For better performance in supply chain, the supply chain costs should be kept to the lowest levels possible without compromising the customer service. The supply chain costs arise due to inventories, transport, facilities, operations, technology, materials and labour. Therefore the financial performance of a supply chain can be improved by focusing on the following areas: transport costs, Inventory holding cost, cost of raw materials and expired perishable goods.

Empirical review

Fleet management has become a subject of interest in recent years due to its increasing role in supply chain performance. According to Odadi (2012), Kenya have witnessed a rapid growth in the number of logistics service providers due to the high demand shown by many organizations, previously there was no focus on transportation of the products as the raw materials suppliers were in proximity to the organizations premises. Skelton and Winters (2014) argue that global recession have impacted upon the fleet management industry where tighter margins have made fleet operators look at ways to achieve better cost management and the volatile and high fuel costs have made such efforts more challenging coupled with internal challenges such as duty of care, recruiting competent drivers, planning routes, scheduling vehicles and monitoring vehicle movement. The research by Skelton and Winters (2014) clearly demonstrates an ailing fleet management sector where more research needs to be undertaken to remedy fleet management so as to realize better performance in today's supply chains which rely on transportation as a critical element.

Knight et al (2008) argue that the state of fleet management is worth a change to a situation where rules of fleet management are properly adhered to unconditionally to streamline it and boost its performance and reputation which is tainted. He further argues that many vehicles are underutilized and often their vehicle capacity is less than their allowable payload, for example in the UK,44 tonne trucks which carry a maximum payload of 29 tonnes transport an average of 17.6 tonnes when laden and 12.7 tonnes if allowance is made for empty running. Therefore further research needs to be done to address optimum utilization of vehicles to reduce fleet running costs which escalate supply chain costs. According to Freight Best Practice (2008) the managers principal focus should be the ability to measure the fuel efficiency which will lead to substantial cost saving and research should be inclined towards such cost cutting measures.

A research by Odadi (2012) clearly demonstrates the significance of applying Information Communication Technology in supply chain management by logistics firms in Kenya and inventory tracking have been given special focus which have led to increased safety and security as the logistics firms are able to track inventory at different points of transportation. Though the research fails to capture the other elements of fleet management into details it manifests the improvement and benefits arising from application of ICT by logistics firms and it forms the basis of further research on how supply chain performance is affected by fleet management especially the application of ICT which is known to impact positively in different sector of the economy.

Skelton and Winter (2014) argue that customer demand is one source of uncertainty in many freight transport systems which can be a substantial challenge for fleet managers and in most cases customers will provide a notice of intent to move

freight in advance, although the 'lead time' of such information may be short. Therefore information about customer location, demand, quantities and demand timing may all be uncertain to some degree in advance of execution .The key to effective fleet management is to make decisions with the best information available at the time when decisions need to be made. The ability to serve a customer to his/her satisfaction should be the ultimate goal of every fleet manager and therefore the need for continued research to understand the changing behaviors and demands of the customer so as to retain satisfied customers with the fleet services provided which intern boosts supply chain performance.

Eglese and Black (2010) argue that when the customer base and demand change regularly the use of VRSP software packages can help a logistics company to make savings in the order of 5-20% in transportation costs. However it is estimated that 24% of the deliveries are delayed due to factors like traffic congestion, Vehicle breakdowns and fleet crew absenteeism. Research needs to be intensified to find better advance warnings of delays to allow fleet managers to re-plan routes to ensure that supply chain activities proceed smoothly without interruptions to enhance customer satisfaction. Gitahi and Ogollah (2014) argue that a well maintained and managed vehicle can result to 20-30% or more cost savings and according to Fleet Forum (2012), better acquisition, management and disposal of vehicles could save 12-17% of an estimated $ 1 billion annual spend. This is a clear manifestation of inefficiencies and unnecessary cost incurred due to lack of a proper repair and maintenance plan. It is on such basis that more research should be carried out to establish how such costs can be reduced and its effect on the supply chain performance. In conclusion, it's clear that the field of fleet management has a lot which is yet to be explored especially in relation to its contribution to the supply chain and the researcher therefore finds the need to evaluate the contribution of fleet management on supply chain performance and present possible ways of enhancing supply chain performance through effective fleet management.

