INFLUENCE OF CONTAINER FREIGHT STATIONS IN DECONGESTION OF MOMBASA PORT

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF ECONOMICS, ACCOUNTING AND FINANCE, SCHOOL OF BUSINESS IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE POSTGRADUATE DIPLOMA IN CUSTOMS ADMINISTRATION AT JOMO KENYATTA UNIVERSITY OF AGRICULTURE TECHNOLOGY.

2018

DECLARATION

This project is my original work and has not been presented for a post graduate diploma in any other academic or non-academic institution.

…… ……..

SIGNATURE **DATE**

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HBD335-C016-2520/16

This project has been submitted for examination with my approval as the supervisor.

..... ……

SIGNATURE **DATE**

GRACE LEKASI

DEDICATION

This project is dedicated to my Husband Wilfred, my lovely kids June and Jayden, my parents Paul and Ann and my brothers Nicholas, Ambrose, kiprop and kiptoo your continued support, prayers and encouragement gave me strength to reach this far and successfully complete this project.

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LIST OF ACRONYMS/ABBREVIATIONS

CAMIS	Cargo Management Information System
CFS	Container Freight Station
COMESA	Common Markets for Eastern and Southern Africa
GOK	Government of Kenya
ICD	Inland Container Depot
IMO	International Maritime Organization
KMA	Kenya manufacturers association
KMA	Kenya Maritime Authority
KPA	Kenya Ports Authority
KRA	Kenya Revenue Authority
KSC	Kenya Shippers Council

DEFINITION OF TERMS

Container freight station Are facilities set up for the purpose of container handling and Storage between the sea port and cargo centers some of the Activities of CFS include storage of laden and empty containers, Stuffing of export containers, de-stuffing or stripping of import Containers as well as examination and assessment of cargo by Customs authorities Amiwero (2005).

Competition: Rivalry in which every seller tries to get what other sellers are seeking at the same time: sales, profit, and market share by offering the best practicable combination of price, quality, and service. Where the market information flows freely, competition plays a regulatory function in balancing demand and supply Lee & Yu (2012).

Cargo: Are all goods imported or exported in any aircraft, vehicle or vessel EACCMA (2004).

Port: Refers any place, whether on the coast or elsewhere, appointed by council by notice in the Gazette, subject to any limitation specified in such notice, to be port for the purpose of the customs EACCMA (2004).

Technology: Refers to the collection of techniques, skills, methods, and processes used in the production of goods or services or in the accomplishment of objectives, such as scientific investigation. Technology can be the knowledge of techniques, processes, and the like, or it can be embedded in machines to allow for operation without detailed knowledge of their workings Jansen (2003)

Decongestion To relieve congestion of containers at the port of Mombasa. Kenya ports Authority (2016)

Space capacity An interim storage at the Container Freight Stations, where Cargo is stored while awaiting Customs Clearance. Terminals include storage yards for temporary storage of the incoming containers Grunow et al. (2004)

Handling equipment is mechanical equipment used for the movement, storage, control and Protection of materials, goods and products throughout the process of Distribution, Huang (2009)

ABSTRACT

Capacity limitations at the port of Mombasa has been an essential issue in the port errands as cargo imports especially autos and containers have constantly outflanked yard holding limit against a setting of poor load off-take to the hinterland. This situation has incited stack blockage which KPA attributes to nonappearance of room among changed reasons, a condition that is not satisfactory since the port is a fundamental operational center point for exchange in the East African community. Therefore, the purpose of this study was to explore the influence of container freight stations in trade facilitation in Mombasa port. Descriptive survey design was used; target population for this study was 286 respondents consisting; CFS operators, customs officers and clearing and forwarding agents. Questionnaires were used for data collection. Measures of deviation and correlation analysis were used to analyze the data and Statistical Package for Social Science (SPSS) version 25 was used in analyzing. Linear regression was used to determine the relationship between independent and dependent variables. The study findings indicated that the three variables facilitates trade whereby; Competition had a significant influence in decongestion of the port as evidenced in the regression model competition having a 30.7% or 0.307, Adopting new technology influences decongestion by 0.290 or 29% and also findings established that CFS influences the decongestion of Mombasa Port in terms of space capacity by 0.229 or 22.9% from the model obtained. The study established that space capacity increases cargo handling. The study concludes that competition, Technology and space capacity between the CFS along the port can help improve the services at the port because each CFS operators will struggle harder to satisfy customers. Therefore, availability of enough workers and highly skilled manpower employed at the CFS, communication network will increase its efficiency leading to fast cargo clearance, technology increases the speed and transparency of the cargo clearance in the CFS and finally study concludes that availability of space capacity in CFSs reduces congestion through the provision of ample storage capacity for stacking containers while awaiting customs verification and clearance by customs officers. The study recommends the following; Sufficient and qualified staff employed at the CFS, improved technology at the CFS and communication network will increase its efficiency leading to faster cargo clearance hence facilitates trade. The success of a CFS does not only depend on better port performance but also on good infrastructure, therefore better infrastructure will ensure decongestion from the capacity provided by the CFS. It is hoped that the outcomes from this research assisted CFS operators to understand how they can improve on their performance as a result of the yard improvement hence better efficiency and benefits to the Mombasa port in decongestion and as a whole Kenya Revenue authority collecting more Revenue.

CHAPTER ONE
INTRODUCTION

1.1 Background of the study

Container terminals are configuration to deal with, storage, and perhaps stacking or offloading of freight into and out of containers, also it is where containers can be gotten, dropped off, kept up, put away, or stacked or emptied starting with one method of transport then onto the next (that is, vessel, truck and rail). World container terminals are orchestrated into five characterizations relying upon the proprietorships: public terminals, terminal - operator built and operation terminals, carrier built and operation terminals, carrier - leased dedicated terminals and joint venture of carriers and terminal operators.

Continuous growth in global trade volumes has contributed to the high demand of transportation infrastructure so as to support international trade with the aim of overcoming the spatial gap between points of demand and centers of supply or places of low utilities to places of higher utilities. Water transport has therefore been recommended as one of the means of transport for transportation of bulk products for one country to another besides the increased level of port congestions Clark & Micco (2012).

Present day economic patterns are uncovering that International Trade is helping the growth of developing Nation's economies through the appropriation of open market policies and technologies and diminishment in the concepts of trade protection Usman (2008). The goodness of international trade as an impetus for financial development and nation improvement is well recognized with China and India, currently being suitable examples of this global trade that has turn out as one of the major contributors to the reduction of poverty and accounting for a portion of this country's Gross National Product (GNP). Water transport is basic to the world exchange. More than 80 for each penny of the volume of world trade exchange is conveyed via ocean, and impressively higher level of building up nation's exchange is conveyed in ships UNCTD (2014). The vast majority of African nations as per Satirios & Maria (2009) incorporate Tanzania go up against different difficulties in ports and harbors, which incorporate expanding taxes, presentation of new and modern vessels and gear, shortages of specialized know-how, deficient and wasteful work that prevents task of different activity terminals. Considering epic increment in freight volumes that African ports terminals get month to month, it is clearly obvious that such

volumes unquestionably hinder the productivity of ports in Africa, in this manner pounding down their competiveness from the points of view of yield and return time of vessels and holder usage Chioma (2012). There is the need accordingly, inside the system of worldwide exchange incorporation and supportability, for universal ports, particularly those on the African mainland, to agree to required global security and upkeep conventions Rambo (2012).

According to Amiwero (2005), ports in devoloping nations speak to a noteworthy resource for financial improvement. They have to work capably and be appropriately organized with a specific end goal to help an expansion in exchange and GDP by interfacing nations to worldwide markets. Most international trade keeps on being transported via ocean and ports are pivotal centers in the worldwide exchange chain. Merchandise comes into ports to encourage advance exportation by roads, rail or transshipment movement. The stock is by and large gone before by point by point data and appointments both for capacity and transportation. How effective ports depend on various components. Foundation is important to complete the port exercises, for example, pilotage, towing and freight taking care of and thus positively affects port effectiveness. The number of days it takes for the goods to go through the port is one way.

Ineptitude at port administration is fundamental bottleneck that may back off an exchange. In India, port hardware is accounted for to stay sit out of gear around 20 for every penny of the time. Changing starting with one method of transport then onto the next can likewise be a dull endeavor. In Abidjan, Ivory Coast, the change time between the container terminal and the port entryway may take more than 20 days, contingent upon the taking care of specialist (OECD, 2009). The Mombasa port play key passage role to Kenya's international market by offering a wide assortment of transportation benefits that cover key parts of the world overall that include Western Europe, Asia, the Americas, the Far East and Africa (Amiwero, 2005). The port is faced with operational and movement problems. Accordingly, a few private run holders' terminals known as CFS or dry ports have been created in the current days. As per KPA (2010), the containerized imports released at the port of Mombasa went up from 229,465 out of 2006 to 345,314 TEUS in year 2010. The quantity of vehicles released in same period went up from 65, 348 out of 2006 to 95,604 of every 2010 causing the popularity for capacity and taking care of room outside the port region. The Kenyan port's structure has been in basic need of changes. The issues and difficulties of the 2001 blockage saw the ports at an operational stop, calling for

sincere thought concerning settling the issues caused by government approach abnormalities. CFS has had huge impact in decongesting the port of Mombasa.

