INFLUENCE OF CUSTOMS COMPUTERIZED SYSTEMS ON THE PERFORMANCE OF CUSTOMS AND BORDER CONTROL DEPARTMENT OF THE KENYA REVENUE AUTHORITY

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DECLARATION

This research work is my original work and has not been presented for examination in any other university or institution of higher learning for award of degree (academic award purposes)

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Dr. Doris Gitonga

KENYA REVENUE SCHOOL REVENUE ADMINISTRATION.

DEDICATION

To my parents.

The reason of what I become today. Thank you for your support and continuous care.

To my babies and lovely wife.

Michelle and Joan, am really grateful to both of you and Joy you have been my inspiration and support.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS AND ABBREVIATIONS

AIA	Appropriations In Aid
API	Advance Passenger Information
ASYCUDA	Automated System for Customs Data
C&BC	Customs and Border Control
CD	Customs Division
ECTs	Electronic Cargo Tracking System
FACT	Factual Accurate Complete Timely
FY	Financial Year
HQ	Headquarters
GRA	Ghana Revenue Authority
ICDN	Inland Container Depot Nairobi
ICMS	Integrated Customs Management System
ICT	Information and Communication Technology
IRS	Internal Revenue Services
IT	Information Technology
ITAS	Integrated System of Tax Administration
KPA	Kenya Ports Authority
KRA	Kenya Revenue Authority
OECD	Organization for Economic Cooperation and Development
PC	Personal Computer
RARMP	Revenue Administration Reform and Modernization Program
RFID	Radio Frequency Identification

SPSS	Statistical Package for Social Science
TAM	Technology Acceptance Model
TIN	Taxpayer Identification Number
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
UNCTAD	United Nations Conference on Trade and Development
UNECE	United Nations Economic Commission for Europe
URA	Uganda Revenue Authority
VAT	Value Added Tax

DEFINITION OF KEY TERMS

Cargo Security Protection of goods or produce being conveyed (Kabiru, 2016)

Customs and Border Control (C&BC) is a department of the Kenya Revenue Authority which deals with all imports, transit,export and border protection.

Information sharing The transfer of information regarding inventory levels and position, sales data and forecasts, order status, production and delivery schedules and capacity, and performance metrics (Lee and Whang, 2010)

Performance A set of financial and nonfinancial indicators which offer information on the degree of achievement of objectives and results (Azara, Syed and Muhammad, 2013)

Rects Regional Electronic Cargo Tracking System.

Staff This are officers based in Customs & Border Control department comprising of Seniors Managers, Managers, Supervisors and Officers.

Training The organized activity aimed at imparting information or instructions to get better the staff performance or attain a required level of skill or knowledge to help him or her (Saed & Asgher, 2012).

ABSTRACT

ICT systems use has been a great contribution to the worldly expansion of the economy through enhancement of trade and facilitation. Computerization of processes has also improved the relationship between businesses and customs agencies by easing the flow of work. ICT use in sector includes improvement of the entire process of clearance, from entries lodging, accepting and processing as well as declaration of goods for importing, exporting and transiting, taxes payment and goods assessment. Therefore the aimed to evaluate the effect of customs computerized systems on the performance of customs and border control department at Kenya Revenue Authority while focusing on three main specific objectives namely: information sharing, cargo security and training. By using a descriptive research design, the researcher targeted the KRA customs officers at the customs and control department (C&BC) selected through simple random sampling. Data collection was done through self-administered questionnaires, which adopted open and closed ended question structures. The researcher presented the results in tables, charts and graphs to facilitate improved analysis and comparison. Frequencies, descriptive statistics and regression analysis were used to analyze the results and draw conclusions and recommendations. The study found that Information Sharing, Cargo Security and Training are statistically significant and they influence the performance of KRA' customs and border control segment. The study recommends KRA should relook at the need to improve their reforms and also improve the validation of the computerized systems at C&BC. KRA should deploy more vigorous and continuous training on its employees as this will help them adopt to the new technologies being implemented into the department by the organization. There is also a need to research on the challenges facing customs officers when handling the customs computerization systems.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Sakhasia (2017) noted that ICT systems use has been a great contribution to the worldly expansion of the economy through enhancement of trade facilitation and enhanced processes of numerous companies that utilize computerized in customs involving ICT use in attaining the key business of customs includes improvement of the entire process of clearance, from entries lodging, accepting and processing as well as declaration of goods for importing, exporting and transiting, taxes payment and goods assessment from the customs and border control departments (UNECE, 2012).

ICT incorporates advanced technologies that include innovation such as televisions, mobile phones, personal computers and radio, data systems that include intranets, World Wide Web, extranets and applications in programming. Electronic commerce incorporates distribution, logistics and transport services which are important to it (Chisenga, 2006). Ogguta, Egessa and Musiega (2014) note that reforms in customs have helped countries transfer information and ideas on real time basis thus helping make decisions quicker and therefore leading to quicker clearance of goods. ICT use in customs has helped companies handle their activities on a daily basis and therefore enhance efficiency in dealing with the fast changing world.

According to Gidisu (2012), in a study about procedures of automation systems on revenue collection effectiveness in Ghana, Ghana Revenue Authority (GRA) adopted UNCTAD's automated systems for customs data and management, which is a complete clearance process. The UNCTAD system handles the accounting procedures, declarations in customs, suspense

procedures, trade data generation that is normally utilized for economic and statistical analysis (UNECE, 2007)

Several countries have implemented computerization systems in their customs and borders to improve customs service delivery and performance (Tetteh, 2012, OECD, 2011; Maranga, 2015; Msuka, 2013). According to OECD (2012), Germany adopted the Germany customs information systems in 1991 and the system was very successful in reducing trade barriers. Alcedo & Cajala (2015) further noted that Asian China customs revenue system is categorized as among the best. China customs have been ranked at 78percent efficiency levels since the computerized systems have brought simplification in customs as well as harmony with its users. Mexico and Colombia have also adopted the computerized systems in their customs and border departments to prevent illegal trade, drugs, intellectual property rights and harmful substances into their nations (Horvat, 2011; Ameke, 2016). Wondemagegne (2014) noted that in Africa, South Africa (SA) uses the electronic customs systems in prediction making, time clearance and transparency increase in trading with other countries thus helping SA become one of the biggest economic hubs in Africa (Keen and Mansour, 2011). The African economic forum of 2012 ranked SA as the nation with the best computerized financial systems. Furthermore, Matoo and Schuknecht (2011) stated that Rwanda also introduced the Rwanda electronic Single Window System that has aided in trade facilitation across its borders.

1.1.1 Customs Computerization Systems

According to Amin (2013), computerization of tax or income collection systems involve investing in up to date technology such as information communication technology (ICT), so as to advance the revenue system to integrate and improve on sharing of information and foster system

effectiveness and efficiency. According to Kiema (2017), the departments have a responsibility to develop effective and efficient revenue collection processes and monitoring frameworks. Doing so improves the supervision of project activities and financial planning programs to enhance resource allocation and accountability. Computerization of strategic goals is a necessary step towards government modernization, which is essential to the requirements and expectations of contemporary governance environments (Wasao 2014).

Particularly, automation increases efficiency in tax administration (UNCTAD, 2006), making system based approaches a critical requirement in this field. Similarly, computerized systems are a proven strategy for business processes efficiency improvement, which also increases revenue collections (Zhou & Madhikeni, 2013). Andarias (2016) concluded that when technology is properly used, it becomes an efficient tool for most organizations and their systems. However, it could also result in technical problems that require attention. Consequently, technology is only efficient when handled by individuals with the relevant training and knowledge and when it is embedded in the organization processes. Therefore, its effectiveness relies on the personnel handling its implementation. In tax administration, technology incorporates items and processes, including computers, hardware and software, networks, and the Internet. Additionally, revenue authorities require adequate technology to reduce the "life-time of tax," which is the period between the date of initial tax viability and the first payment. These technological advances include all automation mechanisms, mass data processing and strategies that eliminate administrative challenges (Kamau, 2014).

In another study, Kirimi (2015) noted that the computerization of revenue administration increases the effectiveness of revenue collection, improves organizational performance, and reduces the cost of administration. Particularly, according to Haughton & Desmeules (2011), this

processes improve tax and customs clearance time. Additionally, automation of Tax-Information processing system is cost-effective as it reduces the burden of over-staffing and does not require high equipment cost.

1.1.2 Organizational Performance

Azara, Syed and Muhammad (2013), define performance as the metrics that indicate objective and results achievement, both financial and non-financial. It is a dynamic metric that reqires judgment and interpretation (Lebans and Euske, 2006). On the other hand, Daft (2000) defines organizational performance as the ability to achieve objectives through efficient and effective use of resources. Corporate goals include quality products, high profit, financial wellbeing, market share, and survival (Koontz and Donnell, 2013). Hence, corporate performance is an indicator of productivity measured in terms of organizational growth, revenue, profit, development, and expansion (Kehinde, Jegede, and Akinlabi, 2012; Zakari, Poku and Owusu-Ansah, 2013; Sofijanova and Zabijakin-Chatleska, 2013).

Kaplan and Norton (2003) proposed the use of "The Balanced Scorecard Perspectives" as a measure of organizational performance. The Balanced Scorecard evaluates the alignment of small-scale operational with a company's vision and strategy (Carmeli and Tishler, 2004). Hence, it can be used as a performance measurement tool. The Balanced Scorecard incorporates financial measures, the customer-related metrics, the innovativeness, and learning perspectives. Similarly, Katou (2008) opined the organizational performance constitutes efficiency, innovation, efficacy, growth, and the quality of production.

Therefore, ICT is an integral part of performance improvement and measurement. It helps organization to improve the productivity and efficient, and also evaluate and monitor the

improvements on a regular basis. According to Ngangau (2014) ICT facilitates production of ad hoc reports, improves quality of work, enables availability of reliable information on power generation and facilitated knowledge sharing and building on each other‘s ideas in real time. In addition, ICT had enabled KenGen to empower its employees and facilitated employees learning. However, impact of ICT on performance is being hindered by insufficient access rights.

1.1.3 Customs and Border Control Department

The Customs and Border Control department of KRA was formed in 1978 through an Act of Parliament and is the largest of the four main departments at KRA in respect to collection of revenue, workforce and countrywide operational network. The main responsibility of the department is the collection and accounting for customs and excise taxes. The non-fiscal functions of the department include collection of trade statistics, trade facilitation and society protection.

