EFFECT OF RAIL FREIGHT TRANSPORTATION ON OPERATIONAL PERFORMANCE OF LOGISTICS FIRMS IN KENYA

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DECLARATION

I hereby affirm that this research project is my original work and has not been previously submitted to any other university or learning establishment for any examination or award.

Signed..... Date.....

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D61/71248/2014

This research project has been presented for examination with my approval as the appointed university supervisor.

Signed..... Date.....

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The completion of this research project would not have been successful without the Almighty God who granted me sufficient wisdom, grace and patience when I needed it most. Without him, this would have proved impossible.

My most sincere gratitude also goes to my supervisor Mr Mwanyota for his direction and support.

DEDICATION

I dedicate this project to my mother Susan Gachui whose sacrifices enabled me to get to this juncture. To my sisters Betty, Anne and Rachael thank you for your never-failing support, prayers and reassurance as I undertook this project.

I also dedicate this to my children Lauren and Adrian, may this project impart in you that you can achieve anything you put your mind to and most importantly never give up!

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ABBREVIATIONS AND ACRONYMS

AfDB African Development Bank

CO2 Carbon dioxide

RBV Resource-Based View

RVR Rift Valley Railways

SCA Sustainable Competitive Advantage

SEZ Special Economic Zone

SGR Standard Gauge Railway

SPSS Statistical Package for the Social Sciences

TEU Twenty-foot Equivalent Unit

TOC Theory of Constraints

ABSTRACT

The study's general objective was to establish the relationship between rail freight transportation and operational performance. There is an increasing demand for delivery of smaller units in higher frequency across the supply chain and logistics firms are always looking for innovative ways to provide better services at a lower cost. Rail freight transportation can result in operational performance improvement through improved customer satisfaction, increased productivity, timely delivery and so on. The study's population was 1,884 logistics firms based in Nairobi and Mombasa. Proportionate stratified random sampling was employed to arrive at a suitable sample size. A structured questionnaire was employed to gather data. Descriptive statistics and regression were applied to analyze data. The findings implied a significant relationship among the dependent and independent variables applied. Network and infrastructure, travel time, equipment availability, safety/damage and pricing had a statistically positive influence on operational performance. A coefficient of determination R^2 of .694 was obtained, which implied that 69.4% of the total variance of operational performance is justified by the model while 30.6% is justified by exogenous factors. The study proposes the utilization of rail freight transportation by logistics firms and policy formulation which will shift more freight to rail.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Railway transport contributes significantly to an economy's development and growth and is usually perceived as the driving force of any economic activity. Not only does it open up regions, hinterlands and rural areas, it also fulfils a crucial role in providing the foundation on which production and distribution stand. Its massive carriage capacity, efficient energy consumption, safety, security as well as its ability to travel distance conveniently at lower unit costs, make it the next preferred mode of inland transport (Saruchera, 2017). Rail freight transportation contributes significantly to improving the viability of freight transportation across the supply chain as well as the efficiency of resources (Wp, Soh, Chong & Karia, 2015). An effective rail freight transportation system can improve operational performance through improved service quality, time efficiency, reliability and reduction of costs.

The study is guided by three theories; Stakeholder theory (Freeman, 1984), Theory of constraints (Goldratt, 2004) and Resource-based view (Barney, 1991). The resource-based view (RBV) implies that a firm's superior growth is determined by its capability to accumulate rare and valuable resources, which are hard to imitate. The basis of the Theory of constraints (TOC) is to get rid of the bottlenecks of the system, which deter the productive flow from fulfiling demand. The Stakeholder theory suggests that it is strategically beneficial and innovative to incorporate and manage stakeholders' concerns

in a way that guarantees strategic success and competitive advantage (Freeman, Martin & Parmar, 2007).

The transportation system is a key component of the logistics chain that combines separated activities. One-third of the costs that are found within logistics is linked to transportation. The performance of the systems used by logistics is influenced greatly by transportation systems. Hence, a transportation system is capable of creating efficient logistics with reduced costs and enhance the quality of services being offered (Sreenivas & Srinivas, 2005). Logistics firms in Kenya are well diversified and are growing and expanding due to its unique geographical location serving the East Africa and Great Lakes Regions. Kenya's infrastructural environment is characterized by factors such as poor road networks and traffic jams in cities. This poses a challenge for logistics providers and operators as it increases their costs of doing business, decreases efficiency and service quality. Due to the growing expectations of customers especially concerning the high quality of service, logistics firms are challenged with going beyond the traditional scope of logistics services and providing more advanced logistics solutions. Provision of rail freight transportation broadens their range of services and enables logistics firms to attain competitive advantage and remain viable in the market to keep up with the current global scenario.

1.1.1 Rail Freight Transportation

Rail freight transportation utilizes railroads and trains to facilitate the movement of goods. Railroads are crucial to freight transportation as they are the primary and most effective mode for transporting bulk (Haghani, 1987). Transportation of freight by rail is essential to the growth of the economy due to its competitive economic performance in

providing assured types and flows of freights. Rail freight transportation can enhance economic amalgamation by creating access to markets that are regional and international and also having landlocked countries connected. It also provides benefits in areas concerning safety and environment, which make it useful as a strategy for achieving commitments toward sustainable development (Aritua, 2019). Countries that have well-developed railway freights experience competitive advantage and they also have more benefits when it comes to the balanced transport system where there is the right movement of the freights (Amos, 2009).

The challenge that arises is how to veer more freight to rail, without addressing this major issue, these countries risk investing in stranded assets. The railway connectivity in Africa is very low. A statistic done by Statista.com illustrating the rail freight activity in Africa between 2006 and 2017, found that 131.09 billion tonne-kilometre of cargo were transported on railways in 2017. That year, global rail freight traffic amounted to around 8.72 trillion tonne-kilometre. AfDB in its 2015 report titled "Rail Infrastructure in Africa: Financing Policy Options" says Africa's economy is currently experiencing an unprecedented recovery and projects substantial growth over the next three to four decades.

Separate research in the United States revealed that the dependability of travel time, price, security, service, agility and control of service are critical. For rail to be part rail organizations and an integrated logistics service, must strive to build a reputation for competitive, efficient and reliable services (Aritua, 2019). Globally, rail freight modal share has deteriorated due to rigorous competition from road transport. To change this

trend, rail transport companies must prioritize understanding the specific needs of customers and invest in research and tailoring strategies to specific customers.

1.1.2 Operational Performance

Operational performance pertains to the quantitative aspects of the results of an organization's processes and is used to evaluate a firm's positive performance. Slack, Chambers and Johnston (2004) propose five operations objectives linked to performance. These are cost, speed, flexibility, quality and dependability. He defines cost, as producing goods and services at a low cost to offer customers a low price and quality measures how well a product meets expectations. Speed measures how promptly an organization responds to customer demands while dependability is offering products and services which conform to customer expectations. Flexibility is defined as the capability to modify operations in one way or another.

Skinner (1969) proposed the concept of trade-off in operations objectives and argued that a single goal or task needs to be identified for operations. Firms, therefore, need to select which performance objectives they will prioritize, which may lead to mediocre results in one aspect of operations to ensure exemplary performance in another aspect. Mahmoud and Carlos (2010) point out that by building a strong culture around operational excellence, training and equipping the workforce on the techniques and tools of process improvement, deploying real-time visibility process management technology, putting in place appropriate measures as well as controls, a firm's operational performance can be improved.