1.2 Statement of the problem

Obed & Emeghara (2009) defined CFS as a facility where parcels of cargo are grouped and packed into containers. These are inland cargo clearance depots with customs facilities and they came up with containerization where individual units of cargo are handled outside the port area. Mombasa Port has been significant in facilitating transportation of goods and services from one country to another. According to KPA (2008) the port has played a crucial and strategic role in the facilitation of seaborne/ hinterland trade by offering efficient and cost effective timely services by being a splendid natural harbor with a top of the line shelter and deep harbors port for huge vessels such as motor vehicle carriers, container ships, and luxury cruise ships. Mombasa port has been experiencing a lot of congestion of containers making the all process slow and time consuming. Congestion at the port results too many people losing their business and income. As the port serves so many countries with different activities involved it is important to ease the congestion.

This has contributed to increased economic and social development in terms of infrastructural development, employment opportunities, government revenue and integration of the East African community among others and in this case CFSs and ICDs have played a big role in functions of the ports Muriithi (2007). However, congestion at Mombasa port, have been a major hurdle in port operations as cargo imports especially cars and containers have always surpassed yard holding capacity against a backdrop of poor cargo off take to hinterland.

The movement of trucks in and around the port is slow; there is an increment in ship turnaround time which leads to vessels staying long in the port creating queues at the port WB (2008). These happenings are not only due to the fact that deconsolidation of containers are being done in the port's operational area leading to space constraints but also due to the limited decongestion strategies and this reducing the competitiveness of the port. In addition to that ports lack substantial reforms and upgrading to reach international standards and to meet the demands of a growing and increasingly international trade Ihenacho (2008).

The situation has led shippers and agents to spend much of unnecessary time clearing their cargo from the port which resulted in high cost of doing business. Business owners have lost capital following high surcharges because of overstaying at port. It has also led to loss of products especially perishable ones hence a loss to the owners; this has also make government lose Revenue collection El-Naggar (2011). Therefore this motivates the researcher to investigate the influence of container freight station in decongestion of Mombasa port and the decongestion strategies that can be implemented by CFSs operators in eliminating port congestion in Mombasa such has CFS competition, adoption of new technology for faster and accurate clearance, availability of enough space which handle more containers. CFSs were adopted in Mombasa port to reduce the congestion problem.

1.3 Research objective

1.3.1 General objective

The main objective of this study was to determine the influence of Container Freight Stations in decongesting Mombasa port.

1.3.2 Specific objectives

i) To investigate the influence of Container Freight Stations competition in decongestion of Mombasa port.
ii) To determine the influence of Container Freight Stations adopting new technologies in decongestion of Mombasa port.
iii) To establish the influence of Container Freight Stations space capacity in decongestion of Mombasa port.

1.4 Research questions

i) How does CFS competition influence decongestion of Mombasa port?
ii) How does the influence of CFS technology influence decongestion of Mombasa port?
iii) How does CFS space Capacity influence decongestion at Mombasa port?

1.5 Significance of the study

It was anticipated that the findings of this study are useful to the following; CFS operators, Kenya revenue Authority and Management of Kenya Ports Authority Kenya Ports Authority,

(2009). The information assisted the KPA management understand the causes of congestion and its possible solutions, its effects on the efficiency of port operations and hence the ships turn-round at the port of Mombasa.

The findings also helped the authority to identify areas of improvement, challenges experienced and ways to manage future occurrences. The government as regulator benefited in creating the relevant enabling environment for these facilities to operate successfully and thus enhance revenue collection by Kenya Revenue authority that they work hand in hand with Kenya ports authority. The results would also be of interest to the maritime sector as a whole especially the shipping companies. Researchers and other scholars who might have an interest in developing the findings further or taking other related fields of interest used the findings of this study as a future source of reference.

The study also contributed knowledge in the field of port management and added to its growing literature. For private corporations, the findings of the study gave some deeper insight to the proprietors in the private sector in regards to appropriate management of CFSs and provide useful starting points in formulating policy framework Dollar & Micco (2004). It also assisted managers of the existing dry ports and potential investors to understand and appreciate the various challenges facing the industry and how they can be avoided.

1.6 Scope of the study

The study focused on the influence of container freight stations in decongestion of Mombasa Port being the study area, which comprised competition between CFSs, Technology and space capacity. The study was limited to container freight services at Mombasa port. Descriptive research design was used in the study and quantitative and qualitative data used and was obtained from primary sources.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The chapter entails literature materials from various educational elites and researchers. The literature gives the study its background information necessary to evaluate the variables with regards to the variables under study.

2.2 Theoretical review

A theory is clarifications which comprehends and make expectations on a given circumstance. Theory is built by arranging sentences comprising totally of the true proclamation about a circumstance under thought; however reality of any of these announcements is constantly with respect to the entire study Carnwell & Daly (2001). The research dwelled on the following theory

2.2.1 Modern theory

Modern theory was proposed in the year 1859 by Darwin. This theory explains that an organization is a system that changes with the change in its environment, both internal and external. The modern theory considers the organization as an open system. This means an organization consistently interacts with its environment, so as to sustain and grow in the market. Since, the organization adopts the open system several elements such as input, transformation, process, output, feedback and environment exists.

The CFS must use the modern theory which focuses on the single electronic window system. Under the single window system, systems interact with other systems or the outside environment in order to curb the problems and difficulties in container clearance. Some of the features of the single electronic window system include: receiving data from other sources, input data converted into output data and the owner of the cargoes does not need to use the clearing and forwarding agents to clear the goods but ought to clear all the payments online then the cargoes are delivered to the owner. The single electronic window system has help in ensuring fast and reliable information to the owner of the cargoes, government being in the position to get the taxes and revenues through the system thus increasing efficiency and effectiveness of all the activities carried out during the clearance of containers.

As a growing and leading port in east and central Africa Kenya port authority must continue embracing the use of modern technology systems in streamlining their efficiency and supply chain in order to add value and be ahead of its competitors. The researcher analyzed the variables and seeing how they are interacted in order to improve and eradicate the cargoes delays in the port of Mombasa Wanyama (2017). A CFS that uses modern theory will coordinate well with their customer's i.e. importers, exporters, KPA management and clearing and forwarding agents.

2.2.2 Competitive advantage Theory

A competitive advantage theory was proposed by Michael E. Porter in the year 1985. Competitive advantage theories are the attribute that allows an organization to outperform its competitor. Competitive advantage may include access to natural resources such as high-grade ores or a low-cost power source, highly skilled labor, geographic location, high entry barriers, and access to new technology. Competitive advantage is the leverage that a business has over its competitors Wang (2014). This can be gained by offering clients better and greater value. Advertising products or services with lower prices or higher quality interests consumers since the target markets recognize these unique products or services.

This is the reason behind brand loyalty, or why customers prefer one particular product or service over another. Therefore CFS that has high skilled manpower and new technology handling machine with enough space will get more customers than the CFS with less employees, limited space and under skilled personnel. A CFS that has enough space, employ new technology, skilled personnel and faster clearances procedures due to technological advancement reduces port congestion. The competitive advantage theory therefore is relevant to the study because it helps ensure that key processes aimed at decongesting the port are adequate.

2.2.3 Queuing Theory

The first queuing theory problem was proposed by Erlang in 1908 that looked at how large a telephone exchange needed to be in order to keep to a reasonable value the number of calls not connected because the exchange was busy and calls lost. Within ten years he had developed a complex formula to solve the problem. Queuing theory is used to study the phenomenon of waiting in lines. Some people use the information gathered from queuing theory in order to determine how to best serve customers and so prevent them from waiting in line longer than they