RESEARCH METHODOLOGY

This chapter discusses the research design that was used, population, sample size and sampling techniques, data collection instruments, validity and reliability of research instruments, pilot study, data processing and data analysis. A cross-sectional survey research design was used in this study. The study population of this research comprised of all the operations managers, fleet managers and fleet supervisors of the 20 logistics firms based in the industrial area of Nairobi, Kenya. The sampling frame for the study comprised of a list of logistics firms in the industrial area of Nairobi acquired from the Registrar of companies in Kenya. The researcher took a sample of 80% which comprised of 52 respondents. The researcher's aim was to collect primary data by use of a questionnaire covering the role of fleet management on supply chain performance. There researcher used both structured and unstructured questions. Data collection procedure involved the researcher administering the questionnaires to the respondents. The researcher distributed questionnaires to a total of 52 respondents in the targeted logistics firms. The researcher undertook a pilot study to pretest data collection instruments for validity and reliability. The validity of the questionnaire was determined using construct validity method. The study generated both quantitative and qualitative data to explain the role of fleet management on supply chain performance in logistics firms in industrial area of Nairobi. The data collected was edited to remove errors and omissions and corrected where possible.

RESEARCH FINDINGS AND DISCUSSION

This chapter describes the analysis of data followed by a discussion of the research findings. The data was collected from the operations managers, fleet managers and fleet supervisors of the 20 logistics firms based in the industrial area of Nairobi. The sample of the study consisted of 52 respondents. Out of 52 respondents the questionnaires were filled and returned by 43 respondents translating to a response rate of 83%. Cronbach's alpha was used by the researcher to test on the internal consistency of the items in the questionnaire used in the study. Cronbach's alpha for each value was established by the SPSS application and gauged against each other at a cut off value of 0.7 which is acceptable according to Cooper and Schindler (2008). In this study all the values were above 0.7. Based on duration of operation, 34.9% of the respondents indicated their company had duration of operation of 8-11 years, 27.9% of the respondent's company had duration of operation of 4-7 years while 27.9% had over 11 years. Finally, a minority of 9.3% of the respondents indicated their company had duration of operation of below 4 years. On geographical coverage, a majority of 37.2% of the respondents indicated that their company operated beyond East Africa by a frequency of 16, 34.9% of the respondents indicated that their company operated in East Africa by a frequency of 15 while 27.9% of the respondents indicated that their company operated within by a frequency of 12. From the study findings, majority of the respondents indicated that their company had below 40 vehicles by a frequency of 27 and a percentage of 62.8, 18.6% of the respondents indicated that their company had 40-70 vehicles by a frequency of 8 respondents while only a few respondents with a percentage of 9.3 and a frequency of 4 indicated that their company 71-90 vehicles and over 90 vehicles. The size of fleet affected supply chain performance either positively or negatively.

Information Communication Technology and Supply Chain Performance

Assessment on whether application of ICT affects supply chain performance

The study sought to get the respondent's opinion on whether application of ICT affected supply chain performance in their firms. The study found out that a large percentage of 83.7 with a frequency of 36 was of the opinion that ICT affected supply chain performance in their firms while only 16.3% of the respondents with a frequency of 7 were of the contrary opinion.

ICT Levels in Fleet Management

The study sought to get the respondent's opinion on what levels the company has embraced ICT in their fleet management. The study found out that 39.5% of the respondents indicated that the ICT levels in the fleet management were high, an equal percentage of 39.5% of the respondents also indicated that the ICT levels in the fleet management were medium while 20.9% indicated that the ICT levels in the fleet management were low. In addition, more descriptive statistics analysis indicated that the respondent's opinion on the levels of ICT in the logistics firms had a mean of 2.19 and a standard deviation of 0.76. The study therefore concluded that ICT levels in the fleet management of most logistics were medium

