

**EFFECT OF CUSTOMS MODERNIZATION INITIATIVES ON CUSTOMS  
PERFORMANCE AT KEY ONE STOP BORDER POSTS IN KENYA**

**BY**

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## DECLARATION

### Declaration by Candidate

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This research project has been presented for examination with our approval as the appointed University supervisors.

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## **DEDICATION**

I dedicate this research project first to the Almighty God, who gave me the wisdom, zeal and foresight to pursue the Masters in Tax & Customs Administration course. All the glory and Honour to you my LORD.

I also dedicate this project to my Father John Ochola (Thank you for believing in me. Finally, it has come to pass, I know you would have been proud of me) and mother Florence Ochola for always supporting me in my quest to better myself through education. To my wife Princess for always supporting me and ensuring I had a conducive environment within which I could study with minimal interruption.

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## ABSTRACT

In light of modernization initiatives that have been implemented by the Kenya Revenue Authority (KRA), the current study sought to find out the effect of these initiatives on customs performance at key One Stop Border Posts (OSBP's) i.e. Malaba, Busia, Namanga and Lungalunga. Specifically, the study looked at how Customs Modernization initiatives such as, Co-ordinated Border Management, System Automation and Human Resource Development have affected customs performance at the border posts. The study was guided by the Technology Acceptance Theory and the Resource Based View Theory. The study adopted a descriptive survey design with primary data being used in the analysis. Primary data was collected through a structured self-administered questionnaire targeting customs officers and clearing agents who formed the target population of the study. The key OSBP's formed the sampling frame of the study from where a sample of the clearing agents and customs officers, was drawn for purposes of administering the questionnaire. The population was 163 customs officers and clearing agents, while the sample size was 116. A pilot study was conducted in Malaba OSBP to test the reliability of research instruments that were used for the study. A Cronbach alpha reliability co-efficient of 0.7 was used as the threshold for accepting reliability of the questionnaire. The questionnaire was found to be reliable with a Chronbach alpha score of 0.869. The collected data was analysed using SPSS. Multivariate Regression Analysis was carried out to specify the estimation model and determine the type of relationship that exists between the independent variables and the dependent variable. The study findings indicated that systems automation ( $\beta_2 = 0.358$ ,  $p = 0.000 < 0.05$ ); and human resource development ( $\beta_3 = 0.179$ ,  $p = 0.022 < 0.05$ ) had a positive and significant effect on customs performance. However, coordinated border management did not have a significant effect on customs performance ( $\beta_1 = 0.051$ ,  $p = 0.579 > 0.05$ ), and as such, the null hypothesis was not rejected. To test the overall statistical significance of the model, analysis of variance (ANOVA) was used. The ANOVA results, showed that the model was statistically significant. This was supported by a reported  $p$  value less than the predetermined alpha value ( $p = 0.000 < 0.05$ ) and an F Statistic which was greater than the F Critical value ( $F = 17.36 > 2.71$ ) at (3, 84) degrees of freedom. The results confirmed that Systems automation and Human Resource Development were statistically significant in explaining customs performance at the OSBP's. The  $R^2$  of the regression model was established to be 0.383 ( $R^2 = 0.389$ ). The study concluded that systems automation and human resource development contribute significantly towards customs performance. Based on the findings, the study recommended that KRA should explore the technology field of Artificial Intelligence (AI) as there are many potential benefits associated with this area of systems automation. The study also recommended establishment of a reward and motivation system to boost the morale of customs staff as well as enhancing the staff establishment at the border posts, as part of further strengthening human resource development at the border posts and enhancing service delivery.

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**ABBREVIATIONS**

<b>ATF</b>	-	Agreement on Trade Facilitation
<b>CBM</b>	-	Coordinated Border Management
<b>COMCEC</b>	-	Committee for Economic and Commercial Cooperation
<b>GATT</b>	-	General Agreement on Tariffs & Trade
<b>ICMS</b>	-	Integrated Customs Management System
<b>ICT</b>	-	Information Communication Technology
<b>KPI's</b>	-	Key Performance Indicators
<b>KRA</b>	-	Kenya Revenue Authority
<b>OECD</b>	-	Organization of Economic Co-operation and Development
<b>OSBP</b>	-	One Stop Border Post
<b>OSCE</b>	-	Organization for Security and Cooperation in Europe
<b>RARMP</b>	-	Revenue Administration Reforms & Modernization Project
<b>RECTS</b>	-	Regional Electronic Cargo Tracking System
<b>RKC</b>	-	Revised Kyoto Convention
<b>SACU</b>	-	Southern Africa Customs Union
<b>SPSS</b>	-	Statistical Package for Social Sciences
<b>TIMEA</b>	-	Trade Mark East Africa
<b>TRS</b>	-	Time Release Study
<b>TTFSE</b>	-	Trade and Transport Facilitation in Southeast Europe
<b>UNCTAD</b>	-	United Nations Conference on Trade and Development

- WCO** - World Customs Organization
- WTO** - World Trade Organization

## OPERATIONAL DEFINITION OF TERMS

**Clearance:** As defined by the Revised Kyoto Protocol the term “clearance” means the accomplishment of all formalities necessary to allow goods to enter home use, to be exported or to be placed under another Customs procedure. (WCO TRS Guide, 2018)

**Coordinated Border Management:** Coordinated Border Management (CBM) refers to a holistic approach involving all cross-border regulatory agencies so that their regulatory functions are discharged in a coordinated manner. (WCO CBM Compendium, 2015)

**Customs Automation:** This refers to the processing of customs documents by the computer-assisted treatment of electronically transmitted information (Nkote & Luwugge 2010). Similarly, Booze et al. (2007) define automation of customs administration as the processing of customs documents by the computer-assisted treatment of electronically transmitted information.

**Customs Modernization:** This refers to the comprehensive streamlining of processes, formalities, procedures and documents handled by Customs, supported by an improved legal and regulatory framework, the optimal application of IT solutions, and the implementation of an improved human resource management policy. (Ogier, 2004)

**Customs Performance:** It involves various dimensions such as revenue collection and trade facilitation i.e. (shorter customs clearance time and simplicity of procedures and processes) Customs performance can be measured in financial or non-financial terms. (Afandi, 2010). Eshetu (2015) identifies average time to clear goods, revenue collection and stakeholder satisfaction as the customs performance measures.

**Human Resource Development:** HRD is a process of improving an organization's performance through the capabilities of its personnel. HRD includes activities dealing with work design, aptitude, expertise and motivation (Swanson, 1987)

**One Stop Border Post:** The OSBP Source book 2<sup>nd</sup> Edition, 2016, defines OSBP as a trade facilitation tool applied at borders, to promote a coordinated and integrated approach to facilitating trade, the movement of people, and improving security.

**Release:** the term “release” as explained by the Revised Kyoto Protocol means the action by Customs to permit goods undergoing clearance to be placed at the disposal of the person concerned. (WCO TRS Guide, 2018)

**Time Release Study:** A TRS is a systematic and standard method to measure the average time taken to release cargoes and for each step or intervention in a border procedure (Zhang, 2009). TRS is thus generally seen as a diagnosis tool to reveal the delays in the customs clearance processes which will enable proper solutions to be implemented and hence promoting better trade facilitation. (Makunike, 2015)

**Trade facilitation:** Engman (2005), defines trade facilitation as the simplification and harmonization of trade procedures, where trade procedures are, “the activities, practices and formalities involved in collecting, presenting, communicating and processing data required for the movement of goods in international trade”.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the Study**

Customs plays an important role in the economy of any country. Customs administrations around the world have an important role in revenue collection, protection of society and supply chain security. In addition, customs administrations endeavor to improve trade facilitation to encourage investment and reduce poverty (WCO World, 2013). However, the challenges of the 21st century place great demands on customs administration. Customs administrations must now, more than ever respond to these emerging challenges. An understanding of issues such as globalization, international trade dynamics, technical characteristics of supply chains, emerging political directions, and complexities of the global landscape is required (Gordhan, 2007).

World trade in goods has grown dramatically over the past decade, increasing from about \$10 trillion in 2005 to more than \$18.5 trillion in 2014 and to \$17.5 trillion in 2017. In 2017, international trade grew by an average of about 10 percent with a projected growth of around 12 percent in 2018. Certainly, the volume of international trade in goods has increased dramatically since 2005 (UNCTAD, 2019).

This increase in trade, coupled with globalization and security concerns resulting from the September 11, 2001 terrorist attacks in the United States, put pressure on customs administrations around the world to develop new ways of doing business to facilitate trade according to international standards. To meet these challenges, customs reforms and modernization initiatives were developed. (Barbone, 2015).



Globalization has resulted in global supply chain links between industrialized and developing countries (De Wulf and McLinden, 2015). As a result, revenue administrations occupying the ends of global supply chains are under tremendous pressure to standardize their operations and make them more efficient in order to add value to the taxpayers involved in importing and exporting goods. With increased international trade due to globalization and the expansion in the volume of cargo being handled at various ports across different nations, it is critical that the customs procedures should be modernized to increase the efficiency and effectiveness with which operations are carried out and improve the quality of service delivery by customs administrations.

Lane (1998) notes that this increase in international trade has led to increased demand for trade integration and a number of policy related actions by customs administrations that allow traders to clear goods in a transparent, predictable and rapid manner. This effectively reduces the bureaucracy of the customs process and encourages trade facilitation.

The World Bank (2005) defines customs reform as a broad spectrum of activities aimed at, among other things, amending outdated laws that; do not clearly explain the mandate of customs in the global economy, that may be out of tune with international commitment, that provides inadequate transparency and predictability and may require complex procedures while preventing the full use of information and risk analysis. Many customs administrations struggle to meet the ever-increasing demands and priorities placed on them. Over the past decade, many countries have devoted significant resources to reforming and modernizing their customs administration, often with financial and technical support from international financial institutions and

bilateral donors (Lane, 2015). The World Bank, World Customs Organization, International Monetary Fund, United Nations Conference on Trade and Development (especially the ASYCUDA program) and regional development banks have been providing this support for a long time. As a result, a number of customs administrations have enhanced their capacity. But too many still work inefficiently and sometimes fail to achieve their goals. Therefore, customs modernization is likely to remain on the development agenda of many governments and the donor community will be called upon to continue its support for customs modernization (World Bank, 2015).

### **1.1.1 Global Perspective of Customs Modernization**

World trade has grown to more than double the world's gross domestic product in the last ten years (World Bank, 2015). This increase has led to increased demand for trade integration and a number of complementary measures by customs administrations that allow traders to clear goods in a transparent, predictable and fast manner (Lane, 2014). In addition, customs administrations have to deal with changes in their operating environment, including: more demanding and sophisticated customers who have invested heavily in modern logistics, inventory control and information systems, as well as higher policy and procedural requirements associated with international obligations. Similarly, the proliferation of regional and bilateral trade agreements increases the complexity of managing formalities and border controls (De Wulf and McLinden, 2015). In addition, the role of customs has evolved from supervising the physical flow of goods at border crossings to being the primary border agency responsible for facilitating trade and protecting the public by preventing the cross-border movement of dangerous and harmful goods. In response to the above challenges, many countries have devoted significant resources to reforming and modernizing their customs

administrations, with customs modernization featuring prominently in the development agenda of many governments. (World Bank, 2015).

The realization that customs services can be improved has led many governments to devote significant energy and resources to modernization (De Wulf, 2005). In addition, Customs modernizations overall objective is to facilitate trade. De Wulf (2005), observes that Customs administrations are expected to achieve their core objectives of revenue collection, protection of local industries and prevention of importation of prohibited or unsafe imports both effectively and efficiently without compromising trade facilitation.