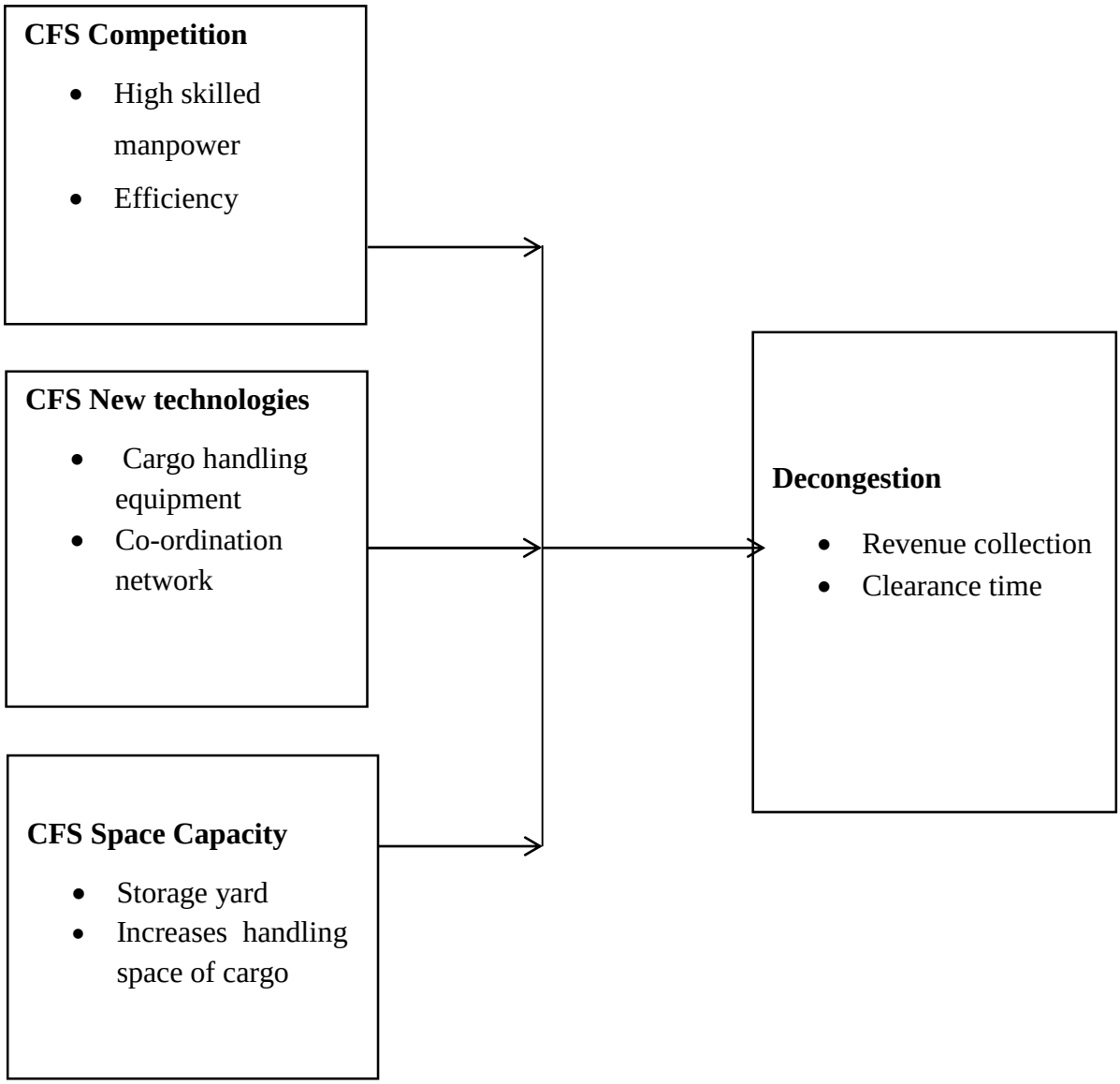
have to. Adedayo et al. (2006) stressed that many situation in life requires one to line up or queue before being attended to. This lines formed are referred to as waiting lines or queues. According to them queue occurs when the capacity of service provided fall short of the demand for the service. Aradhye (2014) in his article on application of queuing to the traffic port refers to queuing theory as an analytical techniques accepted as valuable tool for solving congestion problems. According to him the primary inputs to the model of queue theory are the arrival and service patterns.

The theory allows researcher to analyze several things such as arriving in line, waiting in line, and the time it takes to serve a container. The above information in line with the theory helps in predicating on a container's waiting time, the expected amount of containers that were in a line, the probability of a container encountering a line among other relevant information that can help in reducing on congestion. This information can be used in order to find ways to reduce lines and wait time.

There are a few lining disciplines that have been created in view of lining theory and four of which are First in First Out (FIFO), Last In First Out (LIFO), Processor Sharing, and Priority. Under FIFO describes the practice of serving containers in the order they arrive in the CFS so that the container waiting longest is served first. Just like in port operations, ships that arrive in time at the port are cleared earlier before those that arrive later. LIFO describes the practice of serving containers which came in last so that the container which comes in last leaves first. Processor sharing serves customers at the same time to that the average waiting time for all customers is about the same. The Priority discipline serves the customer with the highest priority first. In line with the study some containers may arrive last but cleared first before those that appeared first KPA (2012)

2.3 Conceptual framework

The study was guided by a conceptual framework showings the relationship of the variables in the study. The independent variable was the container freight stations while the dependent variable was decongestion. The relationship is shown by the figure below;



Independent Variables **Dependent variables**

Figure 2:1 Conceptual framework

2.4 Review of variable

2.4.1. CFS Competition.

Competition is whereby two or more entities are competing to meet their goals. Here will be stiff competition between CFS; each CFS around the port will make sure they have requirements needed in the CFS or put measures that will improve their services for them to get more customers.

Availability of enough staff and highly skilled manpower employed at the CFS will increase CFS efficiency, skilled customs officers will not misinterpret the Tariffs that may lead to dispute arising with clearing and forwarding agents that may cause congestion in the CFS all through to the port, highly skilled manpower can verify and clear goods faster which leads to decongestion, because when they clear faster they create space for the new containers and cars to brought to the CFS. The documentation issue is in concurrence with Tongzon (2002).

Improve efficiency in infrastructure such accessible road to the CFS, communication network, the system used by the CFS to receive and release containers and machinery or equipment. Importers and exporters will not choose a CFS that will take longer time for them to clear their cargo and also they will prefer a secured and safe CFS which there will be no cargo theft or diversion. Competition between the container freight stations at Mombasa port will assist in decongesting the port because each CFS operators will be struggling harder to meet the customer's expectation, Wang & Zhou (2015).

CFS that has dedicated managers and has good relationship with customers, handle majority of all cargoes to and from the port, lowers handling cost and Secured are been preferred by importers and exporters hence reducing congestion at the port. To attract more customers CFS operator should appreciate customers for their patronage by making loyalty system based on points, earn rewards points on every transaction their make and redeem the accumulated points in future transaction. When all CFS employs these no container will be overstayed in the port that leads to congestion.

2.4.2 CFS Technology

Handling systems means the mechanism used in moving materials from one point to another with less human effort Usman (2008). Material handling equipment and systems often represents major capital outlays for organization. Like the decisions related to the number, size, and location of warehouses, materials handling decisions can affect many aspects of logistics operations. Stakeholders report (2012) states that it is unfortunate that quite a number of significant interventions that would have eased the delays at the port have been known for over 30 years. All the major stakeholders agree with the assertion that "Mombasa port facilities are inadequate and in poor condition" and that without substantial investment in equipment, the port

is unlikely to handle more traffic. According to KPA Audit report (2013) indicated that various freight stations had failed to move 6,000 containers that had been cleared, increasing the pile-up at the port yard to 18,000 Twenty Foot Equivalent Unit (Tues.) against its capacity of 14,500. If the container freight stations move the cargo that is ready, operations will return to normal.

The Nation Single Window System permits the partners working together in the port to trade data and do business exchanges in a brought together, secure and more organized way. It guarantees that all gatherings included get opportune and exact data on every exchange and, additionally, that the exchange is performed effectively Mwakanongo (2010). This framework definitely expands the speed and straightforwardness of the CFS while boosting the physical foundation. It deals with the effectiveness of the port all in all while in the meantime guaranteeing ideal limit usage of the port of Mombasa. These measures are equipped towards making greater ability to upgrade productivity and move the port towards achieving and managing world class principles KPA (2011).

A completely incorporated ICT Strategy has grasped an Enterprise Resource Planning (ERP) framework, a Kilindini Water Front framework and a Community Based System, all web empowered. The Enterprise Resource Program framework incorporates all capacities at the Port to give on-line and constant data consequently helping with settling on opportune choices. Advantages of the waterfront framework include: Reduced Human intercession because of framework controls that depend on approval, Reduced load documentation preparing span, Reduced payload stay time from a normal of 8 days to 5 days, Reduced port leeway time from 5.5 days to 3 days, Enhanced arranging process both in the CFSs and port, Easy access of measurable information for arranging and basic leadership, Enhanced review trails, henceforth limited freight pilferage at the port Kenya Shippers Council (2010).

They should employ sufficient equipment for loading and offloading containers which make work easier , those CFSs that has modern equipment operates faster and clearing of cargo will be faster, thus having more containers getting in and out of CFS hence reducing congestion at the port. Barney (2012) identifies three key competitive advantages resulting in high revenues. Advanced technology system put in place, proper transport infrastructure to facilitate fast movement of cargoes from one place to another and well advanced handling equipment that will take the shortest time possible to perform clearing of containers. Park & De (2004) argues that

investing in use of advanced technology and information using single electronic window system is the best way to use in clearing the containers in the port terminals leading a big contribute to the success of the economy of the country and increased improved service delivery.

2.4.3 CFS space Capacity

As stated by Sharif & Huynh (2013), space should be adequate and place required at the container terminal for containers and cars storage. Enough space is required to keep up a vital separation from blockage, redirection of payload and theft, Revenue avoidance, Time misused and blend up and ease affirmation and room of container and cars. Ship requires provoke space billet to keep up a vital separation from delays on stacking and offloading. Enough space is required to suit all load got inside the affiliation; this must be done by unending review on necessities and the application of rational and sensible amassing new techniques. Movement on time is a standard obtaining goal however when faced with lack of space to secure the stock it prompts obstruct and deferrals to pass on items to the right goal. In the occasion that stock and goods arrive late or enough work is not done at the ideal time, plans may be lost; time lost and discipline explanations may be dissatisfying customers Sciomachen & Tanfani (2007).

