FACTORS THAT INFLUENCE THE IMPLEMENTATION OF ELECTRONIC CARGO TRACKING SYSTEM AT THE CUSTOMS DEPARTMENT IN THE KENYA

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF ECONOMICS, ACCOUNTS AND FINANCE, SCHOOL OF BUSINESS IN PARTIAL FULFILMENT FOR THE AWARD OF POST GRADUATE DIPLOMA IN CUSTOMS ADMINISTRATION JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

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DECLARATION

Declaration by the Student

I declare that this research project is my original work and that it has not been previously presented to any other university or institution.

Signed: …… Date: ……

Njue Rita Susan Wambeti

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Declaration Supervisor

This research project has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

I dedicate this project to my sons George Chomba and Boniface Maingi, my parents Maj Benjamin Njue (Rtd), to the loving memory of my mother, Lucy Karindi Njue, my new mother Josephine Rugambirwa Njue, my sister Nancy Bukuku and my brothers for understanding and selfless support and encouragement during my entire time working on the project as well as life in general. Special mention to my beautiful friends, Lucy Mbaire Mbatia, Susan Mwikali Manza, Christine Mujei Ilahalwa, Edith Wanjiku Gathogo, Ivy Achieng, my course mate, Denis Achuka Nyabuto for prayers and pushing me to realize my dreams, God bless you all.

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My special and most sincere thanks go to my supervisor, Mr. Owuor Ominde for being patient with me and guiding me at every turn, Mr. Bernard Kago for taking a keen interest in my work and by offering valuable advice and support whenever I needed it, my colleagues at the Cargo Monitoring Division for the encouragement to pursue my dreams and my employer, the Kenya Revenue Authority for supporting my pursuit of furthering my education by allowing me carry out my research work in the Authority's premises.

Last but not least, the Kenya School of Revenue Administration together with the Jomo Kenyatta University of Agriculture and Technology for allowing me to study.

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LIST OF ABBREVIATIONS AND ACRONYMS

Authority	Herein means Kenya Revenue Authority
CMC	Centralized Monitoring Centre
ECTS	Electronic Cargo Tracking System
GPS	Global Positioning System
GPRS	General Packet Radio Service
GSM	Global System for Mobile
ICT	Information and Communications Technology
ITMS	Integrated Tax Management System
KPA	Kenya Ports Authority
KRA	Kenya Revenue Authority
MMS	Manifest Management System
PIN	Personal Identification Number
PMBO	Program Management and Business Modernization Program
RARMP	Revenue Administration Reform and Modernization Program
RRU	Rapid Response Unit
SCT	Single Customs Territory

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DEFINITION OF TERMS

Electronic Cargo Tracking System - is a multi-tiered system developed to electronically monitored goods under transit, exports or imports (Musyoki, 2013).

Revenue Collection - collection levies, duties and taxes on imported or exported goods (Kisembe, 2014).

Trade Facilitation - Removing obstacles to the movement of goods across borders by simplification, harmonization and standardization of customs procedures (Debbie, 2013).

Transit Goods - the movement of goods imported from a foreign place through the territory of one or more of the Partner States, to a foreign destination (Manji, 2015).

ABSTRACT

Trade, being a major source of revenue for governments, needs to be safeguarded by engaging appropriate measures that ensure this is achieved. The ratification of the World Trade Organization (WTO) Agreement on Trade Facilitation requires that we put appropriate measures in place to ensure smooth as well faster movement of transit cargo between countries. One such measure is monitoring transit cargo electronically by use of the electronic cargo tracking system which uses the radio frequency identification (RFID). Management of transit cargo is a very important element of trade, not only for landlocked countries such as Uganda and Rwanda but for Kenya as well, being the country through which these cargo transits through. Improved infrastructure has created potentially lucrative opportunities for both transporters and vehicle tracking companies. The growth of the logistics market is being driven by higher trade volumes as local economies diversify and expand, domestic consumer demand goes up, global demand for natural resources rises, thereby boosting cross-border trade. The electronic cargo tracking system has had a massive impact on transit trade in the region by ensuring security of the cargo in real-time which is helping prevent diversion of goods into the local markets, theft cases, as well as providing reliable information in order to help retrieve goods in case of accidents, thereby enhancing security of the supply chain. The objective of the study will be to determine the effect of efficiency on the electronic cargo tracking system at the Customs department in Kenya. To determine the effect of cost on the electronic cargo tracking at the Customs department in Kenya. To establish the effects safety on the electronic cargo tracking system at the Customs department in Kenya and to find out the challenges faced by the implementation of electronic cargo tracking system at the Customs department in Kenya. The study adopted case study research design. A research questionnaire was used as a data collection tool. Data analysis was done using descriptive statistics where the findings of the study revealed a positive impact at the Customs department in Kenya. The research findings revealed the major challenges in implementing the system.

CHAPTER ONE

INTRODUCTION

Electronic Cargo Tracking is a multi-tiered system developed to electronically monitored goods under transit, exports and KRA‟s control as it moves along the Kenyan supply chain from source to destination. The ECTS offers real time cargo tracking solution. All trucks/vehicles, tankers and containers carrying goods on transit, exports & under KRA‟s control are fitted with a tracking device and electronic seal which sends the seal status, truck location and any violation information to KRA on real time basis (Odhiambo, 2016).The ECTS provide KRA with a comprehensive solution for the monitoring of transit cargo, its status, location and other pertinent information about it in real time, hence securing the Supply chain. The electronic seal is reusable 1000 times and a useful life of 3-5 yrs depending on the usage. ECTS covers all cargo to and from customs control areas – Transit, CFS (including un-entered goods), EPZ, MUB, Exports, Transit Go down, ICD, all cargo to Bonded warehouse, customs warehouse, all wet cargo on transit and re-exportation (R300), excisable goods For exports and within controlled areas, goods moving to privileged organizations AFCO, NAS, duty free shops etc (Oirere, 2015). The chapter contains the background of the study, statement of the problem, general objectives, specific objectives, research questions, significance of the study and scope of the study.

1.1 Background of the Study

KRA was established by an act of parliament in 1995 as a semi-autonomous government agency responsible for revenue collection. The agency came into existence in 1995 and has drastically improved the country's taxation revenue through organized administration and collection practices. The majority of the nation's budgetary revenue comes from internal taxes,

which go to pay for services such as health care and education. The Authority is under the general supervision by the Minister of Finance as an agent for the collection and receipt of revenue. KRA currently collects around 95% of government revenue. (Odundo, 2017). Since the inception of KRA, revenue collections have accumulated and demonstrable skills on how to maximize collections has improved. The Authority was able to gather revenues by 48% from Kshs. 201.7 billion in 2002/2003 to Kshs. 297.7 billion in 2005/06. Be that as it may, the cost of gathering rose from 1.6% in 2002/03 to 1.9% in 2005/2006 because of costs connected with the usage of the Reform and Modernization Program (KRA, 2015). KRA is yet to work as a completely incorporated association since various procedures stay manual.

The challenges facing KRA include tax evasion, fraud, dumping of transit and import goods and illegal importation. In order to meet its challenging role of tax collection and administration KRA has always embarked on modernization programs on of which involve automation (Revenue reforms in Kenya; Experience and lessons 2012). Some of the automation programs include online application of personal identification number (PIN), ITMS, online PIN checker, iTAX among others. These initiatives are not merely resource intensive but also critical in service industry. KRA has program Management and business analysis office (PMBO) which is mandated to oversee the formation development and implementation of proposals in the authority. In the recent past, it has been observed that the PMBO unit has been involved much on ICT based proposals which have had various outcomes with varying effect on the authority's resources and plans.

The world is opening up and with this has brought an increase in international trade. The rules of engagement trade-wise is therefore changing dynamically and with this increase the world is continues to take steps trade is supported and there is continuous growth world over. Electronic Cargo Tracking Systems (ECTS) have therefore been introduced to be able to facilitate fair

trade and also enhance cargo security. This particular system is a Kenya Revenue Authority (KRA) initiative. The primary role of ECTS is not only to enhance national security but to also curb evasion of payment of duties and taxes and eventually maintaining the integrity of the supply chain. Dumping of goods in the market is also drastically reduced as the goods are tracked from one border point to another. The interests of the public sector are therefore catered to.

The interest of the private sector which are primarily to maintain their Standard Operating Procedures (SOPs) that include just-in-time deliveries, cost-effective logistics, and maintaining the integrity of goods are addressed by this system. The private is able to get a better Return on Investment (ROI). Research will be able to study the operational performance before and after implementation of the system. Based on the findings we will be able to establish if this particular infrastructure is indeed assisting the tax collector deliver on its mandate (Kihara, 2010). The process of information processing by the border officials and other intelligence agencies is currently quite taxing and the vulnerabilities associated with container stacking are also quite high. The introduction of real-time information processing will enable information to be received and dealt with much faster and also decongest the clearing process. The long-term vision for the electronic cargo system as set by KRA is to develop a system that harmonizes and simplifies all the processes, so as to aide in the facilitation of the movement of cargo internationally, whilst assisting in the enforcement of Tax laws and maximizing on revenue collection (Musyoki, 2013).

1.1.1 Global Perspective on Electronic Cargo Tracking System

Electronic cargo tracking services provide among other services, the ability to view your vehicles on a real-time basis and remote and control in the movement of local and international cargo (Oa, 2010). The installation of the electronic cargo tracking system has been made

mandatory in Kenya and its neighbors both Rwanda and Uganda. The main focus for this has been to help in various activities such as revenue collection, improve how cargo is handled and overall assisted to enhance the business environment of the respective countries and their trade routes. This is being spearheaded by the state-owned tax collection agencies and the improved custom duty collection has not only enabled a reduction of import tax in some instances, but has also made it possible for governments to reduce tax on cargo (Oirere, 2015).

1.1.2 Regional Perspective on Electronic Cargo Tracking System

To be able to offer these services organizations must obtain a license from Kenya Revenue Authority. The revenue authority is charged with the responsibility of vetting organizations that are interested in offering the service. The Freight Watch International reported that countries in East Africa are on the list of spots about the raise in cargo theft and this is quite a challenge facing their operations. Cargo theft is ranked together with corruption incidences, increase in crime and violence, poor infrastructure, weak governance, political instability and social unrest, (Griffin, 2015). The use of this technology will therefore assist Kenya's customs processes so that trucks entering Kenyan territory are equipped with GSM/GPRS communication and this is an advantage to both governments and institutions (Tibbs, 2015).

1.1.3 National Perspective on Electronic Cargo Tracking System

Regionally the initiative will present a single platform for transacting and taking part in international trade activities within the block at large. It is a requirement for all cargo importers, cargo exporters, authorized and appointed clearing agents and cargo transporters conveying goods under customs control to install their trucks with ECTS eventually leading to the phasing out of tamper- prone seals and cumbersome practices such as customs physical escorting cargo from one border to the other (Cullinane, 2014).Transporters get to share in some of the rewards that come with this system being installed such as the transit goods license fees being waived.