Indeed, trade facilitation is a key issue supported by the WCO through the adoption of the revised Kyoto Convention. The agreement was adopted by the WCO Council in 1973 and entered into force in February 2006. Many customs reform and modernization programs have been developed to introduce modern customs procedures in line with the RKC. Kenya's initiative to modernize customs, like other countries, has been implemented through reforms designed to uphold the spirit of the RKC of simplifying and harmonizing customs procedures with the ultimate goal of facilitating trade, which is a key factor in assessing the work of customs administration.

Perhaps one of the most important aspects of customs modernization is automation. Jackson (2009) testifies that it is difficult to imagine a project to reform or improve customs without the use of ICT. Thus, customs automation remains the basis of customs modernization initiatives. Holloway (2009) points out that the automation of customs procedures is an integral part of customs reform and modernization initiatives. In the same breadth, Katsuya-Takii (2003) opines that automation is a catalyst and stimulus for customs modernization. Thus, the importance that automation has as given by

different international trade organizations suggests that adoption of ICT in customs is quintessential and cannot be ignored.

Globally, customs reforms have followed different paths with the main reform areas being technological as well as operational. In Turkey, customs modernization involved the establishment of an independent modernization project unit which was tasked with driving the modernization process. The modernization activities which were put in place under the coordination of this project unit included adoption of a new ICT system and its deployment which facilitated the automation of the clearance process, introduction of risk-based selectivity in the physical verification of cargo and the implementation of post-release controls.

In Mozambique the customs modernization process largely involved automation of customs processes as well as operational reforms and reorganization. Thus, the Mozambique Customs Administration introduced a modern ICT system and initiated a program of staff renewal, with recruitment based on new standards of qualification and integrity, and a new salary scale. (De Wulf and Sokol, 2004).

In Morocco, customs modernization involved reinforcement of ICT which resulted in automating customs operations. Other measures involved limiting physical inspection to only 10% of the declarations as well as simplification of customs procedures which resulted in a substantial reduction of customs clearance times.

Zake (2011), in a study on customs modernization reforms among selected Anglophone countries, observes that customs modernization reform initiatives in Anglophone African countries has focused on Customs processes and procedures, one-stop-border points (OSBPs), information technology developments and full automation of

transaction processing. According to Zake (2011), the expected benefits from these modernization reforms include increased government revenue, simplified transparent and more efficient clearance procedures and better coordination of responsibilities between customs and other government border and regulatory agencies.

In Uganda, customs reforms and modernization has been a long process having started in the 90's. De Wulf and Sokol (2004) observe that the main aim of the reforms was to strengthen revenue mobilization and to combat corruption. Based on the Uganda modernization experience, a number of lessons have been learned as highlighted by De Wulf and Sokol. First, ICT is an important tool that can be used in the effort of streamlining trade and customs procedures. Secondly, sustainability of progress experienced as a result of modernization will be highly dependent on the modernization of the non-ICT aspects of customs work.

From the modernization experience of the aforementioned countries, it is clear that customs reforms are embedded into and are guided by the principles of the RKC which include trade facilitation, risk management and simplification of trade. As such, key initiatives undertaken in the modernization endeavour of countries globally have included elements of automation, risk management, simplification of procedures/ trade facilitation and operational changes such as staff training and rationalization.

Customs modernization covers a broad spectrum of activities involving a wide measure of reforms. This reforms include legislation, management changes, training and information communication technology. All these measures are aimed at improving the efficiency and effectiveness of customs operations which more often is geared towards the key theme of the RKC of trade facilitation, which is a key consideration in measuring the performance of customs administration. De Wulf and Sokol (2004),

observe that the key modernization outcomes include effect on performance, trade facilitation, corruption, staffing, and conformity with international standards.

### **1.1.2 Customs Modernization Reforms in Kenya**

Kenya Revenue Authority (KRA) embarked on a modernization journey with the key aim of creating operational efficiency through re-engineered business processes and leverage on technology to drive revenue collection and facilitate smooth service delivery. The main focus of the reforms was to put more focus on the customer ensuring that the customer is happy through seamless service delivery. The reforms were aimed at enhancing service delivery by creating an enabling environment characterised by simplified processes. The basic idea was that if processes are simplified then trade will be facilitated.

The reforms resulted in a number of milestones and changes in the operations of the Authority in as far as Customs administration is concerned. Notable among them included, modernization of Customs administration procedures through two main drivers i.e. automation and the adoption of the OSBP's concept which saw the establishment of the Malaba OSBP. Makunike, (2015) observes that modernization initiatives are to a great extent related to trade facilitation and are mainly driven in the form of the use of automation or ICT and one stop border posts (OSBPs). It is worth noting that a number of changes, especially in relation to the automation of the Authorities systems and Customs administration structures have taken place. This include the introduction of RECTS and ICMS along with other technology driven monitoring systems.

The reforms were implemented under a program called RARMP, i.e. Revenue Administration Reforms and Modernization program. This program was launched in

the 2004/2005 fiscal year with the aim of developing KRA into a modern, fully integrated and customer-oriented organization in line with the principle of “building trust through facilitation”. The program included the Customs Reforms & Modernization Project, the Domestic Taxes Reform & Modernization Project, the Road Transport Reform & Modernization Project, and Investigation & Enforcement Reform & Modernization project, KRA Infrastructure Development Project, KRA Business Automation Project and the Human Resource Revitalization Project. (Omulindi, 2016) However, in this study our area of focus will specifically be on Customs modernization.

Central to the theme of customs modernization, is the adoption of a coordinated approach to border management through the embracing of the OSBP concept. As an intermediary in cross-border trade, the OSBP concept promotes a coordinated and integrated approach to trade facilitation. (OSBP Source Book, 2nd edition 2016). Through OSBP, border control authorities, with customs as the main authority, benefit from a better environment for increased use of ICT and faster processing of documents, goods and passengers (Erasmus, 2013). This in turn ensures a reduction in the processing time of cargo leading to significant reduction in delays at the border thus facilitating trade. As such, OSBP’s provide an efficient gateway through which the passage of cargo is expedited, commerce encouraged and trade facilitated.

Customs administration in Kenya is in a period of rapid change that requires a paradigm shift in customs activities. There are ongoing positive developments in customs to reform and modernize procedures and processes, as well as impressive private sector initiatives to take a more proactive approach to improve customs management for the benefit of government and business (Wangora, 2015). However, the benefits associated with the modernization reforms are yet to be fully realized owing to different challenges

experienced at the border posts. Thus, despite the introduction of modernization initiatives through automation and adoption of the OSBP's concept at various border points, Customs administration in Kenya still faces a myriad of challenges ranging from complicated processes, multiplicity of documentation and delays in release of cargo. These challenges negate trade and contribute towards the frustration of trade, negative perception of customs administration and poor performance of customs administration.

### **1.1.3 Key OSBP's in Kenya**

The Malaba border crossing is on the main Nairobi-Kampala highway, about 129 kilometres (80 miles) on the road, west of Eldoret, the nearest major city. It is located about 438 kilometres (272 miles) northwest of Nairobi, the capital and largest city of Kenya. Malaba is the busiest border crossing in the EAC region with an average of 1,252 vehicles crossing the border in both directions per day. The journey from Uganda to Kenya takes an average of 5.97 hours and from Kenya to Uganda 21.95 hours. (TIMEA, 2018). The Malaba border crossing is one of the busiest major border points for the import and export of goods between Kenya and Uganda.

According to the Committee for Economic Cooperation and Trade (COMCEC, 2017), the border with Malaba was the busiest border in 2013, accounting for 85% of all corridor traffic. The border post receives heavy traffic from trucks, buses and small vehicles and is a key point in the northern corridor (Cheruiyot, 2018). More than 1,000 trucks travelling between Kenya and Uganda pass through Malaba daily, handling about 40 percent of transit freight to and from Mombasa originating from Rwanda, Burundi, Democratic Republic of the Congo, South Sudan and Uganda (East African Trade Centre, 2013). Malaba is a leading OSBP project in the Northern corridor



between Kenya and Uganda. Malaba OSBP's operation on the Kenya-Uganda border began in June 2006 (Zake, 2011).

Busia is located in the West of Kenya and East of Uganda, about 431 kilometres by road from the Kenyan capital, Nairobi, and 202 kilometres from Kampala, the capital of Uganda. According to TMEA (2011), the Busia border is the busiest in East Africa, with an average of 894 vehicles crossing each day. A baseline time and traffic survey conducted by TMEA in 2012 reported an average of 894 vehicle crossings into Uganda. 72% of these were reported as containerized traffic. According to research survey, vehicles entering Kenya from Uganda queued for about thirty-eight minutes in traffic, while those headed to Uganda from Kenya took one hour eighteen minutes (OECD, 2017). The border accounts for the bulk of both trade and human traffic between the two East African countries with the transit goods being transported through the border to neighbouring countries such as DRC, Rwanda, Southern Sudan and Burundi. Due to the strategic importance of Busia as a major border point between Kenya and Uganda, the Busia OSBP was constructed and officially launched by the Heads of State of Kenya and Uganda i.e. Uhuru Kenyatta and Yoweri Museveni on 24 February 2018.

The Taveta/Holili border between southern Kenya and northern Tanzania is approximately 264 km southeast of Mombasa and 110 km west of Arusha. The Kenyan side of the border is in Taita-Taveta County, while the Tanzanian side is in Himo Town, Rombo District and Kilimanjaro Region. Taveta is one of the most important border crossings between the two countries due to the proximity of the border to major cities. Kenya and Tanzania officially opened the Holili-Taveta One Stop (OSBP) border crossing in May 2015 to improve trade facilitation by speeding up the movement of people and goods across the border. Trade between Kenya and Tanzania through the

Taveta/Holili OSBP is expected to grow further with the construction of the Voi-Arusha road which will pass through the two border towns of Taveta in Kenya and Holili in Tanzania. Currently, a longer route passing through Namanga is used for individuals transporting goods to Arusha and neighbouring towns in Northern Tanzania. The Taveta/Holili OSBP was officially launched by Kenya and Tanzania on 27th February 2016. Tanzania's Minister for Foreign Affairs, East African, Regional, and International Cooperation, Hon. Amb. Dr Augustine Mahiga, and Kenya's Labour and East African Affairs Cabinet Secretary, Hon. Phyllis Kandie, presided over the joint launch.

The Namanga border between southern Kenya and northern Tanzania is about 160 km southeast of Nairobi and 100 km north of Arusha. The Kenyan side of the border is in Kajiado County while the Tanzanian side is in Longido District. Namanga is one of the most important border crossings between the two countries due to its proximity to two major cities. According to JICA's 2019 Time Measurement Survey in Namanga, 168 trucks per day passed through the Namanga OSBP in 2018, an indication of how busy the border is. The Namanga OSBP was officially launched on 1<sup>st</sup> December, 2018. The joint launching was presided over by the Head of State of Kenya, Uhuru Kenyatta and his counterpart from Tanzania Dr. John Pombe Magufuli. The establishment of the OSBP at Namanga is expected to bolster trade between Kenya and Tanzania as well as enhance increased cooperation, information sharing and economic development between the two nations.

The Lungalunga, OSBP project started in 2012 through the World Bank. The Lungalunga OSBP is located in the Coastal County of Kwale. It serves Kenya and Tanzania and facilitates trade and movement of goods and people between Lungalunga in Kenya and Horohoro in Tanzania which are the border towns in close proximity to

the OSBP. Lungalunga OSBP is a border post located between Kenya and Tanzania. It was commissioned on April, 2015 by President Uhuru Kenyatta and his Tanzanian counterpart John Pombe Magufuli.