One of the KRA reforms was involved eliminating paper-based transactions and physical intervention through the introduction of a modern ICT system. The aforementioned Customs reform and modernization project comprised the following sub-projects: Customs replacement system; Review of Customs procedures and processes; Implementing an Electronic Cargo tracking system; Scanner imaging systems implementation; Direct banking; Community Based System; Taking-over from Pre Shipment Inspection(PSI) Companies; Patrol boats & Helicopter; Restructuring of CPS (Customs Preventative Services); K9 section; Preparation of Excise Act (KRA, 2019).

This was done by use of the Simba system. The authority introduced a philosophy of customs reform through a combination of modern transformations, including the SIMBA system

(Waweru, 2006; Gitaru, 2017). The integrated customs management system (ICMS) is now being imoplemented at the Port of Mombasa, border stations and the Inland Container Depot Nairobi (ICDN). This new system consolidates all the existing customs systems into one much effective, robust and modern technology that aids in interfacing seamlessly all the external and internal systems as there is an arising need. Other systems include MMS, COSIS, RECTS, SCT, ICMS and Business Intelligent Database Matrix (KRA, 2019).

1.2 Statement of the Problem

The contemporary business environment necessitates the efficient and effective maximization of resources utilization due to the level of competitiveness in a fast-paced landscape. Consequently, organizations proactively engaging in the systems modernization to improve their position and cope with the dynamic nature of the era. System automation enables authorities to maximize their revenue collection by improving efficiency (Bahwan, 2012). The measurability of effectiveness and improvements that results from System modernization enables organizations to develop and maintain activities with on-time delivery and predictable quality (UNCTAD, 2013).

At the start of its introduction at KRA, the department faced numerous immense difficulties in terms of redundant and protracted clearance processes, and multiple documents requirements in various formats and with different information elements, inefficiencies in ICT adoption and integration with processes, negative organizational culture, differences and disintegration of the revenue collecting departments, and damaged public image tainted by the lack of professional ethics and integrity among the authority's employees. This led to lack of poor performance of KRA in terms of revenue collection because of dumping or diversion of transit goods, lack of development in security of cargo, poor cargo visibility and status to all partners, use of manual

procedures along the supply chain. The first KRA system was BOFFIN which was more manual than automated. In 2002/2003 the revenue was Ksh 270 billion but when Simba system came, the revenue increased despite its inherent problems in some business processes as a result of lack of total visibility of full scale operations in real-time. An upgrade of Simba system to ACMS led to increased revenue due to increased business processes. Other investments like ICMS, iSCAN, COSIS, MMS, RECTS and e-sealment have also led to KRA collecting more revenue by reducing dumping, the advanced intelligent systems such as iScan have also improved concealment and thus increasing revenue. In the financial years, KRA has witness increase trend in revenue collections and i don't know whether this can be attributed to influence of full system integration of its subsystems which were on standalone or not. Therefore, there was need for a study to evaluate the influence computerized system in the customs and boarder control department has on the performance.

Numerous studies have been done on computerized systems and performance, both internationally and locally. Sakhasia (2017) researched on the electronics customs management systems influence on delivery of service at the Eldoret Kenya Revenue Authority Station. Kirimi (2015) investigated the effect of revenue processes automation on organizational performance in the Meru County, Kenya. Kiema (2017) researched on the impact of ICT support services on revenue collection at KRA. Lubeka (2017) studied the relationship between customs computerized systems and performance, specifically at the responsible department. Although these studies achieved their objectives, they did not research on the influence of customs computerized systems on the performance of customs and border control department at KRA. This study sought to bridge the gap that existed.

1.3 Research Objectives

The study's primary objective evaluate the influence of customs computerized systems on the performance of customs and border control department at KRA. Specifically, the study sought:

i. To establish the influence of information sharing on the performance of customs and border control department at KRA
ii. To evaluate the influence of cargo security on the performance of customs and border control department at KRA
iii. To investigate the influence of training on the performance of customs and border control department at KRA

1.4 Research Questions

i. What is the influence of information sharing on the performance of customs and border control department at KRA
ii. What is the influence of cargo security on the performance of customs and border control department at KRA
iii. What is the influence of training on the performance of customs and border control department at KRA

1.5 Justification of the Study

This study will be beneficial to the authority in coming up with policies and procedures that may be used in assessing the efficiency of the computerized customs systems. The research findings will also be helpful in contributing to the existing literature through supportive and expanded evaluation of the topic. Policy makers may use the findings in formulating laws and regulations as well as coming up with budgets that will aid the government to create an enabling environment for facilitation of trade. The information gathered will also form a basis for future studies as researchers can refer to the text while carrying out research related to customs computerized systems and performance of customs and border control department.

1.6 Scope of the Study

The researcher evaluated the interconnection between the department's performance and the computerization of its systems. The target population was custom officers at the department. Using a questionnaire, the researcher gathered primary data that focused on the three man variables: information sharing, cargo security and training and how they influence performance. The study also researched on customs and border computerization systems from 2010-2018.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section evaluates the theoretical background, including diffusion of innovation theory and the theory of technology acceptance theory. The chapter also incorporates an empirical review of a prior literature and a conceptualization of the researcher's model in a conceptual framework of the variables.

2.2 Theoretical Review

2.2.1 Diffusion of Innovation Theory

The diffusion of innovation theory is credited to Everett (1993), and examines the social processes that are in play whenever a new concept is introduced in an organization, society, or institution. According to Rogers (1963) Users seek information about new technology from their peers, and are particularly interested in their colleagues' or friend's subjective evaluation and conclusions about it. Therefore, the sharing of information about a specific technology involves a convergence process, where users are engaged in interpersonal networks. Hence, the theory explains the social process that defines the interchange of subjectively perceived information about a new concept. Hence, Rogers (1963) describes diffusion as a social exchange of communication through specific channels among the members of a given community over time. However, the interchange is defined by issues regarding a specific technology or idea.

Rogers (1995) states that the degree of innovation which is comprehended as complex to understand and use is known as complexity. Therefore, if the technology is quick to comprehend and implement than it is more likely to be adopted quickly. If the innovation requires the adopter to gain new skills or to build new understandings then the adoption rate is likely to be slower. There are many ways that may be used to judge relative advantage including social prestige,

convenience, satisfaction and economic improvement. A key element of this characteristic is that the innovation is perceived as better even if there is not objective information to confirm this belief (Allard, 2003).

2.2.2 Technology Acceptance Model (TAM)

The technology acceptance theory measures people's and organization's willingness to adopt new technology. As presented by Davis (1989), the model attempts to explain the reasons for acceptance or rejection based on the theory of reasoned action. To do so, the theory explains the essential components of technology diffusion and acceptance of information systems. According to Davis (1989) the model focuses on two fundamental factors that influence the use of new technology, perceived ease of use of the system and perceived usefulness to the function for which the system is intended. The two theoretical constructs are said to influence and predict attitudes towards use of technology. According to Davis, Bogozzi, and Warshaw (1989), perceived usefulness of a system is the extent to which the intended user understand the role of the new technology on their job description and performance. On the other hand, perceived ease of use is the user's expectation of difficulty in the adoption of the new system and the amount of effort need to implement it (Venkatesh and Davis, 2000).

TAM posits that user's technology adoption is dependent on the intended use and the preexisting beliefs and attitudes about the technology. Additionally, the expected ease of use and usefulness of a system can explain the differences between users' intentions. Therefore, the theory also incorporates users' attitude as a third component and determinant of technology acceptance. Davis et al. (1989) define attitude as a mental and neural state that defines a user's readiness to understand, use, or engage with a concept. The mental state is determined by the experiences associated with the particular issue. In this case, the theory evaluates the role of performance and

effort expectancy, facilitating conditions, and social influence, which influence behavior and the use of technology. TAM uses demographic factors, such as age and gender, among other factors, including experience and voluntary of use, to moderate the modeled relationships and determine validity and reliability of the system and the predictability of the dependent variable.

An illustration of the TAM model by Miller and Khera (2010) is shown below:

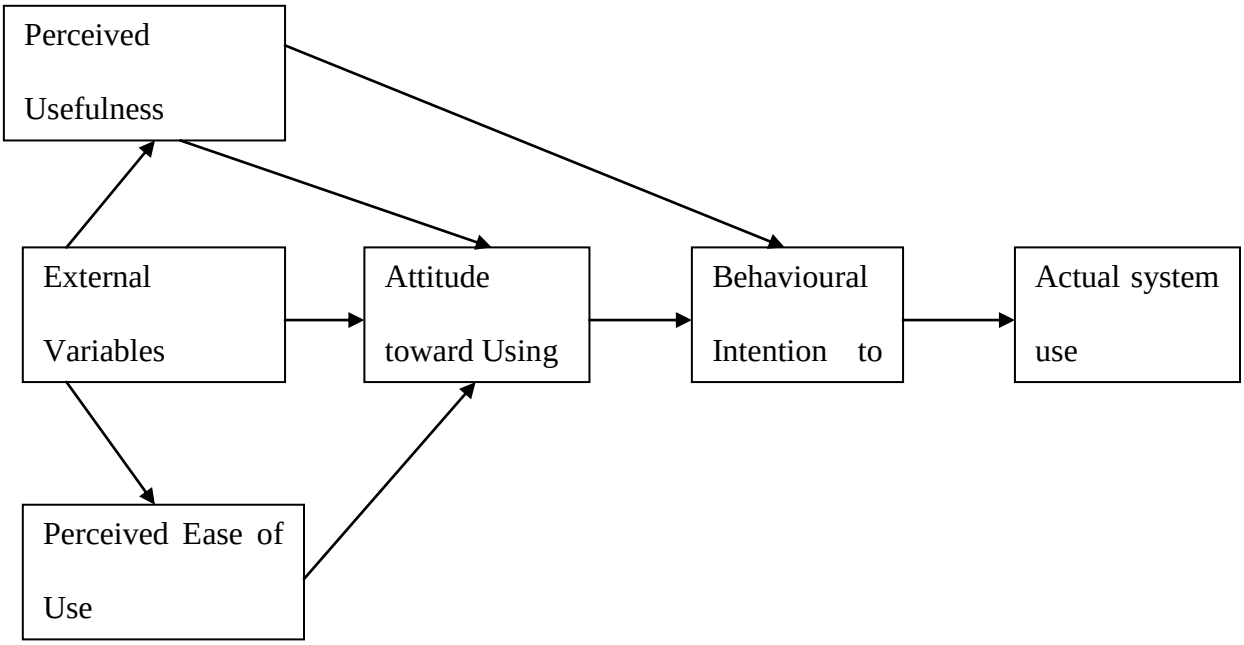

Figure 2.1: TAM model (Miller and Khera, 2010)