Wan & Tai (2009) revealed that the treatment of payload is debilitated by beyond what many would consider possible in the port, The open container are not design to deal with the vessel entering the port since the billets are little and that the massive vessels entering can't fit in them causing stop up as they need to sit tight for quite a while before being distributed the compartments. The CFSs should give adequate space to payload dealing with and limit, engaging the port overseer to utilize the breaking point at these workplaces away of holders once discharged from the ship sitting tight for slack.

The storage space gave at these workplaces serves to decongest the port while engaging other load from various vessels to be discharged in this way upgrading profitability. This is expert through the course of action of abundant amassing limit as for stacking container while suspecting customs affirmation and opportunity by conventions officers.

2.5 Empirical Review

A lot of studies have been directed internationally and locally centering container terminals and port execution. Rambo (2012) conducted a study on the factors affecting efficiency of container

freight services in Mombasa Kenya. The study used a descriptive survey design to collect the relevant data. The target population consisted of all the 17 managers or responsible officers of the CFS at Mombasa Port and an Ordinal Linear Regression (OLR) model was used to analyze the data. The study found out that limited employees to deliver services at the sea port, limited loading and offloading equipment's, high demand for port services, high bureaucracy in port management contributed to the limited efficiency of container freight services. The study therefore recommended for the implementation of improved technology in loading and offloading of cargo, employment of more employees to increase on service delivery and expansion of in land and container flight stations so as to reduce on congestion.

Sauri & Martin (2011) stated that the attention to various elements/challenges kept traditions from viably assuming a noteworthy part in decongesting the port. Such difficulties included issue in getting long stay payload from KPA to a reasonable place for unloading since the traditions distribution centers are full, issue of selling undocumented freight as traditions isn't ordered to sell holders which it doesn't know about the substance and the way that KRA does not have the command to give a sweeping waiver of obligations

Ihenacho, (2005) in his delineation reports that the key bit of ICDs and CFSs is that they supplement the working environments at the port by giving overseeing, constrain, traditions examination, and so forth., hence guaranteeing that every last one of the holders entering the terminal are set up for pass on. To the degree imports are concerned, the compartments can be moved to a CFS or an ICD, subsequently decongesting the terminal and guaranteeing that it handles the best throughput. Lessons over the globe have uncovered that sensible association of CFSs in relationship with port endeavors can accomplish distinctive budgetary central focuses. Regardless, the fast headway of payload from the port to the cargo stations means such load isn't subjected to traditions procedure at the gateway of the port thusly saving money on time. Before long, traditions structures address over 80% of the stack withstand time. CFSs can cut this endure time astonishingly as necessities be saving money on the costs that keep running with delays.

Canonaco (2008) conducted a quantitative study to develop a strategic framework for increasing performance at Walvis Bayport in Namibia. The study presented various strategies include, among others, gate appointment systems, gate extended hours of operation, truck buffer areas

while ensuring better handling and storage operational conditions inside container terminals. The study suggested that in addition to reducing waiting times at terminal gates and improving the overall terminal operations (truck interchange and storage yard operations), these strategies may also be able to reduce congestion at seaports in nearby countries. On top of that Iannone, et al. (2008) argued that legislations have spurred the need for efficiency and congestion reduction, existing attempts at reducing truck queues at terminal gates, technologies available for truck appointment systems, and the long-term viability of these strategies.

2.6 Critique of Existing literature Relevant to the study

There are various studies conducted by various researchers at national level and international levels. With some journals providing researches which are relevant to this study. Mwendo (2008) conducted a study on the causes of sea port congestion in Tanzanian while suggesting some of the strategies for port decongestion. The study obtained its data through questionnaires, interview and observation methods. It was found out that there insufficient space within the port terminal to manage growing volume of traffic where by container volume had reached 2500000 TEU with high expectations for rise by 2010, poor management of containers in the port where by containers were stacked higher and this impacted on the loading and delivery time and conflicting incentives for the container terminal operators. The study recommended need for restructuring storage tariff so as to increase with the container's dwell time in the terminal, change methods of allocating containers from ships to the same ICDs and implementation of port master plan to prepare for further growth.

Rambo (2012) conducted a study on the factors affecting efficiency of container freight services in Mombasa Kenya. The study used a descriptive survey design to collect the relevant data. The target population consisted of all the 17 managers or responsible officers of the CFS at Mombasa Port and an Ordinal Linear Regression (OLR) model was used to analyze the data. The study found out that limited employees to deliver services at the sea port, limited loading and offloading equipment's, high demand for port services, high bureaucracy in port management contributed to the limited efficiency of container freight services. The study therefore recommended for the implementation of improved technology in loading and offloading of cargo, employment of more employees to increase on service delivery and expansion of in land and container flight stations so as to reduce on congestion.

Canonaco (2008) conducted a quantitative study to develop a strategic framework for increasing performance at Walvis Bayport in Namibia. The study presented various strategies include, among others, gate appointment systems, gate extended hours of operation, truck buffer areas etc. while ensuring better handling and storage operational conditions inside container terminals. The study suggested that in addition to reducing waiting times at terminal gates and improving the overall terminal operations (truck interchange and storage yard operations), these strategies may also be able to reduce congestion at seaports in nearby countries. On top of that Tai (2007) argued that legislations have spurred the need for efficiency and congestion reduction, existing attempts at reducing truck queues at terminal gates, technologies available for truck appointment systems, and the long-term viability of these strategies.

The aim of the above literature review was to analyze the studies that was carried out on container clearance with a special focus on, efficiency, effectiveness, reliability and quality delivery services provided while much has been done on the factors affecting Container clearance in port terminals, the available literature concentrated much on handling systems, space capacity and CFS competition. The absence of manpower with skills to handle the clearing process, poor material handling and lack of new technology at the CFS has left the operation of the port terminals in crisis and difficult situation. Therefore, the study attempting to establish these relationships is more necessary for developing applications of such relationships and efficient with a close link to port of Mombasa. Container clearance leads to inefficiency and long dwell time for the clearance of containers. Chioma (2011) identifies three key competitive advantages resulting in high revenues. Advanced technology system put in place, proper transport infrastructure to facilitate fast movement of cargoes from port to CFS and well advanced handling equipment that will take the shortest time possible to perform clearing of containers Mwindi (2009) argues that investing in use of advanced technology and information using single electronic window system is the best way to use in clearing the containers in the port terminals leading a big contribute to the success of the economy of the country and increased improved service delivery.

2.7 Summary

This section emphasized on the influence of container freight in decongestion of Mombasa port in line with the following objectives that is competition between CFSs, use of new technology

and space capacity. The review of the study has been concentrated on theories and empirical studies that have made an effort towards establishing influence of container freight station in decongestion of Mombasa port which include Modern theory, Competitive advantage Theory and queuing theory. Most studies focused mostly on how to reduce congestion at port of Mombasa leaving behind how to improve the CFS so that they assist in decongestion. Container Freight Stations are situated near the serving ports, this assist in decongesting the port by shifting cargo and customs related activities outside the port area. The operations of CFS helps the exporters in clearance of goods, stuffing and de-stuffing which in turn promotes exports from the nation. The performance can be improved by employing enough skilled personnel, using advanced handling equipment, computers, creating enough space and competition among CFS. Many researchers has done about role of container freight station in decongesting the port but no one has done about the influence of CFS in decongestion of Mombasa port.

2.8 Research gaps

Ports are genuine cases where private sector contribution has become famous in changing activities. Starting from 1990s governments began welcoming private entities to help in commitment in port advancement by contributing capital and operational experience. Various studies have been done to determine the challenges facing seaports in general, Mbembe (2012) did strategic planning at KPA. Muriithi (2007) did a study of empty containers by logistics firms in Mombasa while Ajuoga (2011) while studying the strategic responses of CFSs in Kenya to challenges in the business environment noted that there is little information on CFSs as no study has been carried on the CFS business concept. He recommends further in-depth case study of a single CFS or a study of one of the components of the environment.

A critical look at these studies indicate that there has been a great emphasis on the challenges facing port terminals and other hinterland dry ports but none has been carried out on CFS competition between CFS because the more they compete the more they satisfy their customers by faster verification, clearance and release of cargo at the right time, enough space within CFSs will handle more cargo hence reduction in congestion at the port, No one has study about employing new technology and enough space in the CFS, whereby enough space will accommodate more containers and cars. The challenges would therefore propose on the best ways to help decongest the port of Mombasa. This study seeks to make a unique contribution in

filling this significant gap and it will focus on CFS facilities that offer cars, and full container handling and storage services. At the end of this study, CFS operators will know the importance of employing high skilled manpower, adopting new technology and availability of space capacity which leads to trade facilitations at Mombasa port.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter entails research methodology of the study also provides a general outlook for this research. The chapter focused on research design, target population, sampling frame, sample and technique used, data collection instruments, Data collection procedures, pilot testing which validity and reliability and finally Data analysis describing how the data collected was analyzed in an attempt to answer the research questions.