Effects of application of ICT on supply chain performance

The study sought to determine the respondent's extent of agreements with statements relating to effects of application of ICT on the supply chain performance. Based on the study findings, most respondents strongly agreed that fitting vehicles with tracking devices has led to proper monitoring of vehicles making deliveries thus a monitored

supply chain; vehicles fitted with digital speed governors helps to regulate vehicle speed and therefore reduced accidents which reduced supply chain costs; use of onboard vehicle communication systems enhanced communication and management of drivers delivering supplies; Use of fleet management software improved supply chain performance and use of Radio frequency identification had improved the safety of consignments on transit. Respondents also agreed that Fitting of vehicles with onboard computers controled fuel consumption and the idle speed to get maximum engine performance and reduced cost of fueling which lowered supply chain costs; Electronic record keeping had made it easy to evaluate both fleet performance and supply chain performance and generated reports faster; Installation of back up cameras in vehicles gave drivers improved safety of consignments and the vehicle; Use of computerized vehicle diagnostics service resulted into faster identification of auto issues which reduced supply chain delays; and that Fitting vehicles with tachographs helped in monitoring driving and resting hours of drivers which ensure reduced accidents and increased supply chain efficiency.

According to Odadi (2012), in logistics firms ICT is very critical e.g. Supply Chain Information Systems (SCIS) are used to trace and locate the position of a particular inventory which then informs certain decisions. Manufacturers know the importance of fast and efficient delivery of goods to the intended users and it is of utmost importance for the manufacturers and suppliers to transport the goods to the people at the accurate time without any hassle. Shipping and logistics companies understand this fact and therefore offer high quality logistics and air freight services, providing the ideal balance of time, space, frequency and cost which are well achieved by appropriate ICT systems.

Other effects of ICT application on supply chain performance

The study sought to get the respondent's opinion on how else application of ICT in fleet management affected supply chain performance not captured by the previous question. The respondents gave various opinions that included; ICT assists in tracking of spares in workshops which have adopted workshop management systems, the resources and time invested in adoption of ICT affects supply chain performance, enables quick turnaround, increases operator confidence, enhances the crew discipline and reduces fuel mismanagement by drivers. Information Communication Technology (ICT) is fundamental for effective fleet management in these digital days where every aspect of business has a digital platform; this affects the supply chain performance to remarkable levels.

Analysis and discussion on ICT and supply chain performance

ICT had a significant effect on supply chain performance. It is on such basis that some logistics firms have embraced ICT though the level of ICT application is still wanting with only 39.5% of the firms with high ICT application while 20.9% have low ICT application. Vehicle tracking and use of radio frequency identification enhanced safety of consignments and reduced supply chain costs. Vehicle telematics had a great contribution in reducing supply chain costs. Based on the data collected it can be concluded that there is low application of ICT by logistics firms which is below 50% which have led to poor supply chain performance.

Customer Relationship Management and Supply Chain Performance

Assessment on whether C R M affects supply chain performance.

The study sought to get the respondent's opinion on whether customer relationship management affects supply chain performance in their firms. The study found out that a large percentage of 83.7% with a frequency of 36 was of the opinion that CRM affects supply chain performance in their firms while only 16.3% of the respondents with a frequency of 7 were of the contrary opinion. Baran et al (2008) argues that implementation of CRM greatly boosts customer satisfaction and reduces customer complaints and subsequently high customer loyalty as the business is able to customize its offerings to each customer. Good customer relationship management is critical for the implementation of supply chain strategies such as JIT and cross docking; such strategies are only manageable with a reliable and committed 3GPls provider who values CRM.

Customer Relationship Management Levels in Fleet Management

The study sought to get the respondent's opinion on what levels the company has embraced CRM in their fleet management. The study found out that 53% of the respondents indicated that the CRM levels in the fleet management were high, 33% of the respondents also indicated that the CRM levels in the fleet management were medium while 14% indicated that the CRM levels in the fleet management were low. The study therefore concluded that CRM levels in the fleet management of most logistics were high. According to Kisperska (2005) in the 21st century many logistics firms are aware of growing customer requirements and adopt sets of standards to evaluate their service for customer's satisfaction hence the increasing levels of CRM in organization's fleet management function.