1.1.3 Rail Freight Transportation and Operational Performance

There is a tremendous increase in customer expectations. Both individuals and businesses expect to receive goods quicker, more flexibly, and, in the case of consumers, at low prices. One of the main challenges industry players face in today's highly competitive market is to improve their performance and enhance the quality of their product simultaneously (Mckinsey & company, 2017).To attain this double goal, they source more and more in the global market and improve their reaction times. The supply chain is strategic for its competitiveness. The players who shift to rail freight transportation are looking to the future and want to differentiate themselves.

Rail, as a mode of transporting freight, is becoming greatly competitive due to the ever-growing amount of trade exchange, road congestion, rising fuel prices and environmental concerns. Rail freight transportation is not only more cost-effective but also fuel-efficient as it consumes less fuel as compared to road. Rail transport is also capable to transport bulky freight at any instance. A single freight train if fully utilized can replace hundreds of trucks. In many instances, rail moves a vast bulk of material, which may not be practical by road. Rail freight transportation offers customers a reliability advantage due to rail's timetabled discipline which can help with logistics planning by assuring near-certainty of departure and arrival times as opposed to the unpredictability of roadway congestion and the risk of accidents. Rail freight transportation is also a greener, more socially responsible option when compared to other modes as rail emits five times less CO2 (Carbon dioxide) per tonne-kilometre moved than by road (Lochman, 2019).

1.1.4 Logistics firms in Kenya

Kenya's logistics industry is well diversified and includes firms specializing in transport, sea and air freight, customs clearance, freight forwarding, warehousing, project cargo logistics among others. The 2018 World Bank's Logistics Performance Index ranked Kenya at position 68 globally after it scored an average score of 2.81points. The logistics sector in Kenya is primarily driven by transport, manufacturing and storage and also retail and wholesale. Users of transport and logistics tend to occupy the greatest share of the market of approximately 26%. Second is engineering and manufacturing at 23%, wholesale is third at 22% (Broll Property Intel, 2018). The demand from transport and logistics users is propelled by enhanced infrastructure, support from the government based on the incentives placed on tax and SEZ (Special Economic Zone) status, expanding retail platforms and the throughput growth of the port of Mombasa.

The bulk of trade in and out of Uganda is transported across Kenya from and to Mombasa through the main port of Mombasa. Goods would move from the port by road using trucks with only a small percentage moving by rail. The Kenya-Uganda railway line experienced various setbacks including ineffective administration, East African Community segmentations in the 1960s and Government's low funding (Gachanja, 2017). The Standard Gauge Railway (SGR) was constructed by the Kenyan government and links the Mombasa to Kenya's capital, Nairobi. Upon completion, it is to connect Kenya to Uganda, Rwanda and South Sudan. Not only will it reduce the cost of travel and streamline transport operations across borders, but it will also provide economic gain to both Kenya and neighbouring countries (Oluochi, 2018).SGR commenced commercial freight operations in January 2018 and has been operating an average of 14 freight trains

a day between Nairobi and Mombasa, with a maximum of 20. Each train transports approximately 108 Twenty-Foot Equivalent Unit (TEU) containers in a single direction, which translates to 756 TEU containers per day. Statistics indicate that 160,000 TEU and 1.86 million tonnes of cargo have been transported (Trademark East Africa). The recent implementation of the SGR has brought a shift in the logistics and transport industry. The reduction in time and cost for transport inland from Mombasa is expected to increase the rate of logistics demand in the country.

1.2 Research Problem

Logistics firms in Kenya are seeking other modes of transport due to the increased costs and reduced flexibility of using road transport. The industry demands logistic solutions that can cope with the pressure put on them by the government, the public, competitors, customers and the supply chain itself. In the logistics space, it is imperative to implement processes specifically designed to meet customers' needs to sustain profitability and growth (PwC, 2016). The freight and logistics industry in Kenya is at a critical point as it bids to realign itself to the realities of the 21st Century trade habits and best practices in a globally competitive business environment. Further, a continual improvement on the country's infrastructure in transport, ports of entry and telecommunications, as well as new frameworks in terms of government policy and regulation has direct impact on how the logistics sector is shaping. All industry players need to adjust accordingly if they are to remain relevant and competitive, as the government focuses on the delivery and implementation of the Big 4 Agenda. Rail freight transportation can assist logistics firms who opt to go the rail transport route gain competitive advantage.

Various researchers have conducted studies on rail freight transportation. Varma (2008) analyzed an interrelationship among specific freight transportation performance measurement sources and indicators. These performance measures were related to freight movement and could be applied to any mode. Saruchera (2017) researched on the rail freight transportation concerns of developing economies focusing on Namibia. He concluded that because of factors such as neglected rail infrastructure, poor service delivery, the absence of intermodal transport services and so on, the Industrial and Logistics firms in Namibia avert rail usage. Palsaitis and Ponomariovas (2012) surveyed the crucial indicators of service quality by rail freight transportation customers. Kelle and Mingzhou (2014) and McKinnon (2015) conducted separate research on performance measurement of freight transport. These studies identified several performance metrics, which can be applied to analyze and improve rail freight transport performance.

Research establishing the relationship between rail freight transportation and operational performance is scarce and as a result, there was a need for research to establish the effect, positive or negative, the usage of rail freight transportation by logistics firms has on operational performance. From the foregoing discussion, the researcher posed the following question: What is the effect of rail freight transportation on the operational performance of logistics firms in Kenya?

1.3 Research Objectives

The study's general objective was to establish the relationship between rail freight transportation and operational performance. The specific objectives are to:

i. Determine the extent to which rail freight transportation is used by logistics firms in Kenya.
ii. Establish the effect of rail freight transportation on the operational performance of logistics firms in Kenya.
iii. Determine the challenges of using rail freight transportation by logistics firms in Kenya.

1.4 Value of the Study

The conclusions and recommendations arrived at form useful theoretical support underpinning the relationship between operational performance and rail freight transportation. Not only will the study be useful for referral by scholars who have an interest in rail freight transport, but it will also be valuable to individuals, students and institutions who intend to extend their knowledge on rail freight transportation. The study will similarly lend to the existing literature on rail freight transportation in Kenya and be a base for further investigations by researchers on related topics.

The study will increase the policymaker's awareness on the effect of rail freight transportation on the operational performance of logistics firms. Policymakers and regulators who are interested in making transportation improvements to improve the competitiveness of the economy may benefit from the study. Increased competitiveness

will create opportunities for business growth and expansion. The enhanced competition will eventually lead to greater efficiency.

Logistics firms' managers will benefit from this study as it will assist in identifying and addressing some of the challenges associated with using rail as a mode of transport. In the prevalent competitive business environment, logistics firms can utilize the findings from this study to be more innovative and enhance their operational performance to gain a competitive advantage.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter highlights the theories this study is anchored on, the empirical literature review, the literature review summary and the conceptual framework.

2.2 Theoretical Foundation of the Study

The three theories that will guide this study are Stakeholder theory, Theory of Constraints and Resource-Based View Theory which are discussed separately in the subsequent subsections:

2.2.1 Stakeholder Theory

Stakeholder theory emphasizes the interrelated links between a business and its suppliers, customers, investors, employees and any other party who has an interest in the organization. The theory asserts that value for both its stakeholders and shareholders should be created by a firm. Freeman (1984) described a stakeholder as "a group or individual who can influence or is influenced by the accomplishment of the organization's objectives". All stakeholders with rightful interests cooperate to attain benefits and all benefits and set of interests are prioritized equally (Donaldson & Preston, 1995). Diverse interrelated stakeholders' demands need to be accommodated and businesses need to respond to the coinciding influences of various stakeholders (Rowley, 1997).