3.2 Research design

Neuman (2006) describes a research design is an organized, structure and strategy of investigation to obtain answers to research questions and control variance. Research design is organized and structured investigations well concessive to obtain answers to research questions Kothari (2011). This study adopted a descriptive research design. Cooper & Schindler (2003) noticed that it is a strategy for gathering data by meeting and managing a survey to test of people. Descriptive survey research design was recommended for its ability to produce statistical information about aspects of CFS challenges, opportunities and its impact that may attracts policy makers and researchers more so its suitability on ensuring minimum bias and maximum reliability of evidence collected.

3.3 Population

The target population for this study comprised three CFS operators operating in Mombasa port. According to KPA Annual Bulletin of Statistics (2011) there are 17 CFS operators in Kenya and they include Mombasa Insland Container Terminals (M.I.C.T.), Auto port and Mitchel cotts (MIT) among others. Owing to the small number in the population therefore, this study will opt to use a survey to cover all the CFS listed in the KPA Bulletin of statistics (2011). Mugenda and Mugenda (2003), state that, the target population should have some observable characteristics, to which the researcher intends to generalize the results of the study.

According to Mugenda (2008) population refers to any group of people, objects, institutions that share common characteristics. Target population is the total sum of the group the researcher is interested in. The target population for this study was 286 officers drawn from CFS managers and staff, customs officers and clearing and forwarding agents.

Table 3.1 Target Population

Category	**Target**	**percentage (%)**
CFS Managers and staff	105	37
Customs Officers	76	26
Clearing and forwarding Agents	105	37
TOTAL	286	100

3.4 Sampling frame

This is the list of all the members of population from which the sample was selected for the study Cooper & Schindler (2003). Sampling frame should be representative of the population and people not in the frame have no prospect of being sampled. The sample frame for this study was; CFS managers and staff, Customs officers, and clearing and forwarding agents selected using a stratified random sampling technique.

3.5 Sample and Sampling technique

Sample is selected sub-group obtained from the available population Mugenda and Mugenda (2008). This sub-group must be carefully selected so as to be a representative of the whole population with relevant characteristics. Each member or case in the sample is referred to as subject, respond or interviewees. Sampling is a procedure, process or technique of choosing a sub-group from a population to participate in the study Ogula (2005). It is the process of selecting a number of individuals for a study. The researcher sampled 86 respondents from the target population representing 30% of the target population.

S =30% *N

S = required sample size

N = the population size

S =30% *286 =86

Sample were selected that provide results to which would have been obtained from entire population (Ary, 2014). Therefore the researcher adopted the sampling procedure that resulted to a representative sample.

Table 3.2 Sampling size

Respondents	**Target**	**30 % Sample Size**	**Percentage**
CFS Managers and staff	105	32	37
Customs Officers	76	22	26
Clearing and forwarding Agents	105	32	37
TOTAL	286	86	100

3.6 Data collecting instruments

The study used primary data collection instrument. Primary data was collected using questionnaire on a likert scale of 1 – 5. Questionnaire refers to a formal set of questions designed to gather information from respondents that accomplished the goals of a research project Burns and Grove (2005). A set of questions were arranged in which the respondents were required to fill in answers. This method was used to collect quantitative data; Questionnaire was used to collect data from both groups of respondents; managers, clearing and forwarding agents as well as customs officers. The researcher dropped the questionnaires and come for it after the time agreed.

3.7 Data collecting procedure

The researcher sought for permit from the college to carry out the research study. Researcher further sought for permission from the organization authorities to carry out the study in the organization. Also, the respondent's employees were notified and their permission sought for the intention of the study carried out. The researcher dropped the questionnaires and come for it after the time agreed.

3.8 Pilot testing

In this study pilot method was used which is an initial run-through of the procedures to be used in an investigation; it involves selecting a few people and trying out the study on them. The researcher's instruments were distributed on few respondents then collected for analysis, after a while then researcher re-distribute other copies of the instruments to the same respondents and compare the outcomes of the results. Scores for each subject were computed to those that were used in the full study, which is 30% of population Mugenda and Mugenda (2008), guided in examining specific aspects of research to see if the chosen procedures work.

3.8.1 Validity

Validity refers to the degree to which evidence and theory support the interpretation of test scores entailed by the use of tests. The validity of the instrument is the extent to which it does measure what it is supposed to measure. According to Mugenda and Mugenda (2008), Validity is the accuracy and meaningfulness of inferences, which are based on the research results it is the degree to which results obtained from the analysis of the data actually represent the variables of the study. The research instrument were validated in terms of content and face validity. The content related technique measures the degree to which the questions items reflected the specific areas covered.

3.8.2. Reliability

Reliability is concerned with consistency, dependability or stability of a test Neuman (2014). The researcher measured the reliability of the questionnaire to determine its consistency in testing the research instruments, the study used SPSS Version 25 to compute the Cronbach's alpha. The cronbach's alpha test was used to test reliability of instrument. A cronbach's alpha value of more than 0.**7** and above is considered as data collection is reliable**.**

3.9 Data analysis

Completed questionnaires were checked for approval in two ways; one by the research assistant and after that by the analyst. This was to guarantee that any abnormality that was identified was remedied while still in the field. Every one of the polls was gathered for additionally handling - altering and coding. Coded data was further edited to clean the illegal codes, omissions, logical inconsistencies and any error found was referenced back to the original data forms

(questionnaire) and the necessary corrections made. Once the data is edited for completeness and consistency, descriptive statistics, percentages, mean, standard deviation, variance and correlation analysis was used to analyze the data and Statistical Package for Social Science (SPSS) version (23) was used in analysis.

The study assumed a linear regression equation to explain the relationship between the independent variables; CFS completion, CFS new technology, CFS space capacity and dependent variables; decongestion.

The linear regression model:

$Y= \beta 0 +\beta 1X1+\beta 2X2+\beta 3X3 +\varepsilon$

Y - Decongestion

β0- constant term, the intercept indicates the decongestion without other variables under study. β1, β2, β3- coefficients explaining the effects of independent variable X1, X2, and X3 to dependent variable Y

X1- Competition

X2- Technology

X3- Capacity

ε- The error term, other factors that might influence CFS in decongesting the port but not included in the study

CHAPTER FOUR
DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

This chapter presents the data analysis, interpretation, and presentation of the study to determine the influence of the influence of container freight stations in decongestion of Mombasa port. Data analysis was done through Statistical Package for Social Scientists (SPSS) version 25. Frequencies, percentages, mean were used to display the results which were presented in tables and graphs.

4.2 Response rate

The target population for this study was CFS operators operating in Mombasa Port, customs officers operating at CFSs around the port of Mombasa and clearing and forwarding agents. The study targeted 86 respondents out of which 80 respondents filled and returned their questionnaire constituting 93% response rate.

Table 4.1 Questionnaire response rate

	Frequency	**Percentage**
Respondent	80	93%
Non-respondent	6	7%
Total	**86**	**100%**

4.2.1 Reliability and validity results

Reliability of the data collection instruments was tested using the SPSS version 23, Cronbach's alpha was used to view the values on how the questions are related. An average Cronbach's alpha index of 0.7 is acceptable to rule internal consistencies of the data collection instrument's internal consistency Amin (2005).Results were as shown in the Table 4.2 below.

Table 4.2 Reliability results

Scale	Cronbach's Alpha	Comments
CFS Competition	0.803	Accepted
CFS New Technology	0.818	Accepted
CFS space capacity	0.791	Accepted
Decongestion	0.765	Accepted

From the table 4.2 above, findings indicated that Competition had an index of 0.803, while new technology had an index of 0.818, Capacity also had a 0.791 index while Decongestion had an index of 0.765 which they were all accepted to the questionnaire was ruled to be reliable.

4.3 Demographic analysis

The researcher sought to know the Number of years the respondents had worked or had experience in dealing with the CFS so as to identify if the respondents had proper and adequate knowledge in the field to provide their opinion on the topic under study.

4.3.1 Place of work

Table 4:1 Place of work

	Frequency	Percent
CFS Managers and workers	30	37
Customs Officers	19	24
Clearing and forwarding Agents	31	39
Total	**80**	**100.0%**

Majority of the respondents were Clearing and forwarding agents with 31 respondents giving a 39% of the total respondents while CFS workers were 30 had 37% and Customs officers were 19 officers giving a 24%

4.3.2 Number of years worked in the position

Table 4:4 Duration Worked

	Frequency	Percent
Below 5 years	12	15%
5-10 years	20	25%
11-15 years	24	30%
15-20 years	19	23%
Above 20 Years	5	7%
Total	80	100.0%

The respondents work experience denoted that 12 respondents had worked for less than 5 years giving a 15%, while those who had worked between 5 – 10 years were 20 respondents giving a 25%. Those worked between 10 -15 years were largest with 24 respondents at 30%. 15-20 years were 19 having a 24% while over 20 years of experience were 5 respondents giving a 6%. From the respondent's experience, it was worth noting that the respondents had relevant information necessary for the study.