Similarly, the transporters can be able to monitor their cargo on a real time basis and therefore improve on service delivery to their own clientele. Statistics collected by the Kenya Ports Authority (KPA) showed that traffic for goods on transit to the port of Mombasa which is the main hinterland of the East African region significantly been on the raise from 7.19 million tonnes in year 2014 to 7.66 million tonnes in the year 2015 this illustrates an 8.2 per cent growth (Odhiambo, 2016).

1.1.4 Electronic Cargo Tracking System

Electronic Cargo Tracking System (ECTS) is a system developed to remotely monitor goods electronically while on transit, and controls as the goods move along the supply chain from source to destination in Kenya, Uganda and Rwanda and even more that will join. Monitoring of the movement of the cargo is done on a real time basis. Implementation is done using Radio Frequency Identification (RFID) and GPS/GPRS technology. It is a legal requirement to have all outbound trucks/vehicles, tankers and containers loaded with transit goods fitted with a tracking device for basic tracking and vehicle monitor. In addition to this the vehicle should be fitted with an electronic seal which reports the truck location and reports on all violations on a real time basis (Musyoki, 2010). In addition to this the system users a series of features such as a virtual fence known as the geofence that is set-up along gazetted routes used by transporters carrying export cargo. The process starts with the collection of co-ordinates of the routes that the trucks will be using, this information is then stored. If the truck is driven off route, the system sends out geofence violations that are system generated. For the system to be fully functional there are three important components that have to be set- up in place by transporter that is moving the cargo from the entry point to the exit point at our borders (Sorir, 2010)..

1.2 Statement of the Problem

The rapid expansion of cargo tracking and the great emphasis placed on time as an element of competitive edge (Griffin, 2015). This research will however look at the factors affecting electronic cargo tracking system at the Customs Department in the Kenya Revenue Authority. Embracing the system, does in itself present other loopholes and challenges such as lack of proper infrastructure especially at the border points, general operation, manpower, and the type of electronic seals that are being deployed and so on. Based on the studies it is evident a sizeable amount of cargo that moves within and without the country without being charged with levies accordingly and also without the interested parties having any visibility on it. It is also evident that the introduction and use of the electronic system will assist stakeholders both in the public and private sectors to be able to have viability of the movement of their cargo on a real time basis (Musyoki, 2013). Likewise, the system will assist Kenya revenue authority achieve its main aim purpose of setting up the system which is to better control goods coming in and out of the country and similarly being able to efficiently charge taxes and levies on the goods successfully, the research will therefore examine the factors that affect of the implementation ECTS at the Customs Department in the Kenya Revenue Authority using three key factors efficiency, safety and cost.

1.3 Research Objectives

1.3.1 General Objective

The general objective of this study was to determine factors that influence the implementation of electronic cargo tracking system at the Customs Department in the Kenya.

1.3.2 Specific Objectives

(i) To determine the effect of efficiency on the electronic cargo tracking system at the Customs Department in Kenya.

(ii) To determine the effect of cost on the electronic cargo tracking at the Customs Department in Kenya.

(iii) To find out the effects safety on the electronic cargo tracking system at the Customs department in Kenya.

1.4 Research Questions

(i) How does efficiency affect electronic cargo tracking system at the Customs department in Kenya?

(ii) How does cost affect the electronic cargo tracking at the Customs Department in Kenya?

(iii) How does safety affect the electronic cargo tracking system at the Customs department in Kenya?

1.5 Significance of the Study

The findings of this study is beneficial to the following categories of people: Those in the academic world are able to get reference material on the relationship between operational performance and the introduction of a new IT system. The research forms part of the known literature on operational performance that can be used for academic research. Kenya Revenue Authority also benefits from the findings. The Authority is able to understand the concept of electronic cargo tracking. By gaining this understanding, the organization will be able to take

measures that will assist in the implementation of system accordingly, especially having learnt from the findings on the areas that need improving and fine tuning so as to make the introduction of the system a complete success. They will be able to understand the constraints to implementation of the system and use this knowledge to ensure that their internal procedures and processes set in place are able to overcome these challenges and improve on profitability.

1.5.1 Government

The government would benefit from the study on formulation of policies and regulations on transit goods. Electronic Cargo Tracking is a multi-tiered system developed to electronically monitored goods under transit, exports and KRA‟s control as it moves along the Kenyan supply chain from source to destination. The ECTS offers real time cargo tracking solution. All trucks/vehicles, tankers and containers carrying goods on transit, exports & under KRA‟s control are fitted with a tracking device and electronic seal which sends the seal status, truck location and any violation information to KRA on real time basis (Odhiambo, 2016). The ECTS provide KRA with a comprehensive solution for the monitoring of transit cargo, its status, location and other pertinent information about it in real time, hence securing the Supply chain. The electronic seal is reusable 1000 times and a useful life of 3-5 yrs depending on the usage. ECTS covers all cargo to and from customs control areas – Transit, CFS (including un-entered goods), EPZ, MUB, Exports, Transit Go down, ICD, all cargo to Bonded warehouse, customs warehouse, all wet cargo on transit and re-exportation (R300), excisable goods For exports and within controlled areas, goods moving to privileged organizations AFCO, NAS, duty free shops etc (Musyoki, 2013).

1.5.2 Kenya Revenue Authority

To assess, collect and account for all revenues in accordance with specific laws set out in the first part of the First Schedule and the revenue provisions of the second part of the First

Schedule (which contains written laws relating to revenue). To advise on matters relating to the administration of, and collection of revenue under the written laws or the specified provisions of the written laws (Musyoki, 2013). To perform such other functions in relation to revenue as the Cabinet Secretary to the National Treasury may direct. KRA will be benefited from the study in that they will be able to adopt and implement proper ways of improving containers cargo security so that they can attract more stakeholders hence generating revenues and finally the stakeholders will benefit by not having to incur extra storage costs on their containers that take long before they are cleared.

1.5.3 Transporters

The transporters will be able to use this study as a way to be able to improve and streamline their operations internally. The findings in this research will showcase how the system is able to "seal" the existing loopholes that lead to the authority losing to the tune of millions of shillings in revenue. From a service perspective, in this case the tracking of the cargo from exit point to the destination it is possible to identify two critical dimensions of service operations. The first one is performance in relation to operational elements and in the same measure performance in relational operational elements Stank et al. (2014). Both these elements consist of activities carried out by providers of the service which contribute to productivity, efficiency, and consistent quality. In this particular case, efficiency signifies a level of performance that describes a process that uses the lowest amount of inputs to create and in turn has the greatest amount of outputs.

1.5.4 Scholars and Academicians

To researchers, this study would obtain deep knowledge on the factors that influence the Electronic cargo tracking system. This will help to improve on the efficiency and effectiveness of cargo tracking and ultimately this will facilitate trade. The findings will also

be a direction for future research and practical implications as well, especially to those who want to do similar research on the electronic cargo tracking system Also the findings of the study could be useful in building up ground work for further research on the same area or related fields.

1.6 Scope of the Study

The scope of the study explained the boundaries of the research and this is based on the fact that the researcher cannot study everything and everywhere as stated by Kothari (2014). This helps the researcher to keep focused on the task in order to make decisions about the changes required during the research process that contribute to obtaining of both valid and reliable information (Murty & Notteboom, 2013). The study covers the factors that influence the implementation electronic cargo tracking system at the Customs Department in the Kenya. The study was limited to officials who are directly involved in the operation of ECTS. The target population of this study target was 500 people, and this included headquarter officers, border exit officers, verification officers, rapid response officers and port operation officers. Questionnaire was the major instrument to obtain primary data from the respondents while the secondary data was used to obtain existing empirical literature relevant to the study. A sample of 100 respondents was obtained through a stratified sampling technique.

1.7 Limitations of the study

1.7.1 Non Cooperation

The researcher anticipates encountering the challenges related to cooperation from respondents during data collection. Some respondents may not be ready to disclose any information in the pretense that it may be the responsibility of the management to do so.

However, the researcher will assure potential respondents that the information shall be meant for educational purposes only.

1.7.2 Confidentiality

The top management in the Customs Department may decline to allow the researcher to issue the questionnaire to its staff during work hours as the researcher may leak some of the important information to other organizations and media houses. The researcher will assure the management that the information collected will be purely for educational purposes only and shall be held confidential. Of note is that the researcher is a Customs officer and as such, is bound by the Oath of Secrecy that she undertook before a Judge of the High Court as is required of every Customs officer.

1.7.3 Generalization

The findings however may not be generalized for the whole organizations because the sector has different natures of approaches and strategies they usually adopt to carry out the handling of persons with or without disabilities with regard to workplaces, and to handle different clientele. The research area was restricted only within the Customs Department. This may not reflect the exact position of all organizations per se. The researcher will ensure that the sample targeted will be distributed with the questionnaires and by distributing more questionnaires than scheduled for, to cater for the uncompleted questionnaires, or questionnaires that could get lost by the respondents.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Literature review is an objective, critical summary of published research literature relevant to a topic under consideration for research. Its purpose is to create familiarity with current thinking and research on a particular topic and may justify future research into a previously overlooked or understudied area.

The chapter highlights various researchers and authors that have emphasized and contributed to the topic. The chapter also presents theories underpinning the study, summary of the literature review and the conceptual framework.

2.2 Theoretical Review

A theory is an explanation which helps to understand and make predictions about a given situation (Creswell & Daly, 2015). Containerization and intermodality have undergone rapid growth in recent decades. Container traffic growth has led to high demand for container terminals, resulting in port congestions, a need for investment in new terminals and greater competition between terminals within and between ports (Cullinane, 2014).. Container terminals are competing to become transshipment hubs as part of major shipping lines and feeder networks, while greater inland transport accessibility has allowed ports to spread further inland (Roso & Lumsden, 2015). The study stands basically on the following theories:

2.2.1 Institutional Theory

The theory recognizes the embedment of institutional actors. Institutional theorists suggest that organizational actions and processes are driven by their actors in order to justify and plausibly explain their actions. According to this perspective, strategy implementation is rationally accounted for by organizational actors and rooted in the normative context Stank et al. (2014). Organizations adopt a standardized set of practices (Tibbs, 2015). The Kenya Revenue Authority would need to align internally to be able to ensure that the new introduced system becomes part of their day to day activities. The implementers of the system would therefore need to educate the staff members internally on the benefits of the system both internally and externally in order to achieve the desired results. By educating the members internally the users of the systems will be able to "own" the system. The institutional theory believes that organizational fields become structured by powerful influences among organizations. The adoption of a system such as strategy implementation is highly dependent on the extent to which it is institutionalized by legitimacy. Legitimacy concerns lead organizations to adopt practices that conform to the mandate of the institutional environment (Craswell & Daly, 2015). Central authority systems, and culture conveyed mainly by formal organizations are the ones that give meaning to the customary and the conventional in daily life. These institutions are also supported by the employees, and they provide both the social and the legal constructions of individual (Roso & Lumsden, 2015).

2.2.2 Theory of Constraints

This theory assumes that performance of an organization cannot improve due to a specific problem or inefficiencies. The constraint can however be established by looking at the effect it causes the organization. Once the main constraint is established and removed the operation

performance will improve. The process of establishing the cause of the undesirable effect should be repeated until the overall performance completely improves (Roso & Lumsden, 2015). The Theory of Constraints states that constraints determine the performance of a system.