## **1.2 Statement of the Problem**

Malaba OSBP is overshadowed by a number of performance challenges that negate rather than facilitate trade. The border has been criticized for delays in transit goods, high business costs and poor infrastructure. In addition, other challenges include, delays in cargo and person clearance time. (World Bank, 2013). The East Africa Trade Hub (2013), point out the delays experienced at Malaba. They note that while the journey to Malaba from Mombasa takes only two days for a trucker, the wait time at the border could take up to six days in a queue often stretching 21 kilometres. Similarly, according to Crown Agents, (2014) the Malaba border post has been blamed for delays which eventually result to congestion at the port of Mombasa. These delays have in the past led to strikes and go slows by transporters and clearing agents. Malaba border operations are also limited by severe challenges related to Information, Communication and Technology (ICT). In the event of low Internet connectivity or power outage, there is huge traffic pile up as a result of slow clearance. (Cheruiyot, 2018). The pile ups apart from leading to traffic jams, are also an impediment to trade facilitation as free flow of goods is affected due to long cargo clearance times.

The Busia border, similar to Malaba, has severally gained negative publicity and media attention for the characteristic delay in clearing of cargo and the long queues that curtail free flow of transit goods. Additionally, Busia has also been known to have several unofficial entry and exit points which encourages smuggling of goods and hence leading to loss of revenue (Crown agents, 2014). Endless traffic jams, some stretching

for more than 5 Kilometres, caused by transport trucks, threaten to cripple trade at the Kenya-Uganda OSBP at Busia. This has been blamed on slow clearance process at the OSBP, which negates the very purpose for which the OSBP was formed i.e. to ease delays and congestion (Radoli, 2019)

Namanga border has been criticized for delays of transit goods as well as high cost of doing business. Instances have been reported where Kenyan Traders who imported maize from Tanzania were forced to wait for five days before their cargo was cleared. Truck drivers blamed this on Customs Officers stationed in Namanga who introduce unnecessary bureaucracy to create loopholes to extort money (Radoli, 2019). Other challenges have been, corruption, incompetent employees, and delays in cargo and person clearance time. Porosity, leading to loss of revenue, has also been identified as a performance related challenge. This is said to emanate from smuggling activities at the border post which was happening through the transit of goods via the border post without paying import duties, use of fake documents and false declarations (Nuluva, 2015). As such the problems faced at Namanga affect revenue collection due to revenue leakage caused by evasion of duty through smuggling.

From the available theoretical literature, several studies have been carried out on the implementation of OSBP's as well as trade facilitation. Cheruiyot (2018) did a study on the factors affecting the implementation of One Stop Border strategy, focusing on Malaba. A major finding of the study was that improvement in the efficiency of customs services and other government agencies through avoiding unnecessary duplication of clearance procedures and increasing cooperation has been a major impact of implementation of OSBPs. Ndunda (2013) did a study on the implementation of One

Stop Border strategy at the Busia Border in Kenya. The study found that OSBP strategy implementation was on-going, but faced a number of challenges.

Despite the challenges faced by the border posts, there is little evidence of recent studies to review the performance of the border subsequent to the establishment of the OSBP and the introduction of modernization initiatives by KRA. Based on the above review, little empirical inquiry has been undertaken on effect of customs modernization on customs performance at key one stop border posts in Kenya. This study therefore sought to fill the gap by assessing the effect of customs modernization on customs performance at key one stop border posts in Kenya by focusing on Malaba, Busia, Lungalunga and Namanga OSBP's.

### **1.3 Research Objectives**

#### **1.3.1 General Objective**

The general objective of the study was to assess the effect of Customs Modernization initiatives on customs performance at Key OSBP's in Kenya.

#### **1.3.2 Specific Objectives**

The specific objectives of the study were:

- i. To establish the effect of coordinated border management on customs performance at Key OSBP's in Kenya.
- ii. To determine the effect of systems automation on customs performance at Key OSBP's in Kenya.
- iii. To examine the effect of Human resource development on customs performance at Key OSBP's in Kenya

## **1.4 Research Hypotheses**

The following research hypotheses were tested based on the research objectives:

**H<sub>01</sub>:** There is no statistically significant relationship between Coordinated Border Management and customs performance at key OSBP's in Kenya.

**H<sub>02</sub>:** There is no statistically significant relationship between Systems Automation and customs performance at key OSBP's in Kenya.

**H<sub>03</sub>:** There is no statistically significant relationship between Human resource development and customs performance at key OSBP's in Kenya.

## **1.5 Justification of the Study**

The Kenya Revenue Authority has invested heavily in customs modernization initiatives with the aim of improving the quality-of-service delivery as well as ensuring seamless customs operations and enhancing the performance of customs department. Notable among these modernization investments are customs automation, human resource management and adoption of the OSBP concept. It is therefore important for the Authority to know the impact which these investments have on the performance of customs department especially in as far as revenue collection is concerned.

Secondly, the study will be of importance to the various industry players i.e. importers and clearing agents as it will provide a platform for engagement in an attempt to understand the effect that the modernization initiatives has had on their businesses in as far as cargo clearance, which is one of the performance indicators of customs operations. As such the results of the study will form the basis of further engagement with the Customs Department of the Kenya Revenue Authority to address concerns noted. Policy makers will also benefit from the research. The findings of this study will

provide useful factual information to the policy makers in the Government of Kenya, other EAC partner states and the East African Community. It is useful not only to all agencies and stakeholders involved in border management activities, but also to other managers in the public sector involved in driving the customs modernization agenda.

Finally, the study will also be of importance to other researchers and scholars. To the researchers, the study will form a guiding foundation and provide a basis of further research especially on other factors which may affect the performance of customs but which have not been covered in this study as part of the customs modernization initiatives. To the scholars, the study results will provide useful material that will inform theoretical literature as well as further research in the area of modernization and its effect on the performance of customs administration.

### **1.6 Scope of the Study**

The study was concerned with customs performance at four key OSBP's in Kenya. These included; Malaba, Busia, Namanga, and Lungalunga. These border posts were subject of the study since they were considered to be key border posts in Kenya having a considerable huge flow of traffic based on the average volume of cargo cleared daily.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

The literature in this study was reviewed in line with the study objectives. First, the chapter looked into the available theories underpinning the study and theoretical literature on the concepts of border efficiency, systems automation and human resource development as elements of customs modernization. Secondly, the chapter explored the measurement of customs performance by reviewing customs performance indicators, focusing specifically on border efficiency as determined by cargo clearance time and revenue collected. Finally, the chapter concludes by looking at empirical literature available on customs modernization initiatives and presents a conceptual framework upon which the study will be guided and the variables measured.

#### **2.1 Theoretical Framework**

To fulfil the objective of the study, theories were employed to guide the study. Theories are important in any research since they provide a model to test concepts and a framework to guide the study. The following theories were employed as theoretical basis to guide the study: Theory of Reasoned Action, Technology Acceptance Model and the Resource Based View Theory of the Firm.

##### **2.1.1 Theory of Reasoned Action**

A number of theories have been advanced to explain consumer acceptance of new technologies and their intended use (Lai, 2017). These include the theory of reasonable action and the technology acceptance model. The Theory of Reasoned Action (TRA) is one of the most widely used theories and is a factor that determines the behavioural intention of a person's attitude towards the behaviour (Lai, 2017). This theory was



postulated by Fishbein and Ajzen (1975). (Fishbein and Ajzen, 1975) developed TRA to define the relationship between beliefs, attitudes, norms, intentions and individual behaviour (Mwati, 2014). This theory assumes that a person's behaviour is controlled by the individual's behavioural intention to fulfil it, and the intention itself is determined by the individual's attitude and subjective norms concerning the behaviour.

According to Trafimow (2009), behavioural intention (one's intention to do or not to do something) is the closest cause of behaviour. Behavioural intentions, in turn, are determined by attitudes (an individual's judgment of behaviour) and subjective norms (judgments of what other people think they do), each of which can be the most important determinant of a particular behaviour. Fishbein and Ajzen (1975) define "attitude" as an individual's evaluation of an object and define "belief" as the relationship between objects and attributes and define "behaviour" as an outcome or intention. Subjective norms refer to "the individual awareness that many important people believe that he or she should or should not perform the behaviour in question" (Ajzen, 2010).

The Theory of Reasoned Action is thus applicable in this study in trying to explain the behaviour of employees with respect to accepting the introduction of new technology in the form of System Automation. User acceptance as defined by Dillon (2001), is 'the demonstrable willingness within a user group to employ information technology for the task it is designed to support. As stated by Lai (2017), TRA is one of the theories that have been used to explain consumer's behaviour towards acceptance of new technology. Therefore, TRA may be applied in the context of Customs Administration in trying to explain the attitudes and behaviour towards acceptance of system automation.

### **2.1.2 Technology Acceptance Model**

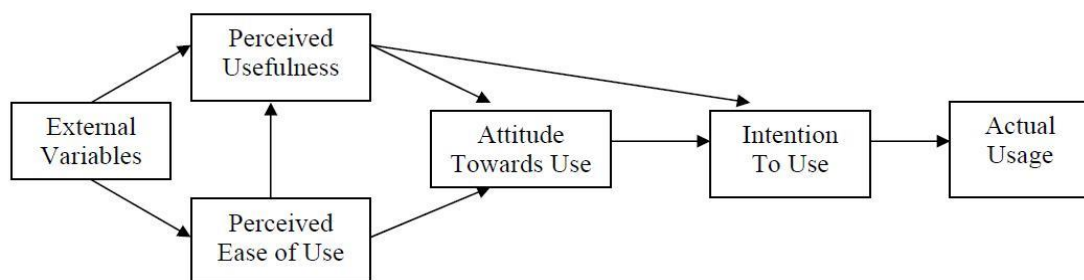
The Technology Acceptance Model (TAM) was introduced by Fred Davis in 1989. Davis (1989) developed the technology acceptance model (TAM) to assess individual adoption of technology (Amin, 2010). TAM is considered the most influential theory and is widely used to describe the acceptance of information systems by individuals (Lee, Kozar & Larsen 2005). As an adaptation of The Theory of Reasoned Action (TRA), TAM is specifically adapted to model user acceptance of information systems or technologies. (Lai, 2017).

The technology acceptance model is based on two main beliefs, perceived usefulness (PU) and perceived ease of use (PEOU). Therefore, individual acceptance of technology is determined by these two variables; perceived usefulness and perceived ease of use (Amin, 2010). According to Davis (1989), perceived usefulness is defined as the subjective probability that potential users will use the system to increase the efficiency of their work or life, and perceived ease of use relates to the extent to which potential users expect the new system to be effortless in terms of the mental effort required to use the system.

The technology acceptance model shows the influence of PU and PEOU on a user's attitude towards technology, which in turn influences his intention to use the technology and, subsequently, actual use. The two variables in the model, i.e. PU and PEOU are influenced by external variables. The external variables are social elements, cultural elements, and political variables. The social component include dialect, skills and supporting conditions. The political component, on the other hand, includes the effect of using innovation in the context of legal issues and political crises.

Therefore, users faced with new technology in the form of information systems will either accept or reject the technology based on how they perceive the system will be useful to them and how easy it is to use the new technology with minimal effort. As such a user will be satisfied with new technology if it is useful in assisting in execution of a particular task and if it is easy to use. Amin (2010) notes that given that the acceptance of a system can be determined by user satisfaction (i.e. the user's belief or attitude towards the system), consumer confidence in the system's ability to perform these tasks is also a relevant consideration. Therefore, consumer satisfaction leads to acceptance if the consumer has a positive opinion, or rejection if the consumer has a negative opinion about the system implemented.

In the context of Systems automation in Customs, this Theory is relevant as it provides a solid foundation upon which the attitudes of the customs officers will be affected by the systems perceived Usefulness or perceived ease of use, which in turn will affect their intention to use the system and eventually influence the actual usage of the system.