4.4 Descriptive analysis

The study found it necessary to investigate on the study objectives which were; to investigate the influence of Container Freight Stations on competition between CFSs in decongesting Mombasa port, to investigate the influence of Container Freight Stations on adoption of new technologies in decongesting Mombasa port and to investigate the influence of Container Freight Stations on space capacity in decongesting Mombasa port. The findings are shown below;

4.4.1 CFS competition

Information was obtained on influence of CFS competition in decongestion of Mombasa port. The Likert responses were strongly agree (SA), agree (A), undecided (U), disagree (D) and strongly disagree (SD) rated 1-5 in that order. Descriptive analysis was used to calculate mean to explain the results of this objective. The mean is the normal estimation of reaction for everything

in the Likert scale. This is basically the total of the qualities divided by the quantity of qualities. The suggestion is that the thing with the most elevated mean is the one which a large portion of respondents picked or evaluated exceptionally and the other way around.

Table 4.5 Influence of CFS competition in decongestion of Mombasa port

Statements	Mean	STD dev
High skilled manpower influences Competition in the CFS Does high skilled man power reduce congestion	4.11	1.273
CFSs have Improved efficiency e.g. infrastructure in their operation	3.92	1.203
Availability of enough workers and highly skilled manpower employed at the CFS increases CFS efficiency	4.06	1.048
Efficient communication networks adopted by the CFSs influences operation and competition among the CFSs	4.07	1.187
Security of the CFSs greatly affects competition in the CFSs having most secured CFSs Attracting more customers	3.91	1.151

The findings in table 4.1above shows High skilled manpower influences Competition in the CFS, CFSs have Improved efficiency e.g. infrastructure in their operation having a mean of 4.11 with a standard deviation of 1.273. CFSs have improved efficiency e.g. infrastructure in their operation with a mean of 3.92 and standard deviation of 1.202 this results are in tandem with Nyema (2014) that infrastructure has improved the efficiency at the port. Availability of enough workers and highly skilled manpower employed at the CFS increases CFS efficiency with a mean of 4.06 and a standard deviation of 1.048. Efficient communication networks adopted by the CFSs influences operation and competition among the CFSs having a mean of 4.07 and a standard deviation of 1.187. Security of the CFSs greatly affects competition in the CFSs having most secured CFSs Attracting more customers had a mean of 3.91 with a standard deviation of 1.151.As per Wang & Zhou (2015).

4.4.2 CFS technology

The study found it important to investigate on whether adoption of new technology can help in decongestion of Mombasa Port, the findings are shown below:

Table 4.6 Influence of CFS adoption of new technology in decongestion of Mombasa port

Statements	Mean	STD Dev
CFSs have sufficient equipment for handling of cargo effectively Improved cargo handling equipment	4.01	0.987
CFSs have Well-coordinated networks which is effective in the operation of CFSs	4.06	1.148
New technology has been adopted by the CFSs while operating to facilitate trading and clearance of cargo	3.70	0.942
CFSs have modern equipment for handling of cargo	4.13	1.006
The operation of modernized handling equipment positively influences decongestion	4.06	0.978

Table 4.2 above shows that CFSs have sufficient equipment for handling of cargo effectively Improved cargo handling equipment having mean of 4.01 and standard deviation. 0.987. CFSs have Well-coordinated networks which is effective in the operation of CFSs having mean of 4.06 and standard deviation of 1.148. New technology has been adopted by the CFSs while operating to facilitate trading and clearance of cargo having mean of 3.70 and standard deviation of 0.942. CFSs must have modern equipment for handling cargo with mean of 4.13 and standard deviation of 1.006.The operation of modernized handling equipment positively influences decongestion having mean of 4.06 and standard deviation of 0.97. Mwakanongo (2010) argues that investing in use of advanced technology and information using single electronic window system is the best way to use in clearing the containers in the port terminals leading a big contribute to the success of the economy of the country and increased improved service delivery.

4.4.3 CFS space capacity

It was important to establish the influence of CFS on space capacity in decongesting Mombasa port, the findings are shown below:

Table 4.6 Influence of CFS on space capacity in decongesting Mombasa

Statements	Mean	STD Dev
CFSs have helped Expand size of the Mombasa port in capacity handled annually	3.78	1.193
Space provided by CFSs assists in Reducing cargo diversion	3.70	1.032
The CFSs have Enough space required to keep up a vital separation from blockage, redirection of payload and theft, Revenue shirking.	4.13	1.176
The CFSs gives adequate space to payload dealing with and limit, engaging the port overseer to utilize the breaking point at these workplaces away of holders once discharged from the ship sitting tight for slack.	4.16	1.172
Space provided in CFSs helps reduce blockage hence increased efficiency in operation.	3.97	1.017

The findings in table above shows CFSs have helped Expand size of the Mombasa port in capacity handled annually with the respondents having a mean of 3.78 and a standard deviation of 1.193. Space provided by CFSs assists in reducing cargo diversion most respondents agree evidenced by a mean of 3.70 and a standard deviation of 1.032. The CFSs have enough space required to keep up a vital separation from blockage, redirection of payload and theft, Revenue shirking with a mean of 4.13 and a standard deviation of 1.172. The CFSs gives adequate space to payload dealing with and limit, engaging the port overseer to utilize the breaking point at these workplaces away of holders once discharged from the ship sitting tight for slack with a mean of 4.16 and a standard deviation of 1.172. Space provided in CFSs helps reduce blockage hence increased efficiency in operation with a mean of 3.97 and a standard deviation of 1.017. As stated by Rambo (2012), space is adequate place required at the container terminal for containers

and cars storage. Enough space is required to keep up a vital separation from blockage, redirection of payload and theft, Revenue avoidance, Time misused and blend up and ease affirmation and room of container and cars.

4.4.4 Decongestion

The study finally intended to investigate on how CFS affected decongestion of Mombasa Port, the findings are shown below:

Table 4.8 decongestion of Mombasa Port

Statements	Mean	STD Dev
Decongestion at Mombasa port reduces loss of revenue	3.91	1.012
Decongestion at Mombasa port reduces time wasted.	4.32	0.955
The storage space gave at these workplaces serves to decongest the port	4.01	0.991
The adoption of new technology by CFSs helps Decongest the port of Mombasa.	4.13	1.012
Competition among CFSs has positively improved decongest the port of Mombasa.	4.20	1.131

According to the response as to whether decongestion at Mombasa port reduces loss of revenue most respondents agree with the statement having a mean of 3.91 and a standard deviation of 1.102. Decongestion at Mombasa port reduces time wasted has a mean of 4.32 and a standard deviation of 0.955. The storage space gave at these workplaces serves to decongest the port with mean of 4.01 and a standard deviation of 0.991. The adoption of new technology by CFSs helps Decongest the port of Mombasa with a mean of 4.13 and a standard deviation of 1.012. Competition among CFSs has positively improved decongest the port of Mombasa. The findings show that there is an influence CFS in decongesting Mombasa Port, the most effect being that CFS can reduce time wasted at the port and in that way reduce decongestion this with mean of 4.20 and a standard deviation of 1.131 as explained by Obed, & Emeghara (2009).Trade facilitation.

4.5 Correlation Analysis

Table 4.9 Pearson Correlation

Pearson Correlation Correlations				
Model	Competition	Technologies	Capacity	Decongestion
Competition Pearson Correlation	1			
Sig. (2-tailed)				
N	80			
Technology. Pearson Correlation	.646**	1		
Sig. (2-tailed)	.000			
N	80	80		
Capacity. Pearson Correlation	.453**	.695**	1	
Sig. (2-tailed)	.000	.000		
N	80	80	80	
Decongestion Pearson Correlation	.726**	.792**	.703**	1
Sig. (2-tailed)	.000	.000	.000	
N	80	80	80	80

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

The study used Karl Pearson's coefficient of correlation (r) to ascertain the relationship between variables. There was a positive correlation with linear relationship between the independent variables and dependent variable with coefficient of correlation (r). Competition had 0.726 (Strong positive correlation) with decongestion, this implied that competition had a strong influence in decongestion of Mombasa port. New technology strong positive relation of 0.792 to decongestion, which also translated to mean that new technology strongly, influenced the decongestion at Mombasa port. Space Capacity had a strong relation of 0.703 to decongestion which were statistically significant with ($p < .001$) for variables. From the table above, the independent variables; Competition, Technology and Capacity have a strong positive correlation

to the dependent variable meaning the competition, technology and capacity strongly influences decongestion at the port of Mombasa.

4.6 Regression Analysis

4.6.1 Coefficient of determination (R^2)

Table 4.10: Coefficient of determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.866a	.751	.741	1.76436

a. Predictors: (Constant), Capacity, Competition, Technology

From the model above, the value of (R) explains the variance shared between the independent and dependent variables, in the case above is 0.866 indicating the presence of variance shared by the independent variables and the dependent variables. R square being 0.751 explains the variation in the dependent variable. This implies that the data that had been employed in the regression model were accurate and reliable to be used to regress the variables.