2.3 Conceptual Framework

The conceptual framework is illustrated in Figure 2.2:

Independent Variable

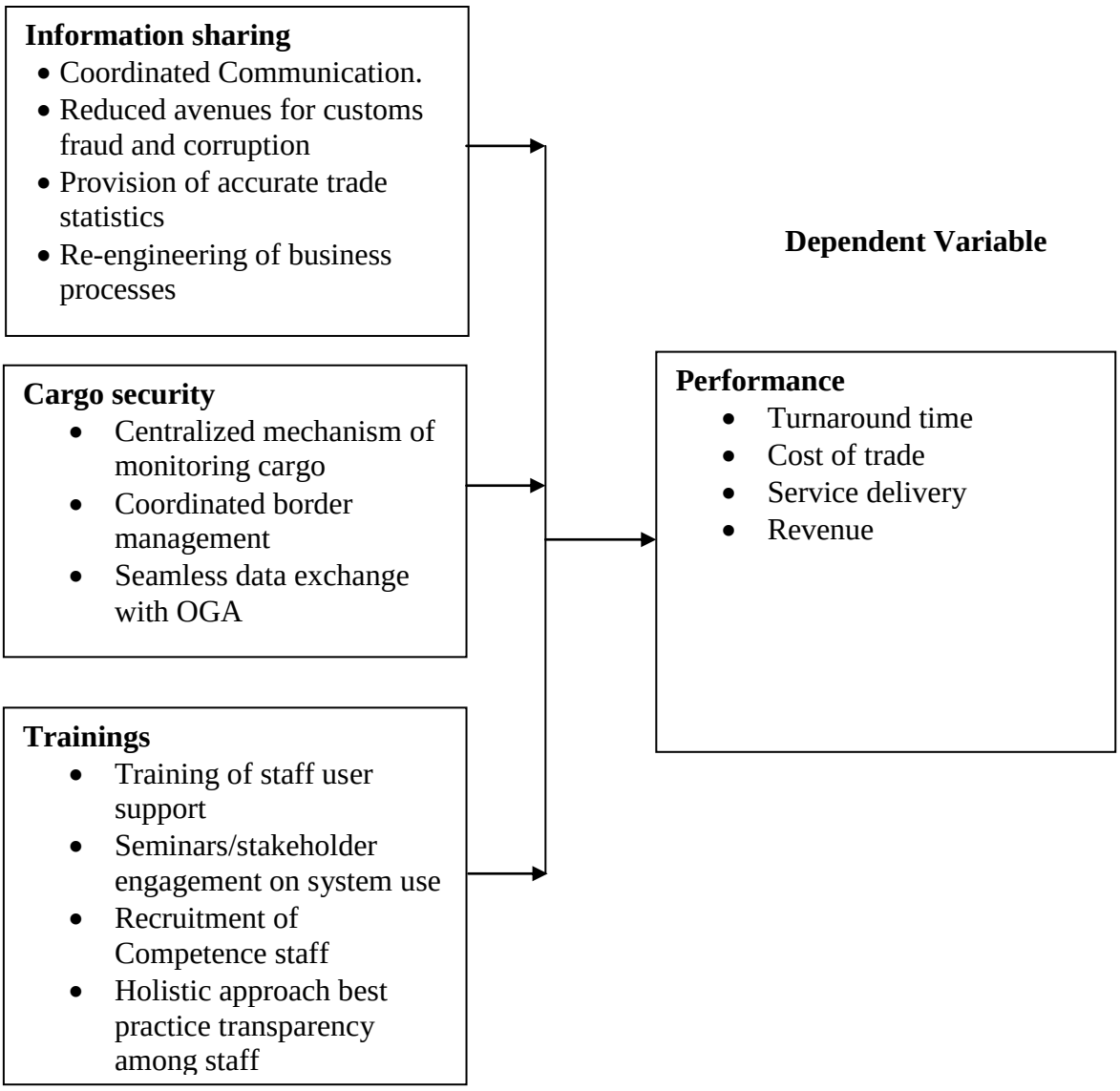

Figure 2.2: Conceptual Framework

2.3.1 Information sharing

According to Lee and Whang (2010), information sharing implies transferring data concerning sales and forecasting, production and delivery schedules, performance metrics, order status, and inventory levels. Sanders and Premus (2015), on the other hand, define it as a means through

which organizations can create forward visibility, share inventory management data, and improve production planning. Rhea and Shrock (2010), consider information sharing as the process of transferring billing transactions, shipment tracing, and compliance resolutions. On the other hand, Lee (2011) explains it as the process of disseminating knowledge between persons, groups, or organizations. However, organizational knowledge sharing extends to the exchange of critical information between teams and units, which may also include influence by others' knowledge and experience (Van Wijk et al., 2008). Additionally, Flynn et al. (2010) described this process and the transfer of inventory, planning, and capacity data among the relevant parties.

2.3.2 Cargo security

Cargo security is an essential aspect of the supply chain for most organizations globally. Particularly, issues concerning cargo thefts continually increase the challenge of managing products flow globally, especially for multinationals. Electronic Cargo Tracking System (ECT) electronically monitors cargo on transit and controls the movement of commodities along the corridor routes to the destinations on real-time basis. Mainly, the system uses Radio Frequency Identification (RFID) and GPS to map the movement of the consignments through the designated routes (Das & Harrop, 2013). Consequently, many countries have implemented legal requirements for all export cargo vehicles, such as trucks and tankers, to be fitted with tracking devises to enable the operability of the ECT system. Mostly, this is done through electronic seals that provide the monitoring agencies with the data and reports the location and activities of the transport vehicle, including real-time reports on violation (Musyoki, 2010). The ECT also incorporates information from the Geofence, a virtual fence, mounted on all gazetted routes to identify deviations from course. Geofencing involves a series of coordinates that map out the

routes used by the transporters. If the truck is driven off route, the system sends out system generated Geofence violation signals (Kabiru, 2016).

In Kenya, Tanzania, and Uganda, the electronic cargo security tracking system is mandatory to all transporters and stakeholders. Particularly, the system has improved revenue collection and cargo handling. Additionally, the ECT has improved the business environment in East Africa and its trade routes. The improvement in customs collection has also been beneficial to businesses as it has led to the reduction of import tax and tax on cargo (Oriere, 2015). The implementation process of the system is under the state's revenue collection authorities, such as KRA.

According to Mugambi (2017), Kenya requires all outbound transit vehicles to be fitted with tracking devises to enable the operability of the ECT. These requirement extends to tankers, outbound trucks, and containers. Musyoka (2016) posits that the electronic seals on the transit vehicles reports their location and any Geofence violations on a real-time basis, increasing efficiency of the system. 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 challenges facing their operations. Cargo theft is among the primary hindrances to the supply chain, which also experiences corruption incidences, political instability, increase in crime and violence, weak governance, poor infrastructure, and social unrest, (Griffin, 2015). By fitting trucks entering Kenyan territory with GSM/GPRS, the use of this technology will improve Kenya's customs processes communication, which is an advantage to both governments and institutions (Tibbs, 2015). For the system to be fully functional there are three important components that have to be setup in place by transporter that is moving the cargo from the entry point to the exit point at our borders.

Huanye (2010) highlighted several benefits of the electronic cargo tracking system that include improved efficiency, increased productivity, improved quality of service and reliability, reduction in cost benefits, thus retaining customers and increasing market share leading to integrity in shipment and container handling. With system implementation, there is improvement in efficiency and effectiveness of operational performance. Particularly, the reduction in illicit trade caused by cargo diversion is expected to increase government and business revenue. The system similarly present benefits to the public sector in this case the Kenya Revenue Authority.

The ECT system enables stakeholders to collect and analyze data accurately to generate real-time insights into the operational performance in a timely and relevant manner. It also eliminates the problems and hindrances associated with the paper-based traditional systems. According to Siror (2010), ECT has been instrumental in increasing the quality of service and cost control for the stakeholders. Consequently, it increases revenue collection as a result of trade development due to improved customers' willingness to work with the authority. This is associated with the speed of goods clearance at the border points, due to technology-enable faster processing of data eased retrieval of information, reduced human errors as a result of automation. According to Mugambi (2017), repetitive use of technology increases efficiency and partially or completing eliminates mistakes.

2.3.3 Trainings

Saed & Asgher (2012), define training as the process of imparting the skills and knowledge necessary to improve staff performance. It involves equipping the recipients with the required information and instructions relevant to the field. Hence, organizations use training and development to enhance their members understanding and equip them with the knowledge and

skills necessary to perform their duties and responsibilities. Thus, it improves employee effectiveness in at work and enables them to adapt to changing conditions (Jones and George 2008). Training also improves other aspects of an organization that determine performance, including customer satisfaction, product quality, workers morale, profitability, and business development. Nwachukwu (2018) connects productivity of an organization to the emphasis on training and development of employees. Particularly, this arguments are imperative to the context because technological innovation continually makes available skills irrelevant and inadequate for use in future operations. Hence, the management has to take the responsibility of ensuring that the employees continuously improve their skills and acquire new ones.

2.4 Empirical Review

2.4.1 Information sharing and performance

Stank et al., (2016) established a positive relationship between information sharing and performance of an organization. Similarly, knowledge sharing was found to be among the factors that contribute to organizational performance Kotabe et al., (2013). In an investigation involving outsourcing companies Lewis (2016) also established positive and significant relationship between information sharing and performance. Dyer and Hatch (2016) also reach a similar conclusion in their study. Hence, these researchers established the connection between organizational performance and the transfer of information between stakeholders through research.

Other authors have also identified the link, including, Kulp et al. (2014) who concluded that knowledge sharing on essential aspects of management, such as inventory or customer needs, has a positive relationship with performance. Wu (2018) identified a similar association and

concluded that the two factors are interlinked. Ingram and Simons (2012) compared organization groups and established that knowledge transfer improves firms' competitiveness in terms of results. In a study of firm's overall alliance success Kale and Singh (2017) found that information sharing is a quintessential factor. Ragatz et al. (2012) on the other hand, widened the scope of the relationship to capture the effect of information sharing on cost, quality, and cycle time objectives.