**Figure 2.1: Technology Acceptance Model (TAM)**

Source: Adopted from Davies, (1989)

### 2.1.3 Resource Based View Theory

Resource-based theory (RBT) relates to the idea that the company's internal resources can be a direct source of sustainable competitive advantage (SCA) for the company. (Davis and Simpson, 2017). Wood (1999) states that through a resource-based

perspective, organizations can gain a competitive advantage by attracting and retaining the best human resources. Young and Conrad (2011) view RBT as being concerned with the diversity of organizational outcomes. Therefore, the goal is to combine various internal resources which, when used strategically, can create a competitive advantage for the company. Key among these resources is the human resource. Therefore, the unique characteristics possessed by employees in terms of knowledge, qualifications, skills and experience are the key to the performance of the organization.

Davis & Simpson (2017), introduce the aspect of employee differentiation as a way of achieving competitive advantage and ultimately performance of the firm. They observe that differentiation of the internal resources such as employees can have a positive impact on firm performance by creating competitive advantage. This implies that each employee possesses a unique set of skills which work together in synergy to achieve competitive advantage and improve the performance of the firm. The distinct knowledge and abilities possessed by the employee's must have the qualities of being rare, valuable, inimitable and non-substitutable. These are the qualities that will propel the firm to improved performance through the value adding contribution of the employees.

One of the qualities of the human recourse under RBT is knowledge. This knowledge must be continually honed so that the employee will have the required competencies that will contribute to the firm's competitive advantage and translate to improved performance. Clardy (2008), makes an argument for RBT as a basis for developing business competencies which in turn contribute towards the achievement of competitive advantage. Davies & Simpson, (2017) suggest that these competencies can be built

through general employee training and development programmes to skill employees with the right skills.

There is thus a link between Human Resource Development (HRD) and performance as elucidated by RBV literature. This link alludes to the fact that after acquiring the human resource, there must be continuous development of the resource to fully benefit from the resources' value. As such in the context of human capital, elaborate training and development plans must be developed as part of Human Resource development programmes. Holton and Naquin (2005), identify training as a basic component to acquire the right competencies for the improvement of organizational performance. In creating a link between HRD and organization performance based on the RBT, Katou (2009) illustrates a causal path between HRD and organizational performance based on RBT. The causal path shows that after the resource is acquired, it must be developed to acquire the right skills as well as nurtured and motivated to acquire the right attitude. The right attitude will lead to positive behaviour and hence improved performance.

Adequate human resource management has a significant impact on the work of the organization. Davis and Simpson (2017) show that management's ability to properly utilise internal resources ultimately influences the impact of these resources on the performance of the firm. The Resource Based View Theory is thus applicable in the context of Customs administration at the OSBP's. Given the technical nature of the work carried out by Customs officers at the border stations, it is absolutely essential that continuous development of their technical skills through training and other development programmes takes place. This will ensure that the staff are adequately skilled and their skills can be utilized for enhanced performance at the border.

### **2.1.4 The Balanced Score Card Model**

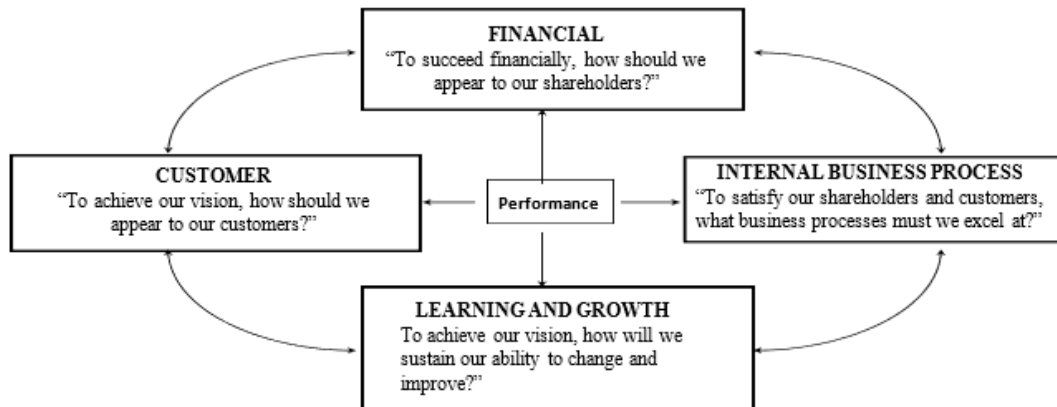
In recent years, due to the dynamic environment in which companies compete, more and more of them have shown significant interest in measuring performance. The main task of measuring effectiveness is to assess the current position of the organization and help managers develop and implement better strategies (Ivanov and Avalisca, 2013). The balance score card model was developed by Kaplan and Norton (1996) as a performance measuring tool for use by managers. Ivanov and Avalisca (2013) note that the balanced scorecard describes an organization's mission and strategy in a set of performance indicators that provide a model for measuring performance. Velnampy and Balasundaram (2007) argue that the balance scorecard provides feedback relating to the internal business processes and external outcomes in order to continuously improve the organizations performance and results. It consists of a set of performance measures that give a comprehensive view of the company based on four key perspectives. The model assesses the organizational performance through four perspectives: financial, clients, learning and growth and internal processes (Kaplan & Norton, 1996).

The financial perspective includes measures such as revenue growth related to an organization. It is a key factor of any performance measurement system because an organisation's financial performance is fundamental to its success. (Edwards, 2006). The customer perspective is concerned with measures which are important to customers. These include timelines, quality, performance and service (Velnampy and Balasundaram, 2007). These are critical as they ultimately determine the level of the customer's satisfaction. According to Edwards (2006), the customer perspective is important because customer satisfaction is becoming more important in business. In this way, when customers are not satisfied, they can find another supplier that meets

their needs. The internal process perspective, as envisioned by Kaplan and Norton (1996), is concerned with the internal work of an organization in relation to its processes. According to Edwards (2006), having an internal business focus allows an organization to measure how well it is performing and whether its products and services meet customer requirements. In other words, how the organization has organized its internal processes to meet the customers' expectations through increased process efficiency. Ivanov and Avaliscai (2013), point out that improving the internal processes contributes towards the organization improvement of its all-round performance. The employee learning and growth perspective is one of the most important perspective because all the other perspectives are anchored upon it. This perspective is concerned with workforce training and development as well as how the organization will adopt and innovate for the future (Velnampy and Balasundaram, 2007), as well as employee skills, employee satisfaction and availability of information (Niven, 2006).

In the context of customs, the balanced score card is critical as a performance measurement model. Firstly, customs key mandate is revenue collection which fits perfectly into the financial perspective of the Balanced Score Card. Secondly, customs is also concerned with trade facilitation with the implication being that customs should endeavour to facilitate the speedy release of goods at the different border posts through increased process efficiency. As such this function of customs will fall under both the internal process perspective and the customer perspective. The importers who are the clients have an expectation of short cargo dwell time prior to release and will be interested with the timelines involved in the release of imported goods as well as the efficiency of these processes. Thirdly, the balanced score card is suitable for the measurement of customs performance in terms of customer satisfaction. Customer satisfaction is concerned with the stakeholder's perception of the value they receive

from the service they get. In the context of customs, satisfaction which is one of the performance areas will fall under the customer perspective.



**Figure 2. 2: Four Perspectives of the Balanced Score Card**

Source: Adapted from Kaplan & Norton (1996)

### 2.1.5 McKinsey’s 7 ‘S’ Performance Framework

The McKinsey 7-S framework was developed by McKinsey & Company in the 1980s. Attributed to Tom Peters and Robert H. Waterman. The purpose of this model is to show how the 7 elements of a company: structure, strategy, skills, employees, styles, systems, and common values can be put together to be successful in a company. (Ravanfar, 2015). The model represents the organization as a set of seven interrelated elements, i.e. Shared structures, strategies, systems, people, skills, styles and values. The rationale is that the 7 internal aspects of a company must be combined to be successful.

Waterman and Peters (1980), further split these seven elements into two categories i.e. the ‘hard’ category which comprises of Structure, Strategy and Systems and the ‘Soft’ category which comprises of Style, staff, skill and shared values. The table below explains each of the components.

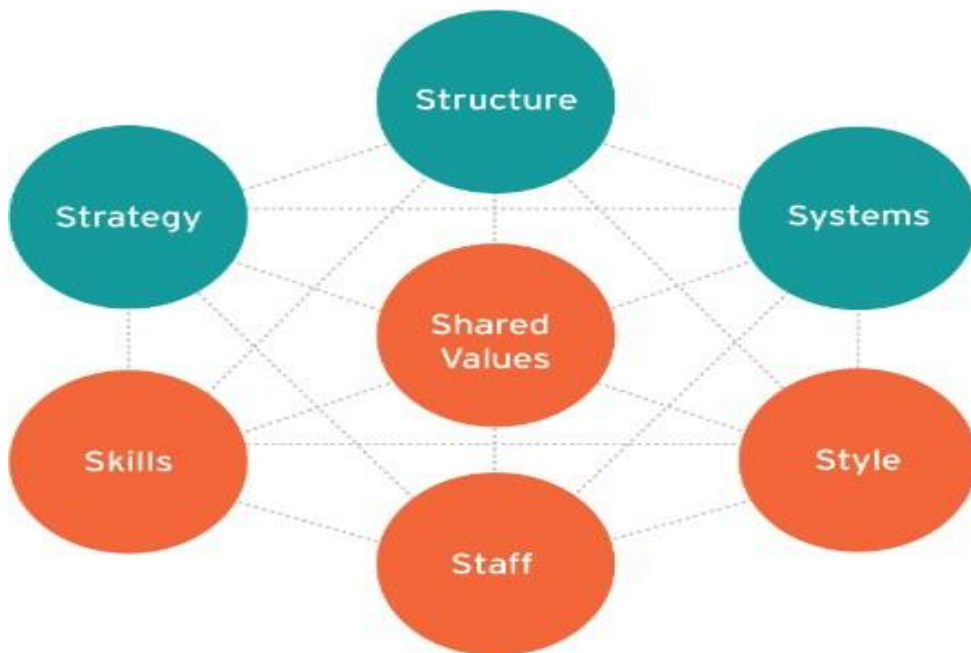


**Table 2.1: Definition of the elements of McKinsey 7S model**

<b>Element</b>	<b>Definition</b>
<b>1. Structure</b>	The way in which an organisation's activities are managed i.e. represents the way business divisions and units are organized. It forms the basis of specialization and co-ordination.
<b>2. Strategy</b>	The plan an organisation has to achieve its objectives.
<b>3. Systems</b>	The processes and daily activities that are undertaken by the people who work in the organization, and the tools they use to help them with those processes. They include, information & financial systems
<b>4. Style</b>	Refers to the organisational culture, usually described as 'the way things are done in the organization'. The dominant values, beliefs, and norms which develop over time.
<b>5. Staff</b>	Relates to the people/Human Resource Management. It is concerned with what type and how many employees an organization will need and how they will be recruited, trained, motivated and rewarded.
<b>6. Skill</b>	The competencies and capabilities of the organisation and its people.
<b>7. Shared Values</b>	The guiding principles that direct the organisation's behaviour. They are guiding concepts, fundamental ideas around which a business is built, and are often unwritten. Examples of shared values might include great customer service, constant innovation or honesty.

Source: Hanafizadeh et.al (2011)

By considering how each of these elements impacts on the others, it is possible to take a holistic approach to organisational change (Waterman, Peters and Phillips, 1980) and therefore boost organizations performance. The model can be applied in various situations. For instance, to facilitate organizational change and in the implementation of new organization strategy. (Ravanfar, 2015).



**Figure 2. 3: McKinsey's 7S Model**

Source: Adopted from Waterman and Peters (1980)

In the context of customs modernization, which involves a change in the traditional mode of customs administration as well as the introduction of new strategy, the 7S framework is applicable. For instance, customs modernization initiatives usually focus on aspects of staff motivation and competence, automation of organization systems, organization structure changes as well as introduction of new strategy. All this fit within the 7S framework's seven elements.