A constraint is defined as anything that prevents a system from achieving a higher performance relative to its goal. A system is noted to be a collection of inter-connected parts sharing a common goal. This theory was first applicable to business systems, Blackstone (2013). Based on the theory of constraints and operational measures, Kenya Revenue Authority ensures that it establishes internal process that will support the introduction of the electronic cargo tracking system. The processes have to be repeated until the system is fully owned by the employees and is yielding results. Challenges that may stem from using the system initials also need to be dealt with as they emerge, and the learning curve lessons recorded for future reference. The goal of this theory in business, as we eliminate the constraints is to maximize the owners or stakeholders gains. Constraints such as people or departments that cannot keep up with the changes may not be as productive and they will not be able to maximize on the returns. We can also have policy constraints is a management decision or business culture that limits the system. The management therefore needs to meet regularly with their team members so as to be able to receive feedback and use the feedback to make amendments to the policy and over internal processes. A dedicated setup team is essential in driving the overall organization towards the geared results (Stank et al., 2014).

2.2.3 Operational Theory

Operational performance can be defined as the alignment of all business units within an organization to ensure that they are working together to achieve core business goals

(Fraser, 2014). As we look into Operational procedure we need to appreciate the fact that we also need to include practices and strategies applied to ensure the smooth running of organizational activities. Operational practices are internal organizational factors that contribute to the competence development of the employees; therefore, resulting to a competitive advantage for firms (Stank et al., 2014). In this sense, both the operations strategy and the resource-based view Stank et al. (2014) support the notion that offer and secure a competitive edge through the creation of operating practices. Kenya‟s major urban centers and agricultural activities are largely concentrated in the south. This gives Kenya an edge over the other countries in Africa as its location makes the transport backbone and acts and plays a great role in the connectivity (Kenya's Infrastructure, 2013). Excelling at more than one or more operational activities Slack et al (2014) can enable an organization to pursue a business strategy based on a corresponding competitive factor. However, it is important to note customers play a crucial role in giving an organization its competitive edge. Therefore, the success of any particular business strategy needs to take this into consideration as it is a key for it to be able to achieve excellence.

2.2.4 Modern Theory

Matching operations excellence to customer requirements lies at the heart of any operations based strategy. Lastly, management just be involved in the implementation process, especially since it is a common believe that strategy is a completely separate issue from daily organizational activities. To an extreme extent strategy can be viewed as a cerebral activity performed by superior beings who ought to be removed or even separated from daily operational pressures. Mintzberg brings to light the misunderstanding of managers becoming isolated from the fundamentals of the enterprise (Mintzberg & Quinn, 2016). The research paper will look at effect of operational performance at the Kenya Revenue

Authority with the implementation of the electronic cargo tracking system based on the critical three factors i.e. Safety, Cost and Efficiency.

2.3 Conceptual Framework

The conceptual framework is a diagrammatic presentation of the relationship between independent and dependent variables of the study (Kothari, 2014). Furthermore, it also shows other factors, moderating variables that can play in and affect both independent and dependent variables in this study. The research was guided by a Conceptual Framework that is indicated by the independent and dependent variables.

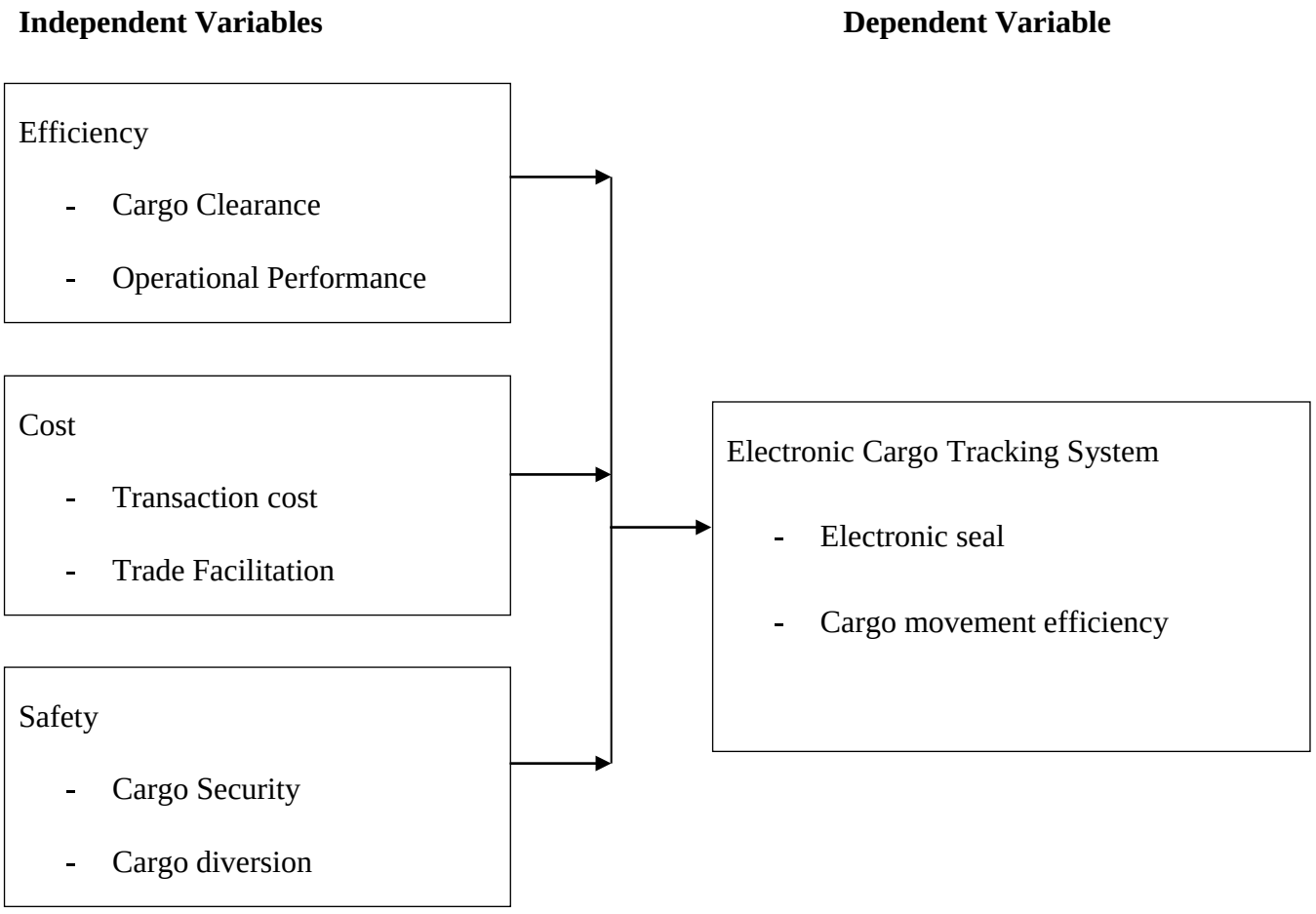

Figure 2.1 Conceptual Framework

2.3.1 Efficiency

Efficiency refers to doing things right, i.e. whatever is performed, it is performed in the most suitable way, given the available (Mintzberg & Quinn, 2016). A well-known and accepted definition of efficiency is embedded in more technical terms and it states that this is a measure of the ratio of output to input. This definition is especially acceptable when we are dealing within a system of well- quantifiable measures of inputs and outputs. However, it can be noted that efficiency takes on a whole new perspective and meaning when we try to study it in an environment of traditionally measured quantities in a system that is heavily based on values, inspirations, and human perceptions, this gives a unique perspective to efficiency. An organization needs to run efficient operations to be able to be successful and profitable. To be beginning with the organization must first and foremost learn how to use the implemented system. Fraser (2014) state that organizations need to learn how to make use of most of its existing resources and competences to learn how to develop new capabilities. Organizational performance is dependent on the emphasis on the importance of path. The current business world thrives on ensuring that we work more hours and feel more stressed while trying to get much done. The introduction of Technology is aimed at simplifying our lives, sapping our attention and stealing our time. In highly simplified terms, efficiency concerns the cost of input for the output produced--in other words, the best use of resources and the least waste of time and effort.

There has been a long debate between the management consultants and business professors on the relative merits of efficiency as it pertains to the business world. Areas where efficiency can be optimized is the work force and this is through increasing individual productivity (Entrepreneur, July 2013). Related articles such as (Mintzberg & Quinn, 2016) have described efficiency as cost effectiveness; this is the efficient solution that has the least

cost. The Electronic Cargo Tracking System (ECTS) works in a similar way, it enables the revenue authority to get more and more cargo cleared every day at a much faster rate. This move is aimed at all decongesting the border points and ensuring that cargo that is moving across the border arrives to its destination at the expected time and date dependency (i.e. how organizations got to their present position), the dynamic nature of the capabilities on which organizational success ultimately depends and the role of organizational learning (Stank et al., 2014).

Data captured on the system is shared on a real time basis resulting to reduced dumping, reduced tax evasion and cargo theft in the country. All cargo transported by road is closely monitor on the electronic system as it is received into the country and transported to its destination. The users of the system capture the details of the driver, the cargo, the vehicles, the routes; the origin and destination of the cargo are recorded on the system. Successful implementation of the system requires that data is standardized. Consistent data definitions are fundamental to IT process integration and supporting technologies. To realize greater efficiency, there is need to consider data reconciliation and integration into a single data dictionary that will serve as the standard for the organization (Mintzberg & Quinn, 2016).

The ECT system offers a platform where data can analyzed accurately. Kenya Revenue Authority is able to generate useful insights into its operational performance and this is done on a real time basis and therefore the information collected and circulated is timely and relevant. Having an electronic system means the elimination of the old methods of doing business that involves a lot of paperwork. IT is an integral part of the business fabric and is fast reaching a utility status in the enterprise that is increasingly assisting to improve service quality and enhancing personnel resource optimization. The key IT management

drivers now revolve around quality of service and cost control (Fraser, 2014). Better reactive and predictive approaches to service performance issues will now be viewed as the best methods of maintain quality service at border points. This is especially since goods arrive at the border points and are quickly cleared to leave for the next station. Technology allows for faster processing of data, easier retrieval of information, and in some cases automation leads to the reduction of human errors. When technology is used in repetitive operational tasks, there is a reduction in mistakes or complete elimination, and the time it takes to complete a task is greatly reduced.

In addition to this process are made quicker and information is keep to date. Elimination of paper cuts down on the time taken to search through a room of file cabinets and it deals with the challenges of guessing how to store the information, with a few clicks of the mouse a customer file is opened, information is updated and eventually stored on a database that is easily accessible to all stakeholders. What used to take several minutes to an hour can now be done instantly (Debbie, 2013). Expansion of infrastructure and transportation networks is a key pillar of the government's vision 2030 economic development plan. Kenya represents a critical lifeline for landlocked neighboring countries. While increased competition, ongoing delays among roads and ports projects, and a host of non-tariff barriers pose serious challenges to future expansion.