Effects of Customer Relationship Management on supply chain performance

The study sought to determine the respondents' extent of agreement with statements that indicate effects of customer relationship management on supply chain performance. Based on the study findings, most respondents strongly agreed to the statement that the care and individualized attention provided by fleet employees to the customers boost supply chain performance; timely delivery of supplies by haulage companies enhanced supply chain performance; safety measures employed by haulage firms to prevented damages during deliveries help in improving supply chain performance; the knowledge, courtesy and ability of fleet employees to convey trust and confidence to customers improved supply chain performance; and that proper management of customer complains lead to a high supply chain performance. Respondents agreed to the statement that Customer surveys helped to assess the level of customer satisfaction with the logistics services and helped to improve supply chain performance; effective channels of communication made customers well informed and enhance supply chain performance; the willingness of fleet employees to help customers and provided prompt service enhances supply chain performance; recognizing fleet customers e.g. sending a thank you card or a small gift makes customers felt appreciated which boosted the firm's customer base and improved supply chain performance; and that Engaging customer service professionals in fleet management results into an engaging and effective customer experience which boosted the supply chain performance. Baran et al (2008) argues that implementation of CRM greatly boosts customer

satisfaction and reduces customer complaints and subsequently high customer loyalty as the business is able to customize its offerings to each customer. Good customer relationship management is critical for the implementation of supply chain strategies such as JIT and cross docking; such strategies are only manageable with a reliable and committed 3GPls provider who values CRM.

Other effects of CRM on Supply Chain performance

The study sought to get the respondent's opinion on how else customer relationship management in fleet management affects supply chain performance not captured that sought to determine the extent of agreement of statements that indicate effects of customer relationship management on supply chain performance.. The respondents gave various opinions that included; good CRM increases a reference to other clients, trust and loyalty is achieved, the clients enjoy discounts and waivers because of the healthy customer relationships and it helps in growing of a profitable network.

A research conducted on a leading third-party logistics (3PL) company in Hong Kong by University of Massachusetts in collaboration with Hong Kong Polytechnic University revealed that a long-term relationship with clients and the loyalty of clients such as Toshiba and Sanyo Electronics have formed a platform of their success to be the best logistics provider, due to its success anchored on outstanding customer service it has come to be known as "king" of Hong Kong's 3PL, Its therefore clear that a good relationship with clients is very important for the success in business and its immense contribution need not to be ignored by any ambitious fleet manager for it gives the impetus to reach the desired profitability targets and have a well performing supply chain (Tilokavichai et al, 2012).

Analysis and discussion on C R M and supply chain performance

Customer Relationship Management had a significant effect on supply chain performance. 53% of the respondents indicated that their firms have a high customer relationship management with only a mere 14% indicating low Customer Relationship Management and this manifests an average ability of the logistics firms to serve their customers. The research indicated that care and individualized attention by fleet employees as well as their knowledge and courtesy leads to increased supply chain performance. Proper management of customer complaints, safe delivery of customer consignments and timely deliveries enhances supply chain performance by reducing cycle times.

Factors determining the supply chain performance

The research sought to determine the respondent's extent of agreements with factors determining the supply chain performance. Based on the study findings, respondents strongly agreed to statements that Timely deliveries of products indicated good supply chain performance; Application of information communication technology improved supply chain performance; Reduced cycle times indicated good supply chain performance; Provision of customized services indicated good supply chain performance; and Effective inventory tracking indicated a good supply chain performance.

The study findings further revealed that respondents agreed that the following factors affected supply chain performance in their logistics firms; Proper communication between stakeholders improves supply chain performance, Reliable distribution vehicles indicate good supply chain performance, Flexible distribution networks indicate a good supply chain performance, High availability of distribution vehicles is an indicator of good supply chain performance, Low product cost is an indication of good supply chain performance.