**Table 2.2: 7S Framework Application in Customs Administration**

<b>Element</b>	<b>Application in Customs Administration</b>
<b>1. Structure</b>	OSBP Operations i.e. Centralization of activities at the Border posts through having all the agencies accessible in one location.
<b>2. Strategy</b>	Coordinated Border Management i.e. cooperation between different border agencies to facilitate short cargo dwell times and prompt cargo release.
<b>3. Systems</b>	System Automation i.e. Electronic Payment, Scanners for Cargo Verification,
<b>4. Style</b>	Trade facilitation i.e. a move towards transparency and process simplification to facilitate trade.
<b>5. Staff</b>	Human Resource Management i.e. Staff Motivation
<b>6. Skill</b>	Human Resource Management i.e. Staff Training and development
<b>7. Shared Values</b>	Trustworthiness, ethical behaviour, competence and helpful staff to achieve the goal of Revenue collection, trade facilitation and customer satisfaction.

Source: Researcher (2021)

## **2.2 Review of Concepts**

### **2.2.1 Coordinated Border Management**

Coordinated Border Management (CBM) refers to a coordinated approach by national and international border control agencies to manage trade and passenger flows more efficiently while maintaining a balance with compliance requirements. (CBM Compendium, 2015). Therefore, the CBM Compendium (2015) considers CBM as a coordinated approach by border authorities in the pursuit of greater efficiency in the management of trade and trade flows.

Anizewski (2010), reinforces the meaning of CBM. He defines CBM as a logical way to manage border operations to ensure effective and efficient processes and procedures by all the regulatory agencies at the border. From the definitions it is clear that the key aspect of CBM is cooperation by border agencies i.e. inter-agency cooperation, to enhance efficiency at the border and facilitate trade. Polner (2010), alludes to the importance of interagency cooperation and posits that border agencies need to

coordinate their activities in order to improve effectiveness and efficiency of border procedures.

Failure to coordinate border activities more often than not leads to border inefficiency and frustration of traders as well as passengers. (Polner, 2010). The situation is not helped by the fact that, other than customs who are the lead agencies, there are multiple agencies at the borders with the common ones being immigration, police, radiation unit, Port Health, Kenya Plant Health Inspectorate Services (KEPHIS) among others. The result of these multiplicity of agencies is bureaucracy as both passengers and goods are subjected to multiple checks, controls and regulations. Therefore, border coordination through the OSBP model ensures that all the agencies are accessible within the same locality and border procedures are simplified through enhanced interagency cooperation through better communication and information sharing. Interagency cooperation at the borders is critical in fostering good relations and ensuring increased border efficiency in the clearance of goods which is a key aspect of trade facilitation.

Polner (2010), acknowledges the importance of OSBP's as a mechanism of implementation of CBM, and notes that the reasoning behind establishing different kinds of OSBPs is to increase the efficiency of the border crossings through reducing the number of stops as well as the participating agencies. OSBP's can thus be thought of as a tool designed to implement CBM through facilitating interagency cooperation and coordination of customs procedures at the border. The OSBP's ensure that all border agencies are present at the border and they coordinate their activities through proper channels of communication to fastback the movement of people and goods across the border.

### **2.2.2 One Stop Border Post (OSBP) and Border Efficiency**

One of the modern approaches for improving border operations is the establishment of one-stop border posts. (OSBP Source Book, 2<sup>nd</sup> Edition 2016). Central to the theme of trade facilitation, is the adoption of a coordinated approach to border management through the embracing of the OSBP concept. Erasmus (2013) notes that through OSBP's, border control agencies benefit through better environment for increased use of ICT and faster processing of documents, goods and travellers. This in turn ensures a reduction in the processing time of cargo leading to significant reduction in delays at the border thus facilitating trade through boosting border efficiency. As such, OSBP's provide an efficient gateway through which the passage of cargo is expedited, commerce encouraged and trade facilitated. The approach reduces the requirement for travellers and cargo to make two stops to complete border crossing formalities. This, in turn, minimizes cargo transportation time for the transporters and shortens clearance time at border crossing points. (2016 OSBP Source Book, 2nd Edition).

Erasmus (2013) notes that OSBP allows government agencies of two countries to work in close proximity, which allows joint administration of the border control function of these countries in one place. This ultimately reduces the waiting time for traders. Through the OSBP concept, border agencies benefit from a better environment for increased use of ICT and faster processing of documents and travellers. Road transport operators and customs agents also enjoy reduction in delays at borders and in operating times. (Erasmus, 2013)

The adoption of the OSBP concept, as well as the actual construction of OSBPs, is enshrined in the WTO Agreement on Trade Facilitation. Article 8 (1) (v) of the World Trade Organization's Agreement on Trade Facilitation mandates WTO member states

to implement one-stop border post control. Locally within the EAC region, the legal document that governs the establishment of OSBP's is the EAC One Stop Border Act. Section 4 of the Act obliges the Partner States to establish and implement one stop border posts at their common borders. The establishment of the OSBP's within EAC was part of the East African Trade and Transport Facilitation Project (EATTFP). This project among other things called for the development of OSBP's in the region.

In Kenya, which is part of the EAC, progress has been made in establishing one stop border posts at different border points. These include OSBP's at Busia, Lungalunga, Namanga, and Malaba which are the focus of this study. The importance of OSBP's in trade facilitation has also been emphasized by other regional trade blocs in Africa. According to Kieck (2010), one of the priority issues to enhance trade facilitation in the Southern African Customs Union (SACU) was the construction of one-stop border posts. The Chirundu OSBP which serves Zambia and Zimbabwe is considered to be one of the first fully functioning OSBP, to be established in Africa.

The EAC took a regional approach to decreasing border crossing delays by converting border posts on the priority regional transportation network into One-Stop Border Posts (OSBP) (Fitzmaurice and Hartmann, 2013). In establishing the OSBP's, several bilateral and multilateral donor agencies were involved. The World Bank and Africa Development Bank were instrumental in infrastructure development while Trade Mark East Africa (TIMEA) was instrumental in setting up the required IT infrastructure.

Fitzmaurice and Hartmann (2013) show that according to the OSBP model of EAC, to allow smooth traffic flow and avoid delays, exit procedures are carried out at border entrances. This allows trucks to pass directly through the customs area from the exit side to the entry side. This arrangement allows for joint controls to be carried out on

only one side of the border based on the regional agreement which provides for extra-territorial jurisdiction of the border management agencies. Kieck (2010) posits that under the OSBP arrangement, the offices of both countries are set up in close proximity which allows for 'one-stop' for border crossings which is a departure from the traditional 'two-stops' that were required to cross the border prior to the advent of OSBP's.

OSBP's were thus set up to enhance efficiency in terms of customs clearance at the border points, by reducing clearance related delays. Bagai and Wilson (2006), emphasize that longer customs clearance times is often associated with lower efficiency. Therefore, reducing the clearance time is an indicator of border efficiency. Barka (2012), further advances the importance of OSBP's as a customs modernization tool which ensures border efficiency. He states that the ultimate goal of OSBP's, are to streamline border operations, improve trade environment, enhance transport efficiency and reduce uncertainty in transit and clearance times. Bhero and Hoffman (2014), recognize the importance of OSBPs as an alternative configuration to traditional border posts whose rationale was to improve operational efficiency at the border posts.

As a modern approach to improve border operations, OSBP's have a number of justifications which provide the rationale for their establishment. Kieck (2010) points out that the OSBP concept results in economic benefits by significantly reducing the waiting time and costs associated with transit across the border.

Similarly, the creation of OSBP in transport corridors accelerates the movement of goods and people across borders and thereby reduces the transport costs associated with crossing national boundaries. All border formalities as well as the processing of goods and travel documents take place in one clearance area for leaving one country and

entering a neighbouring country. Other benefits associated with OSBP, as noted by Ladley and Simmonds (2007), include the sharing of ideas, information, and experiences. This leads to more efficient borders and thus faster processing and clearance of goods. Therefore, the introduction of the OSBP procedures had an impact of almost immediately halving the processing time at the border. (Source OSBP, 2nd edition 2016).

Barka (2012) argues the case for OSBP's and posits that modernizing and harmonizing customs administrations by streamlining and simplifying clearance procedures will be beneficial to traders, businesses, and national economies thereby leading to customs efficiency. Other benefits associated with the existence of well-functioning border posts are increased trade flows and increased revenues. Reduced cross border- delays and simplified customs procedures associated with a well-functioning border post, leads to increase cross border trade. The increased trade flows result to increased revenues.

In modernizing the border to ensure efficiency in line with its modernization reform agenda, Kenya commenced the process of transforming the Malaba border to an OSBP in 2002. This was through the formation of the Kenya-Uganda taskforce. According to Fitzmaurice and Hartmann (2013), joint railway border posts opened in Malaba in 2006 and subsequently in 2008 the customs operating hours was extended to twenty-four hours a day. Afterwards, other OSBP's followed suit in Busia, Taveta, Namanga and Lungalunga.

Based on the theoretical literature available, it is clear that the concept is being adopted across many national borders as part of customs modernization initiative to facilitate trade. Therefore, the concept is applied as one of the modern approaches to improve border operations because it is an important factor in evaluating the performance and



determining the attractiveness of a transport corridor by considering the efficiency of border crossings along the corridor.

### **2.2.3 Systems Automation**

The subject of systems automation as part of customs modernization initiative, is one which has been dealt with extensively by different scholars as well as international trade organizations. Theoretical literature on the subject shows the significance and immense benefits that would result if customs processes are automated. Central to customs automation has been the positive result of efficiency in customs operations which has been widely mentioned in the theoretical literature. Indeed, as a complement to Customs reform, automation is an integral part of Customs modernization (UNCTAD, 2011).

Customs automation is usually part of major tax administration reforms (Rao, 2000) and modernization programs. Computerization helps to carry out complex processes precisely, efficiently and effectively (Hollingum, 2006). Customs automation makes extensive use of computer systems consisting of comprehensive and integrated software packages (Nkote and Luwugge, 2010). Greenwood et al. (2008) describes this comprehensive and integrated software package as cargo control to monitor all import, transit and export movements to ensure that all goods are properly cleared before release; and declaration processing, to capture and process data for revenue collection. Vasudevan (2007) notes that the automation of customs administration leads to increased collection of duties and taxes due to the uniform application of laws and regulations; automatic calculation of tax payable; and built-in security.

Holloway (2009) points out that the automation of customs procedures is an important part of customs reform and modernization initiatives. He further observes that the

importance of facilitating trade has been emphasized by a number of international organizations and donors, including the WCO, WTO, OECD and UNCTAD. Thus, the importance that automation has as given by different international trade organizations suggests that adoption of ICT in customs is quintessential and cannot be ignored. Similarly, Katsuya –Takii (2003), opines that automation is a catalyst and stimulus for customs modernization.

The revised Arusha Declaration (WCO 1993) identified the automation of customs procedures as an important tool for increasing the efficiency and effectiveness of customs operations. Similarly, in its work paper on trade policy, the OECD (2005) highlighted the importance of ICTs in customs and stated that "customs automation is one of the most powerful tools for improving customs efficiency". At the same time, UNCTAD (2006) recognizes that an automation-based approach has become an important tool for tax administration efficiency.

Additional theoretical literature from customs and trade experts demonstrates the importance of customs automation in improving operational efficiency and facilitating trade. Several studies have identified automation as a predictor of efficiency, and studies have shown a relationship between the effectiveness of customs administration and automation (Engman, 2005).

Hollingum (2007) notes that computerization aids the conduct of complex processes accurately, efficiently and effectively. Apart from promoting efficiency in customs operations, automation of customs procedures also results in other benefits which enhance trade facilitation. These benefits help in facilitating trade. Ward and Dietmar (2007) identified these advantages in the context of customs automation, such as faster cargo processing by customs, simpler procedures and documents based on international

standards, reduced verification of goods, segregation of payment process from the physical handling of goods, and faster electronic submission of customs notices via Direct Trader Input or other online links.