Freight stakeholders are the people, firms, agencies or organisations that are in one way or another affected by the movement of goods. They can be classified; Private sector freight stakeholders, Economic development Agencies, Local Governments, Transport agencies, Port authorities and Marine Transport Authorities and others (Integrating Freight Considerations into the Highway Capacity Planning Process: Practitioner's Guide, 2013). Due to ill-defined and conflicting objectives of the various freight stakeholders involved, stakeholder analysis is particularly appropriate for the analysis of freight transport (Erjavec, Trkman & Groznik, 2014).Stakeholder analysis aids in identifying the types of strategies and responses that may be adopted by firms in addressing transport reform.

The application of Stakeholder Theory to business leads to collaboration and willingness of the various appointed stakeholders as you seek to tackle their different needs (Harrison & Wicks, 2013). Stakeholder Theory tasks managers to critically consider the business relationships they are required to foster with the organization stakeholders to deliver the completed product successfully. These business relationships are instrumental in determining long-lasting success or failure of the organization. The study thus seeks to advance the theory by interrogating how the use of rail freight transportation by logistics firms works to protect shareholders interests.

2.2.2 Theory of Constraints

The Theory of Constraints (TOC) approach identifies the leading restricting factor or constraint that restricts the accomplishment of a goal and then regularly enhances it to a point where it is not the restricting factor anymore (Goldratt, 2004). A constraint is

described as a factor or element that stops a system from accomplishing an elevated level of operation comparative to its goal. Martins (2002) concludes that the principals behind Goldratt's approach seek to characterize a system's bottlenecks, propose efficient solutions, and elaborate on the implications of these bottlenecks by examining the effect the solutions will have on the bottlenecks.

TOC can be applied to transport to help recognize constraints and devise solutions to systems. Almeida, Penaforte and Yamashita (2013) analyzed major bottlenecks in freight transportation, focusing on Brazil, and grouped them in the following classifications: social and environmental issues, infrastructure issues, economic issues, and technology issues. TOC enables the operations managers to emphasize on the constraints to rectify a clear problem to arrive at a clear solution. Organizations that adopt and implement TOC continuously strive for process improvement, which eliminates complacency and as a result, operations will be more efficient, productive and more profitable.

2.2.3 Resource-Based View

The Resource-based view (RBV) stresses that an organization's resources are the underlying performance and competitive advantage determinants (Barney, 2001). The theory implies that if a firm is to attain SCA (Sustainable Competitive Advantage), it has to ensure it gains and capabilities and controls resources that are rare, valuable, non-substitutable and inimitable (VRIN) (Barney, 1991). According to Grant (1991), RBV can be viewed as an "inside-out" process of developing strategy. He says it starts by identifying the resources the firm possesses then evaluates the possibility to yield value and finally defines a strategy that allows the firm to control the optimal value sustainably.

RBV has primarily been used to examine the financial performance or market share of an organization as compared to its competitors within the commercial sector (Burton & Malone, 2014). In today's hypercompetitive environment, it has been widely accepted that perceiving operations strategy through a resource-based view perspective could be more profitable for firms (Gagnon, 1999). Application of resource-based logic by managers ensures the firm nurtures and safeguards resources that are the sources of its current competitive advantages. This study, therefore, establishes how logistics firms can utilize rail freight transportation to preserve their resources and capabilities, which will, in turn, assist to achieve SCA and improve operational performance.

2.3 Empirical Literature Review

Guided by data collected from earlier studies, the following studies were reviewed and compared, and major findings outlined plus their conclusions. The first section contains prior research on rail freight transportation while the subsequent section contains prior research on rail freight transportation challenges.

2.3.1 Rail Freight Transportation

Varma (2008) prepared a report that identified and developed the most important measures of performance linked to the movement of freight, which can be applied to any mode. These measures were classified into various categories; infrastructure and network, access, safety/damage, travel time, capacity, reliability, modal costs, market share, external factors, freight security, pricing, freight productivity and shipment rates. The report further analyzed interrelationships among the specific measurements sources /indicators and accessed how good the ability to create those indicators/measures are

based on sources of measurement. The report concluded that there is a need for complete and detailed data sources. Performance indicators which are essential need to be determined as the categories indicated overlap and may be viewed differently by different people.

In a study aimed at developing an alternative framework for evaluating performance in freight transport guided by heterodox service economics, (Blanquart & Burmeister, 2009) concluded that performance in freight transport is achievable by the use of a variety of service configurations. Different performance logics need to be merged into a comprehensive framework to allow for comparative and contradictory analysis. This information will be critical for the different actors involved in the production system and circulation of goods such as shippers, logistic firms, and the various public and private institutions involved in system regulation.

Marinov, Zunder and Islam (2010) sought to identify main concerns and obstacles in rail freight and logistics performances by presenting innovative rail freight and logistics concepts. Their research aimed to show that rail freight has to conform to evolving political measures, market conditions and economic trends if it is to employ logistics concepts to break back into the market. According to them, the traditional rail freight model has shown to be inadequate and unable to match the requirements of shippers and wider cargo interests. Therefore, new logistics concepts and models need to be introduced to improve rail freight systems performances. Palsaitis and Ponomariovas (2012) conducted a survey whose aim was to pinpoint the major service quality indicators of rail freight transport. They identified various quality indicators such as reliability of carriages, delivery time, handling and warehousing costs, and so on and evaluated their

importance to different user groups such as freight forwarders and shippers by use of a questionnaire. According to their survey results, the most important service quality indicators are transportation reliability, timely deliveries, adjusting to customer needs, duration of transportation, accessibility to trustworthy information regarding rates, location of cargo and conditions of carriage.

Kelle and Mingzhou (2014) built a set of various performance measures applicable to freight transportation systems to address the needs of transportation users. They also recommended measures and calculation procedures that can be used to compare the performance of freight networks across states and years and can further be useful in evaluating freight network projects.

Chen and Qin (2014) analyzed the relationship between railway freight transportation and logistics industry using the Granger causality test. The results expressed a strong two-way causality between rail freight transportation and logistics industry. The study concluded that the traditional railway freight could not satisfy the needs of the highly competitive logistics industry. Rail freight, therefore, needed to perfect its customer service system to actively meet the demand of the market. They also concluded that rail freight transport needed to transform into the electronic commerce way to realize direct remote services between railway and the customers.

McKinnon (2015) on a study on performance criteria in freight transport concluded that there is insufficient freight data in most countries to support evidence-based decision making on freight/logistics issues. He noted that a poor metric selection could induce the wrong behavioural response. The study concluded that during the freight policy-making

process, little attention is paid to performance measurement and as a result, the effect of policy initiatives are not effectively reviewed.

2.3.2 Rail Freight Transportation Challenges

The rail industry has experienced an increase in demand for both freight and passenger trains, which has led to a set of new challenges facing the industry. These challenges differ in more developed and developing economies.

Saruchera (2017) conducted a study on Rail freight transportation concerns of developing economies, focusing on Namibia. He identified rail freight transportation issues experienced by emerging economies in Africa and examined imminent measures and factors for minimizing these problems. He categorized the challenges into four groups: service delivery issues, infrastructural development and maintenance, organizational policy issues and government policy issues. He recommended that the government should focus on rail infrastructure and could invest in the development of multimodal stations to improve rail efficiency. Rail freight providers could also ensure excellent customer service to attract industry players such as logistics firms.