The government has steadily been seen increasing expenditure on the transport sector is comes as a result of the enactment of Public-Private Partnership (PPP) Act, 2013 have seen transportation reforms improve dramatically in the medium to long term (The Report Kenya, 2016). Year growth in port traffic in the last four years has been noted to be at 8% annually according to the trade promotion agency. In the year 2012 Mombasa handled a total of 21.92m tones while container traffic rose to 903,443 twenty-foot equivalent units, this lead

to an increase of transit traffic by 18.4% this therefore means the introduction of the Electronic Cargo Tracking System was well required. The Shippers Council of Eastern Africa remarked that there was a significant improvement to efficiency given that the range of move at the berth was 9 11 per hour and it is now noted to be closer to 25 per hour. Kenya Revenue Authority proposed a 50% improvement by 2016 (Kisembe, 2014). Future developments that will bring out changes in the use of this system include the rehabilitation of the railway line and the construction of the Standard Gauge Railway. The Kenya Revenue Authority is currently in the process of looking at ways to be able to monitor cargo that will be moving by rail. They have invited vendors of the ECTS to participate in this particular venture and see how best they can be able to implement this system on the railway sector as has been done in developed markets such as Singapore.

2.3.2 Cost

At the early stages of development cost-effectiveness remains thus a challenge for all and efforts need to be channeled towards both now and in the near future this would be geared so as to boost effectiveness in generating value in the long-term and to prove that money is well spent if organizations want continued funding for systems propel growth upwards (Kisembe, 2014). The set-up of ECTS comes at a significant cost, especially given that the system is still at the introductory stage of being rolled out. Both the transporters and the authority are required to use resources to be able to implement the system across the country.

A proper Information Technology system must be set up to facilitate the smooth running of the system. The system much have a proper back-up mechanism given that the information captured on a daily basis is quite a lot (Fraser, 2014). It is paramount that personnel in-charge are trained on how to use the system which means there is a cost factor to this. Majority stakeholders affiliated in this sector i.e. the transporter and the government will be

able to see the consolidation of infrastructures using virtualization which would be a cost at first however eventually this shall transition to be a reduction in cost. KRA formulated a list of IT specifications that vendors had to adhere to so as to be selected as a vendor on their panel for the provision of cargo monitoring services (Musyoki, 2013). This includes both the hardware and the software expectations.

IT support was noted to be critical as the revenue collector required that it gets viewership 24 hours, seven days a week for all the days of the year. The initial cost of setting up the IT platform for a majority of vendors is 2M – 3.5M. The system is required to be web- based, ensuring that it is accessible from anywhere in the world. KRA have dedicated resources to this particular proposal by setting up a department specially for handling cargo monitoring both at the headquarters – Times Towers- and also at the various stations. The KRA customs, Border stations, Container Freight Stations (CFS), Bonded warehouses, Export Processing Zones (EPZ), Port and KRA approved yards are in a total of 14 regions countrywide.

A World Bank report (Manji, 2015) stated that infrastructure contributed to just 0.5% to the annual per capita GDP growth between 2001 and 2011. The report found that if Kenya were to improve the infrastructure this would increase 3% however due to problems of congestion, delays at Customs and upgrades required for networks the report found that Kenya would need to allocate $4bn to infrastructure develop annually until 2011. The Kenyan government has to increase its expenditure on improving the road network so as to facilitate the smooth transition the roads need to be in good condition so as to make the movement of trucks from the port to the borders easy. About 93% of all freight and passenger traffic travels by road (Road Policy, 2012). As highlighted under the Vision 2030‟s second national medium-term plan (MTP) which covers the 2013-17 period, the government aims to construct and rehabilitate approximately 5500 kilometers of road. This

initiative will see an increase in road cargo transportation, especially since Kenya acts as a link for its landlocked neighbours.

2.3.3 Safety

There are two angles to which we will address safety, one is the safety of infant industries that are upcoming and second is safety of consumers on the type of goods brought in for their consumption. In the international trading arenas, there are quite a number of occurrences that place countries disadvantaged or injured positions in the course of conducting trade with other countries. Such injuries often result in the closure of small and infant industries due to inability to compete with the imports and another resulting effect is the loss of employment due to closure of these same companies Omolo et al. (2013).

Kenya has challenges with dumping. Dumping is an informal definition of for the practice of selling products in a foreign country often for lower than the price identified and set-up in its domestic country, or the cost of producing the commodity. It is important to note that, the top leading sectors in the anti-dumping initiations include base metals and articles; chemical and allied industries; resins, plastic and articles; machinery and electrical equipment; and textile and articles and all these are key sectors in any economy in the world.

The fight against dumping of transit cargo in the Kenyan market has gone a notch higher with the tax collector initiative of introducing an electronic cargo tracking solution to monitor movement of goods between the port of Mombasa and Busia and Malaba border points through which goods have an entry point to the landlocked Great Lakes Region, (Business Daily- KRA steps up the war on dumping of transit goods, 2014).

KRA issued a public notice introducing the new electronic system of monitoring transit cargo. The system uses a radio frequency identification solution. The new regulations

would require every transporter to pay an estimate of around Sh100, 500 for a Transit License. The system will replace the conventional mechanical seal that is quite cumbersome where the cargo is accompanied by escorts to the borders, which has previously not been effective. The taxman has not been able to seal loopholes as importers ride on the inefficiency to dump goods destined for neighboring countries in Kenya Omolo et al. (2013). This in itself not only ensures that the revenue collector efficiently collets taxes but it also promotes consumer protection. World Health Organization (WHO), has released reports and articles that indicate that 30% of medicines sold in developing countries is counterfeit which similarly shows that a larger problem due to this is that high numbers of drugs that are bought by the state for use in public hospitals are being illegally obtained and then sold on for profit in the private sector. This is a concern and needs to be curbed with immediate effect so as to ensure that there is no infringement on human rights (Kisembe, 2014).

2.3.4 Electronic Cargo Tracking System

As is with every system the first-time challenges that will be encountered first as the system is being set-up and also as the users are familiarizing themselves with the system. The two worlds must collide – The virtual world and the world of doing things mechanically and/or (Forrester Consulting Journal, January 2009) virtually often ECTS the performance of the services rendered in a way that is difficult to resolve, as many tools used to monitor shade visibility into the application container Omolo et al. (2013). Majority of decision-makers in IT take into consideration that predictive analysis of the application workloads that are candidates for virtualization, as well as the predictive sizing of the structural infrastructure that is supportive of the virtual elements, are the most effective methods used to avoid problems in production. In fact, studies have shown that, the best resolution

to production issues and the effect of this on the business workforce, capacity building management processes and tools is to control both service levels and costs at the IT level resulting to the reduction of the productivity and negative financial effect at the business level (Omolo et al., 2013).

Kenya's road network needs extensive rehabilitation especially now that trade is intensifying in the region. Expansion of infrastructure and transportation network is a key pillar of the government's Vision 2030 economic development (Kenya's Infrastructure, 2011), without this being hastened, we will keep having trucks arriving late and therefore the delay of clearing trucks as soon as they arrive is not totally handled and dealt with. Port congestion has improved but increased competition from Tanzania has affected operations at the port of Mombasa and oil discoveries in the country have led to mounting pressure on the same (Musyoki, 2013)

2.4 Empirical Theory

The word empirical describes any information gained by experience, observation, or experiment. One of the central tenets of the scientific method is that evidence must be empirical, i.e. based on evidence observable to the senses (Kothari, 2014). Empirical review is based on observed and measured phenomena and derives knowledge from actual experience rather than from theory or belief. Empirical review is the collection and analysis of primary data based on direct observation or experiences in the field (Mugenda & Mugenda, 2013). Philosophically, empiricism defines a way of gathering knowledge by direct observation and experience rather than through logic or reason alone (in other words, by rationality). In the scientific paradigm the term refers to the use of hypotheses that can be tested using observation and experiment. In other words, it is the practical application of

experience via formalized experiments. Empirical data is produced by experiment and observation, and can be either quantitative or qualitative (Creswell & Daly, 2015). Objectives of Empirical Research Empirical research is informed by observation, but goes far beyond it. Observations alone are merely observations

2.4.1 Efficiency

Implementation and delivery of the electronic cargo tracking system covers a wider aspect of quality. Previous empirical studies regarding the linkage between setting up of systems and the advantage to the institutions affiliated has shown significant and positive results. The main focus of the system is to improve overall operational performance and improve on service delivery Omolo et al. (2013). Successful implementation of the system will give benefits in improving how the regulator clear cargo and cargo trucks that enter and exit the Kenyan borders and charge taxes and levies accordingly. The system will also assist Kenya Revenue Authority in monitoring the all inbound and outbound goods. Effective implementation that needs to improved operation performances can generate marked improvements in service quality which then results in increased profitability (Debbie, 2013). It has been established that employees have useful organizational knowledge and skills are critical in delivery of quality service and the same inherent assets can be used to raise employee morale and satisfaction and eventually empower them accordingly (Stank et al., 2014).

2.4.2 Cost

The ECT system offers a platform where data can analyzed accurately. Kenya Revenue Authority is able to generate useful insights into its operational performance and this is done on a real time basis and therefore the information collected and circulated is timely and relevant. Having an electronic system means the elimination of the old methods of doing

business that involves a lot of paperwork. IT is an integral part of the business fabric and is fast reaching a utility status in the enterprise that is increasingly assisting to improve service quality and enhancing personnel resource optimization Omolo et al. (2013). The key IT management drivers now revolve around quality of service and cost control (Fraser, 2014). Better reactive and predictive approaches to service performance issues will now be viewed as the best methods of maintain quality service at border points. This is especially since goods arrive at the border points and are quickly cleared to leave for the next station. Technology allows for faster processing of data, easier retrieval of information, and in some cases automation leads to the reduction of human errors. When technology is used in repetitive operational tasks, there is a reduction in mistakes or complete elimination, and the time it taken to complete a task is greatly reduced.

In addition to this process are made quicker and information is keep to date. Elimination of paper cuts down on the time taken to search through a room of file cabinets and it deals with the challenges of guessing how to store the information, with a few clicks of the mouse a customer file is opened, information is updated and eventually stored on a database that is easily accessible to all stakeholders. What used to take several minutes to an hour can now be done instantly (Debbie, 2013). Expansion of infrastructure and transportation networks is a key pillar of the government's vision 2030 economic development plan. Kenya represents a critical lifeline for landlocked neighboring countries. While increased competition, ongoing delays among roads and ports projects, and a host of non-tariff barriers pose serious challenges to future expansion.

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so as to boost effectiveness in generating value in the long-term and to prove that money is well spent if organizations want continued funding for systems propel growth upwards (Omolo et al., 2013). The set-up of ECTS comes at a significant cost, especially given that the system is still at the introductory stage of being rolled out. Both the transporters and the authority are required to use resources to be able to implement the system across the country.

A proper Information Technology system must be set up to facilitate the smooth running of the system. The system much have a proper back-up mechanism given that the information captured on a daily basis is quite a lot (Fraser, 2014). It is paramount that personnel in-charge is trained on how to use the system which means there is a cost factor to this. Majority stakeholders affiliated in this sector i.e. the transporter and the government will be able to see the consolidation of infrastructures using virtualization which would be a cost at first however eventually this shall transition to be a reduction in cost. KRA formulated a list of IT specifications that vendors had to adhere to so as to be selected as a vendor on their panel for the provision of cargo monitoring services (Musyoki, 2013). This includes both the hardware and the software expectations.