Droge et al. (2014) established a link time-based performance and information sharing. Hence, the concept of transfer of critical data between organizational agents is entwined with the results and output produced at different levels and departments. Song (2014) sought to examine the mediating role of market orientation on information sharing, ordinary capabilities and firm performance. The study found an interrelation between Manufacturer-key suppliers (MS) information sharing and manufacturer-key buyers (MB). The connection extends to firm performance and operations capabilities.

Conversely, Baihaqi and Amrik (2012) found that the intensity of information sharing is dependent on the integrated information technologies and quality. Their research investigated the link between knowledge transfer and the effectiveness of supply chain. However, the found no relationship between the intensity of information sharing and internal integration and costs–benefits sharing. Hence, they concluded that knowledge transfer does not influence organizational performance. Instead, collaboration practices in supply chains mediate the link between performance and information sharing. Therefore, their study indicated that information sharing has an insufficient effect on performance.

Mashiloane (2015) conducted a study seeking to evaluate the effect of supply chain dynamism, information sharing and inter-organizational relationships on the performance of manufacturers' supply chain, service and mining in the Gauteng Province of SA and results indicate that dynamism has a positively influences on both knowledge transfer and inter-organizational relationships. They also indicate that information exchange enhances competitive advantage and improves supply chain performance, which further indicate that the more organizations have healthy inter-organizational relationships, the better the supply chain performance becomes.

2.4.2 Cargo security and performance

Kidd and Crandel (2012) posit that efficiency involves correct means of actions. Hence, being able to increase revenue collection with a decline in cost will constitute one form of effectiveness. ECT enables faster and efficient cargo clearance at the border points, which reduces congestion and ensures timely delivery of cargo and fluent movement of commodities across borders (Cohen & Levinthal, 2000).

Kabiru (2016) sought investigate the relationship between Electronic cargo tracking System and the effectiveness of operations at KRA and by exporters. The found that the system experiences difficulties due to the differences in the authority's expectations and the setup of the system as presented by the vendors. The results also indicate the importance if the information technology infrastructure in determining efficiency of system implementation.

In a study on cargo tracking system's influence on cross-border trade between Kenya and Uganda, Mugambi (2017) targeted border officials at the Kenya-Uganda border and at the head office Cargo tracking department and applied purposive sampling design to identify the respondents. Mugambi (2017) found that the Kenya's ECT has had tremendous effects on the

trade route to its neighbors. Particularly, the system has reduced the diversion of cargo in transit, reducing unnecessary losses from theft. It also reduces time wastage from unwarranted stops and delays in cargo clearance. The study concluded that the cost of monitoring transit cargo had decreased due to an increased efficiency of the cargo tracking system in the borders, reduce time used in transit, and the private business cost. Lubeka (2017) studied the relationship between customs computerized systems and performance at KRA's customs and border control department and found that cargo security and tax clearance time have a positive significant relationship on the performance of KRA C&BC.

2.4.3 Training and performance

A study done by Apospori et al., (2008) revealed that training and development have a positive influence on performance of companies. Subramaniam et al., (2011) and Dimba (2010) concluded a positive influence on training and performance of firms while Ojokuku and Adegbite (2014) found that employees require computer literacy training because the technological innovations keep changing on a daily basis so that they can be able to deliver services to customers effectively as well as supporting internal management duties. Therefore capacity building and performance have a positive relationship.

According to UNCTAD (2011), improved capacity building of employees in the private sector as well as customs is made through training on the procedures that have been simplified according to the international standards as recommended by the UN and WCO. Kiema (2017) studied the strategic influence of ICT support services on collection of revenue at KRA and found that adoption of training strategies where the organization conducted more training to staff on iCMS at Passenger terminals that have led to more interceptions and improved performance at KRA.

Furthermore, there had been an increase in revenue collection in the C&BC department attributed to training in scanner and manifested cargo. The study concluded that continuous training to both employees and tax payers would increase revenue since they will adopt the new technologies been implemented by the organization. This conclusion also raises the issue of stakeholder participation in implementation of new strategies to enhance its success. Since ICT improves efficiency and effectiveness in organizational processes, it is a key component and is essential to organizations in need of growing successfully. Therefore, the study recommended that KRA should focus on improving the professional capacity and knowledge level of its employees through training and on reforms and modernization in order to boost revenue collection.

Munge (2012) researched on the influence of ICT on strategic objectives development at KRA. The study found that in order to enhance capacity building for the KRA team, the undertaking of systematic and structured training based on identified competencies and needs, and in particular the ICT related competencies is required for staff to work with and support automated systems. The specific trainings identified include project monitoring and evaluation, system analysis and design, information system audit, structured software testing and product specific manufacturer training. The need for training in existing, ongoing and planned ICT initiatives was identified as being a key requirement in achieving the goal, in an increasingly automated environment.

2.5 Critique of Existing Literature

The above literature has clearly established a direct influence of customs computerized system on the performance of organizations, implying that efficient customs computerization systems improved performance. The researchers found that direct relationship between information

sharing, cargo security and training and the performance of organizations. However, from the studies reviewed above, it's clear that past research has tried to study the area but from a shallow perspective and no one has actually done research in Kenya. Therefore, this research tried to seek solutions to the problem statement on three main independent variables (Information sharing, Cargo security, and training)

2.6 Research gaps

There are many studies related to customs computerized system and performance for developed countries such as Floropoulos et al (2010); Kamau (2014); Sigey (2010); Wawira Nambuswa and Namusonge (2017); Kiema (2017); Lubeka (2017); Kirimi (2015); and Sakhasia (2017). However, even though these studies achieved their objectives, they failed to investigate the influence of computerized systems on the performance of customs and border control department at KRA. Specifically, the current study has established various gaps made by the above studies in regard to study area, the research approach, respondents and the specific study objectives. Therefore, this study aims to complement existing literature by investigating the topic further.

2.7 Summary of Literature

The chapter gives insights into the literature analyzed and studied in order to give the study its weight in terms of relevance and importance. The chapter gives explanation of various theories that were used to give relevance to the study. It also explains how each respective variable independent and dependent relate to each other and how each is important to the study as well as the reviews both empirical and critical of research that has been conducted previously and the gaps that exist.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter elaborates the methodology that the researcher employs in the bid to test the hypotheses and answer the research questions. It covers the sampling technique and research design. Additionally, the researcher explains the strategies used to select participants and the methods applied in data collection.

3.2 Research Design

This researcher employed the descriptive survey approach, which was chosen as it describes subject population's specific characteristics and to establish the factors that determines the behavior through the selected sample. According to Cooper and Schindler (2006) this type of research design measures the cause and effect of relationships between variables. Mugenda and Mugenda (2003) state that a descriptive research describes possible behavior, attitude, values and characteristics by reporting the actual order of factors in the population under investigation. It is a form of observational approach that enables researchers quantify in-depth data concerning the topic and the subjects. Conversely, a survey design was appropriate as it eases the collection of data from the primary sources.

3.3 Target Population

The target population refers to a specific segment of a wider population through which the researcher can narrow the research to achieve the objectives of the study (Cohen, Manion, and Morrison, 2007). The target population was the 2040 KRA customs officers at customs and border control department (C&BC) in (KRA master roll, 2019). The target population is shown in Table 3.1:

Table 3.1: Target Population

Category	Target Population
Commissioners Office	20
Revenue	600
Trade Facilitation	100
Bonds Management	200
Risk Management	200
Manifest	30
Enforcement	600
Rects	100
IScan	150
International trade and Policy	40
Total	**2040**

3.4 Sample and Sampling Technique

The study employed the Yamani Taro (1967) formula to define a specific sample from the population. The formula mathematically determines the maximum acceptable error in a given population to derive a function that is representative of the population as follows:

$$n = \frac{N}{1+Ne^2}$$

Where:

n =sample size

N = target population

e =maximum acceptable margin of error (5%)

Thus in this study, the desired sample size given that the total population of the customs officers is 2040 is:

$$n = \frac{2040}{1 + 2040\ (0.05)^2}$$

Using this formula, the sample size was 334. Simple random sampling was used to select the respondents to be involved in the study as shown in Table 3.2:

Table 3.2: Sample Size

Category	Target Population	Frequency
Commissioners Office	20	3
Revenue	600	98
Trade Facilitation	100	16
Bonns Management	200	33
Risk Management	200	33
Manifest	30	5
Enforcement	600	98
Rects	100	16
IScan	150	25
International trade and Policy	40	7
Total	**2040**	**334**

3.5 Data Collection Instruments

To collect primary data in the survey, the researcher used a self-administered structured questionnaire, with structured closed ended questions. Questionnaires are essential tools used to gather statistically meaningful information from the respondents' point of view regarding the issue of interest and based predetermined queries. The questionnaire had two major sections. The first dealt with the biographic data while the second section dealt with the influence of computerized system on the performance of customs and border control department of the Kenya Revenue Authority. According to Kothari (2008), a questionnaire provides the researcher with an avenue to collect a significant amount of data quickly and appropriately. Hence, this is the most suitable alternative available for this study. Secondary data was used to collect data on revenue performance.

3.6. Pretesting of the Instrument

The researcher conducted pretesting before the administration of questionnaires to establish the readability and applicability of the questions. The approach also helped to enhance the validity and reliability of the data collection method. The researcher issued questionnaires to 10 respondents so as to get comments from them which aided in improving the instruments as well as making the relevant adjustments to prevent misinterpretation of the questions during the real data collection. The respondents who participated in the pilot stage were not involved in the actual study.

3.6.1 Validity of the Research Instrument

This researcher evaluated the content validity of the measuring instruments through discussions and consultations with the supervisor. Content validity implies the ability of the measuring tool to adequately cover the topic under investigation.

3.6.3 Reliability of the Research Instrument

The researcher used the Cronbach's Coefficient Alpha to evaluate the reliability of the study. This method measures the consistency, dependability, or trustworthiness survey. Cronbach's Coefficient Alpha also evaluates the internal consistency of the research instruments. It is a scale measurement tool Cohen, Manion and Morrison (2007). It is an appropriate measure of validity and reliability of a descriptive research. Since the study relied on Statistical Package for Social Sciences (SPSS) for data analysis and presentation, the software was used to estimate the Cronbach Alpha. The measure lies between 0 and 1 with 0.00 indicating low validity and 1.00 indicating high validity. 0.8-0.9 indicates high reliability, 0.6-0.8 indicates acceptable reliability value while below 0.5 is unacceptable (Wambugu *et al*., 2015). Since the value of the Cronbach

Alpha for this study was 0.91, the questionnaire was highly reliable. Although the questionnaires were self-administered, the researcher monitored the respondents during the process of data collection to ensure that the individuals filled them correctly and that the right respondents actually participated. This approach also raised the reliability of the instruments by eliminating deviations and allowing the participants to seek assistance.