Changes in the volume of transactions to be processed due to an increase in the volume of international trade require automation of customs processes. A common characteristic of customs work is the large volume of transactions and the inability to verify everything. Therefore, customs administrations are faced with the challenge of facilitating the legal movement of people and goods (UNCTAD, 2011). Therefore, declaration registration and customs clearance process must be done online. Electronic filing of customs declarations, document processing and clearance of goods brings significant time savings and predictability to all aspects of cross-border trade (UNCTAD, 2011). The long-term process of releasing goods at border crossings can be addressed by introducing a comprehensive automated clearing and document review system (Barka, 2012).

The importance of automation has also been highlighted especially in light of growing trade volumes. OECD (2005), stresses the importance of automation by observing that rapidly growing trade volumes have led to the recognition of the essential nature of automation. Automation therefore, serves as an important tool of increasing productivity due to the ability of processing of huge volumes of data.

Article VIII of the 1994 GATT recommends accelerating customs clearance by minimizing the frequency and complexity of import and export formalities. The proposed key measures aim to speed up the clearance and release of goods at the border. Customs modernization through automation and use of ICT is a reasonable step in implementing the procedure.

The available theoretical literature on customs automation is overwhelming in its support for the use of ICT in customs. A good summary of this subject is Jackson (2009), who testifies that nowadays it is difficult to imagine a project to reform or improve customs administration without using ICT. Thus, customs automation remains the basis of customs modernization initiatives. Although not a complete solution, ICTs can make a significant contribution to efficient customs administration and processing when integrated into greater modernization. (De Wolf and Sokol, 2005).

#### **2.2.4 Human Resource Development**

Human resource is a critical success factor in any modernization endeavour. Indeed, despite the move towards automation and use of advanced technology to carry out customs operations, the systems can only be as effective as the people who operate them. Writing about the relationship between people and technology, Buyonge (2007), observes that the people element is very important in implementation of any customs ICT project. These sentiments take cognisance of the fact that even with the most advanced technology, human intervention cannot be completely eliminated. For instance, although an advanced X-ray scanner is capable of probing a container and identifying concealed, smuggled or misdeclared goods, it is only a well-trained customs officer who will effectively operate the scanner to achieve the desired verification results-in effect, the scanner cannot operate itself. As such, the role of human resource cannot be downplayed or ignored in the customs modernization journey.

Human resource management involves the processes of identifying, developing and training, staff to harness their key competencies to improve the performance of the organization. The OSCE (2012) recognizes the importance of high-quality human resource professionals. In their view, without qualified staff, customs may not be able

to meet the challenges of the globalized world. As a measure of proper human resource management the OSCE suggest that proper recruitment, training of staff (basic, advanced, specialized and managerial level training), motivating compensation and recruitment of professional staff should be a key consideration.

According to Buyonge (2007), governments and the business sector want higher professionalism from customs, particularly in terms of technological ability. This implies that customs officers must be well trained. Therefore, as modernization reform bring about changes in different areas of customs, the human resource must also be transformed. It should be noted that in the centre of any modernization process is a person. Organizations don't change; people change and then they change the organization. (Lushchak and Bessalyuk, 2013)

De Wulf (2005), identifies the importance of the human resource in customs. He observes that with the demands of globalization and rapid adoption of IT in the various aspects of customs operations, ongoing training is an absolute necessity. Montagnat-Rentier (2019), holds the same view and posits that most of the time, reform initiatives aimed at improving customs operations must be accompanied by corresponding reforms in the management of human resources.

Aljohani (2016), suggests practical ways in which change can be successfully introduced in an organization, by looking at the relationship between technology and people. According to Aljohani (2016), no technology is successful after implementation without the people. Since most often, the organizations change strategy is driven by technology, a combination of technology with the human factor makes the balanced roadmap for making organizational changes successful.

## **2.3 Elements of Customs Performance**

### **2.3.1 Trade Facilitation**

The role of Customs administration is increasingly focusing on trader facilitation and security of the trade supply chain (Zake, 2011). Peterson (2017), emphasizes the role of customs in trade facilitation and notes that customs plays an important role which facilitates the flow of goods and services across international borders. Gordhan (2007), highlights the importance of customs administration to National Governments. He posits that there is an emergence of greater awareness in the role of customs in facilitation of legitimate trade. Buyonge (2007), identifies trade facilitation as a force that is having an impact on the role of customs administration in this century. It is thus evident from literature that trade facilitation is increasingly taking an important place as one of the emerging functions that customs administrations must carry out as part of their mandate.

While trade facilitation often refers to any action that can be taken to facilitate and facilitate the flow of trade, there is no formal standard definition of trade facilitation (Ramasawmy and Beeharry, 2014). Wilson and Perez (2014) also point out that there is no precise and uniform definition of trade facilitation. Trade facilitation has traditionally been understood only as the simplification and harmonization of international trade. However, this definition has been criticized as narrow because it focuses only on border-related factors such as simplification of export and import procedures. The definition therefore ignores other critical border-related factors such as transparency, improvement of the business environment, infrastructure and ICT. Although there may be no formal definition of trade facilitation the paper will attempt to analyse different definitions and suggest a working definition for purposes of use in the paper.

According to the WTO, quoted by Mapalala (2014), the objectives of the Trade Facilitation Agreement are: “Accelerating customs procedures; make trading easier, faster and cheaper; Ensure clarity, efficiency and transparency; and take advantage of technological advances.” According to the Organization for Economic Cooperation and Development (OECD), trade facilitation is about streamlining and simplifying international trade procedures to facilitate the flow of goods and trade at national and international levels.

The significant aspects of trade facilitation seem to point towards efficiency in customs procedures leading to easier flow of goods as well as simplified procedures, through automation which lead to time savings through faster clearance of goods. To this end certain definitions of trade facilitation allude to this fact. For instance, The World Trade Organization (1998), as quoted by Ramasawmy and Beeharry (2014) in their research paper on trade facilitation, explains that the aim of trade facilitation is to “ease customs procedures and to facilitate the movement, release and clearance of goods.” This eventually speeds up trade and makes it cheaper. Similarly, the Doha Ministerial Declaration (WTO, 2001) refers to trade facilitation as expediting the movement, release and clearance of goods, including goods in transit.

Commenting on the 9th WCO Ministerial Conference in Bali, Indonesia in December 2013, Viljoen (2014) noted that “the main outcome of the conference was the draft Ministerial Decree on Trade Facilitation as a multilateral commitment to simplify trade, through cost reduction and the improving of speed and efficiency. Here too, the focus is on efficiency and speed.

Trade facilitation being a multi-dimensional concept needs to be defined more broadly. Wilson, Mann & Otsuki (2004) describe trade facilitation as a measure that promotes

trade liberalization by catalysing trade flows through removing barriers to the movement of goods. Wilson and Perez (2008) describe trade facilitation by introducing two important dimensions. They describe trade facilitation as measures to improve a country's "hard" and "soft" infrastructure to facilitate trade and the overall flow of goods. According to Wilson and Perez (2018), trade facilitation actions can be carried out in two dimensions, namely. The “hard” dimension which relates to physical infrastructure such as roads, ports, highways, telecommunications and the “soft” dimension which relates to transparency, customs administration, business environment and other intangible institutional aspects.

Groenewald (2014) believes that due to the availability of soft and hard infrastructure, trade facilitation will include multiple elements, of which physical infrastructure, information technology, transport efficiency and customs environment are common. He argues that they should always be analyzed jointly because the elements are interdependent.

Thus from the given definitions, it is safe to say that the key aspects of trade facilitation are the simplification of customs procedures with the aim of allowing easier and faster movement of goods across borders through faster clearance of goods. Simplification of customs procedures would involve, inter alia, adoption of modern technology (development of the hard infrastructure) through automation of customs processes to ensure faster processing of data as well as guaranteeing increased capability and capacity of handling numerous customs transactions. This would ensure that customs entries are lodged electronically, supporting documents are electronically attached and clearance of cargo is given on time.



### **2.3.2 Revenue Mobilization**

Due to the importance of import duties as a source of income for many developing countries, increasing revenues has traditionally been the main agenda of governments represented by the Ministry of Finance (De Wulf, 2005). De Wulf (2005) points out that most modernization reforms are aimed at increasing the efficiency of customs revenues.

Agbesi, (2013) identified income collection as an integral part of every society. Widdowson (2007), discussing the changing role of customs, shows that in many developing and least developed countries, import duties and related taxes make up a significant proportion of national income. Therefore, the main focus of their customs authorities is collection of revenue.

The importance of revenue collection in customs performance cannot be downplayed. Indeed, the chief mandate of many Customs Administrations in Africa is revenue collection. Buyonge (2007), argues that with the exception of few countries like South Africa, customs remain the main contributor of government revenue. Building his argument and using Kenya as an example, he opines that customs contributes up to 40% of the annual tax collections. With the changing face of Customs Administrations in the continent, revenue optimization has emerged as a major force. Buyonge (2007), observes that there are three major forces that are having an impact on the role of customs administration in this century. He identifies revenue optimization as one of this factors alongside trade facilitation and customs enforcement. It is thus evident that revenue is a critical measure of customs operations, and revenue collection will remain important as a key mandate of Customs administration for many years to come.

Bhero and Hoffman (2014) show that most countries in Africa still rely on tariffs as the main source of government revenue. This is despite, according to Mpata (2011), many regions gradually abolishing the charging of customs duties at the border posts.

Fitzmaurice (2012), further enforces the importance of revenue in Customs Administration. He notes a perceived conflict in the interests of Customs Administration and the cargo owners in the cross border clearance process. While importers, shippers and carriers are interested in shorter delays in crossing borders, many governments, particularly in Africa, are interested in maximizing customs revenues, he argues. This thus underpins the importance of revenue in Customs Administration.

Given that the main mandate of many Customs Administrations, Kenya included, is revenue collection, revenue remains one of the key objectives of any modernization reform agenda. As already seen from literature, most of the countries have revenue collection as an objective against which the performance of their customs administration is measured. KRA embarked on a modernization journey with the key aim of creating operational efficiency through re-engineered business processes leveraged on technology to drive revenue collection and facilitate smooth service delivery.

## **2.4 Measuring of Customs Performance**

Bagai and Wilson (2006) recognize the effectiveness of customs clearance as one of the most important factors in international trade. They emphasize that longer customs clearance times are often associated with lower efficiency. Therefore, reducing the time of release, which in turn ensures the fast and predictable release of goods, which is an important task of customs.

Seth (2010), states that performance in customs is measured in terms of the Key Performance Indicators (KPI's). He argues that Revenue organizations around the world measure performance in terms of KPIs. As such, customs also use KPI's to evaluate its performance. These KPI's relate to among others, collecting revenue and facilitating trade. Thus the importance of customs performance in terms of revenue collection and trade facilitation has been emphasized.

Key Performance Indicators (KPI) can be defined as “performance indicators that have a significant impact on the overall performance of the organization in strategic, tactical, operational planning and control” (Gunasekaran, Patel & McGaughey, 2004). Building on this argument, in the context of customs administration, the KPI's will be instrumental in determining the performance in terms of providing a measure of the strategic objectives of revenue collection and trade facilitation.

In the context of modernization, De Wulf (2005) notes that performance indicators define the objectives of the reform agenda and provide a monitoring mechanism. There are two types of indicators i.e. indicators, which are used to measure whether reform objectives have been achieved, and performance indicators, which are used to track the costs of achieving the desired results. All indicators are measurable and reflect critical success factors (CSFs) within the organization (Fortner 2010). Similarly, measurement of performance is an instrument that contributes to the success of modernization. (Ireland, Canteen & Yasui, 2011).