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2.4.4 Electronic Cargo Tracking System

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rendered in a way that is difficult to resolve, as many tools used to monitor shade visibility into the application container. Majority of decision-makers in IT take into consideration that predictive analysis of the application workloads that are candidates for virtualization, as well as the predictive sizing of the structural infrastructure that is supportive of the virtual elements, are the most effective methods used to avoid problems in production (Oirere, 2013). In fact, studies have shown that, the best resolution to production issues and the effect of this on the business workforce, capacity building management processes and tools is to control both service levels and costs at the IT level resulting to the reduction of the productivity and negative financial effect at the business level.

2.5 Critique of the Literature Review

Kenya's major urban centers and agricultural activities are largely concentrated in the south. This gives Kenya an edge over the other countries in Africa as its location makes the transport backbone and acts and plays a great role in the connectivity (Kenya's Infrastructure, 2011). Excelling at more than one or more operational activities Slack et al (2004) can enable an organization to pursue a business strategy based on a corresponding competitive factor. However, it is important to note customers play a crucial role in giving an organization its competitive edge. A World Bank report (Manji, 2015) stated that infrastructure contributed to just 0.5% to the annual per capita GDP growth between 2001 and 2011. The report found that if Kenya were to improve the infrastructure this would increase 3% however due to problems of congestion, delays at Customs and upgrades required for networks the report found that Kenya would need to allocate $4bn to infrastructure develop annually until 2011. The Kenyan government has to increase its expenditure on improving the road network so as to facilitate the smooth transition the roads

need to be in good condition so as to make the movement of trucks from the port to the borders easy. About 93% of all freight and passenger traffic travels by road (Road Policy, 2012). As highlighted under the Vision 2030‟s second national medium-term plan (MTP) which covers the 2013-17 periods, the government aims to construct and rehabilitate approximately 5500 kilometers of road. This initiative will see an increase in road cargo transportation, especially since Kenya acts as a link for its landlocked neighbours.

2.6 Summary of the Literature Review

Electronic Cargo Tracking is a multi-tiered system developed to electronically monitored goods under transit, exports and KRA‟s control as it moves along the Kenyan supply chain from source to destination. The ECTS offers real time cargo tracking solution. All trucks/vehicles, tankers and containers carrying goods on transit, exports & under KRA‟s control are fitted with a tracking device and electronic seal which sends the seal status, truck location and any violation information to KRA on real time basis. The ECTS provide KRA with a comprehensive solution for the monitoring of transit cargo, its status, location and other pertinent information about it in real time, hence securing the Supply chain. The electronic seal is reusable 1000 times and a useful life of 3-5 yrs depending on the usage. ECTS covers all cargo to and from customs control areas – Transit, CFS (including un-entered goods), EPZ, MUB, Exports, Transit Go down, ICD, all cargo to Bonded warehouse, customs warehouse, all wet cargo on transit and re-exportation (R300), excisable goods For exports and within controlled areas, goods moving to privileged organizations AFCO, NAS, duty free shops etc

Data in qualitative research is mostly in word form (Manji, 2015); these words initially may be recorded. Interviews more often than not come in form of transcripts and qualitative data

too in form of interview transcripts, journals and any data accumulated by the researcher in the course of the study (Omolo et al., 2013). Data analysis can be described as looking at data, assigning categories and putting together issues into themes in an attempt to answer research questions. It is a systematic process of transcribing, collating, editing, coding, and reporting the data in a way that makes it sensible and accessible to the researcher & reader for purposes of interpretation and discussion. The collected data will be grouped in appropriate categories from which explanations will immerge (Griffin, 2015).

2.7 Research Gaps

Based on the theoretical and empirical literature reviewed in this chapter, it can be seen that since the introduction of electronic cargo tracking system has limited studies. Some researchers have been researching to find out the causes of high. Some have concentrated on physical indicators on the port such as ship turnaround time, wailing rate, berth occupancy rate, working time over time at berth, and port throughput. Some have been able to point out the root cause of the high diversion of transit goods as being poor performance by the port management and they are developing mathematical models to solve it (Lee and Miao, 2014). Martinez et al. (2015) were able to empirically show discretionary behaviour by importers willingly leaving their containers at the port as cheap warehouse option. Most of container dwell time studies have been done on transshipment, most local studies conducted have failed to discuss factors that influence electronic cargo tracking system, and thus this forms the research gap that is the basis of this study. From the literature reviewed, there are limited studies on factors that influence the implementation of electronic cargo tracking system at the customs department in the Kenya Revenue Authority.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter presents the research methodology of the study. It describes the methods and procedures that were used in order to collect data that answers the research questions. The chapter was presented under the following sections namely, research design, study population, sampling procedures, sample size, data collection instruments, data collection procedures, pilot testing and data analysis.

3.1 Introduction

Research methodology refers to the way how a research problem can be solved in logical manner (Kothari, 2014). Research methodology is the process that was used to collect information and data for the purpose of solving a research problem (Mugenda & Mugenda, 2013). The methodology may include publication research, interviews, surveys and other research techniques (Creswell & Daly, 2015). This chapter involved presenting the choice of method of collecting and analyzing data, from practical point of view, comparing relative advantages and disadvantages of other alternative method that may be more or less appropriate to the context of this study with the aim of finding answers to the research questions

3.2 Research Design

Research design is a sketch and the procedures for research that cover the decisions from broad assumptions to detailed methods of data collection and analysis (Mugenda & Mugenda, 2013). The study will use descriptive survey and explanatory research design. A descriptive

research gives a thorough and accurate description survey by determining the „how" or „why" the phenomena came into being, and also what is involved in the situation. This is achieved by portraying an accurate profile of the events and situations (Kothari, 2014), which considered as an extension of, or forerunner to an explanatory research. On the other hand, an explanatory study goes beyond description and attempts to explain the reasons for the phenomena that the descriptive study only observed by seeking to establish a causal relationship between variables (Craswell & Daly, 2015). Therefore, a descriptive study looked at what is going on, while an explanatory study seeks to explain why it is going on (Mugenda & Mugenda, 2013). The researcher used theories or hypothesis to account for the forces that was used a certain phenomenon to.

3.3 Target Population

The study targeted 500 people who included headquarter officers, border exit officers, verification officers, rapid response officers, port operation officers located in the country currently registered and active. They include: Arming Officers, Rapid Responsive Unit and Targeting team, CMC officers.

Table 3.1 Target Population

Stakeholders	Target Population
Headquarter Officers	150
Border Exit Officers	100
Verification Officers	100
Rapid Response Officers	50
Port Operation Officers	100
Total	**500**

3.4 Sampling Technique and Sample Size

Sampling is the process of selecting a number of individuals so that the selected individuals represent the large group from which they were selected. According to Mugenda & Mugenda (2013), total population sampling is a type of purposive sampling technique that involves examining the entire population (the total population) that have a particular set of characteristics. In total population sampling, researchers choose to study the entire population because the size of the population that has the particular set of characteristics that we are interest in is typically very small.

Table 3.2 Sample size

Stakeholders	Target Population	Percentage of sample	Sample size
Headquarter Officers	150	20	30
Border Exit Officers	100	20	20
Verification Officers	100	20	20
Rapid Response Officers	50	20	10
Port Operation Officers	100	20	20
Total	**500**	**20**	**100**

3.5 Data Collection Instruments

In this study the researcher employed a questionnaire as the instrument of data collection. A questionnaire is a collection of questions to which a research subject is expected to respond. Mugenda & Mugenda (2013) this instrument can be administered orally as the researcher records the responses to each item independently. The researcher drafted several questions in

the questionnaires. These further gave to respondents in the organization who thereafter gave back the necessary information and details. Advantage of using this method includes: its‟ inexpensiveness because once the questionnaires are given to willing respondents there is no further cost, the researcher simply waits for the respondents to give feedback at their own convenience. Another advantage is that some respondents can give the feedback immediately. It also enabled the researcher to make extensive inquiry from the respondents who are not easily approachable being contacted through the questionnaire.

3.6 Data Collection Procedure

According to Creswell & Daly (2015), there are many methods of data collection. The choice of a tool and instrument depends mainly on the attributes of the subjects, research topic, problem question, objectives, design, expected data and results. Kothari (2014) notes that there are two major sources of data collection; primary and secondary data. Primary data were collected by using questionnaire and the secondary data used collected from existing literature relating to the study topic. According to Creswell & Daly (2015), a self-administered questionnaire is the only way to elicit self-report on people's opinion, attitudes, beliefs and values.

3.7 Pilot Testing

It is important that all surveys are tested before the actual survey is conducted (Kothari, 2013). This is done to ensure that the questionnaire is clear to respondents and can be completed in the way the researcher wishes (Creswell & Daly, 2015). Pilot testing is an activity that helped this study in determining whether there are errors, limitations or other weaknesses within the design and allowed the researcher to make necessary adjustments and

corrections before embarking on the survey (Mugenda & Mugenda, 2013). A pilot study was undertaken on approximately 10 headquarter officers, border exit officers, verification officers, rapid response officers and port operation officers since they are directly involved with operations of the port to test the reliability and validity of the questionnaire.

3.7.1 Validity Test

Validity of an instrument is the success of a scale in measuring what it sets out to measure so that differences in individual scores can be taken as representing true differences on the characteristics under study (Kothari, 2014). Content validity refers to the subjective agreement among professionals that a scale logically appears to reflect accuracy what it purports to measure. To determine the content validity of the questionnaire items, three experts from the university examined them and provide valuable suggestions and comments, which was used as a basis to modify the research items and make them adaptable to the study. Based on the feedback offered by those who examined the questionnaire the wordings of the questionnaires were slightly modified and some items excluded completely.

3.7.2 Reliability Test

The reliability is consistency in measurement (Kothari, 2014). To check on reliability of the instrument, the questionnaires were pre-tested through a pilot study to ascertain their effectiveness in soliciting the information intended. Pilot study was be carried out in order to determine the questionnaires internal consistency and to detect any difficulties that the respondents were likely to face when responding to the items. Test re-test method was applied and necessary adjustments made to ensure the questionnaires quality was high and suitable for the study.

3.8 Data Analysis and Presentation

Data was analyzed using Analysis of variance (ANOVA). Both quantitative analysis and regression analysis was used as data analysis technique. The data collected was run through various models so as to clearly bring out the factors which factors that influence the implementation of electronic cargo tracking system at the customs department in the Kenya. The researcher also used a multivariate regression analysis to determine the relationship between the independent variables and the dependent variable. The regression equation used was: $\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon}$

Where:

Y = Dependent variable (Electronic Cargo Tracking System)

$\boldsymbol{\beta_0}$**=** constant

$\boldsymbol{\beta_1}$, $\boldsymbol{\beta_2}$ and $\boldsymbol{\beta_3}$ = the regression co-efficient

X = Independent variable

$\boldsymbol{X_1}$- Efficiency

$\boldsymbol{X_2}$- Cost

$\mathbf{X_3}$ – Safety

ε = **Stochastic term or error term**

An **error term** is a variable in a statistical or mathematical model, which is created when the model does not fully represent the actual relationship between the independent variables and the dependent variables. The error term is also known as the residual, disturbance or remainder term (Sekaran, 2015).