4.6.2 Analysis of Variance

Table 4.11 ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	712.415	3	237.472	76.285	.000
	Residual	236.585	76	3.113		
	Total	949.000	79			

a Dependent Variable: Decongestion

b Predictors: (Constant), Capacity, Competition, Technology

The ANOVA for the regression indicated that the results computed using the regression model having a F= 76.285 with a significance level at 0.000 significant (F= 76.285, $p<0.05$) meaning

that the regression model was significant. This means that the independent variables are significant predictor of the dependent variable.

4.6.3 Regression Analysis

Table 4.12 Multiple Regression Analysis

Model		Unstandardized B	Coefficients STD. Error	Standardized coefficients BETA	t	Sig.
1	(Constant)	4.343	1.040		4.176	.000
	Competition	.307	.063	.367	4.889	.000
	Technology	.290	.077	.351	3.774	.000
	Capacity	.229	.062	.293	3.684	.000

Dependent Variable: Decongestion

The results from the coefficients, illustrate that the coefficient was all significant to be used for multiple correlation as shown below:

$$Y= 4.343 +307X_1+290X_2+229X_3 +\varepsilon$$

Y – Decongestion, β0- constant term, the intercept indicates the decongestion without other variables under study. β1, β2, β3- coefficients explaining the effects of independent variable X1, X2, and X3 to dependent variable Y , X_1- Competition, X_2- Technology, X_3- Capacity and ε- The error term, other factors that might influence CFS in decongesting the port but not included in the study

Decongestion = 4.343 + 0.307(Competition) + 0.290 (Technology) + 0.229 (Capacity). These results were interpreted to mean that still decongestion at the port of Mombasa is at 4.343 even without the influence of the CFSs. This is the value of the Y-Intercept to give performance when other variables under the study are at Zero thereby giving a value of 4.343 performances. Meaning without even the influence of the CFS at Mombasa port, Decongestion was and is still at 4.343. A unit increase in the CFSs competition will result to a 0.307 or 30.7% factor increment

in decongestion at the port of Mombasa. CFS Competition significantly influences decongestion at the port of Mombasa by 30.7%, meaning that an increase in unit competition would result to decongestion at port of Mombasa by 30.7% being highest of the independent variables under the study.

A unit increase in the technology adoption at the CFSs influences the Decongestion of the Mombasa port by a factor of 0.290 or 29% by the CFSs. Technology has also influenced the decongestion at Mombasa port. The adoption of technology in the CFSs improves decongestion at the port of Mombasa moderately .CFS capacity has least influenced the decongestion of the port of Mombasa by 22.9%. This means that a unit increase in the CFS Capacity will influence the Decongestion of the Mombasa port by 22.9% or 0.229 factors. Findings are in tandem with Milimu (2014) that space capacity had a significant effect on containerized cargo clearance

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMENDATIONS

5.1 Introduction

This chapter entails the key findings presented in chapter four by relating them to the objectives of the study, and again reflects on the methodologies used to obtain and analyze data. From the findings, conclusions are drawn and recommendations are made. The chapter ends with identifying an area for further research.

5.2 Summary of findings

5.2.1 What is the influence of CFS competition in decongestion of Mombasa port?

The study sought to answer the research question, to what extent does CFS competition influence decongestion at Mombasa port? The study found out that the CFSs Competition significantly influences the decongestion of the port of Mombasa as evidenced in the regression model generated competition having a 30.7% or 0.307 influences on the decongestion. The study found out that CFS has an effect in decongesting Mombasa port through its competition effect, the study established that through high skilled man power and improved infrastructure. This was also supported by the Karl Pearson's correlation coefficient values that, Competition had 0.726 (Strong positive correlation) with decongestion.

5.2.2 What is the influence of CFS technology in decongestion of Mombasa port?

With the second research question seeking to investigate the influence of Technology used by CFS on the Decongestion of Mombasa port, the study findings indicated that technology from the CFSs has strongly influenced decongestion at the port of Mombasa. The study further established that CFS can reduce congestion through new technology. This is can be done by improved cargo handling and well-coordinated network within the port this is in agreement with Nyema (2014) on infrastructure improving efficiency at the port. Evidenced from the regression model obtained the technology influences decongestion by 0.290 or 29% by the CFSs. New technology strong positive relation of 0.792 to decongestion. Using the Karl Pearson's coefficient of Correlation CFS technology strong positive relation of 0.792 to decongestion, this

also translated to mean that new technology strongly influenced the decongestion at Mombasa port

5.2.3 What is the influence of CFS space Capacity in decongestion at Mombasa port?

With a study question seeking to investigate the extent to which the Space Capacity from CFS influence Decongestion at Mombasa port. The study also established that CFS influences the decongestion of Mombasa Port in terms of space capacity by 0.229 or 22.9% from the model obtained. CFS capacity has least influenced the decongestion of the port of Mombasa. The study established that space capacity increases cargo handling and can reduce diversion of cargo. Finally, the study found out that CFS influence decongestion of Mombasa Port by reducing loss of revenue, reducing time wasted and reducing cargo diversion. Capacity had a strong correlation of 0.703 to decongestion implying that CFS capacity influences the decongestion to a great extent. This therefore similar to Mbembe (2012) findings those CFSs assist in delivery of the cargo and storage and have played a role in decongesting Mombasa port.

5.3 Conclusions

The study made the following conclusions in relation to the objectives of the study. The conclusions were;

5.3.1 CFSs competition

The CFSs' Competition influences the Decongestion of the Mombasa Port positively through having high skilled manpower and improved infrastructure. The further concludes that competition between the CFS along the port can help improve the services at the port because each CFS operators will be struggle harder to meet the customer's expectation. Therefore, availability of enough workers and highly skilled manpower employed at the CFS and also improved infrastructure such accessible road to the CFS, communication network will increase its efficiency, leads to fast cargo clearance.

5.3.2 CFS new Technology

The study also concludes that technology is important at the CFS in reducing congestion. Technology improves cargo handling by ensuring that all clients involved receive timely and accurate information on each transaction made and also transaction is performed correctly.

Technology increases the speed and transparency of the CFS while maximizing the physical infrastructure.

5.3.3 CFS Space Capacity

The study concludes that through availability of space capacity from the CFSs the port of Mombasa decongested. Decongestion of Mombasa port is achieved through the provision of ample storage capacity for stacking containers while awaiting customs verification and clearance by customs officers. These findings are in tandem with Milimu (2014) that space capacity had a significant effect on containerized cargo clearance. Finally, the study concludes that by decongesting Mombasa port CFS will help reduce loss of revenue through cargo diversion and time wasted by the long queues at the port.

5.4 Recommendations

Sufficient and qualified workers and highly skilled manpower employed at the CFS and also improved infrastructure such accessible road to the CFS, communication network will increase its efficiency, leads to fast cargo clearance.The improvement on the technology in both communication and handling equipment in use by the CFS to increase efficiency in decongesting the port of Mombasa. These speeds up the movement of vehicles between the CFS and the port therefore the study propose that there should be better and improved infrastructure. The success of a CFS does not only depend on better port performance but also on infrastructure, therefore better infrastructure will ensure decongestion from the capacity provided by CFS.

5.5 Limitations of the Study

The study was limited to the CFS at the Port of Mombasa due to finance and time constraints. It was not possible to cover the several other CFS and the study therefore targeted three CFS at the Mombasa port. Second limitation of the study was inadequate resources in terms of time, money and manpower as a result of being a student. The third limitation was that the interviewer was asking permission to clients to interview them, as some was willing and others may totally get upset by the whole exercise of which you may not get all the information required.

Despite all these challenges, the researcher managed to have reliable data from the willing respondents which the research assured them the confidentiality of the information. Time and financial resources constrains ware met and dealt with through proper planning allocation. The researcher attempted all the best to overcome the challenges and came up with accurate information.

5.6 Areas for future research

Since the study focused on the three independent variables that the researcher sought to investigate their influence on the decongestion of Mombasa port by CFSs, these variables being Competition, Technology and Capacity, and according to the model in the coefficient of determination which indicated that the model only explained 75.1% of dependent variable (decongestion), the remaining 24.9% of influences of the CFSs on the Decongestion is still unexplained therefore further studies to explore such gaps and factors will be needed. The study recommends that further research should be carried out.