In larger economies such as Europe, rail freight transportation faces a different set of challenges. Girardet, Müller and Ott (2014) identified three major forces that could impede the growth of the rail freight sector in Europe, namely, the improved energy efficiency of trucks, increased infrastructure charges and environmental concerns. Use of more eco-friendly fuel alternatives by trucks could reduce rails modal share. Freight-rail systems emit a lot of noise, which could lead to the imposition of curfews, which would increase costs and lower track access, the speed of transportation and reliability. Rail is not cost-effective for transportation of small and lightweight volumes of cargo as this

increases the loading and unloading times as well as the risk of damaging the cargo (Lawyer, 1986). The experiences of organizations in Northern America and Europe, which are using rail freight transportation, can provide lessons to emerging economies on how to overcome various challenges.

2.4 Summary of Empirical Literature Review

Table 2.1 below captures the empirical literature review summary. It consists of the author(s), the objectives of the study, the methodology used, major findings/conclusions and knowledge gaps.

Table 2.1

Summary of Empirical Literature Review

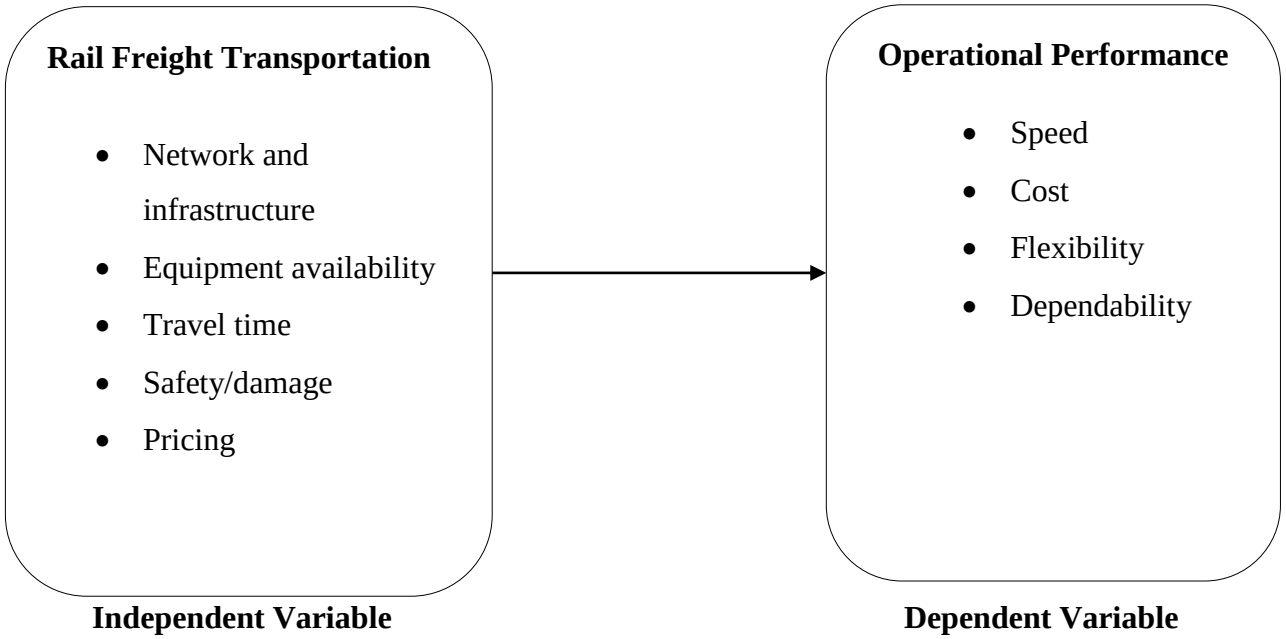
Author(s)	The objective of the study	Methodology	Major findings/conclusions	Knowledge gaps
Varma (2008)	A report on measurement sources for freight performance measures and indicators.	Freight measurement sources were compiled, analyzed, organized, and classified for all modes of transportation.	There is a need to determine the most important and relevant freight performance measures and indicators.	The report did not identify how different performance measures can be applied to different freight transportation user groups such as logistics firms.
Blanquart and Burmeister (2009)	Research on performance evaluation in freight transportation, based on heterodox service economics.	They conducted case studies in France and a survey of large-scale transport.	An arrangement of performance indices, each corresponding to specific types of transport services.	The study is limited to the French case and no framework was established for understanding performance logics in freight transportation.
Marinov, Zunder and Islam (2010)	Research aimed at presenting innovative rail freight and logistics concepts.	They analysed the existing literature for rail freight tactical management.	They found that rail freight operators need to employ reliable and effective models to improve operational efficiency and streamline their tactical planning decisions.	The study did not establish how the application of these new logistics concepts and models would affect operational performance.
Palsaitis and Ponomariovas (2012)	The research aimed at identifying and indicating the main quality indicators of rail freight transportation.	Survey and literature analysis	They found that the most important quality indicators for rail freight customers are rolling stock, reliability and punctuality.	The study did not link the quality indicators to the operational performance of the rail freight customers.
Kelle and Mingzhou (2014)	The research aimed at building a set of performance measures for intermodal freight management.	A case study evaluating the freight network of the state of Louisiana was conducted.	The study established an intermodal performance measurement system for freight management and showed how they can be applied through the case study.	The study did not propose any operational performance metrics and was limited to the state of Louisiana, USA .
Chen and Qin (2014)	An analysis of the relationship between railway freight transportation and logistics industry.	Granger causality test analysis and variance decomposition technique were used.	The study established that the impact of rail freight transport on the logistics industry first increases, then decreases over time.	The study was limited to China and did not further investigate the performance of the logistics firms that were using rail freight transportation.

2.5 Conceptual Framework

Mugenda (2009) describes a conceptual framework as "A virtual product that describes the main things to be examined; the main factors, concepts or variables, and the purported interrelationship". Figure 2.1 below demonstrates the framework applied to this study.

Figure 2.1

Conceptual Framework



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research design, target population, the sampling procedure, data collection methods and its analysis.

3.2 Research Design

A descriptive research design was adopted to attempt to pursue responses to the research question. According to (Shuttleworth, 2008), a descriptive research design entails observation and measurement of a subject's mannerisms without affecting or controlling it. A descriptive study is designed to research on an occurrence to understand its' what, where and how to (Cooper & Schindler, 2003). It also tries to describe those occurrences like the possible behaviour, attitude, character and value (Mugenda & Mugenda, 2003). This design is appropriate to explain whether two factors relate with each other or whether they are different which in this case are rail freight transportation and operational performance of logistics firms in Kenya.

3.3 Target Population

According to the Kenya Business List Directory (2019), an online directory for businesses in Kenya, there are 2,023 logistics companies in Kenya. The industry can be grouped into regions of operations. The main regions are Nairobi having 1,164 logistics companies, Mombasa having 720 logistics companies and 139 companies in other regions. This study targeted logistics firms in Mombasa and Nairobi regions due to their proximity to the railway line.

3.4 Sample Design

Proportionate stratified random sampling technique was employed by the study. Stratified sampling ensures the targeted sub-groups are depicted in the sample similar to the identical proportion that exists in the demographic (Omona, 2013). Mugenda (2008) gives a guideline that, the broader the demographic the lower the percentage of the population that should be used in the sample. By considering this scholarly viewpoint, the study used a representative sample size of 100 logistics firms located in Nairobi and Mombasa.

The population size was first grouped into two strata then proportionate stratification approach was applied. The following equation determined the strata sample sizes:

$x_h = (X_h / X) * x$

Where:

x_h represents stratum *h*'s sample size,

X_h represents stratum *h*'s population size,

X represents the total population size and

X represents the total sample size.