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

The chapter represents the empirical findings and results of the research. The data presented includes response rate, background information of the respondents and the presentation of research findings against each individual specific objective. The study sought to establish the background information of the respondents by using the following parameters: gender, age, level of education, type of organization, position held by the respondents and number of years respondents have been working with the organization. Descriptive statistics and ANOVA were employed in analyzing the findings.

4.1.1 Response Rate

A total of 120 questionnaires were distributed, 95 questionnaires were successfully filled and collected, and this gives a response rate of 76%. This chapter gives insight into the questionnaire response and background of the respondents.

Table 4.1 Response Rate

Questionnaire	Frequency	Percentage
Filled	95	76
Not Filled	30	24
Total	**125**	**100**

From the data collected, out of 125 questionnaires administered, 95 were filled and returned which represents 76% response rate. Such a response rate is considered adequate according to Mugenda & Mugenda (2013) who mentioned that a 50% response rate is adequate, 60% good and above, while 70% is rated very good.

4.1.2 Pilot Study Results

Table 4.2 Pilot Study

Stakeholders	Frequency	Percentage
Headquarter Officers	5	45.5
Border Exit Officers	1	9.1
Verification Officers	1	9.1
Rapid Response Officers	3	27.3
Port Operation Officers	1	9.1
Total	**11**	**100**

Prior to the main survey a pilot study was done whereby questionnaires were tested by the researcher to assess the relevance of the questions, the understanding of respondents, identification of any ambiguities, as well as the general availability of the various categories of information needed. The questionnaires were pretested immediately before embarking on data collection exercise where there was self-administering.. This was to make sure that the responses given were in line with the expectations. Validity is the accuracy and meaningfulness of inferences, based on the study results. Reliability is a measure of the

degree to which a research instrument yields consistent results or data after repeated trials (Mugenda & Mugenda, 2013).

4.2.1 Gender Distribution

Table 4. 3 Gender of the Respondents

Gender	Frequency	Percentage
Male	69	72.6
Female	26	27.3
Total	**95**	**100**

The descriptive statistics of the study indicates that 69 (72.6%) of the respondents were male, while the remaining 26 (27.3%) were female as shown in Table 4.1. This implies that male respondents participated more in answering the questionnaires.

4.2.2 Age of the Respondents

Table 4.4 Age of the Respondents

Age	Frequency	Percentage
Less than 24 years	04	4.2
25 – 35 years	22	23.2
36 – 45 years	35	36.8
46 – 55 years	22	23.2
Above 55 years	12	12.6
Total	**95**	**100**

The finding shows that 4.2% of the respondents are aged less than 24 years and between 30 – 45 years, 23.2% of the respondents are aged between 25 – 35 years and 46 – 55 years. The highest percentage was 36.8%, this implies that majority of the respondents were aged between 36 – 45 years.

4.2.3 Level of Education

Table 4.5 Level of Education

Level of Education	Frequency	Percentage
Post Graduate degree	13	13.6
First degree	18	18.9
Diploma	26	27.4
Certificate	19	20.0
"O" Level	11	11.5
CPA	08	8.4
Total	**95**	**100**

From the descriptive statistics shown in table 4.3, 26 (27.4%) of the respondents were reported to be diploma holders, 18 (18.9%) of the were holders of first degree, 13 (13.6%) of them were holders of Post Graduate degree, 19 (20.0%) of the respondents were holders of certificate, 11 (11.5%) were reported to be holders of "O" Level, while the remaining 08 (8.4%) respondent had CPA.

4.2.4 Type of Organization

Table 4.6 Type of Organization

Organization Type	Frequency	Percentage
KPA	21	22.1
KRA	33	34.7
Logistics Firms	27	28.4
Border Management	14	14.7
Total	**95**	**100**

The finding reveals that 21 (22.1%) of the respondents came from KPA, 33 (34.7%) of the respondents came from KRA, while 27 (28.4%) were the logistics firms and finally 14 (14.7%) were the border management. This implies that majority of the responses Kenya Revenue Authority.

4.2.5 Current Position in the Organization

Table 4.7 Respondent Position

Position	Frequency	Percentage
Senior Manager	15	15.8
Middle Manager	32	33.7
Junior Manager`	48	50.5
Total	**95**	**100**

The finding from Table 4.6 depicts that 15.8% of the respondents hold the position of Senior Manager, 33.7% of the respondents hold the position of Middle Manager and 50.5% of the respondents hold the position/status of Junior Manager.

4.2.6 Number of Years Worked in Organization

Table 4.8 Number of Years worked in the organization

Year	Frequency	Percentage
Over 15 years	30	31.6
11 – 15 years	28	29.5
6 – 10 years	22	23.2
Less than 5 years	15	15.8
Total	**95**	**100**

The finding from Table 4.7 shows that 31.6% of the respondents have worked in their respective department/section for over 15 years, 29.5%% of the respondents have worked between the periods of 11 – 15 years. While 23.2% of the respondents worked between a period of 6 – 10 years and 15.8% have worked for less the 5 years. This shows that majority of the respondents have worked with their respective departments/sections for over 15 years.

4.3 Descriptive Analysis

In the research analysis the researcher used a tool rating scale of 1 to 5; where 1 was the highest and 5 the lowest. Opinions given by the respondents were rated as follows, 1 =

Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree and 5 = Strongly Disagree. The analysis for mean, standard deviation and coefficient of variation were based on this rating scale.

4.3.1 Efficiency

4.3.1.1 Efficient Cargo Clearance

Table 4.9 Efficient Cargo Clearance

Statements	1	2	3	4	5
There is a reduction of operating costs with the introduction of ECTs	54 57.0%	18 19.0%	10 11.0%	09 09.0%	04 04.0%
Penalties and fines due to late delivery have reduced	57 60.0%	20 21.0%	10 11.0%	05 05.0%	03 03.0%
Electronic Cargo Tracking System software has been able to meet all the set up requirements	46 48.0%	17 18.0%	14 15.0%	11 12.0%	07 07.0%
Clearance of cargo trucks at the border is made faster with the system	44 46.0%	21 23.0%	12 13.0%	10 10.0%	08 08.0%

There is still quite a lot that needs to be done to be able to effectively meet all the requirements that have been set up by Kenya Revenue Authority. Based on the findings only 57 (60%) of the respondents strongly agree that penalties and fines due to late delivery have reduced. 46 (48%) of the users agreed that electronic cargo tracking system software has been able to meet all the set up requirements. There are respondents who are however of the

view that the set up requirements have not been fully complied to and they therefore have to be monitored to do so as to retain their licenses. Once the requirements have been complied with capturing of data will also improve as there is still room to do so based on the findings with 20 (21%) of the respondents strongly agreeing that the system is able to capture all the required data, 44 (46%) agreeing that data has been captured and 05 (05%) remaining indifferent as to whether or not the system has such a capability. The number of respondents who felt that indeed the system is able to capture all the data is quite low with 17 (18%) indicating that they that they disagree and 14 (15%) strongly disagreeing therefore indicating that the system just needs a bit of improvement in this area. The system has enabled information to be made available across the different departments with 44 (46%) strongly agreeing, 21 (23%) agreeing, 12 (13%) remaining indifferent, 10(10%) disagreeing and 08 (08%) strongly disagreeing. Based on these findings there is room for improvement when it comes to information availability

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4.3.1.2 Operational Performance

Table 4.10 Operational Performance

Statements	1	2	3	4	5
There is a reduction of operating costs with the introduction of ECTs	38 40.0%	23 24.0%	21 22.4%	08 8.0%	05 5.6%
The software server is able to store information for over 12 months	42 44.0%	30 32.0%	11 12.0%	04 4.0%	08 8.0%
The software has relevant and reliable reports	38 40.0%	27 28.0%	15 16.0%	11 12.0%	04 4.0%
The reports generated can be saved and used in any Microsoft format making it easier to work on the data	30 32.0%	23 24.0%	19 20.0%	19 20.0%	04 4.0%
The software is able to store information and make it available even when offline	95 100%	0 0.0%	0 0.0%	0 0.0%	0 0.0%

The findings show that there is a reduction of operating costs with the introduction of ECTs with 38 (40%) of the respondents strongly agreeing to this, 23(24%) agreeing, 21(22.4%) remaining neutral to this, 08 (8%) strongly disagreeing and 05 (5.6%) strongly disagreeing. This would indicate that general IT system set up of the different stations is more advance in some areas then others. The software has a server that is able to store information for a period

of 12months, 42 (44%) of the respondents strongly agree, 30(32%) of the respondents agree, 11(12%) of the respondents were indifferent, 04 (4%) and 08 (8%) of the respondents disagreeing and strong disagreeing respectively.

Software generated reports would appear to have system reports that 38 (40%) of the respondents strongly agree are reliable and relevant, 27 (28%) agree are reliable and relevant, 15 (16%) are indifferent on the subject matter and 11 (12%) disagreeing to whether or not the reports are reliable and relevant and a very small fraction of 04 (4%) strongly disagreeing on the reliability and relevance of the report. This indicates that there needs to be training for the users so as to make sure that they are conversant on 37 what is being offered and make room for suggestions on how to add more reports. These reports are can be saved in formats that users are able to use to make their work easier. 30 (32%) strongly agree on this, 23 (24%) agree, 19 (20%) are indifferent, a similar number of 19 (20%) disagree and 04 (4%) strongly disagree. The system is usable while the respondent is without internet. The findings had a 100% response rate with all 95 respondents agreeing to this.

4.3.2 Cost

4.3.2.1 Transaction Cost

Table 4.11 Transaction Cost

Statements	1	2	3	4	5
Collection of duties and taxes is made Easier	45 49.6%	15 16%	19 20%	11 12%	03 2.4%
There is a reduction of operating costs with the introduction of ECTs	36 38.40%	34 36%	08 08%	11 12%	05 5.60%
Cost reduction with the reduction of organization processes	40 42.40%	30 32%	14 15.20%	06 5.60%	05 4.80%
Penalties and fines due to late delivery have reduced	95 100%	0 0%	0 0%	0 0%	0 0%

The extent of system compatibility was found to be at 45(49.6%) agreed that it was to an extreme extent compatible to other systems, 15 (16%) agreeing it is to a great extent, 19 (20%) remaining indifferent and indicating it is to an extent, 11 (12%) indicating not at all and 3 (2.4%) indicating that they were not at all sure. It was established that the system was easily compatible with the systems of other neighboring countries with 36 (38.4%) of the respondents suggested that it was to an extreme extent, 34 (36%) indicating it was to a great

extent, 08 (8%) of the respondents indicated it was to an extent, on the other hand 11 (12%) of the respondents said not at all and 05 (5.6%) were not sure.