Holloway (2010), writes extensively on the subject of KPI's in customs. He identifies revenue collection and customs clearance time as two important performance indicators relating to customs in as far as border management is concerned. The indicators can either be leading implying that they measure the variable of interest at the end of a

process or a consequence of applied strategies i.e. revenue collected or they can be lagging, implying they measure the variable of interest during the process i.e. customs clearance time.

Generally, there are a number of approaches which have been developed, by different International organizations, to provide a measure of the border efficiency in terms of the clearance process. These include the TRS approach developed by the WCO, the Doing Business Index (DBI) and the Logistics Performance Index (LPI) by the World Bank and the Trade Facilitation Indicators (TFI) by the OECD. Although different in application, these approaches have a common factor in that they are concerned with time as an important determinant of border management efficiency and to some extent revenue collected at the border. The research will adopt WCO's TRS as the preferred approach of measuring border efficiency.

In relation to measurement of customs performance in terms of revenue collection, the WCO Diagnostic framework, which was based on research carried for seven months between June to December 2011, among the WCO member countries recognizes revenue as a key performance indicator. The results of the research found overwhelming concurrence among WCO members of the use of revenue as a performance measure of customs operations.

Key Performance Indicators usually emanate from strategic objectives which should have the qualities of being specific, measurable, achievable and relevant. In most countries, these objectives are most often related to trade facilitation and revenue collection as demonstrated by the table below.

**Table 2.3: Customs performance objectives and corresponding KPI's for selected countries**

<b>Country</b>	<b>Goals/Objectives/Performance Areas</b>	<b>KPI's Used</b>
<b>Mauritius</b>	1.Trade Facilitation 2.Revenue Collection	<ul style="list-style-type: none"> <li>• Percentage of cargo subjected to physical inspection</li> <li>• Actual revenue collected Vs projected revenue.</li> </ul>
<b>New Zealand</b>	1.Trade Facilitation 2.Revenue Collection	<ul style="list-style-type: none"> <li>• Time taken to Clear passengers and cargo</li> <li>• Revenue Collection rate</li> </ul>
<b>Egypt</b>	1.Trade facilitation	<ul style="list-style-type: none"> <li>• Reduction in clearance time.</li> </ul>
<b>South Africa</b>	1.Revenue Optimization 2.Trade facilitation and risk reduction	<ul style="list-style-type: none"> <li>• Targeted collections.</li> <li>• No of cargo stops and their success rate</li> </ul>
<b>Japan</b>	1.Trade facilitation and risk reduction	<ul style="list-style-type: none"> <li>• Time required to release goods</li> <li>• No of importers benefiting from cargo fast tracking.</li> </ul>
<b>Jordan</b>	1.Internal Processes	<ul style="list-style-type: none"> <li>• Customs Clearance time</li> <li>• Revenue collected from Post clearance audits</li> </ul>
	2. Customer Satisfaction	<ul style="list-style-type: none"> <li>• No and types of complaints</li> <li>• Client perception of integrity</li> </ul>
	3. Learning and growth	<ul style="list-style-type: none"> <li>• No of training courses</li> <li>• No of IT systems implemented</li> <li>• Employee satisfaction/motivation</li> </ul>

Source: Developed by researcher based on information from Seth (2010) on Performance Measurement in Customs.

The available literature overwhelmingly supports trade facilitation and revenue collection as measures of customs performance. The resulting KPI's being cargo clearance times (for trade facilitation measurement) and revenue collected in comparison to the set targets for (revenue performance measurement). From a customs perspective, the Key objectives which were envisaged by the modernization in the Kenyan context were majorly trade facilitation, revenue collection and customer satisfaction through process efficiency.

### **2.4.1 Measuring of Customs Border Efficiency**

One of the most commonly used performance indicators to measure customs effectiveness is the time it takes for customs to clear goods (Raballand, 2005). This is usually referred to as a time release study. Border efficiency aims to measure the level of customs efficiency, which is reflected in the time required for export and import procedures. (Perez and Wilson, 2010).

Fitzmaurice and Hartmann (2013) show that trucks get to their destinations faster due to shorter border crossing times, which has two immediate consequences. First, retailers receive their goods earlier and, second, transportation companies can make more trips per year and thus increase their sales. For Customs administrations, shorter border crossing time implies efficiency at the border which enhances their performance score. Yang, (2017) posits that generally waiting and processing times at borders account for up to 50% of total transit times along international trade routes.

Orliac (2012) notes that time release studies (TRS) provide an effective assessment of customs operations at the border. This is because TRS provides a consistent way to measure the time it takes to clear goods for release at each step. Zhang (2009) refers to TRS as a systematic and standard method for measuring the average time required to release a consignment for each step at the border. This highlights the usefulness of TRS as a measure of the efficiency of cross-border points.

The importance of the TRS in measuring the efficiency of customs at the border posts and by extension providing insights into trade facilitation has been stressed in theoretical literature. Matsuda (2012) emphasizes the importance of TRS as a unique tool in measuring the actual performance of border activities as well as customs procedures due to its direct relationship to trade facilitation at the border. He similarly

points out that TRS has been recognized by International Institutions such as World Bank, the Asian Development Bank (ADB), the United States Agency for International Development (USAID), the Swedish International Development Cooperation Agency (SIDA) and Japan International Cooperation Agency (JICA) as an invaluable performance measurement tool in as far as trade facilitation is concerned.

Holloway (2010) comments on the usefulness of TRS as a performance indicator at the border. He notes that TRS has become a key performance indicator in measuring the efficiency of border management. In the same breadth, Matsuda (2012) observes the growing role of TRS in border efficiency. He points out that, TRS is increasingly being seen as a valuable instrument for finding possibilities to improve border-related procedures in order to achieve more efficiency and effectiveness.

Orliac (2012) opines that TRS is an important tool to customs authorities in the designing and measuring of trade facilitation policies. As such TRS helps in the identification of bottlenecks in the customs clearance process as well as opportunities that could be utilized in enhancing the effectiveness and efficiency of customs procedures at the border posts.

According to Makunike (2015), TRS is a diagnostic tool that is used to reveal delays in the customs clearance process. It is hence one of the methods used in reviewing the clearance procedures through the measuring of the average time taken between arrival of the goods and their release. As such TRS plays an integral part in assessing border efficiency in as far as clearance of cargo is concerned and helps identify delays associated with the customs related processes with the aim of implementing workable solutions and further enhance trade facilitation.

Time-release data is a powerful efficiency assessment tool that can be used to measure the efficiency of customs services and monitor progress (De Wulf, 2005). According to Ireland et.al (2011), TRS can be used to measure customs clearance time or goods release time by all border authorities. The Organization for Security and Co-operation in Europe (OSCE, 2012) emphasizes the importance of TRS and recognizes the key role of TRS as a tool that provides industry with a measure of the performance effectiveness of border authorities in handling timely release of consignments.

Zhang (2009), identifies two methods in which TRS can be approached. The first method involves analysing only the customs procedures, while the second entails the whole clearing process. The first approach also known as the customs-oriented approach is a simple approach which is also recommended by the WCO. The customs oriented approach seeks to isolate other processes that are involved in the clearing of goods which are not related to customs or which customs does not directly participate in. Thus, this approach only focuses on those processes which are carried out by customs in the clearance of goods. According to the WCO TRS Guide (2018), it is possible for the TRS Study to cover only that part of the national clearance process which is directly related to Customs.

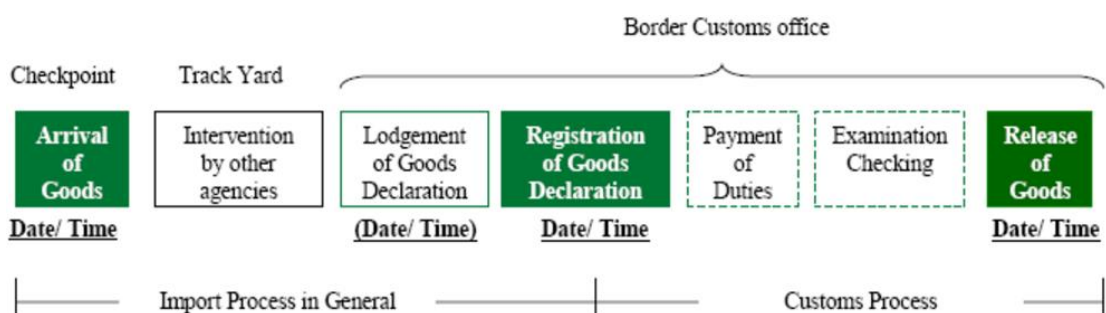
TRS as a measurement tool for trade facilitation has been approved by the World Customs Organization to measure the time it takes for authorities to release goods. In addition, Article 7.6.1 of the TFA encourages WTO members to regularly and consistently measure and publish their average release times for goods using tools such as the WCO Release Time Survey. (WCO TRS Guide, 2018) This instrument aims to accurately measure the effectiveness of border processes related to trade flows, in particular the clearance and release of goods, and helps identify associated bottlenecks,



so that appropriate policy related solutions can be properly designed and effectively implemented. Thus, due to the significance and theoretical evidence of TRS as a measure of border efficiency, the measurement of procedural formalities will follow a time release study model using primary data on cargo clearance collected from KRA.

To distinguish the responsibility of different actors within customs, the research will take a customs-oriented approach. The customs oriented approach seeks to isolate other processes that are involved in the clearing of goods which are not related to customs or which customs does not directly participate in i.e. arrival of cargo, unloading and the roles played by other government agencies. Thus, this approach only focuses on those processes which are carried out by customs in the clearance of goods.

Specifically, the study will look at one distinctive time period i.e. the time period between lodgement/ registration of the declaration and release of the goods by customs at the border point. This will provide a good assessment of the efficiency of the customs related procedures at the key OSBP's selected as the subject of this study. The diagram below shows a representation of the customs clearance process.



**Figure 2. 4: The Customs Clearance Process**

Source: Kenya Revenue Authority Presentation at the 2nd WCO ESA Regional Customs Research Conference 23-24 November 2017

### **2.4.2 Measuring of Customs Revenue Performance**

Seth (2010) and Holloway (2011) identify revenue as an integral part of the performance of customs administrations. Similarly, the WCO's SAFE framework of Standard's recognize revenue collection as a prominent feature among the roles of customs administration. In this regard it is important to determine how revenue performance in customs administration is measured. The WCO diagnostic framework identifies revenue collection as an indicator of customs performance and sets the measurement criteria as the actual revenue collected Vs the forecast/targeted revenue.

For purposes of measurement, the WCO diagnostic framework identifies customs revenue as relating to import duty, excise duty and VAT. Montagnat-Rentier (2019), is more specific in identifying what constitutes customs revenue. He asserts that customs revenue refers to customs duties and indirect taxes on import (i.e. value-added tax (VAT) and excise duties), which are collected by customs services in the same way as customs duties.

Other measurement criteria can be obtained from the Trade and Transport Facilitation in Southeast Europe (TTFSE) Program. The program identifies the KPI's for measuring revenue performance in terms of Customs efficiency ratios. Therefore, rather than looking at revenue in isolation, the TTFSE takes a ratio approach where revenue performance is looked at as a proportion of another variable. Based on this approach we obtain customs efficiency ratios relating to revenue such as; Revenue collected/customs staff (i.e. revenue collected as a proportion of total number of customs staff) and Revenue collected/salaries (i.e. revenue collected as a proportion of salaries paid to customs staff).

The study will adopt the measurement criteria established by the WCO diagnostic framework and measure customs revenue performance at the key OSBP's based on the total revenue collected as compared to the targeted revenue.

## **2.5 Empirical Review**

The empirical review of literature in this chapter will focus on studies carried out in as far as customs modernization variables are concerned. These variables are automation, border efficiency and human resource management. The literature will be reviewed in line with the objectives of the study for the purpose of appreciating the methodology used, the observations made and the conclusions reached. This eventually will guide the research gap upon which our study will be based.