Table 3.1 below illustrates the calculation of the sample size.

Table 3.1

Sample Size

Strata	Population Size	Proportionate Stratification	Sample Size
Nairobi	1164	(1164/1884) *100	62
Mombasa	720	(720/1884) *100	38
Total	**1884**		**100**

3.5 Operationalization of Study Variables

The study's focus was to investigate the effect of rail freight transportation on operational performance therefore, operational performance was the dependent variable and rail freight transportation was the independent variable. Table 3.2 illustrates the operationalization of rail freight transportation and table 3.3 illustrates the operationalization of operational performance.

Table 3.2

Operationalization of the independent variables

Independent variable	Indicators
1.Network & infrastructure	- accessibility to the railway network - the physical condition of the railway infrastructure
2.Equipment availability	- the number of locomotives in service - the number of freight wagons in service - the number of trains available per day
3.Travel time	- the duration of journey times - dwell time i.e. loading/unloading times
4. Safety/damage	- the number of accidents - maintenance of cargo during transportation
5.Service reliability	- just in time delivery
6. Pricing	- rates/tariffs of transporting goods by rail

Table 3.3

Operationalization of the dependent variables

Dependent variable	Indicators
1.Speed	- the timeliness of goods delivery - reduced lead time to fulfil customers' orders - improvement in overall productivity
2. Cost	- reduced total transportation costs - ability to offer lower prices to customers due to cost minimization - increased revenue
3. Flexibility	- quick response to special requests by customers - number of deliveries done at any one time
4.Dependability	- ability to meet customers deadlines

3.6 Data Analysis

Data analysis entails reviewing data collected in a survey and formulating findings and observations (Kamaruchi, 2013). SPSS (Statistical Package for the Social Sciences) was employed to code and analyze quantitative data from the first and third objective. The output was then presented by the use of tables. Descriptive data was provided using explanatory notes. To achieve the second objective, determining the relationship between rail freight transportation and operational performance, regression analysis was utilized.

The Regression model:

$$O = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where:

O = Operational performance

β_0 = Constant

$\beta_1 \ldots \beta_5$ = Coefficients

X_1 = Network and infrastructure, X_2 = Equipment availability, X_3 = Travel time, X_4 = Safety/damage, X_5 = Pricing

ε = Error term

3.7 Data Collection

A questionnaire was employed to seek responses to the research question. This was to ensure that the respondents' ideas, insights and attitude were gathered. The senior management of the selected logistics firms were the preferred respondents as they have more knowledge standing of their organizations. The questionnaire consisted of four sections. The first part contained questions regarding general information of both the firm and the respondent. The subsequent part requested data on the extent of application of rail freight transportation by the firms. The third section sought data on the firm's operational performance as a result of using rail freight transportation and the last section sought for data on challenges in using rail freight transportation. The questionnaires were sent via drop and pick later approach to respondents in the Mombasa region and via email to respondents in Nairobi due to limited duration to compile the data.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND FINDINGS

4.1 Introduction

This chapter looks at the study's response rate, the demographics and the descriptive and inferential statistics.

4.2 Response Rate

The sample size of the study was 100 logistics firms. The questionnaires returned were 83 which represents an 83% response rate. There were 17 questionnaires not returned which represents a 17% non-response rate. Mugenda and Mugenda (2003) state that any response rate greater than 70% is deemed excellent. Therefore, this response rate was viewed as excellent and presumed fit for the study.

Table 4. 1

Response Rate

Details	Frequency	Percentage
Response	83	83%
Non- Response	17	17%
Total	**100**	**100%**

4.3 Demographics

The respondents provided information on various demographics posed in the questionnaire. This was essential in obtaining the respondents' background information to assist in understanding and analyzing their responses.

4.3.1 Years of Operation

The number of years which the firms have operated was obtained from the responses. This was tabulated in the table below. The firms that had operated for less than 5 years were 13 which are 15.7% of the total. The firms that had operated for 6-10 years were 40 (the majority) which was 48.2% and those which had operated for more than 10 years were 30 which is 36.1%.

Table 4. 2

Years of Operation

Years of Operation	Frequency	Percentage
Less than 5 Years	13	15.7 %
6- 10 years	40	48.2 %
Over 10 years	30	36.1 %
Total	**83**	**100.0 %**

4.3.2 Work Position

To establish which role the respondent played in the organization, the work position was asked in the questionnaire. The results were tabulated as below. The CEOs were 19 which represent 22.9%. The General Managers were 22 which represent 26.5 % and the operations managers were 42 (the majority) representing 50.6%.

Table 4. 3

Work Position

Work Position	Frequency	Percentage
C.E. O	19	22.9 %
General Manager	22	26.5 %
Operations Manager	42	50.6 %
Total	**83**	**100.0 %**

4.3.3 Gender

The questionnaire sought to evaluate the respondent's gender. The results were tabulated below. The male respondents were 50 which are 60.2% of the total. The female respondents were 33 which are 39.8% of the total. This adhered to the constitutional two-thirds gender rule.

Table 4. 4

Gender

Gender	Frequency	Percentage
Male	50	60.2 %
Female	33	39.8 %
Total	**83**	**100.0 %**

4.3.4 Experience Level

The level of experience in the logistics and transportation industry of the respondents was obtained and tabulated. 17 respondents had worked for 1-5 years which represents 20.5%. The respondents that had worked for 6-10 years were the majority 42, which represents 50.6% of the total. Those who had worked for over 10 years

were 24 which represents 28.9% of the total. The respondents had a good working experience to be able to understand the contents of the questionnaire.

Table 4. 5

Experience Level

Experience Level	Frequency	Percentage
1-5 years	17	20.5 %
6-10 years	42	50.6 %
Over 10 years	24	28.9 %
Total	**83**	**100.0 %**

4.3.5 Usage of Rail Freight

The respondents were asked on whether their respective firms had used rail freight in transportation. The answers were tabulated as below. 59 firms had used rail freight which is the majority with a 71.1% while 24 had not used rail freight representing 28.9% of the total.

Table 4. 6

Usage of Rail Freight

Usage of Rail Freight	Frequency	Percentage
Yes	59	71.1 %
No	24	28.9 %
Total	**83**	**100.0 %**

4.4 Descriptive Statistics for the Independent Variables

Various statements relating to rail freight transportation were posed to the respondents. Rail freight transportation was divided into network and infrastructure, equipment availability, travel time, safety/damage and pricing. The respondents were guided by a scale of 1 to 5 where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=strongly Agree and were asked to tick (√) where appropriate.

4.4.1 Network and Infrastructure

On network and infrastructure, whether the railway network is accessible had a mean of 3.52 implying that the respondents concurred with this statement. The corresponding standard deviation of 0.875 was the least alluding that the responses were not highly varied. The railway infrastructure is of quality standards and is well maintained had a mean of 3.41 and a standard deviation of 0.924 alluding that the respondents were neutral to this statement.

Table 4. 7

Network and Infrastructure

Network and Infrastructure	N	Mean	Std. Deviation
There is accessibility to the railway network	83	3.52	.875
The railway infrastructure is of quality standards and is well maintained	83	3.41	.924

4.4.2 Equipment Availability

Under equipment availability, there is a sufficient number of trains available at one particular time had a mean of 3.61 and a standard deviation of 0.973 suggesting that the respondents concurred with this statement and the responses were highly varied.