4.3.2.2 Trade Facilitation

Table 4.12 Trade Facilitation

Statements	1	2	3	4	5
The system is compatible with the other set-up organizational systems	48 49.6%	15 16.0%	19 20.0%	11 12.0%	02 2.4%
The system is able to easily merge with the systems for the neighboring countries	37 38.4%	34 36.0%	08 8.0%	11 12.0%	05 5.6%
The ECT system is able to pair and works well with android systems	40 42.4%	30 32.0%	14 15.2%	06 5.6%	05 4.8%
The system allows multiple users to be online and work at the same time	95 100%	0 0%	0 0%	0 0%	0 0%
The systems allows for tasks to be handled faster at the different stations	38 40.0%	30 32.0%	11 12.0%	08 8.0%	08 8.0%

Given that global most mobile-phones are on the android system the findings established that 40 (42.4%) agreed that this was to an extreme extent, 30(32%) responded that this was to great extent, 14 (15.2%) responded that this was to an extent, 06 (5.6%) were of the view that this was not at all and lastly 05 (4.8%) were not sure to what extent the system was compatible with android.

4.3.3 Safety

4.3.3.1 Cargo Security

The findings on whether the system could be modified to be able to meet the emerging expectations and requirements is as follows: Indicate your level of expectation on the system by ticking in the appropriate box where 1= Strongly Agree 2= Agree, 3= Indifferent, 4= Disagree, 5= Strongly Disagree

Table 4.13 Cargo Security

Statements	1	2	3	4	5
Cargo theft has reduced drastically	32	24	25	14	03
	34.4%	24.8%	24.0%	14.4%	2.4%
Cargo monitoring is efficient	36	17	15	13	14
	37.6%	18.4%	16.0%	13.6%	14.4%
Clearance of cargo trucks at the border is made faster with the system	37	28	11	10	09
	38.4%	29.6%	12.0%	10.4%	9.6%
Cargo dumping has been reduced drastically	32	25	20	12	05
	33.6%	26.4%	21.6%	12.8%	5.6%
Does the system has a working feedback mechanism	33	27	16	12	07
	34.4%	29.6%	16.8%	12.0%	7.2%

The system software is easy to customize based on the findings of 32 (34.4%) strongly agreeing, 24 (24.8%) agreeing, 25 (24%) being indifferent on this matter, 14 (14.4%) disagreeing and 3(2.4%) strongly disagreeing. On whether the system‟s knowledge database that can be used for data mining 36 (37.6%) strongly agreed, 17 (18.4%) agreed, 15 (16%) were indifferent, 13 (13.6%) disagreed and 14 (14.4%) strongly disagreed. This reflects on the issue of the vendors being able to meet all the set requirements. Once this is successfully done the knowledge database can be used for data mining.

Findings on whether the system can allow the users to be able to make changes to the parameters given on a need be basis, 37 (38.4%) indicated by strongly agreeing that this was doable, 28 (29.6%) agreed that this could be done, 15(12%) were indifferent on whether this was indeed possible, 10 (10.4%) disagreed and 09 (9.6%) strongly disagreed. Vendors are required to provide progressive periodic system upgrades based on the emerging requirements, 32 (33.6%) strongly agreed that this was indeed taking place, 25 (26.4%) agreed, 20 (21.6%) were indifferent if at all this was taking place 12 (12.8%) disagreed that the periodic upgrades were being released and 05 (5.6%) strongly disagreed. System users indicated in the findings as follows that the feedback mechanism was working; 33(34.4%) strongly agreed that it was working, 27(29.6%) agreed, 16 (16.8%) were indifferent and therefore remained neutral, 12 (12%) disagreed and 07 (7.2%) strongly disagreed.

4.3.3.2 Cargo Diversion

Table 4.14 Cargo Diversion

	1	2	3	4	5
The web-based system is able to open using multiple browsers.	56 58.9%	21 22.1%	08 8.8%	05 4.8%	05 4.8%
The electronic cargo tracking software is user friendly	25 26.4%	38 40.0%	21 22.4%	06 6.4%	05 4.8%
Electronic Cargo Tracking System software has been able to meet all the set up requirements	34 36.0%	13 13.6%	25 26.4%	15 16.0%	08 8.0%
The system captures all the required data from the port to its destination	15 16.0%	34 35.2%	27 28.8%	14 14.4%	05 5.6%
Information is made available across the organization on a real time basis	14 14.4%	27 28.8%	41 44.0%	08 8.0%	05 4.8%

The findings of the study indicates that 56 (58.9%), and 21 (22.1%) of cargo diversion agree that the system can be used on a variety of browsers. This is indicative of a high level of awareness regarding the capabilities of the system due to exposure. However, 18.4% of the cargo diversion disagrees, indicating that they are unaware, or unable to use the system on multiple browsers. In terms of user-friendliness, a majority of transporters (66.4%) concur that the system is friendly and can be easily navigated. These points to the intuitive nature of the graphic user interface in allowing users to achieve their objectives with relative ease. The

system software was designed to meet a lot of user objectives. However, 15 (16%) and 08 (8%) of the transporters are unsatisfied with the build. Other factors such as ability to capture all required data, and real-time availability of information score averagely.

Table 4.15 Electronic Cargo Tracking System

Statements	1	2	3	4	5
Trade facilitation is enhanced by ECTS	33	19	13	27	03
	34.4%	20.0%	13.6%	28.8%	3.2%
More revenue is collected by ECTS	47	24	14	08	02
	49.6%	24.8%	15.2%	8.0%	2.4%
Transit Goods are efficiently monitored by ECTS	40	26	08	14	07
	41.6%	28.0%	8.0%	15.2%	7.2%
Electronics Cargo Tracking Systems has improved ease way of doing business	47	26	09	07	05
	49.6%	28.0%	10.4%	7.2%	4.8%

Table 4.15 indicates that quite a number of users are unaware of the system‟s capabilities. 34.4% and 28.8% were in different and disagreeing respectively, as to whether the system was decentralized thus providing efficiency. On a positive note, a majority (74.4%) of transporters were aware that the system could store information for long periods (up to 12 months). This feature is crucial for transporters who regularly require historical reports of their assets locations. It is important to note that only 08 (8%) and 26 (28%) of the same transporters agreed that the reports provided were relevant and reliable. Vast majorities

(49.6%) of the transporters were indifferent or in disagreement about the reports generated by the system. This view extends to the ability of the system to generate reports in different formats that are useful for the users. In this case, an overwhelming 49.6% of transporters were indifferent about the reports being in Microsoft formats. The ability of the software to store information while offline is a great advantage to users. An overwhelming majority 47 (49.6%) were pleased that information could be generated and retrieved from the system even while offline.

4.4 Inferential Analysis

Inferential statistics involves making prediction or inferences about a given population. The study conducted inferential statistics. The study also conducted correlational analysis, regression analysis and ANOVA to make inferences on the factors influencing the implementation Electronic Cargo Tracking System in Kenya. Pearson correlation analysis was used to assess the relationship between the variables while multiple regressions was used to determine the predictive power of factors (efficiency, cost and safety) and Electronic Cargo Tracking System (ECTS).

4.4.1 Multiple Regression Analysis

In this study, a multiple regression analysis was conducted to test the influence among predictor variables. The research used Analysis of Variance (ANOVA) to code, enter and compute the measurements of the multiple regressions. The model summary able provides information about the regression line‟s ability to account for the total variation in the dependent variable. The results are displayed in the table below.

Table 4.16 Regression Model Summary

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1	.820	.693	.674	14.12725

a. Predictors: (Constant), Efficient, Cost and Safety

Table 4.16 provides the R and R^2 values. The R value represents the simple correlation and is 0.820 which indicates a high degree of correlation. The R^2 indicates how much of the total variation in the dependent variable, can be explained by the independent variables, In this case, 67.4% can be explained, which is relatively large. Table 4.16 shows the regression model summary indicating the coefficient of determination R Square as 0.674. This means that 67.4% of the relationship is explained by the identified three and the rest 32.6% is explained by other factors not studied in this research.

4.4.2 Correlation

A correlation is a number between -1 and +1 that measures the degree of association between two variables. A positive value for the correlation implies a positive. A negative value for the correlation implies a negative or inverse association. After the descriptive analysis, the study conducted Pearson correlation analysis to assess the strength of the association between the predicted and explanatory variables or among the latter. It thus helps in determining the strengths of association in the model, that is, which variable best explained the relationship between the electronic cargo tracking system.

Table 4.17 Correlation Analysis

		Electronic Cargo Tracking System	Efficiency	Cost	Safety
Electronic Cargo Tracking System	Pearson Correlation	1	.216*	.346	.657**
	Sig. (2-tailed)		.042	.017	.000
	N	72	72	72	72
Efficiency	Pearson Correlation	.216*	1	.451**	.229*
	Sig. (2-tailed)	.042		.000	.008
	N	72	72	72	72
Cost	Pearson Correlation	.657**	.208	1	.383**
	Sig. (2-tailed)	.717	.000		.008
	N	72	72	72	72
Safety	Pearson Correlation	.433**	.229 *	.398**	1
	Sig. (2-tailed)	.000	.031	.000	
	N	72	72	72	72
**Correlation is significant at the 0.05 level (2-tailed).					
**Correlation is significant at the 0.01 level (2-tailed).					

From the correlation analysis in the table above, the study found that there is a positive relationship between efficiency and electronic cargo tracking system, where the correlation coefficients was 0.216 and a p-value of 0.042. The study also found that cost and the electronic cargo tracking system correlate positively with correlation coefficients of 0.346. However, the relationship is significant as the p-value (0.017) is less than the significance level (0.05). The study further established that there is a positive significant relationship between safety and electronic cargo tracking system with a correlation coefficient of 0.657 and p-value of 0.000. This infers that safety was influencing electronic cargo tracking system most, followed by cost and efficiency.

4.4.3 Analysis of Variance

Table 4.18 Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig
1	Regression	24.239	4	6.060	10.909	.000
	Residual	44.763	91	.492		
	Total	**79.672**	**95**			

a. Dependent Variable: Electronic Cargo Tracking System

b. Predictors: (Constant), Efficiency, Cost, Safety

As illustrated in table 4.18 above, the significance value in testing the reliability of the model for the relationship between Efficient, Cost, Safety with Electronic Cargo Tracking System was obtained as 0.000 which is less than 0.05 the critical value at 95% significance level. Therefore the model is statistically significant in predicting the relationship between dependent (Electronic Cargo Tracking System) and independent variables of the study (Efficiency, Cost, Safety). The F value from the table is 10.909 indicating a significant model for the relationship as given by the regression coefficients. This shows that the overall model

was statistically significant and reliable in explaining the influence of the predictor variables to the electronic cargo tracking system.

The Unstandardized coefficients indicate how much the dependent variable (electronic cargo tracking system varies with an independent variable when all other independent variables (efficiency, cost and safety) are held constant.

Table 4.19 Regression Coefficient electronic cargo tracking system

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig
1	(Constant)	15.224	4.436		3.432	.007
	Efficiency	.768	.137	.282	3.194	.010
	Cost	.746	.253	.159	2.950	.040
	Safety	.776	.121	.485	4.111	.000

Dependent Variable: Electronic Cargo Tracking System

The findings shown in table 4.23 indicate that all the variables had a positive and significant influence on electronic cargo tracking system, since all the predictors were significant predictors of electronic cargo tracking system because their P-values were less than 0.05. According to the results, efficient had a significant influence on electronic cargo tracking system as shown by the coefficient (B = 0.768, t = 3.194, p> 0.007). Cost also showed a significant influence on electronic cargo tracking system with the coefficients (B= 0.746, t = 2.950, p> 0.010) indicating a positive effect on electronic cargo tracking system. Similarly,

Safety indicated a significant positive influence on electronic cargo tracking system with coefficients (B = 0.776, t = 4.111, p> 0.000).