Horch (2007) supply chain performance measures can be categorized into two: Non-financial performance measures and financial performance measures. Non-financial performance measures include: cycle time, customer service level, Inventory levels and resource utilization. For better performance in supply chain, the supply chain costs should be kept to the lowest levels possible without compromising the customer service.

Analysis and discussion on supply chain performance

The research revealed that the identified measures of supply chain performance were effective due to the high level of agreements on the statements that sought to establish the measures. Reduced cycle times, low product cost, high availability and reliability of distribution vehicles and timely deliveries are indicators of supply chain performance. It is on this basis that the researcher believes that supply chain performance was assessed appropriately from a fleet management perspective since the respondents highly agreed with the statements on indicators of supply chain performance.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the discussions on the findings made in this study, conclusions and recommendations for the study as well as recommendations for future research.

Summary of Key Findings

The study sought to determine the role of fleet management on supply chain performance in logistics firms based in Nairobi industrial area. The study specifically determined the role of Information Communication Technology and customer relationship management on supply chain performance in logistics firms based in Nairobi industrial Area. The study findings showed that fleet management plays an important role in improving supply chain performance. The key findings summarized from the four independent variables are as follows:

Information Communication Technology

The study sought the extent to which ICT affects supply chain performance in logistics firms. The study established that ICT had significant contribution in supply chain performance.

Customer relationship management

The study sought to find out the extent to which CRM affects supply chain performance. From the findings the respondents indicated that CRM affects supply chain performance to a very large extent.

Conclusion

Information Communication Technology

The study aimed at finding out the role of ICT on supply chain performance. The findings indicated that ICT played the most significant role in supply chain performance when compared with customer relationship management. The research findings revealed that fleet tracking and application of fleet telematics improves supply chain safety, reduced cycle times and costs. Application of ICT played a significant role in promoting safety by use of tachographs and digital speed governors which helps in keeping supply chain costs down by preventing losses through accidents. In conclusion application of ICT is critical in fleet management for vibrant supply chains and adopting the recommendations of this research on ICT will be of great importance as it will boost supply chain performance.

Customer Relationship Management

The study sought to find out the role of customer relationship management on supply chain performance. From the findings it was clear that CRM has a positive effect on supply chain performance which can be quantified. The research findings revealed that care, customization of services, knowledge, courtesy and ability of fleet employees to convey trust and confidence to customers improves supply chain performance. Timely delivery of supplies, proper management of customer complaints and safety of customer consignments enhance supply chain performance by reducing cycle times and costs. The role of customer service have been clearly demonstrated by the research findings and the recommendations made can help to make policies that guide CRM and generally if applied in different sectors it will help to attract potential customers and retain existing customers.

Recommendations

The study recommended the following:

Logistics firms should heavily invest in ICT tools and integrated systems such as the GPS fleet tracking systems, computerized vehicle diagnostic systems, onboard vehicle communication systems, digital speed governors, Radio frequency identification, tachographs, Vehicle Safety Technology (VST) and Fleet management software (FMS) so as to shift from a traditional supply chain networks to a modern supply chain networks. Kenya as a developing nation has made huge investments in improving the state of technology in the country. This is because, technology is everything today and for the firms, they have to change with the changing market environment of the world which is highly influenced by technology.

Based on the research findings, management of logistics firms in Kenya should enhance customer relationship management through the following ways: timely delivery of supplies to enhance supply chain performance, provision of care and individualized attention to the customers, effective safety measures for customer consignments to prevent damages during deliveries, proper management of customer complaints, use of effective channels of communication to ensure customers are well informed and ensure that fleet employees have sufficient knowledge, courtesy and ability to convey trust and confidence to customers

Areas for future research

This study is a milestone for further research in fleet management and supply chain performance. The research identified other elements of fleet management that influence supply chain performance such as motor vehicle policies, asset tracking and health and safety management. Therefore further research can be done to establish the relationship between the identified elements of fleet management (motor vehicle policies, asset tracking and health and safety management) and supply chain performance.