3.7 Data Collection Procedure

Data collection started with the presentation of a letter of intent and request to the respondents to participate. The researcher then administered the question in a sit-in filling session and a drop and pick approach for those who could not participate. With the help of two research assistants, the researcher collected the filled questionnaires and prepared for data analysis by checking the responses and their completeness.

3.8 Data Analysis and Presentation

The study checked completed responses for consistency and completeness. The data were then analyzed using descriptive statistics. The researcher coded the responses in SPSS version 20.0 program for analysis. Quantitative data was analyzed using descriptive statistics (frequencies, mean and standard deviation) and thereafter conclusions and recommendations were drawn from the findings. The researcher used tables, charts, and graphs to present the results, which eased the comparison and interpretation.

Additionally, the researcher used simple regression analysis to present the findings and establish the correlation between the factors. The study establish a correlation between the independent and dependent variables. This method also enabled the researcher to illustrate the influence that the independent variable has on the dependent variable. In this case, a multiple regression model

helped to map this relationship by presenting the four variables in relation to the study, which seeks to understand the influence of customs computerized system on the performance of customs and border control department of the Kenya Revenue Authority. The regression model that was used for hypothesis testing was as follows:

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

Where:

Y = Performance

β_0 = Constant Term

$\beta_{1,2,3}$ = Beta coefficients

X_1= Information sharing

X_2= Cargo security

X_3= Training

ε = Error

3.9 Operational Definition of Variables

Table 3.1: Operational Definition of Variables

Variable	Operational definition	Indicator/Measure	Measurement scale
Information sharing	The transfer of information regarding inventory levels and position, sales data and forecasts, order status, production and delivery schedules and capacity, and performance metrics	• Coordinated communication • Dwell times reduced • Increased control of logistics expenses • Trade statistics	Ordinal
Cargo security	Protection of goods or produce being conveyed	• Common check point • Seamless data exchange • Electronic cargo tracking • Reduced dumping	Ordinal
Trainings	The organized activity aimed at imparting information or instructions to get better the staff performance or attain a required level of skill or knowledge to help him or her	• Training of staff user Support • Seminars and stakeholder engagement • Recruitment of competence staff • Reengineering of business processes	Ordinal

3.10 Ethical Considerations

The respondents participated in the study in their free will. There was no compensation for involvement. Additionally the researcher informed the participant about their role and the extent to which their information will be used in the process. Most importantly, the study process ensure that the confidentiality of respondent information was paramount throughout the data collection and analysis processes. As a result, the participants were prompted to give consent for

the use of their information and data presented in the question verbally and through the signing of the request letter. The researcher also referenced and cited all external information included in the paper to promote academic integrity and credit the data to the respective authors.

CHAPTER FOUR: RESULT FINDINGS AND ANALYSIS

4.1 Introduction

The chapter reveals findings and analysis on the influence of computer computerization systems on custom and border department performance at KRA.

4.2 Response Rate

Out of the 334 questionnaires presented to the respondents, 287 of them were returned for analysis. This translates to 85.9 percent response rate. In overall, the response rate was very high as shown on Table 4.1:

Table 4.1: Response Rate

Response Rate	Frequency (F)	Percentage (%)
Returned	287	85.9
Not Returned	47	14.1
Issued	**334**	**100.0**

4.2 Information on Demographics

The research sought to find out the gender of the respondents and the findings ae shown on Figure 4.1:

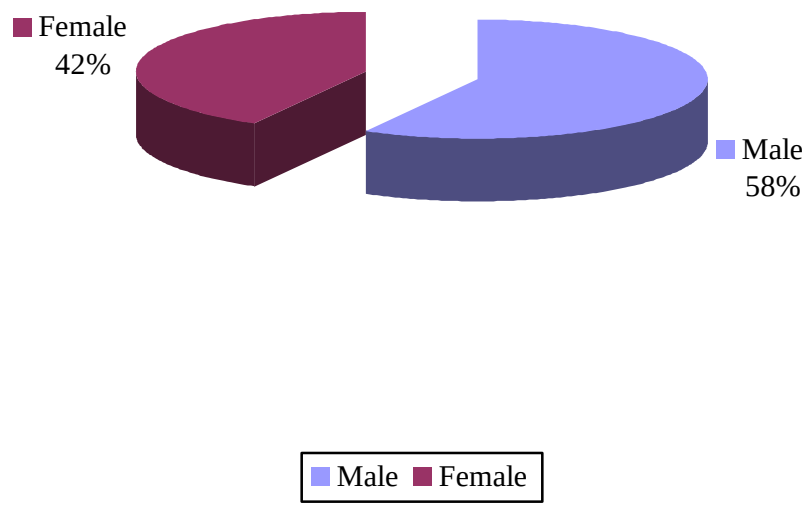

Figure 4.1: Distribution of respondents by Gender

The findings on figure 4.1 show that majority of the respondents were male (58.0%) while 42.0% were female indicating that majority of the officers at the department of customs and border at KRA are male.

The study further sought to find out the age of the respondents. The findings are tabulated in table 4.2 below:

Table 4.2: Distribution of respondents by Age

Age	Frequency (F)	Percentage (%)
20-30 years	59	20.6
31-40 years	163	56.8
41-50 years	39	13.6
51 and above years	26	9.1
Total	**287**	**100.0**

The findings on the table reveal that majority of the respondents are aged 31-40 years (56.8%), 20-30 years (20.6%), 41-50 years (13.6%) and over 50 years (9.1%). These findings reveal that majority of the officers at C&BC are middle aged.

The study also sought to find out the education level of the respondents. The findings are illustrated below:

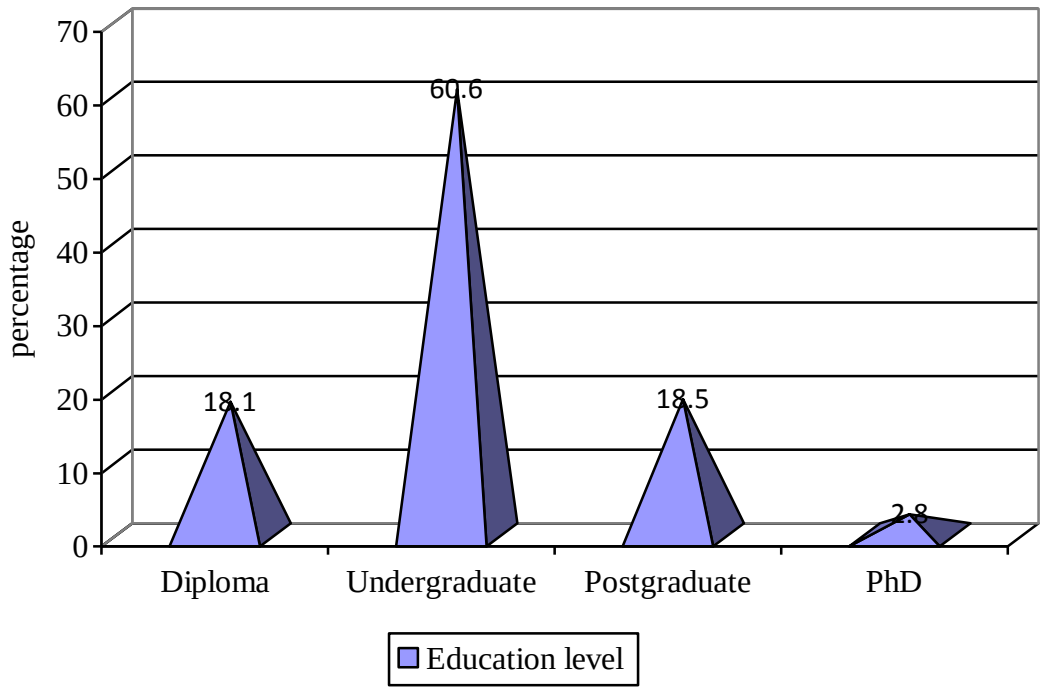

Figure 4.2: Distribution of respondents by education level

The study findings reveal that more than half of the respondents (60.6%) have attained undergraduate level of education, 18.5% have attained postgraduate education, 18.1% have attained diploma and 2.8% have attained PhD education. The findings show that majority of the officers at C&BC have attained tertiary education.

The study sought to find out how long the respondents have worked with the company. The findings are illustrated below:

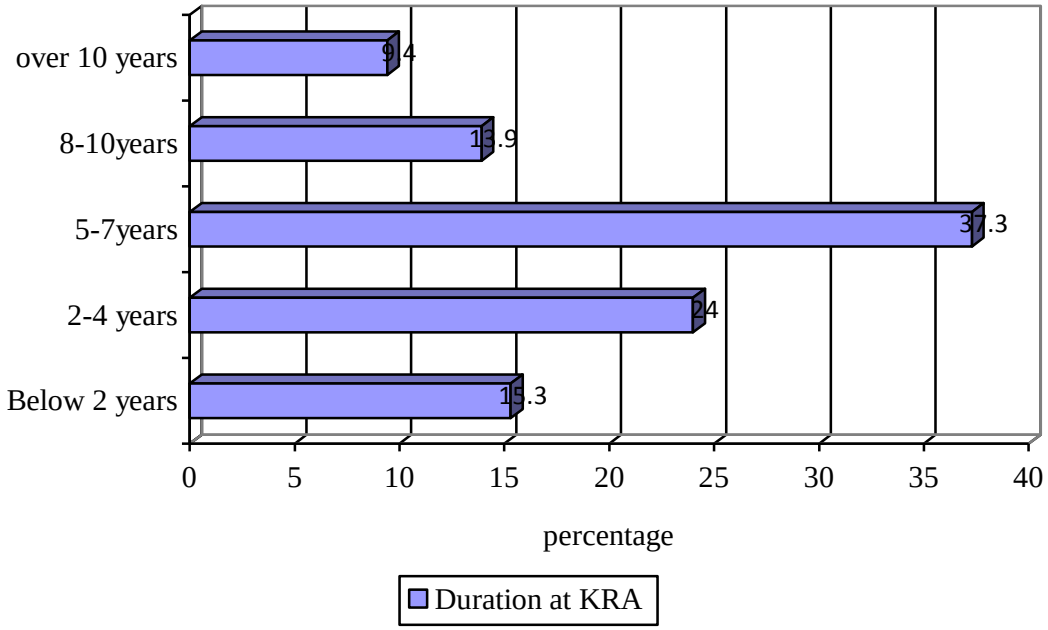

Figure 4.3: Duration worked at KRA

The findings in figure 4.3 illustrate that a ;large proportion of the respondents have worked at KRA for 5-7years (37.3%), 2-4 years (24.0%), below 2 years (15.3%), 8-10 years (13.9%) and more than 10 years (9.4%).