The study used the following regression model:

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon}$$

Where:

Y = Dependent variable (electronic cargo tracking system)

β_0= constant

β_1, β_2 and β_3 = the regression co-efficient

X = Independent variable

X_1- Efficiency

X_2- Cost

X_3 – Safety

ε = Stochastic term or error term

Therefore;

Container Dwell Time = 15.224 + 0.768 Efficiency + 0.746 Cost + 0.776 Safety

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the data findings relationship between Electronic Cargo Tracking and Operational Performance at Kenya Revenue Authority and by the transporter, the conclusions and recommendations drawn. The chapter is therefore structured into summary of findings, conclusions, recommendations and limitations of the study and suggestion for further research.

5.2 Summary of the Findings

The implementation of the electronic cargo tracking system and operational performance at Kenya Revenue Authority and by the road transporters has revealed a positive impact in the findings. The revenue collector has to a great extent been able to improve their internal operational performance as the system gives them control while seated at the office. The research findings of this study imply that some of the constraints is the successfully setting up the system using the requirements as the guideline and also rolling out the system to be able to successfully be used by the revenue collect and the transporters.

5.2.1 Efficiency

The system can be seen to be beneficial in improving the overall operational performance for both Kenya Revenue Authority and the transporters who have already implemented the system and are using it especially for the cargo that is outbound. Based on the findings most of the users appear to be neutral especially on critical matters such as the system infrastructure and its capabilities. This is a reflection that there is need for further

sensitization of the system and what the authority aims to achieve with its implementation. The transporters appear to have embraced the system and are actively using it in their day to day activities.

5.2.2 Cost

This is reflected by their response about the system being able to be used using the multiple browsers and in their response on whether one can be able to work while offline. There is still quite a number of things that need to make the transporters feel like this system has much more to offer other than just being a legal requirement. Together these two set of users (Kenya Revenue Authority and the transporters) can be able to streamline the system and collectively eliminate some of the current challenges the system is trying to adjust and resolve.

5.2.3 Safety

The majority of the respondents also concurred that, the organizational has a culture that is flexible to internal changes, the organizational culture accommodates external changes, the organization has an organizational culture that focuses on control, the organization has an organizational culture that focuses on stability in the organization, the organization has an organizational culture that encourages internal efficiency and that the organization has an organizational culture that encourages adherence to company policy and the law. These results show that construction companies have appropriate organizational culture. It is also evident from the study that the electronic cargo tracking system is timely and it will lead to an improvement in operational performance not only at Kenya Revenue Authority and at the transporter‟s premises but at the organizations that are served by these two entities. The cost of initially implement is quite high however the benefits that result based on implementation are felt all around within the organizations of the parties.

5.3 Conclusion

The study concluded that in order to implement the electronic cargo tracking system successfully it was important for the revenue collector to accurately define the system expectations and its benefits so that the vendors can be able to build a reliable system that will assist in achieving the set goals. Kenya Revenue Authority is expected to identify and make operational performance a priority while availing resources for the execution of tasks and while evaluating the performance of the officers. Top management acts as the driver for the implementation of the system and are the key to the improvement of the organization‟s operational performance in its activities.

The study established that for the system to effectively work it requires employee and transporters participation and contributions and ideas for recommendations where applicable. Participation by both parties will not only drive the system to work effectively but it will also lead to the evolution of the road transport industry. The study findings demonstrated that acceptance of the system and the sensitization and conscious training from both the vendor and the service providers will assist in operational performance. Proper training program are required and also systematic gathering data especially of emerging expectations and needs both locally and globally.

The study ascertained that feedback was a critical part in the successful implementation of the system. Feedback should be from both the revenue collector and the transporters that are using the system. Furthermore these programs empower the employees of the transport companies and also at Kenya Revenue Authority to resolve and carry out tasks effectively.

5.4 Recommendations

The study recommends that emphasis should be put on the incorporation of the principles of operational performance to aide in the successful implementation of the cargo tracking system by the concerned sectors. The role of the vendors offering the service, the role of the leaders both at KRA and in the transportation organizations, the participation of the employees and the spirit of empowering them, feedback, training and communication are critical to be able to succeed. Overall business productivity, profitability for the transporters and increased revenue collection will be actualized over a period of time as its implementation will pay off.

The study recommends that the concerned parties should establish a channel of communication and a way to work together so as to be able to make progressive steps while using the system. Lack of proper infrastructure, cost of implementation, lack of training, lack of understanding the requirement are some of the challenges faced in implementation of the system.

The implementation of cargo tracking system has potential even in some the manufacturing industries as it will aide in reaching set goals like have systems Just-In-Time Electronic Cargo Tracking- ECTs has positively impacted both users and improved operational performance and growth.

5.6 Suggestions for Further Research

The study only focused on operational performance of the implementation of the electronic cargo tracking system with a focus on Kenya Revenue Authority and the transporters who have implemented the system. The effectiveness of the implementation of the system in the study was studied from the point of the two parties which was again measured by efficiency,

cost and safety. However, other major objectives like ensuring transparency especially with what is being ferried from one boarder to the other, reduction of corruption, if studied in future research, then it would add more value to our national revenue collector. A comparative study can also be carried using with systems implemented by our neighboring countries. This will assist in establishing any similarities and differences that may exist as far as the electronic cargo monitoring system is concerned.

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APPENDICES

Appendix i: Introductory Letter To Respondents

RE: DATA COLLECTION

Dear Respondent,

I am a student pursuing Post Graduate Diploma (PGD) in Customs administration at the Kenya School of Revenue Administration (KESRA). Currently, I am undertaking a research study on **"FACTORS THAT INFLUENCE THE IMPLEMENTATION OF ELECTRONIC CARGO TRACKING SYSTEM AT THE CUSTOMS DEPARTMENT IN THE KENYA''**, in partial fulfillment of the requirements for the award of Post Graduate Diploma (PGD) in Customs administration. You have been selected to participate in the survey and the researcher would highly appreciate if you assist him by responding to all questions as completely, correctly and honestly as possible. It is solely for academic purposes. Your opinions, responses and views are very important to this study and will be completely confidential. No respondent will be identified.

Thank you very much for your participation, cooperation and understanding.

Yours Sincerely,

Njue Rita Susan Wambeti

Appendix ii: Questionnaire

This research questionnaire is specifically prepared to assist in data collection relating to factors that influence the implementation of electronic cargo tracking system at the customs department in the Kenya. As a respondent in relation to the study you are kindly requested to fill in appropriate responses at the best of your knowledge. The researcher assures you that all responses will be treated with confidentiality and will only be used for academic purpose.

SECTION A: BACKGROUND INFORMATION OF RESPONDENTS

1. Sex of Respondent: (A) Male { } (B) Female { }
2. Age of Respondent: (A) Less than 24 years { }
   (B) 25- 29 years { }
   (C) 30-45 years { }
   (D) 46- 50 years { }
   (E) Above 50 years { }
3. Level of education attained
   (A) High school { } (B) Certificate level { }
   (C) Diploma { } (D) Bachelor's Degree { }
   (E) Masters { } (F) PHD { }
   (G) Other (specify)…….
4. Type of organization
   (A) Container Terminal Operations { }
   (B) Conventional Cargo Operations { }
   (C) Other (Specify)…….
5. Name Section/Department/Unit…….

6. What is your position/status in the organization?

(A) Senior Manager { }

(B) Middle Manager { }

(C) Junior Manager { }

(D) Operator { }

(E) Other (Specify)……..

7. How many years have you worked with this organization?

(A) Over 20 years { }

(B) 11 – 19 years { }

(C) 3 – 9 years { }

(D) Less than 3 years { }

SECTION B: EFFICIENCY

8. How does efficiency influence the implementation of electronic cargo tracking system at the customs department in the Kenya Revenue Authority?

   1= Strongly Agree, 2= Agree, 3= Neutral, 4=Disagree, 5= Strongly Disagree

	Parameters	1	2	3	4	5
I	There is a reduction of operating costs with the introduction of ECTs					
II	Penalties and fines due to late delivery have reduced					
III	Clearance of cargo trucks at the border is made faster with the system					
IV	There is a reduction of operating costs with the introduction of ECTs					

Table 3: Elements of efficiency that influence the implementation of electronic cargo tracking system at the customs department in the Kenya Revenue Authority

SECTION C: COST

9. How does cost influence the implementation of electronic cargo tracking system at the customs department in the Kenya Revenue Authority?

   1= Strongly Agree, 2= Agree, 3= Neutral, 4=Disagree, 5= Strongly Disagree

	Parameters	1	2	3	4	5
I	Collection of duties and taxes is made Easier					
II	There is a reduction of operating costs with the introduction of ECTs					
III	Cost reduction with the reduction of organization processes					
IV	Penalties and fines due to late delivery have reduced					

Table 4: Elements cost that influence the implementation of electronic cargo tracking system at the customs department in the Kenya Revenue Authority

SECTION D: SAFETY

10. How does safety influence the implementation of electronic cargo tracking system at the customs department in the Kenya Revenue Authority?

1= Strongly Agree, 2= Agree, 3= Neutral, 4=Disagree, 5= Strongly Disagree

	Parameters	1	2	3	4	5
I	Cargo theft has reduced drastically					
II	Cargo monitoring is efficient					
III	Clearance of cargo trucks at the border is made faster with the system					
IV	Cargo dumping has been reduced drastically					

Table 5: Elements of safety that influence the implementation of electronic cargo tracking system at the customs department in the Kenya Revenue Authority

SECTION E: ELECTRONIC CARGO TRACKING SYSTEM

1= Strongly Agree, 2= Agree, 3= Neutral, 4=Disagree, 5= Strongly Disagree

	Parameters	1	2	3	4	5
I	Trade facilitation is enhanced by ECTS					
II	More revenue is collected by ECTS					
III	Transit Goods are efficiently monitored by ECTS					
IV	Electronics Cargo Tracking Systems has improved ease way of doing business					

Table 6: Elements of electronic cargo tracking system at the customs department in the Kenya Revenue Authority

END OF QUESTIONARE

Thank you very much for your cooperation

Appendix iii: Work Plan

	FEBRUARY - JULY 2018	AUGUST 2018	SEPTEMBER 2018	OCTOBER 2018	NOVEMBER 2018
Research proposal topic presentation					
Proposal development					
Proposal submission					
Proposal presentation					
Data collection and analysis					
Submission of final project					
Presentation of final project					
Final project approval correction and supervisor approval					
Submission of golden copies					

Appendix iv: Budget Plan

ITEM	ACTIVITY	AMOUNT (Khs.)
1	TYPE SETTING	25, 000.00
2	PHOTOCOPYING	20, 000.00
3	BINDING	20, 000.00
4	PRINTING	25, 000.00
5	MISCELLENOUS	20, 000.00
6	TRANSPORT	10, 000.00
	TOTAL	**120, 000.00**