There are a sufficient number of locomotives available at one particular time had a mean of 3.43 implying that the respondents were neutral to this statement. The responses were not highly varied since the standard deviation was the least at 0.886. There are a sufficient number of freight wagons available at one particular time had a mean of 3.42 and the highest standard deviation of 1.037. This implied that the respondents were impartial to the statement and the responses were highly variable.

Table 4. 8

Equipment Availability

Equipment Availability	N	Mean	Std. Deviation
There is a sufficient number of trains available at one particular time	83	3.61	.973
There is a sufficient number of locomotives available at one particular time	83	3.43	.886
There is a sufficient number of freight wagons available at one particular time	83	3.42	1.037

4.4.3 Travel Time

Under travel time, on whether at origin there is no delay in loading of cargo had a mean of 3.54 implying that the respondents concurred with this statement. The corresponding standard deviation was the largest at 1.233 showing the responses were highly varied. At destination there is no delay in off-loading of cargo had a mean of 3.33 and the corresponding standard deviation was 1.180 implying that the respondents were neutral to this statement.

Table 4. 9

Travel Time

Travel Time	N	Mean	Std. Deviation
At origin, there is no delay in loading of cargo	83	3.54	1.233
At destination, there is no delay in off-loading of cargo	83	3.33	1.180

4.4.4 Safety/Damage

Under safety/damage, on whether there are no accidents during transportation of cargo had a mean of 3.80 implying that the respondents concurred with this statement. The corresponding standard deviation was the largest at 1.217 showing that the responses were highly varied. On whether goods are delivered in good condition and with no damage the mean was 3.72 implying that the respondents concurred with this statement. The responses were not highly varied with a standard deviation of 1.172.

Table 4. 10

Safety/Damage

Safety/damage	N	Mean	Std. Deviation
There are no accidents during transportation of cargo	83	3.80	1.217
Goods are delivered in good condition and with no damage	83	3.72	1.172

4.4.5 Service Reliability

The results showed that cargo is delivered on time with no delays had a mean of 3.59 which suggested that the respondents concurred with this statement.

Table 4. 11

Service Reliability

Service Reliability	N	Mean	Std. Deviation
Cargo is delivered on time with no delays	83	3.59	1.094

4.4.6 Pricing

The rates/tariffs of transporting freight by rail are competitive had a mean 3.54 suggesting that the respondents concurred with this statement.

Table 4. 12

Pricing

Pricing	N	Mean	Std. Deviation
The rates/tariffs of transporting freight by rail are competitive	83	3.54	1.140

4.5 Descriptive Statistics for Operational Performance

Various statements relating to operational performance were posed to the respondents. Operational performance was divided into speed, cost, flexibility and dependability. The respondents were guided by a scale of 1 to 5 where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=strongly Agree and were asked to tick (√) where appropriate.

4.5.1 Speed

Under speed, on whether rail freight transportation enables our firm to fulfil customers' orders within the stipulated time frame had a mean of 3.70 implying that the respondents concurred with this statement. The corresponding standard deviation was the largest at 1.197 showing that the responses were highly varied. Rail freight transportation has increased the firm's overall productivity levels had a mean of 3.67 implying that the respondents concurred with this statement. The responses were not highly varied with the standard deviation of 1.180 being the second least. Rail freight transportation enables faster delivery of cargo to our customers had a mean of 3.59 implying that the respondents concurred with this statement. The corresponding standard deviation of 1.148 was the least showing that the responses were least varied.

Table 4. 13

Speed

Speed	N	Mean	Std. Deviation
Rail freight transportation enables our firm to fulfill customers' orders within the stipulated time frame	83	3.70	1.197
Rail freight transportation has increased the firm's overall productivity levels	83	3.67	1.180
Rail freight transportation enables faster delivery of cargo to our customers	83	3.59	1.148

4.5.2 Cost

Under cost, on whether rail freight transportation enables our firm to lower its total transportation costs had a mean of 3.67 implying that the respondents concurred with this statement. The corresponding standard deviation was the largest at 1.159

indicating that the responses were highly varied. Similarly, rail freight transportation enables us to offer lower prices to our customers had a mean of 3.65 implying that the respondents concurred with this statement. The standard deviation of 1.152 was the second least showing that the responses were the second least in variability. Rail freight transportation enables us to increase our total revenue had a mean of 3.49 implying that the respondents were impartial to this statement. The corresponding standard deviation of 1.108 was the least showing that the responses were not highly varied.

Table 4. 14

Cost

Cost	N	Mean	Std. Deviation
Rail freight transportation enables our firm to lower its total transportation costs	83	3.67	1.159
Rail freight transportation enables us to offer lower prices to our customers	83	3.65	1.152
Rail freight transportation enables us to increase our total revenue	83	3.49	1.108

4.5.3 Flexibility

Under flexibility, rail freight transportation has enabled us to increase the overall number of deliveries had a mean of 3.90 implying that the respondents concurred with this statement. The corresponding standard deviation was the largest at 1.206 showing that the responses were highly varied. Similarly, respondents agreed that rail freight transportation has enabled the firm to offer flexible services (mean=3.58). The

corresponding standard deviation was 1.159 showing that the responses were least varied.

Table 4. 15

Flexibility

Flexibility	N	Mean	Std. Deviation
Rail freight transportation has enabled us to increase the overall number of deliveries	83	3.90	1.206
Rail freight transportation has enabled the firm to offer flexible services according to customer needs	83	3.58	1.159

4.5.4 Dependability

On dependability, rail freight transportation enables us to meet our customers' deadlines had a mean of 3.72 implying that the respondents concurred with this statement. The corresponding standard deviation was 1.040.

Table 4. 16

Dependability

Dependability	N	Mean	Std. Deviation
Rail freight transportation enables us to meet our customers' deadlines	83	3.72	1.040

4.6 Rail Freight Transportation Challenges

Various statements relating to rail freight transportation challenges were posed to the respondents. The respondents were guided by a Likert scale of 1 to 5 where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly Agree and

were asked to tick (√) where appropriate. From the table 4.17, it can be construed that a greater number of the respondents represented by a mean of 4.11 and standard deviation of 0.812 agreed that there is a lack of sufficient rail network coverage which discourages rail freight transportation utilization. The respondents also agreed that there is a lack of appropriate rail infrastructure to support rail freight transportation with a mean of 4.00. The standard deviation of 0.716 was the least showing least variation and almost homogeneity. Rail freight rates and tariffs are higher than those of other modes of transportation had a mean of 3.66 implying that the respondents concurred with this statement. Rail freight transportation is not reliable or faster compared to other modes of transportation had a mean of 3.54 implying that the respondents concurred with this statement. Government policies favour other modes of transportation had the lowest mean of 3.23 showing that the respondents were impartial to this statement.

Table 4. 17

Rail Freight Transportation Challenges

Rail Freight Transportation Challenges	N	Mean	Std. Deviation
There is a lack of sufficient rail network coverage which discourages the use of rail freight transportation	83	4.11	.812
There is a lack of appropriate rail infrastructure to support rail freight transportation	83	4.00	.716
Rail freight rates and tariffs are higher than those of other modes of transportation	83	3.66	1.129
Rail freight transport is not reliable or faster compared to other modes of transportation	83	3.54	1.182
Government policies favour other modes of transport than rail freight transportation	83	3.23	1.319

4.7 Inferential Statistics of the Study Variables

Regression analysis was undertaken to ascertain the linearity of the relationship between the study's dependent and independent variables. The results were tabulated and discussed as shown in the subsections below.