The study sought to find out if the officers believe that the customs computerization systems have helped improve performance of the company. The findings are illustrated below in Figure 4.4:

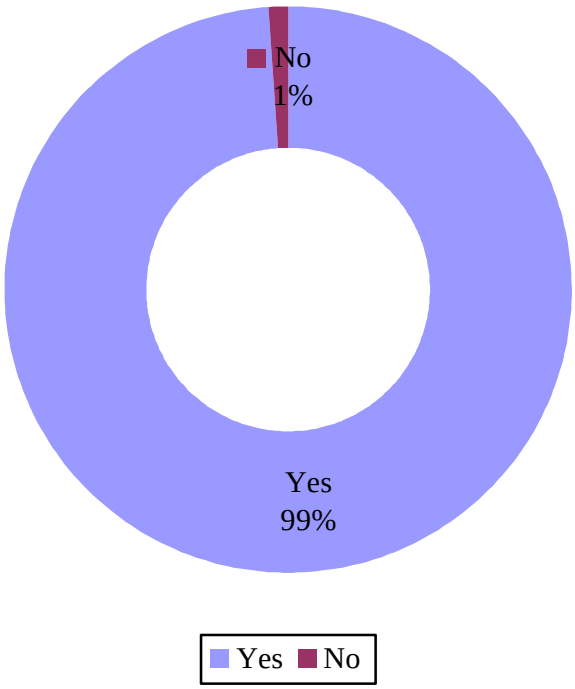

Figure 4.4: Improvement of KRA performance by the customs computerization systems

The study found that almost all the respondents (99.0%) believe that the customs computerization systems have improved performance at KRA while 1.0% disagreed.

4.4 Information sharing and performance

The study sought to find out if information sharing has an influence on the performance of C&BC at KRA. The findings are illustrated below:

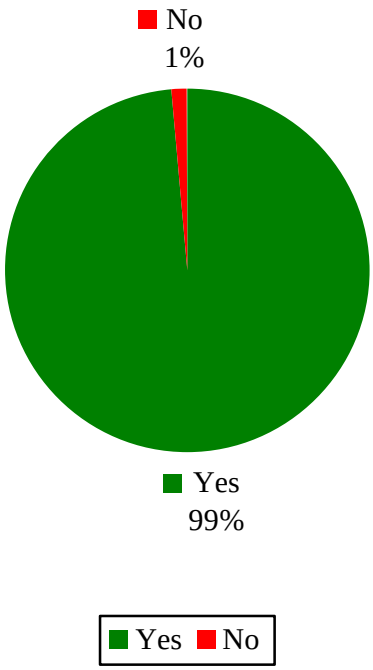

Figure 4.5: Influence of information sharing on performance

The findings reveal that 99.0% of the officers at customs and border control department indicated that information sharing influences performance at KRA while 1.0% disagreed.

The study further sought to find out the extent to which information sharing influences performance at KRA, the findings are shown below:

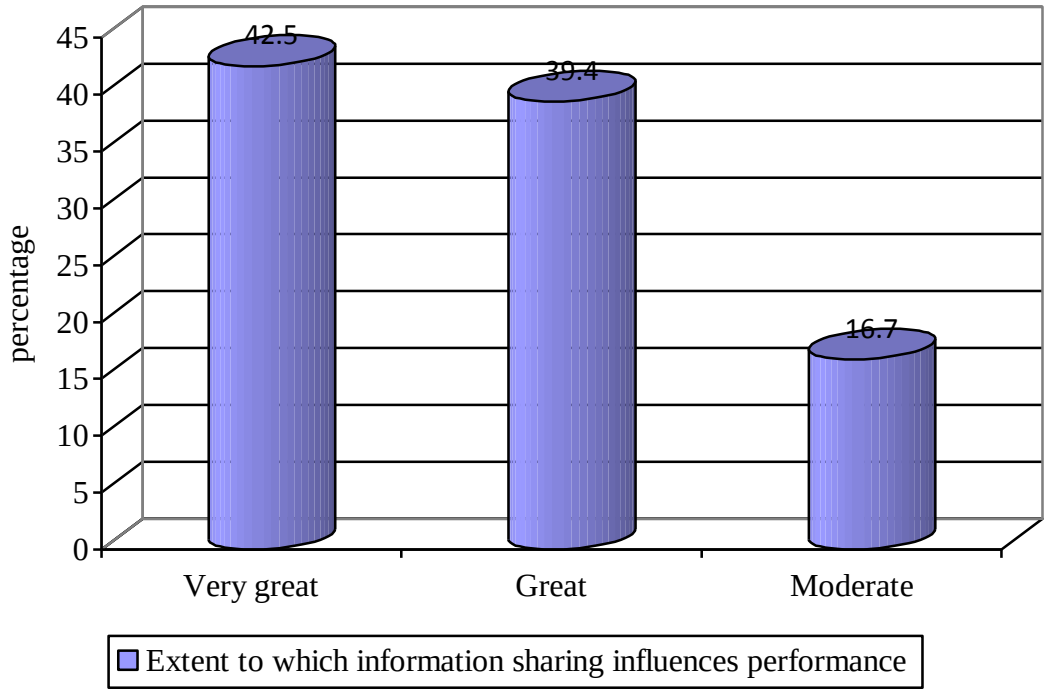

Figure 4.6: Extent to which information sharing influences performance

The study results reveal that 42.5% of the officers indicated that information sharing influences performance significantly at (39.4%) and moderately at (16.7%).

The research used a Likert scale to evaluate the following:

Table 4.3: Level of agreement regarding influence of information sharing on performance

	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Information sharing has helped in gathering advanced intelligence	0.0	0.0	4.5	50.8	54.7
Information sharing has aided the company in getting first-hand information leading to intervention and more revenue	0.0	0.0	1.4	29.6	69.0
It has the ability to assimilate the found knowledge in KRA	0.0	0.0	4.2	48.1	47.7
Improved logistics expenses control	0.0	0.7	14.3	32.1	53.0
Information sharing has enhanced economies of scale in technological resources	0.0	1.0	4.2	37.6	57.1
Capability to acquire the needed knowledge from other organizations	0.0	0.0	2.7	33.4	63.8
It has enhanced the organization's competency in the outsourced services.	0.0	0.0	5.5	32.1	62.4

The findings reveal that a large proportion of the respondents strongly agreed that: Information sharing has aided the company in getting first-hand information leading to intervention and more revenue (69.0%); Capability to acquire the needed knowledge from other organizations (63.8%); it has enhanced the organization's competency in the outsourced services (62.4%); information sharing has enhanced economies of scale in technological resources (57.1%); Improved logistics

expenses control (53.0%); It has the ability to assimilate the found knowledge in KRA (47.7%) as comments regarding information sharing and its influence on performance.

4.5 Cargo Security and Performance

The study sought to find out if information sharing has an influence on the performance of C&BC at KRA. The findings are illustrated below:

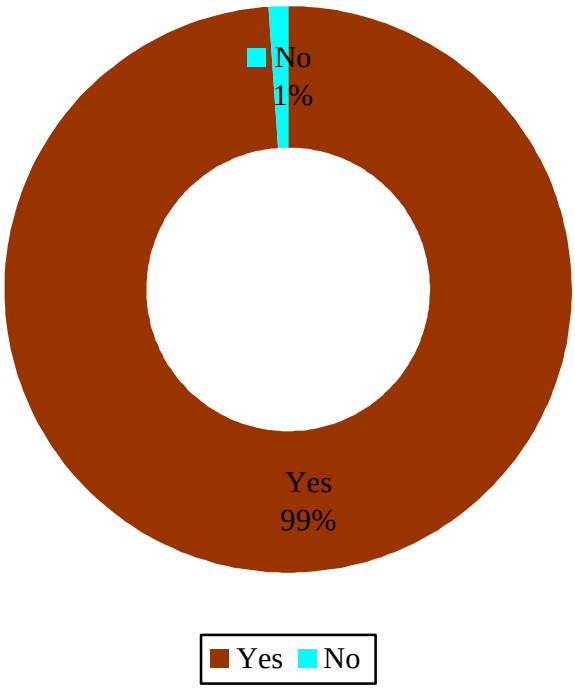

Figure 4.7: Influence of cargo security on performance

The results showed that 99.0% of the officers at customs and border control department indicated that cargo security has an influence on performance at KRA while 1.0% disagreed.

The researcher also investigated the effect of cargo security on performance at KRA, the findings are shown below:

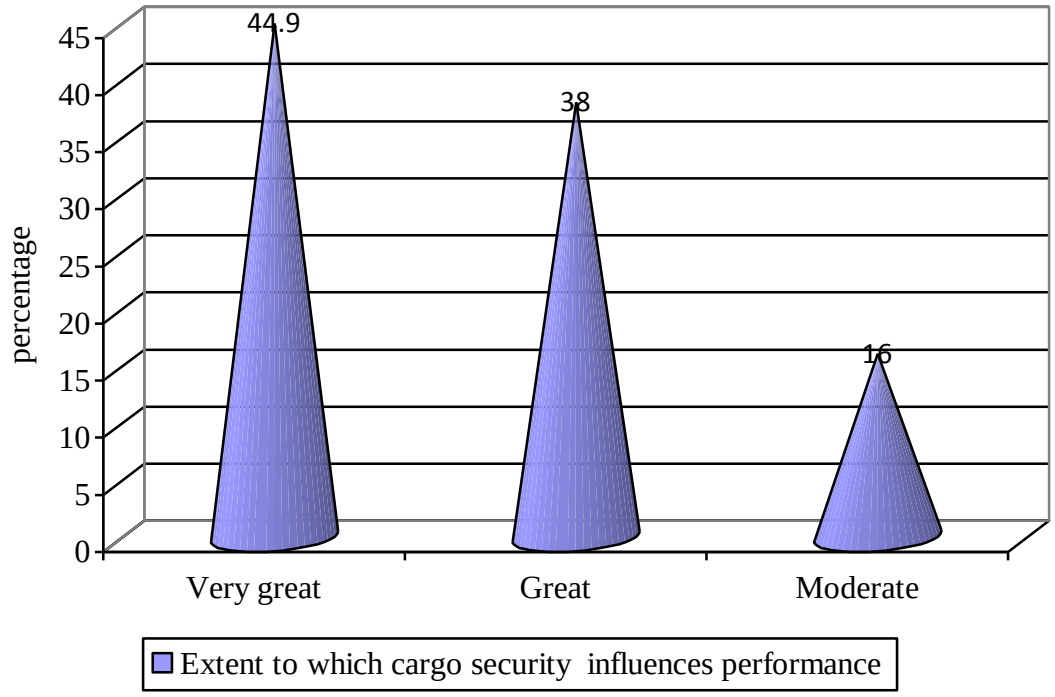

Figure 4.8: Extent to which cargo security influences performance

The findings showed that 44.9% of the officers indicated that cargo security influences performance significantly (38.0%) and moderately (16.0%).