There is need to undertake similar research in other logistics firms in Kenya and other countries in order to establish whether the explored factors can be generalized to affect supply chain performance and also for comparison purposes

REFERENCES

Aaker,A. & Day,S. (2015).*Marketing Research*,11th Edition. Newyork: John Willey & sons.

Airmic Technical (2013). *Supply chain failures.*

Andler,E. & Clark,R. (2007). *How It's Done: An Invitation to Social Research*. Manson: Cengage Learning.

Asvin, G. (2008). *Fleet Telematics:Real-time management and planning of commercial vehicle operations*. New York: Springer US.

Ayoma,S. (2013). *Impact of Transport Strategies on Operational Costs*. Master's project, Kenyatta University, Nairobi, Kenya.

Carley, W. (2006). *Car Repair and Maintenance*. Lincolnwood:Publications international.

Christensen, K. (2002). *What Management should know about Fleet operator/driver policy and procedure manuals,handbooks and guide books*. The National Conference of Commissioners on Uniform State Law.

Christopher, M. (2007). *Logistics and Supply Chain Management, 3rd ed*. New Jersey: Parentice Hall.

Cooper,D. & Schindler, P. (2001). *Business Research Methods*.Tata :McGraw Hill Publishers.

Coyle,J., Novack,A.,Gibson,B. & Edawrd,J. (2010). *Transportation: A Supply Chain Perspective*. Manson: Cengage Learning.

Coyle,J., Novack,A.,Gibson,B. & Edawrd,J. (2015).*Transportation: A Global Supply Chain Perspective* . Manson: Cengage Learning.

Department of Energy and Climate Change.(2015). Energy Consumption in the UK.

Department of Management, The Hong Kong Polytechnic Universit & Department of Management, University of Massachusetts.(2003), "The successful management of a small logistics company", *International Journal of Physical Distribution & Logistics Management,* Vol. 33, pp.825 – 842.

Dhivyadeepa,E.(2015).*Sampling Techniques in Educational Research*. New Delhi: Laxmi Publishers.

Dlugosz,J.(2010). "Strategic nature of the Logistics customer service in the Supply Chain", *Electronic Scientific Journal of Logistics*. Vol 6.pp 13-19.

Fleet News (2015). *Ignorance on vehicle repair and maintenance.*

Gitahi, P & Ogollah, K (2014). " Influence of Fleet Management practices on service delivery to refugees in United Nations High Commissioner for Refugees Kenya programme*". European Journal of Business Management*, vol.2, issue 1.p 1-18.

Heng, T.,Jinbao, L.,Wang, W & Minglu, L. (2006*). Advanced Web and Network Technologies and Applications*. New York :Springer Science & Business Media.

Holloman, M.(2012). *China catalyst: Powering global growth by researching the fastest growing markets in the world*. Hoboken: Willey publishers.

Hugos,M. (2010).*Essentials of Supply Chain Management*. Newyork: John Willey & sons.

Jordan, M. (2011). . " Fleet Sizing under production cycles and uncertain Travel Times".*Transportation Science*, pp 227-236.

Knowless, D., & Erjavec,J.,(2004).*Basic Automotive Service and Maintenance*. Boston:Cengage Learning.

Kothari, C.R. (2004). *Research Methodology: Methods and Techniques.* (Second Revised).New Delhi: New Age International publishers.

Kothari, C.R. (2014). *Research Methodology: Methods and Techniques,* 3rd Edition. New Delhi: New Age International publishers.

Larsen,T.,Schary,B.,Mikkola,H. & Kotzab,H.(2007). *Managing the Global Supply Chain.* 3rd Edition. Denmark. Copenhagen Business School press.

Lester, M. (2013). *Blue Collar Fleet Management.* Raleigh: Lulu press.

Lowe, D. (2002). *The Dictionary of Transport and Logistics*. London: Kogan Page Publishers.

Lowe,D.(2013). *Transport Managers and Operators Handbook*. London: Kogan Page Publishers.

Lyson,K & Gullingham,M.(2003).*Purchasing and Supply Chain Management*. London: Pearson Education Limited.