4.7.1 Multiple Regression Model Summary

Table 4.18 shows the coefficient of determination R^2as .694. The value of adjusted R-square implies that 69.4% of the total variance of operational performance is justified by the model. 30.6% is justified by exogenous factors.

Table 4. 18

Model Summary

Model	R	R Square	Adjusted R Square	Std. error of the Estimate
1	.868[a]	.754	.694	.34727

a. Predictors: (Constant), Pricing, Travel Time, Equipment Availability, Safety/Damage, Network and Infrastructure

4.7.2 Analysis of the Variance (ANOVA) of the Study Variables

The residuals are positive suggesting a substantial relationship among the dependent and independent variables the study employed. From the ANOVA Table 4.19 below, it was established that pricing, travel time, equipment availability, safety/damage, network and infrastructure all affected operational performance significantly since $F_{critical}$ at (5, 77) degrees of freedom is $2.33<F_{calculated}11.565$ at 5% level of significance.

Table 4. 19

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	24.495	5	4.899	11.565	.000[b]
Residual	32.618	77	.424		
Total	**57.113**	**82**			
a. Dependent Variable: Operational Performance					
b. Predictors: (Constant), Pricing, Travel Time, Equipment Availability, Safety/Damage, Network and Infrastructure					

4.7.3 Coefficients of the Regression Model

The coefficients of the regression model were obtained from the analysis and presented below.

Table 4. 20

Coefficients of the Regression Model

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.027	.401		.067	.947
Network and Infrastructure (X_1)	.068	.196	.076	.349	.028
Equipment Availability(X_2)	.422	.108	.383	3.917	.000
Travel Time(X_3)	.441	.191	.407	2.304	.024
Safety/Damage (X_4)	.052	.115	.065	.456	.050
Pricing(X_5)	.110	.087	.127	1.260	.011

The regression equation is as shown below.

$$\mathbf{O = 0.027 + 0.068X_1 + 0.422X_2 + 0.441X_3 + 0.052X_4 + 0.110X_5}$$

Where O is the dependent variable (operational performance), X_1 is Network and infrastructure variable, X_2 is equipment availability variable, X_3 travel time variable, X_4 is safety/damage variable and X_5 is pricing variable. The model shows that network and infrastructure positively relate to operational performance as indicated by the coefficient +0.068. This also applies to equipment availability with a coefficient of +0.422, travel time with a coefficient of +0.441, safety/damage with a coefficient of +0.052 and pricing with a coefficient of +0.110. Therefore, when you increase network and infrastructure, equipment availability, safety/damage and pricing, the operational performance also increases.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter focuses on the summary of findings as highlighted in the previous chapter and gives the conclusions and recommendations. It also looks at the study's limitations and gives suggestions for further research.

5.2 Summary of Findings

The study had a target of 100 respondents. Only 83 questionnaires were returned representing an 83% response rate. The questionnaires captured issues that reflected on the objectives used by the study. Descriptive analysis and regression analysis were employed to analyze the data and fulfil the study's specific objectives.

It was found that a greater number of the logistics firms had been operating for 6-10 years. The study also disclosed that a greater number of the respondents were Operations Managers, General Managers followed and lastly C.E. O's. Male respondents were the most with a representation of 60.2% while the female respondents were 39.8%. The findings also disclosed that 50.6% of the respondents had an experience level of 6-10 years followed by 28.9% who had over 10 years' experience and 20.5% with 1-5 years' experience.

Regarding the study's first objective, the researcher sought to ascertain the extent to which rail freight transportation is used by logistics firms in Kenya. The outcome noted that 71.1% of the respondents which is 59 logistics firms have used rail freight

transportation while 28.9% which represents 24 logistics firms had not used rail freight transportation.

The second objective sought to establish the relationship between the study variables and the regression outputs disclosed an existing connection between the dependent and independent variables. The results identified an R-square of 0.694 which implies that all independent variables can explicate 69.4% of the dependent variable whereas the remaining 30.6% is justified by exogenous factors. Analysis of the variance was performed, and the findings indicated statistical significance at 95% confidence level. The regression coefficients demonstrated that when all variables are constant, the value of operational performance would be at 0.027. The study revealed that network and infrastructure, equipment availability, travel time, safety/damage and pricing all positively influenced the operational performance of logistics firms in Kenya.

The third objective aimed at determining the challenges faced by logistics firms using rail freight transportation. The respondents were in agreement that there is a lack of sufficient rail network coverage and appropriate infrastructure which discourages the use of rail freight transportation. The respondents also agreed that rail freight rates and tariffs are higher than those of other modes of transport and were impartial on whether government policies favour other transport modes compared to rail freight transportation.

5.3 Conclusion

The study affirms that a greater number of logistics firms in Kenya are using rail freight transportation. The study findings evidenced that the use of rail freight transportation has a positive effect on operational performance. It was also concluded

that the use of rail freight transportation has its challenges and lack of sufficient rail network coverage and lack of appropriate rail infrastructure are the main challenges experienced by logistics firms.

5.4 Recommendations

The study discovered that a bulk of the logistics firms in Kenya are using rail freight transportation. It is however recommended that the few logistics firms that are yet to use rail freight transportation should consider doing so as it will positively impact their operational performance.

The study recommends policymakers to be aware of the effect of rail freight transportation on the operational performance of logistics firms. As evidenced in this study, rail freight transportation contributes moderately to the operational performance of logistic firms therefore policymakers can utilize the findings in the creation of opportunities for business growth and expansion. Policymakers should also find ways to shift more freight to rail to increase competitiveness.

The study recommends that logistics firms' managers take note and address the challenges associated with using rail as a mode of transport as identified in this study. In the current competitive business environment, logistics firms could apply the findings from this study with the intent to be more innovative and enhance their operational performance to attain competitive advantage.

5.5 Limitations of the study

The employment of a questionnaire for data compilation meant that the reliability of the study results depends on how effectively the tool was designed. Some respondents might have also provided biased data that cannot be fully relied on to provide valid findings. The sample size might have not been sufficient to be used in drawing

conclusions relating to the entire population of logistics firms in Kenya. Lastly, there was also reluctance from a number of the respondents in providing information citing confidentiality concerns thus affecting the response rate.

5.6 Suggestions for further research

Further studies need to be performed on the effect of rail freight transportation on firms in other sectors other than logistics firms. Besides, there is also a need to carry studies within the same setting continuously to determine whether the results will change as the years go by, especially since the logistics industry is unpredictable and ever-changing.

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APPENDICES

Appendix I: Letter of Introduction

Dear Sir/Madam,

RE: QUESTIONNAIRES FOR DATA COLLECTION

I am a graduate student at the University of Nairobi pursuing a Master of Business Administration degree in Operations Management. As part of my coursework, I am required to conduct and submit a research project report on the effect of rail freight transportation on operational performance from a logistics firms' perspective.

You have been chosen as one of the respondents of this study. I kindly request you to fill this questionnaire. All the information provided will be confidential and for the purpose of this study.

Thank you in advance for your time and cooperation.

Yours faithfully,

Margaret W. Gachui

Mobile No.: 0722163143

Email: wanguigachui@gmail.com

Appendix II: Research Questionnaire

I am researching on "The effect of rail freight transportation on operational performance: a perspective of logistics firms in Kenya". This study will be carried out in partial fulfilment of the requirements for the award of the Degree of Master of Business Administration, School of Business, University of Nairobi.