The researcher also used a Likert scale to evaluate the responses as follows,

Table 4.4: Level of agreement regarding influence of cargo security on performance

	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Streamlining in cases handling	0.7	1.7	6.3	25.8	65.5
Increase in security of goods	0.0	1.0	8.4	16.7	73.9
Electronic cargo tracking has made its easier to track	1.0	0.7	8.7	30.0	59.6
Increase in volume of goods	1.0	0.0	3.1	12.5	83.3
Reduced dumping	0.0	0.0	8.0	28.2	63.8
Real-time information is available	0.0	1.7	12.2	41.5	44.6

The table 4.4 shows that majority of the respondents strongly agreed that/; an increase in volume of goods has been witnessed (83.3%); increase in security of goods (73.9%); streamlining in handling of cases (65.5%); reduced dumping (63.8%); electronic cargo tracking has made it easy to track goods (59.6%); and real time information is available (44.6%) as some points regarding influence of cargo security on performance of KRA C&BC.

4.6 Training and Performance

The study sought to find out if training has an influence on the performance of C&BC at KRA. The findings are illustrated below:

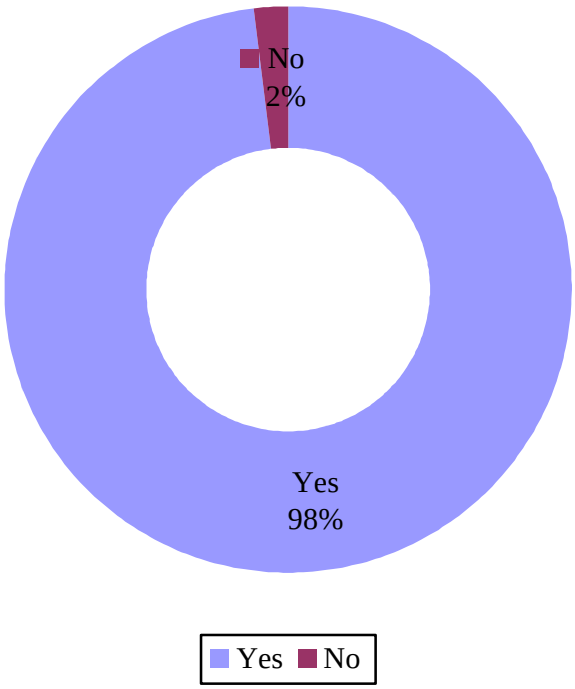

Figure 4.9: Influence of training on performance

The findings reveal that 98.0% of the officers at customs and border control department indicated that training has an influence on performance at KRA while 2.0% disagreed.

The study further sought to find out the extent to which training influences performance at KRA, the findings are shown below:

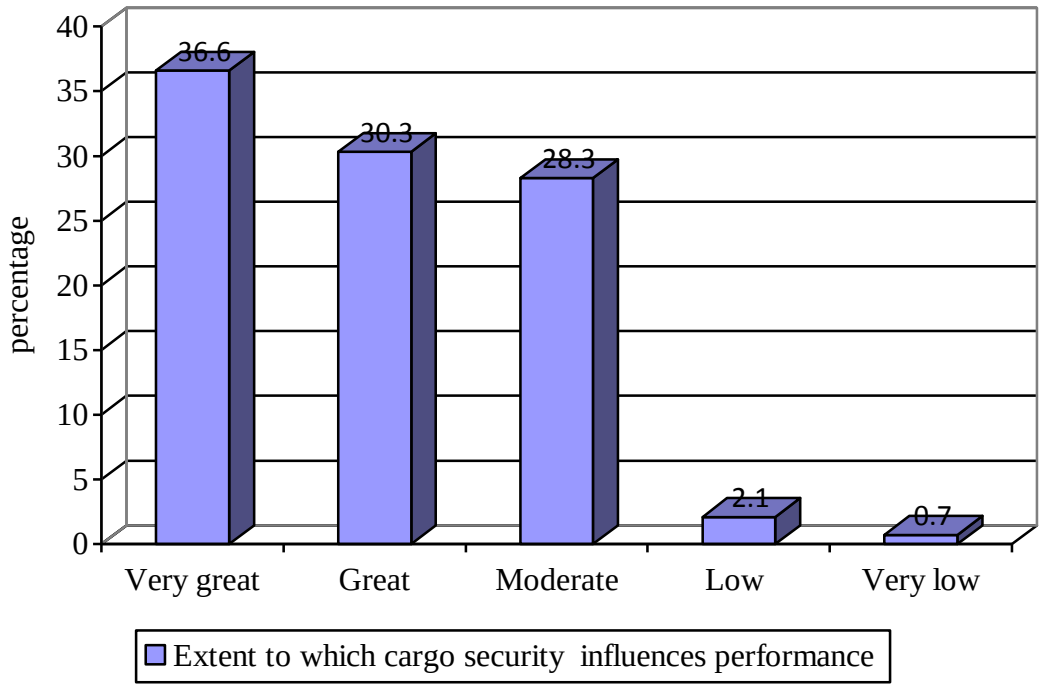

Figure 4.10: Extent to which training influences performance

The study results reveal that 36.6% of the officers indicated that training influences performance to a very great extent, great extent (30.3%) and moderate extent (28.2%). However, 2.8% of the respondents cumulatively agreed to a low extent that training has an influence on performance.

The study also sought to find out the extent of level of agreement with the following statements regarding training and its influence on performance at the department of customs and border control at KRA

Table 4.5: Level of agreement regarding influence of training on performance

	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Improvement in whole revenue performance creating complete commitment to innovation	0.0	0.0	9.1	41.8	55.1
Regular training boosts morale of staff and workers motivation	0.0	0.0	0.0	36.2	63.8
For use of modern ICT, employees require proper training	0.0	0.0	0.0	18.1	81.9
Inadequate opportunities in training can frustrate employees and lower their performance	0.0	0.0	0.0	25.4	74.6
ICT training has helped in sensitization of national values and integrity	0.0	0.0	1.0	31.4	67.6
ICT training has enabled reengineering of business processes	0.0	0.0	3.8	31.4	64.8

Table 4.5 shows that a significant number of employees strongly agreed that: For use of modern ICT, employees require proper training (81.9%); Inadequate opportunities in training can frustrate employees and lower their performance (74.6%); ICT training has helped in sensitization of national values and integrity (67.8%); ICT training has enabled reengineering of business processes (64.8%); Regular training boosts morale of staff and workers motivation (63.8%); and Improvement in whole revenue performance creating complete commitment to innovation (55.1%) as points regarding training and its influence on performance.

4.7 Performance of KRA's customs and border control department

Table 4.6 Performance at KRA

	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Revenue collection is increased	0.0	0.0	0.0	4.8	95.2
Tax compliance is increased	0.0	0.0	0.0	27.9	72.1
Witnessed growth in departments	0.0	0.0	1.0	40.4	58.5
Easier systems computerization in tax payment	0.0	0.0	1.4	17.8	80.8
Meeting the revenue targets	0.0	0.0	1.4	22.3	76.3
Timely and accurate results	0.0	0.0	0.0	21.3	78.7
Achievement of objectives	0.0	0.0	0.0	16.4	83.6
Improved service delivery	0.0	0.0	5.9	17.4	76.7

The table reveals that a large proportion of the respondents strongly agreed that performance has led to: revenue collection is increased (95.2%); achievement of objectives (83.6%); (80.8%); timely and accurate results (78.7%); improved service delivery (76.7%); tax compliance is increased (72.1%); and witnessed growth in departments (58.5%). The findings are supported by the revenue collected between the years 2010-2018 by KRA as shown in Appendix III. The tables reveal that there has been a steady growth in performance of KRA since the adoption and implementation of customs computerized systems.

4.8 Regression Analysis

4.8.1 Model Summary

Table 4.7 Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.716[a]	.528	.514	.689

a. Predictors: (Constant), training, cargo security, Information sharing

The findings reveal that the R is equal to 0.716 indicating that training, cargo security, Information sharing have an influence on the C&BC performance. The value of R squared is 0.528 indicating that training, cargo security, Information sharing explain about 52.8% of the variations on C&BC performance at KRA.

4.8.2 ANOVA

Table 4.8 ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.190	3	2.799	3.834	.027[b]
	Residual	57.540	283	.479		
	Total	68.730	286			

a. Dependent Variable: Performance

b. Predictors: (Constant), training, cargo security, Information sharing

The ANOVA results give a significance level of 0.027 revealing that the study's model for regression was significant at 95% significance level. The ANOVA analysis showed that the model was statistically significant since the value of P-value is less than 5%.The P values of the regression coefficient were determined and it revealed that the constant and all other variables

used in the model were statistically significant at 5% level of confidence with the P=0.027 which is less than 5%.This shows that training, cargo security and information sharing can be said to have a significant influence on the computerized systems at the C&BC. The overall statistics was $F = (3,283) = 3.834$, $p = 0.027<0.05$

4.8.3 Regression Results Coefficient

Table 4.9: Regression Results Coefficient

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.015	.423		0.098	.925
	Information Sharing	.814	.322	.301	2.522	.014
	Cargo Security	.294	.343	.036	.269	.044
	Training	.304	.024	.114	1.282	.022

a. Dependent Variable: Performance

The table reveals that the model constant is 1.015 meaning that it is the expected value of the influence of computerized system on performance when the independent variables are equal to zero. From the regression analysis a unit change in information sharing shows performance changes to be most significant at 0.814 followed by training at 0.304 and cargo security at 0.294.