Masika,A.(2012).*Marketing challenges affecting small scale dairy farmers delivering milk to Limuru Milk processors Ltd*. Masters project University of Nairobi, Kenya.

Maslen, J. (2008).*Driving at Work: Special Report*. London: Kogan Page Publishers.

Meidute,K.,Aranskis,A. & Litvinenko,M. (2014). " Consumer Satisfaction with the the quality of Logistics Services ". *Social and Behavioral Sciences Journal*. Vol 110.pp 330-340.

Meyer,M.(2011).*Vehicle Routing under consideration at driving and working hours: A Distributed Decision Making Perspective*. Leipzig: Deutsche National Bibiliographie.

Mikulsiki,J.(2013).*Activities of fleet Telematics: 13th International Conference*. Poland:Springer.

Mugenda,O & Mugenda,A.(2003).*Research Methods;Quantitative and Qualitative Approaches.* Nairobi: Nairobi Acts Press.

Nelson, P. (2000). *Reengineering Fleet Management*. Mexico: Transportation Research Board Publications.

Niaz,A. & Gabor,N. (2014). "Vehicle Routing Problem with Deliveries and Pickups: Modelling issues and Meta-Heuristics solution approaches". *International Journal of Transportation*. Vol 2,pp 95-110.

Odadi,O. (2012). *Supply Chain Information Systems usage in inventory tracking among logistics service providers in Kenya*. Masters project, University of Nairobi. Nairobi, Kenya

Olagunju,K. (2015).*Evaluating traffic congestion in developing countries. A case study of Nigeria.* Federal Road Safety Cops. Nigeria.

Orodho, A. (2003). *Essentials of Educational and Social Science Research methods: Qualitative and Quantitative Approaches*. Nairobi: Nairobi Acts Press.

Overseas Security Advisory Council (2015). *Crime and Safety in South Africa.*

Poluha, G. (2007). *Application of the SCOR Model in Supply Chain Management*. Newyork: Cambria press.

Rubin,H. & Rubin,I. (2012). *Qualitative Interviewing: The Art of Hearing Data*, 3rd Edition .Newyork: Sage Publications.

Rushton, A.,Croucher, P. & Baker,P. (2006).*The Handbook of Logistics and Distribution management*. London: Kogan page publishers.

Saddle Creek Corporation. (2011). *Cross Docking Report.*

Sankaran,J. (2005). "The impact of road transport congestion on Supply Chain". *International Journal of logistics.* Vol 8,pp 159-180.

Schorpp,S.(2011). *Dynamic Fleet Management for International Trucks Tranportation*.Leipzing: Deutsche National bibiliographie.

Stough, R.(2001). *New technologies in logistics management: Handbook of Logistics and Supply Chain Management*. Amsterdam: Elsevier.

Thomas,G.(2005).*Environment Management: Processes and Practices for Australia*. Sydney: Federation Press.

Tilokavichai,V., Sophatsathit,P.& chandrachai A, (2012). "Establishing Customer Service and Logistics Management relationships under Uncertainity". *World review of Business Research*. Vol 2.pp 12-23

Turku school of Economics and Business Administration. (2004). *Logistics Perception Index.*

University of Hampshire. (2008).*Vehicle Telematics for Remote Diagnostics: Fleet Management and Traffic monitoring*. Michigan: Pro Quest publishers.

Waiyaki,E.(2013).*Leveraging Technology for Business Fleet Applications*. Masters project, University of South Africa. Pretoria, South Africa.

World Bank (2005. *Issues in Trade logistics in logistics.*

Zanjirani,F.,Rezapour, S.& Kardar, L.(2011). *Logistics Operations and Management: Concepts and Models.* Amsterdam: Elsevier.

Zhejiang vocational college of commerce.(2013). "Research on Customer Satisfaction of Logistics outsourcing based on AHP". *Advances on Information Sciences and Service Sciences Journal*. Vol 5,pp 668-675.

Zikmund, G. & Babin,B.(2006). *Exploring Marketing Research*. New York: Dryden press.