Kindly answer the following questions:

Section A: General information

1. Name of the organization.....

2. How long has your firm been in operation in Kenya?

Less than 5 Years [ ]

6-10 Years [ ]

Over 10 Years [ ]

3. What is your role within the organization?

C.E.O [ ]

General Manager [ ]

Operations Manager [ ]

4. Gender:

Male [ ]

Female[ ]

5. What is your experience level in the Logistics and transport industry?

1-5 Years[ ]

6-10 Years [ ]

Over 10 Years[ ]

Section B: Rail freight transportation

6. a) Has your firm used rail freight transportation to move freight at any point?

Yes [ ]

No [ ]

b) If Yes, in (a) above, for how long? Months or Years, please specify. Also, indicate the type of cargo moved using rail freight

…….

…….

……..

c) If No, in (a) above, are you planning to use rail freight transportation soon?

Kindly specify exact period if the answer is yes if No kindly give reasons why.
……
……
……
……
……
……

7. Kindly indicate your agreement or otherwise with the following statements using a Likert 1-5 scale. **Key: 1=strongly disagree, 2=disagree, 3=Neutral, 4=Agree, 5=strongly agree** Please tick (√) as appropriate

Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Network and infrastructure					
There is accessibility to the railway network					
The railway infrastructure is of quality standards and is well maintained					
Equipment availability					
There is a sufficient number of locomotives available at one particular time					
There is a sufficient number of trains available at one particular time					
There is a sufficient number of freight wagons available at one particular time					
Travel time					
At destination, there is no delay in off-loading of cargo					
At origin, there is no delay in loading of cargo					
Safety/damage					
Goods are delivered in good condition and with no damage					
There are no accidents during transportation of cargo					
Service reliability					
Cargo is delivered on time with no delays					
Pricing					
The rates/tariffs of transporting freight by rail are competitive					

Section C: Operational performance

8. Kindly indicate your agreement or otherwise with the following statements using a Likert 1-5 scale. **Key: 1=strongly disagree, 2=disagree, 3=Neutral, 4=Agree, 5=strongly agree** Please tick (√)as appropriate

Statements	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Speed					
Rail freight transportation enables faster delivery of cargo to our customers					
Rail freight transportation has increased the firm's overall productivity levels					
Rail freight transportation enables our firm to fulfil customers' orders within the stipulated time frame					
Cost					
Rail freight transportation enables our firm to lower its total transportation costs					
Rail freight transportation enables us to offer lower prices to our customers					
Rail freight transportation enables us to increase our total revenue					
Flexibility					
Rail freight transportation has enabled the firm to offer flexible services according to customer needs					
Rail freight transportation has enabled us to increase the overall number of deliveries					
Dependability					
Rail freight transportation enables us to meet our customers' deadlines					

Section D: Rail freight transportation challenges

9. Do you agree or disagree with the following statements?
Key: 1=strongly disagree, 2=disagree, 3=Neutral, 4=Agree, 5=strongly agree
Please tick (√) as appropriate

Statements	**Strongly disagree**		**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
There is a lack of appropriate rail infrastructure to support rail freight transportation						
Government policies favour other modes of transport than rail freight transportation						
There is a lack of sufficient rail network coverage which discourages the use of rail freight transportation						
Rail freight transportation is not reliable or faster compared to other modes of transport						
Rail freight rates and tariffs are higher than those of other modes of transportation						

Comments if any
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……

Thank You for your Co-operation

Appendix III: Logistics Firms

1 Access Africa Logistics
2 Aeromarine Logistics (K) Ltd
3 Andy Forwarders Ltd
4 Alexandria Freight Forwarders Ltd
5 Allied Service and Logistics Group Ltd
6 Ameritans Freight International Ltd
7 Anthill Freight Ltd
8 APM Global Logistics (Kenya) Ltd
9 Aquero Cargo Ltd
10 Australian Unitech Freighters (K) Ltd
11 Bahari Forwarders Ltd
12 Bemacy Freighters Ltd
13 Best Fast Cargo Ltd
14 Best Freight Conveyors Ltd
15 Bestline Holdings & Logistics Ltd
16 Bollore Africa Logistics Ltd
17 BOSMAR Freight Services Ltd
18 Bridge Freighters & Forwarders International
19 Bridgeco International Ltd
20 Cargo Direct Shipping & Logistics
21 Chasefast Logistics Ltd
22 Concise Freighters Ltd
23 Continental Cargo Services (Kenya) Ltd
24 Cross Border Cargo Ltd (CBC)
25 CYKA Shipping & Logistics (EA) Ltd
26 Dynamic cargo-link International
27 East African Express Ltd
28 Endip Freighters Co Ltd

29 First World Movers & Freighters
30 Freightwings Cargo Systems Ltd
31 Gallion Logistics Ltd
32 Global Cargo Handlers & Logistics Ltd
33 Global Freight Logistics Ltd
34 Globeflight Worldwide Express (K) Ltd
35 Great Lakes Auto Tech Int'l Ltd
36 GTS Cargo Logistics
37 Hellmann Worldwide Logistics
38 Horiken Freighters
39 Jetline Cargo Services Ltd
40 Kelvis & Hannington International
41 Kenfreight (EA) Ltd
42 Kuenen & Nagel (K) Ltd
43 Liberty Freighters Ltd
44 Lloyd Cruise International Ltd
45 Lyken Freight Express Ltd
46 Megafreight International Co Ltd
47 Pejon Freight Movers Ltd
48 Pentagon Freight Forwarders Co Ltd
49 Predential Cargo Forwarders
50 Quiver International Ltd
51 Sheffield Cargo Logistics Ltd
52 Signet Freight Forwarders Co Ltd
53 Skyland Logistics Ltd
54 Sosare Freight Ltd
55 Swift Global Logistics (K) Ltd
56 Tradewise Logistics (K) Ltd
57 Transfreight Logistics Ltd
58 Unimark Freighters Ltd

59 Union Logistics Ltd
60 Ufanisi Freighters Ltd
61 Victoria International Logistics Ltd
62 Worldclass Freight Logistics Ltd
63 Agility Logistics Ltd
64 Andy Forwarders Services Ltd
65 Caramel Mount Freight Logistics Ltd
66 Clarion International Shipping & Logistics
67 CMA CGM Kenya Ltd
68 Diverse cargo marine Air C&F Service
69 Dynamite Logistics Ltd
70 East Africa Cargo Logistics Ltd
71 Freight Forwarders Kenya Ltd
72 Freightways Mombasa Ltd
73 Genius Clearing & forwarding Co Ltd
74 Global Fleet Management Solutions Ltd
75 Grainbulk Haulers Ltd
76 Hasaki Freight Conveyors Ltd
77 High Tech Freight Movers Ltd
78 Inter Freight East Africa Ltd
79 Inter Ocean (EA) Ltd
80 Inter-pol Freighters
81 Intra Speed Ltd
82 Jamonit Freight (Kenya) Ltd
83 Kadmus Freight Logistics Ltd
84 Kampala-Juba Freighters Ltd
85 Kenya Logistics Network
86 Kensomfreight International Ltd
87 Letrack Integrated Logistics
88 Lyson logistics Ltd

89 Matrix Freight Logistics

90 Mitchell Cotts Freight Kenya

91 Reli Line Transporters Co Ltd

92 Safmarine

93 Sahel Freighters Ltd

94 Scan-sped Freighters Ltd

95 Sealink Cargo Handling EA

96 Signon Freight

97 Spedag Interfreight Kenya Ltd

98 Smiles Cargo Supply Chain Ltd

99 SS Freight Ltd

100 Speedex Logistics