The coefficients table shows that Information Sharing (0.014), Cargo Security (0.044) and Training (0.022) are less than 0.05, which implies that these factors are statistically significant and they influence the performance of C&BC at KRA.

Therefore, based on these findings, the regression model is as follows:

$Y = 1.051 + 0.814X_1 + 0.234X_2 + 0.304X_3$

Where:

Y = Performance

β_0 = Constant Term

$\beta_{1,2,3}$ = Beta coefficients

X_1= Information sharing

X_2= Cargo security

X_3= Training

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

The study sought to determine the customs computerized systems influence on customs and border control department's performance at KRA. The study looked at three variables namely: training, cargo security, and Information sharing.

The study found that majority of the employees are male aged 30-40 years. Majority of the respondents have attained undergraduate level of education and have worked at the company for 5-7 years. Majority of the respondents believe that customs computerizations systems have helped in improving performance at KRA.

5.1.1 Information sharing and performance

The findings reveal that a significant number of the respondents agreed that information sharing has an influence on performance at KRA's customs and border control department to a very great extent. Majority of the respondents strongly agreed that: Information sharing has aided the company in getting first-hand information leading to intervention and more revenue; Capability to acquire the needed knowledge from other organizations; it has enhanced the organization's competency in the outsourced services; information sharing has enhanced economies of scale in technological resources; Improved logistics expenses control; It has the ability to assimilate the found knowledge in KRA as comments regarding information sharing and its influence on performance.

5.1.2 Cargo Security and Performance

A large proportion of the employees agreed that cargo security has an influence on performance at KRA to a very great extent. Majority of the respondents strongly agreed that; an increase in volume of goods has been witnessed; increase in security of goods; streamlining in handling of cases; reduced dumping; electronic cargo tracking has made it easy to track goods; and real time information is available as some points regarding influence of cargo security on performance of KRA C&BC.

5.1.3 Training and Performance

The study findings reveal that majority of the employees agreed that training has an influence on performance at KRA to a very great extent. A large proportion of the staff strongly agreed that: For use of modern ICT, employees require proper training; Inadequate opportunities in training can frustrate employees and lower their performance; ICT training has helped in sensitization of national values and integrity; ICT training has enabled reengineering of business processes; Regular training boosts morale of staff and workers motivation; and Improvement in whole revenue performance creating complete commitment to innovation as points regarding training and its influence on performance.

5.1.4 Performance

The findings reveal that a large proportion of the respondents strongly agreed that performance has led to: revenue collection is increased; achievement of objectives; timely and accurate results; improved service delivery; tax compliance is increased; and witnessed growth in departments. The findings are supported by the revenue collected between the years 2010-2008

by KRA as shown in Appendix III. The tables reveal that there has been a steady growth in performance of KRA since the adoption and implementation of customs computerized systems.

The regression results reveal that it is evident that the values for Information Sharing (0.014), Cargo Security (0.044) and Training (0.022) are less than 0.05. This therefore means that Information Sharing, Cargo Security and Training are statistically significant and therefore influence C&BC's performance at KRA.

5.2 Conclusions

A significant number of the employees indicated that information sharing influences performance at KRA to a very great extent. These findings support Stank et al., (2016), Kotabe et al., (2013), Dyer and Hatch (2016) and Lewis (2016) who noted that information sharing has a significant and positive influence on performance of companies.

Additionally, a significant number of the employees agreed that cargo security has an influence on performance at KRA to a very great extent. These findings are in line with Kabiru (2016) and Lubeka (2014) who noted that the digital cargo tracking system has an influence on the performance of KRA and its transporters, meaning that ICT infrastructure is very crucial in ICT systems implementation. Mugambi (2017) revealed that the cost monitoring transit cargo had decreased due to an increased level of the cargo tracking system introduction because the system has helped in improving efficiency of the borders, reduce time used in transit and the private business cost.

The study also found most employees agreed training has an influence on performance at KRA to a very great extent. The findings are supported by Apospori et al., (2008), Dimba (2010),

Ojokuku and Adegbite (2014), and Subramaniam et al., (2011) who found that training has a significant positive relationship on performance of companies.

This study therefore concludes that Information Sharing, Cargo Security and Training are statistically significant and therefore influence C&BC's performance at KRA.

5.3 Recommendations

The study recommends that KRA should relook at the need to improve their reforms and also improve the validation of their ICT systems as this improves the performance of companies. Risk management systems are crucial in this digitization era as it helps the company increase their revenue. The Customs officers should be trained on good governance and national values where great emphasis should focus on leadership and integrity. The company should deploy more vigorous and continuous training on its employees as this will help them adapt to the new technologies being implemented into the department by the organization. This will help in improving efficiency in operations, skills improvement, as well as the capacity and knowledge for employees to increase the revenue and overall performance of the company.

5.4 Areas for further Study

This study focused on three main independent variables, Information Sharing, Cargo Security and Training. The study was limited to only three variables. There is need to conduct a study focusing on other independent variables that can affect the customs and control department's performance. There is also a need to research on the challenges facing customs officers when handling the customs computerization systems.

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APPENDICES

APPENDIX I: INTRODUCTION LETTER

Patrick Rotich,
P.O.BOX 8420,
Nairobi, Kenya
17th September, 2019.
Dear Respondent,
RE: **DATA COLLECTION**

I am a student at KESSRA currently undertaking a research study to fulfill the requirements of the Award of Post Graduate Diploma in Tax Administration on the **influence of customs computerized system on the performance of customs and border control department of the Kenya Revenue Authority.** You have been selected to participate in this study and I would highly appreciate if you assisted me by responding to all questions in the attached questionnaire as completely, correctly and honestly as possible. Your response will be treated with utmost confidentiality and will be used only for research purposes of this study only.

Kindly note that the study will be conducted as academic research and the information you provide will be treated as confidential. Your participation in the exercise is voluntary and so you are free to choose to or not to participate. But it would be helpful if you could participate fully. Kindly spare a few minutes from your busy schedule to complete the attached questionnaire.

Thank you in advance for your co-operation.
Yours Faithfully,

Patrick Rotich,
Researcher

APPENDIX II: STRUCTURED QUESTIONNAIRE

This questionnaire is designed to collect data on influence of customs computerized system on the performance of customs and border control department of the KRA. Kindly complete the following questionnaire using the instructions provided for each set of question. Tick appropriately. Instructions: Please tick as appropriate. Do not write your name on this questionnaire.

PART A: Demographic Information

1. What is your gender?

[ ] Male [ ] Female

2. In which of the following age brackets does your age fall?

[ ] 20-30 years [ ] 30-40 years [ ] 41-50 years [ ] 50 and above years

3. What is your education level (state the highest level)

[ ] Certificate [ ] Diploma [ ] Undergraduate

[ ] Post graduate [ ] PhD [ ] Other _____

4. How long have you worked with company?

Below 2 years [ ] 2 to 4 years [ ]

5 to 7 years [ ] 8 to 10 years [ ]

More than 10 years [ ]

5. Do you believe the computerized systems have helped improve performance of KRA?

[ ] Yes [ ] No

PART B: Influence of information sharing on performance

5. In your opinion, does information sharing influence performance of customs and border control department of the KRA?

[ ] Yes [ ] No

To what extent

[ ] To a very great extent [ ] To a great extent [ ] To a moderate extent

[ ] To a low extent [ ] To a very low extent

6. To what extent do you agree with the following statements on the influence of information sharing on performance of customs and border control department of the KRA? Indicate your response based on a 5-point scale by using a tick (√) or X to mark the applicable box.

	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Information sharing has helped in gathering advanced intelligence					
Information sharing has aided the company in getting first-hand information leading to intervention and more revenue					
It has the ability to assimilate the found knowledge in KRA					
Improved logistics expenses control					
Information sharing has enhanced economies of scale in technological resources					
Capability to acquire the needed knowledge from other organizations					
It has enhanced the organization's competency in the outsourced services.					

Part C: Influence of Cargo security on performance

7. a) In your opinion, does Cargo security influence performance of customs and border control department of the KRA?

[ ] Yes [ ] No

b) To what extent

[ ] To a very great extent [ ] To a great extent [ ] To a moderate extent

[ ] To a low extent [ ] To a very low extent

8. On a scale of 1 to 5, where 1=strongly disagree; 2=disagree; 3=neutral; 4=agree; and 5=strongly agree, kindly indicate your level of agreement with the following statements that are related influence of Cargo security on performance of customs and border control department of the KRA.

	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Streamlining in cases handling					
Increase in security of goods					
Electronic cargo tracking has made its easier to track					
Increase in volume of goods					
Reduced dumping					
Real-time information is available					

PART D: Influence of trainings on performance

9. In your opinion, does training influence performance of customs and border control department of the KRA?

   [ ] Yes [ ] No

   To what extent

   [ ] To a very great extent [ ] To a great extent [ ] To a moderate extent

   [ ] To a low extent [ ] To a very low extent

10. To what extent do you agree with the following statements on the influence of staff capacity building on performance of customs and border control department of the KRA? Indicate your response based on a 5-point scale by using a tick (√) or X to mark the applicable box.

	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Improvement in whole revenue performance creating complete commitment to innovation					
Regular training boosts morale of staff and workers motivation					
For use of modern ICT, employees require proper training					
Inadequate opportunities in training can frustrate employees and lower their performance					
ICT training has helped in sensitization of national values and integrity					
ICT training has enabled reengineering of business processes					

PART F: Performance

13. To what extent do you agree with the following statements on the performance of customs and border control department of the KRA? Indicate your response based on a 5-point scale by using a tick (√) or X to mark the applicable box.

	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Revenue collection is increased					
Tax compliance is increased					
Witnessed growth in departments					
Easier systems computerization in tax payment					
Meeting the revenue targets					
Timely and accurate results					
Achievement of objectives					
Improved service delivery					

14. Please give suggestions/recommendations towards influence of customs computerized system on the performance of customs and border control department of the Kenya Revenue Authority

_____

_____

_____

THANK YOU FOR YOUR TIME AND COOPERATION!!

APPENDIX III: KRA REVENUE FOR YEAR 2010-2018

	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018
Revenue Target (Ksh Bn)	863.3	972.8	1,108.8	1,212.6	1,431.8	1,541.2
Actual Target (Ksh Bn)	800.5	963.8	1,069.6	1,200.2	1,365.3	1,435.3
Revenue Growth (Ksh Bn)	13.1	20.4	12.3	12.2	13.8	5.1