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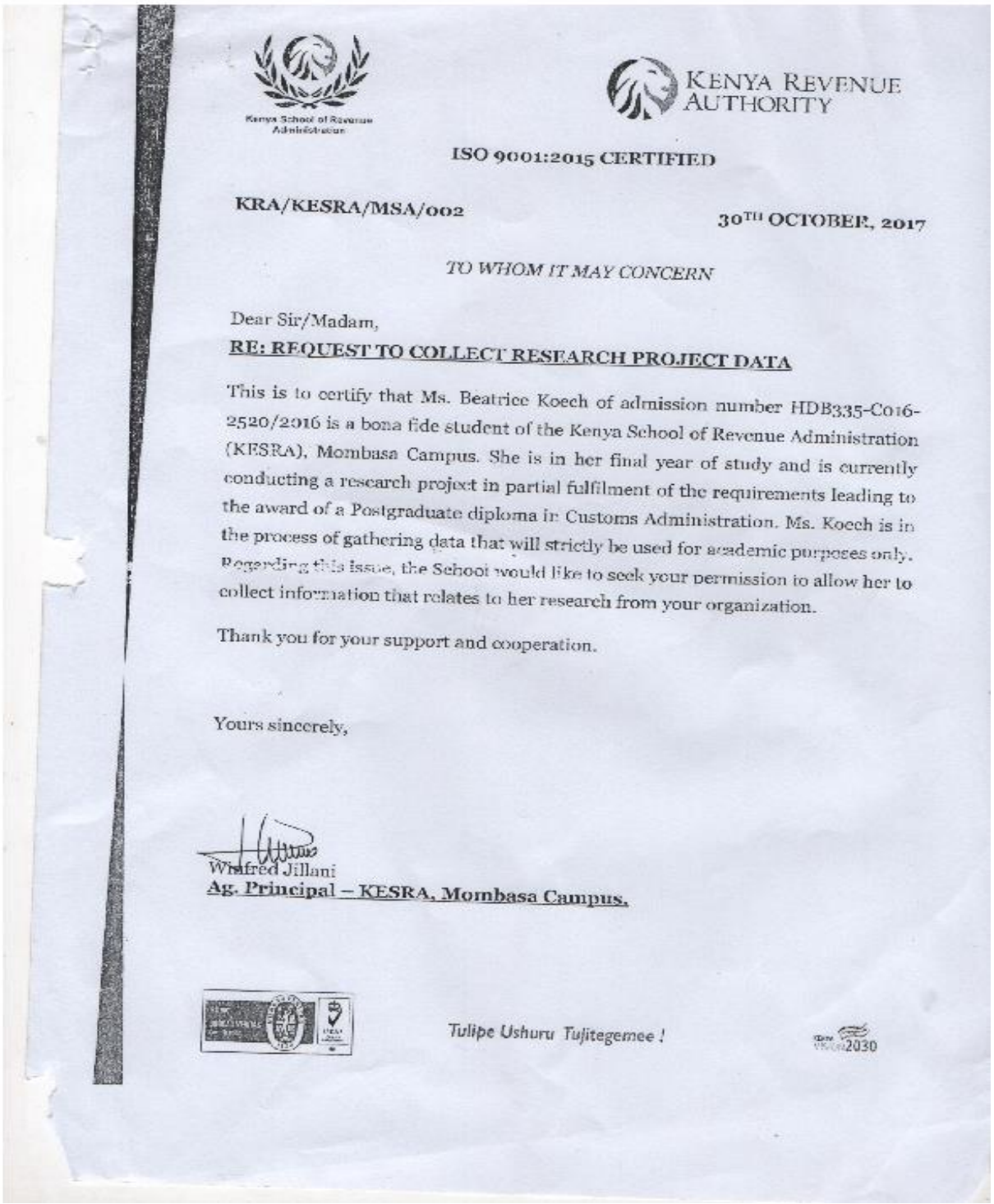
APPENDICES

APPENDIX I: INTRODUCTION LETTER



Kenya School of Revenue Administration

KENYA REVENUE AUTHORITY

ISO 9001:2015 CERTIFIED

KRA/KESRA/MSA/002 **30TH OCTOBER, 2017**

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: REQUEST TO COLLECT RESEARCH PROJECT DATA

This is to certify that Ms. Beatrice Koech of admission number HDB335-C016-2520/2016 is a bona fide student of the Kenya School of Revenue Administration (KESRA), Mombasa Campus. She is in her final year of study and is currently conducting a research project in partial fulfilment of the requirements leading to the award of a Postgraduate diploma in Customs Administration. Ms. Koech is in the process of gathering data that will strictly be used for academic purposes only. Regarding this issue, the School would like to seek your permission to allow her to collect information that relates to her research from your organization.

Thank you for your support and cooperation.

Yours sincerely,

Winifred Jillani
Ag. Principal – KESRA, Mombasa Campus.

Tulipe Ushuru Tujitegemee !

APPENDIX II: QUESTIONNAIRE

The purpose of this questionnaire is to investigate the INFLUENCE OF CONTAINER FREIGHT SERVICES (CFSS) IN DECONGESTION IN PORT OF MOMBASA. Your response to this Questionnaire will serve as source of information to the research project to be carried out. All the responses you provide here is strictly confidential and will be used exclusively for the research purpose. Your honesty in responding the right answer is vital for the research outcome to be reliable.

SECTION A: DEMOGRAPHIC INFORMATION

Please select where you work

CFS Managers and staff [ ] Customs Officers [ ] Clearing and forwarding Agents [ ]

Number of years worked in the position

Below 5 years [ ] 5-10 years [ ] 11-15 years [ ] 15-20 years [ ] above 20 years [ ]

SECTION B: COMPETITION

Competition is whereby two or more entities are competing to meet their goals. Here will be stiff competition between CFS; each CFS around the port will make sure they have requirements needed in the CFS or put measures that will improve their services for them to get more customers.

Please rate the following influence of CFS on competition in decongesting Mombasa port by ticking (/) one of them in the space provided in the scales 5-1

Strongly agree 5 Agree 4 Undecided 3 Disagree 2 Strongly disagree1

Statements	1	2	3	4	5
High skilled manpower influences Competition in the CFS					
CFSs have Improved efficiency e.g. infrastructure in their operation					
Availability of enough workers and highly skilled manpower employed at the CFS increases CFS efficiency					
Efficient communication networks adopted by the CFSs influences operation and					

competition among the CFSs					
Security of the CFSs greatly affects competition in the CFSs having most secured CFSs Attracting more customers.					

SECTION C: NEW TECHNOLOGY

Employment of sufficient equipment for loading and offloading containers will make work easier, those CFSs that has modern equipment operates faster and clear, thus having more containers getting in and out of CFS hence reducing congestion at the port

Please rate the following influence of CFS on adoption of new technology in decongesting the Mombasa port by ticking (/) one of them in the space provided in the scales 5-1

Strongly agree 5 Agree 4 Undecided 3 Disagree 2 Strongly disagree1

Statements	1	2	3	4	5
CFSs have sufficient equipment for handling of cargo effectively Improved cargo handling equipment					
CFSs have Well-coordinated networks which is effective in the operation of CFSs					
New technology has been adopted by the CFSs while operating to facilitate trading and clearance of cargo					
CFSs have modern equipment for handling of cargo					
The operation of modernized handling equipment positively influences decongestion					

SECTION D: CAPACITY

Space is adequate place required at the compartment terminal for containers and cars. Enough space is required to keep up a vital separation from blockage, redirection of payload and theft, Revenue shirking, Time misused and blend up and ease affirmation and room of compartments and cars

Please rate the following influence of CFS on space capacity in decongesting Mombasa port by ticking (/) one of them in the space provided in the scales 5-1

Strongly agree 5 Agree 4 Undecided 3 Disagree 2 Strongly disagree1

Statements	1	2	3	4	5
CFSs have helped Expand size of the Mombasa port in capacity handled annually.					
Space provided by CFSs assists in Reducing cargo diversion					
The CFSs have Enough space required to keep up a vital separation from blockage, redirection of payload and theft, Revenue shirking.					
The CFSs gives adequate space to payload dealing with and limit, engaging the port overseer to utilize the breaking point at these workplaces away of holders once discharged from the ship sitting tight for slack.					
Space provided in CFSs helps reduce blockage hence increased efficiency in operation.					

SECTION E: DECONGESTION

Please rate the following influence of CFS in decongestion of Mombasa port

Strongly agree 5 Agree 4 Undecided 3 Disagree 2 Strongly disagree1

Statements	1	2	3	4	5
Decongestion at Mombasa port reduces loss of revenue					
Decongestion at Mombasa port reduces time wasted.					
The storage space gave at these workplaces serves to decongest the port					
The adoption of new technology by CFSs helps Decongest the port of Mombasa.					
Competition among CFSs has positively improved decongest the port of Mombasa.					

End of the Questionnaire.

APPENDIX III:

LIST OF CONTAINER FREIGHT STATION WITHIN MOMBASA PORT

1. MOMBASA INSLAND CONTAINER TERMINALS

2. AUTOPORT

3. MITCHEL COTTS

4. COMPACT FREIGHT SYSTEM

5. CONSOLBASE LTD (F.F.K)

6. AWANAD

7. APM TERMINALS

8. INTERPEL

9. FOCUS CFS

10. KENCONT

11. MAKUPA CFS

12. AFRICAN LINER AGENCIES

13. BOSS FREIGHT LTD KENYA

14. KIPEVU

15. PORTSIDE FREIGHT TERMINAL LTD

16. REGIONAL LOGISTICS

17. SIGNON

Source: KPA Annual Review & Bulletin of Statistics (2011)