### **2.5.1 Automation and Customs performance**

Various studies have been conducted to examine the effect of automation in customs administration. Mwati (2014), examined the effectiveness of the computerized system in KRA on the performance of customs and border control. The researcher conceptualized Cargo security, tax clearance, tax administration and revenue collection as the independent variables which affect customs performance. The study used descriptive research as the design, with primary data collected using a self-administered questionnaire as the main data collection tool. The survey targeted a population of 120 employees, consisting of managerial, technical and support staff. The staff were sampled from across three customs stations namely, Malaba, Kilindini and Times Tower. The study found that computer systems made have made a positive contribution to the performance of the customs department. More specifically, two independent variables i.e. cargo security and tax clearance time were found to have a positive significant impact on the performance of customs department.

Gidisu (2012), carried out a study to investigate the effectiveness of automated system procedures on revenue collection at Ghana Revenue Authority's Customs department. Forty customs officials from the Ghana Customs Authority, constituted the sample population with the data collection tool being a structured questionnaire. The study adopted a descriptive survey design. The study concluded that system automation has a positive impact on tax administration costs and revenue collection efficiency. Additionally, the study found that automation was significantly related with customs clearance time, which is a key measure of customs efficiency. The study further pointed out that the primary aim of computerization (automation of systems) should be to dramatically increase revenue collection in order to effectively sustain the systems utility and generate an acceptable return on investment related to the system.

Nkote and Luwugge (2010) investigated the introduction of automation by Ugandan customs authorities and their effect on the efficiency of tax administration. The purpose of the study was to establish the relationship between customs automation and tax administration efficiency. A cross-sectional design project with a sample of one hundred and nine employees from all URA departments was adopted. The study conceptualized the cost of tax administration, effectiveness of revenue collection and clearance time of tax declarations as the independent variables of the study, while tax administration efficiency was the response variable.

The study concluded that there was a positive correlation between; Customs automation and revenue collection efficiency, implying that revenue collection efficiency increased with increasing computerization. Similarly, the study also identified a significant and negative relationship between automation and clearance time of tax declarations, implying that the time taken to clear tax declarations reduced with increased computerization of tax

administration at URA. These results demonstrate the efficiency that can be achieved by automating the customs process. However, the study found that the automation of customs tax administration did not result in tax collection efficiency as envisaged. This was due to the partial automation of the customs department. The results show that while automation is a good strategy to improve customs efficiency, full implementation of the automation initiatives must be ensured for the potential benefits to be realized.

Ayodeji (2014) examines the effects of ICT in tax administration in Nigeria. The study found that ICT plays an important role in increasing income and ensuring compliance in Nigeria, which increases productivity and economic activity in the country. Sigey (2010) conducted a study to assess the impact of automation as a strategy on customs procedures in KRA. The study sought to find out whether the automation of the customs department leads to efficient service provision and improves the work of the customs department. The study found that the Simba system not only increased departmental efficiency, but also improved staff skills, reduced departmental administrative costs, and increased accountability in the customs department.

The studies by Mwati (2014), Gidisu (2012), Nkote and Luwugge (2010), Ayodeji (2014) and Sigey (2010) underpin the argument of automation as a critical factor in performance improvement. The results are not in doubt and can be seen in the form of increased customs efficiency as noted by Mwati (2014) and Sigey (2010), as well as improved revenue collection as observed by Ayodeji (2014). Customs systems automation has thus been known to increase efficiency, speed of clearing of goods, real-time access to information and reduction of cumbersome manual processes. As such, this study will look at both revenue and customs clearing efficiency as components of customs performance

and hence the proposed hypothesis ( $H_{01}$ ) There is no statistically significant relationship between Systems Automation and customs performance at key OSBP's in Kenya.

### **2.5.2 Coordinated Border Management and Customs Performance**

Available empirical evidence on the question of border efficiency allude to the importance of time as a critical determinant of trade facilitation. The importance of time in promoting trade has been evaluated in several studies. It is important to note that modernization initiatives aim to enhance efficiency and accelerate trade through reducing as much as possible the time it takes to clear goods at the border. It is this efficiency in terms of reduced customs clearance time that is a key performance indicator in measuring the performance of customs.

Oloo (2017), made an inquiry on the quality of service and process efficiency focusing on the Malaba and Busia border posts. The research sought to establish if there was a relationship between quality of service, (which was analysed based on OSBP, automation and training), and customs performance in terms of efficiency at the borders. Border efficiency was measured in terms of clearance time (of both goods and people) which was the dependent variable while the explanatory variable was automation, training and the OSBP concept. The research utilised a case study approach using a mix of both primary data collected using self-administered questionnaires and secondary data collected from the economic surveys of 2016-2018. The research found that border efficiency was enhanced as a result of an improvement in the quality of service as determined by the improvement in OSBP operations, rollout of automation and proper training of customs officers. As such there was a relationship between border efficiency and the quality of service. In essence, the study found that there was an improvement in customs performance in terms of efficiency attributed to the service quality variables of OSBP,

automation and staff training. This was depicted by a correlation coefficient of 63.9% indicating that 63.9% of the independent variables correlate to the dependent variable.

Cheruiyot (2018) assessed the implementation of the one-stop border strategy and its impact on the Kenyan border, focusing on the Malaba crossing point. The study was guided by four specific objectives namely, to assess the impact of technology, infrastructure, stakeholder engagement, and human resources on the implementation of a one-stop-shop strategy at the Malaba border in Kenya. The study focused on the key agencies at the border who included, KRA, Immigration, KEBS and KENTRADE employees. Employing a descriptive research design, the study found that the main effect of establishing the OSBP at the Malaba border has been efficiency of customs and other government agencies by avoiding unnecessary duplication in the cargo clearance process.

Hummel and Shuar (2013) show that shortening the transit time by one day can have an impact on trade, through stimulating trade with an effect equivalent to a decrease in ad valorem tariffs by 0.6 to 2.1 percent. Their results are consistent with many results in the literature that view time as a trade barrier (Nordas et al., 2006). Similarly, Djankov, Freund, and Pham (2006) focusing on time as a critical element of trade facilitation find that each additional day a product delays before delivery, reduces trade by at least 1 percent on average.

Further empirical evidence points to the importance of time as a trade determinant. Nordas, Pinali and Grosso (2006) analyzed the relationship between import and export processes, logistics services and international trade. Based on their analysis, they find that time delays result in lower trading volumes and can reduce the likelihood of firms entering export markets for time-sensitive products.

Wilmott (2007) emphasizes the negative effect of boundary delay. He points out that delay creates uncertainty about product delivery dates, which not only affects the company's reputation but also hampers trade. It is estimated that a country's export trade decreases by more than 1% for each additional day of product delayed before shipment. Additionally, the effect of such delays is worse on time-sensitive agricultural goods where a delay of a single day has the potential of reducing the value of a country's export by up to an average of 7%.

Portugal-Perez and Wilson (2010) provide evidence of the significance of trade facilitation measures in Africa where trade costs are considerably higher compared to the rest of the world. They estimate that trade facilitation measures could yield increased trade flows, significantly as compared to substantially cutting of tariffs. Giving an example of Ethiopia, they show that improving logistics in Ethiopia to the extent of one standard deviation is equivalent to 7.6 percent decrease in ad-valorem tariff.

Additional empirical evidence is found from the work of Freund and Rocha (2010). Using detailed data related to transits, documentation, customs related delays and delays at African ports collected by Doing Business at the World Bank, they found that transit delays have the largest statistically significant impact on African exports. They find that reducing domestic travel time by one day resulted in a 7% increase in exports.

From the empirical review, it is clear that time is a critical factor in as far as trade facilitation and by extension border efficiency is concerned. Similarly, delays in transit times and customs formalities have been found to reduce trade volumes and thereby negate trade. As such, the available empirical evidence is overwhelming in its focus on time as a critical determinant of border efficiency. Hence, the study aims to test the



hypothesis (**H<sub>02</sub>**) There is no statistically significant relationship between Coordinated Border Management and customs performance at key OSBP's in Kenya.

### **2.5.3 Human Resource Development and Customs Performance**

Lushchak and Bespalyuk (2013), explore the topic of modernization as a process of change management in organizations. They find that organization change efforts usually run into some form of resistance as people are often afraid. This implies that resistance from employees is a critical factor that hinders successful change management. As such, it is incumbent upon management to identify these types of resistance and apply relevant strategy to minimize the resistance, if successful modernization of the customs operations is to take place.

Bhero and Hoffman (2014), while analysing the optimization of border post clearance through the use of Radio Frequency Identification Technology (RFID), review previous studies carried out at the Chirundu OSBP located between Zambia and Zimbabwe. In their review they cite previous reports which found that the failure of the Chirundu OSBP, as characterised by the doubling of the document processing time and increase in the driver idle time by about 27%, was mainly due to human conduct. As such they conclude that the automation of most of the operations at the border posts, should be accompanied by close monitoring of human conduct to foster accountability. This conclusion underpins the importance of human resource in the modernization of OSBPs.

Cantens, Raballand and Bilangna (2010) conducted a study on Customs Reform by Measuring Efficiency, which focused on Cameroonian customs. The study found that after four months of enacting a performance contract between the director general and a number of front-line customs officials, preliminary results showed less corruption,

higher revenue collection, and shorter discharge periods. This observation reinforces Bhero and Hoffman's view of closely monitoring human resources to increase accountability and, in turn, increase productivity.

The results of the studies by Lushchak and Bsepalyuk (2013), Bhero and Hoffman (2014) and Cantens, Raballand, and Bilangna (2010), outline the importance of people as important resources within an organization set up. However, these studies failed to address key elements of Human Resource Development (HRD), like staff development and training, and its effect on customs performance. Lushchak and Bsepalyuk (2013), while acknowledging the importance of employee involvement in change management, are silent on the forms of interventions that are to be implemented in order to have a positive shift in behaviour which in turn contribute to improved performance. Bhero and Hoffman (2014), allude to the importance of monitoring human conduct to foster accountability and efficiency at the OSBP's, but fail to explore the possible Human Resource Development actions that could be taken to do this for improved performance. While Cantens, Raballand, and Bilangna (2010), demonstrate the importance of performance contracting, they exclude other critical HRD measures like motivation and training.

For successful modernization, the resistance that usually is experienced during the introduction of change must be stemmed. This calls for human resource development in the form of training and appealing to other aspects of the employee such as career progression and motivation to ensure that the employees develop the right skills and attitudes which in turn will impact on their behaviour with the result being improved performance. Thus, the purpose of this study is to determine the impact of HRD on customs performance at major OSBPs and to evaluate the hypothesis **H<sub>03</sub>**: There is no

statistically significant relationship between Human Resource development and customs performance at key OSBP's in Kenya.

## **2.6 Research Gap**

The available research so far on the subject of customs modernization and how it affects customs performance has been overwhelming in its analysis of automation/ICT and its effect on customs operations. This is seen by research carried out by Oloo (2017) on the quality of service and process efficiency focusing on the Malaba and Busia border posts, Mwati (2014), who examined the effectiveness of the computerized systems in KRA on the performance of customs and border control focusing on Malaba and Kilindini, Sigey (2010), whose study assessed the impact of automation as a strategy on customs clearing procedures at KRA and Cheruiyot (2018), who assessed the implementation of one stop border post strategy at the Malaba border post, with implementation of technology being one of the drivers of OSBP implementation strategy. However, there has been little study carried out on the impact of other modernization factors such as border management and staff training and development on the performance of customs administration. Buyonge (2007), identifies the critical role of staff in the modernization journey and posits that as modernization reform bring about changes in different areas of customs, the human resource must also be transformed. Buyonge's sentiments are shared by Lushchak and Bessalyuk (2013) who note that in the centre of any modernization process is a person and as such the Organizations don't change, but it is the people who change and in turn change the organization.

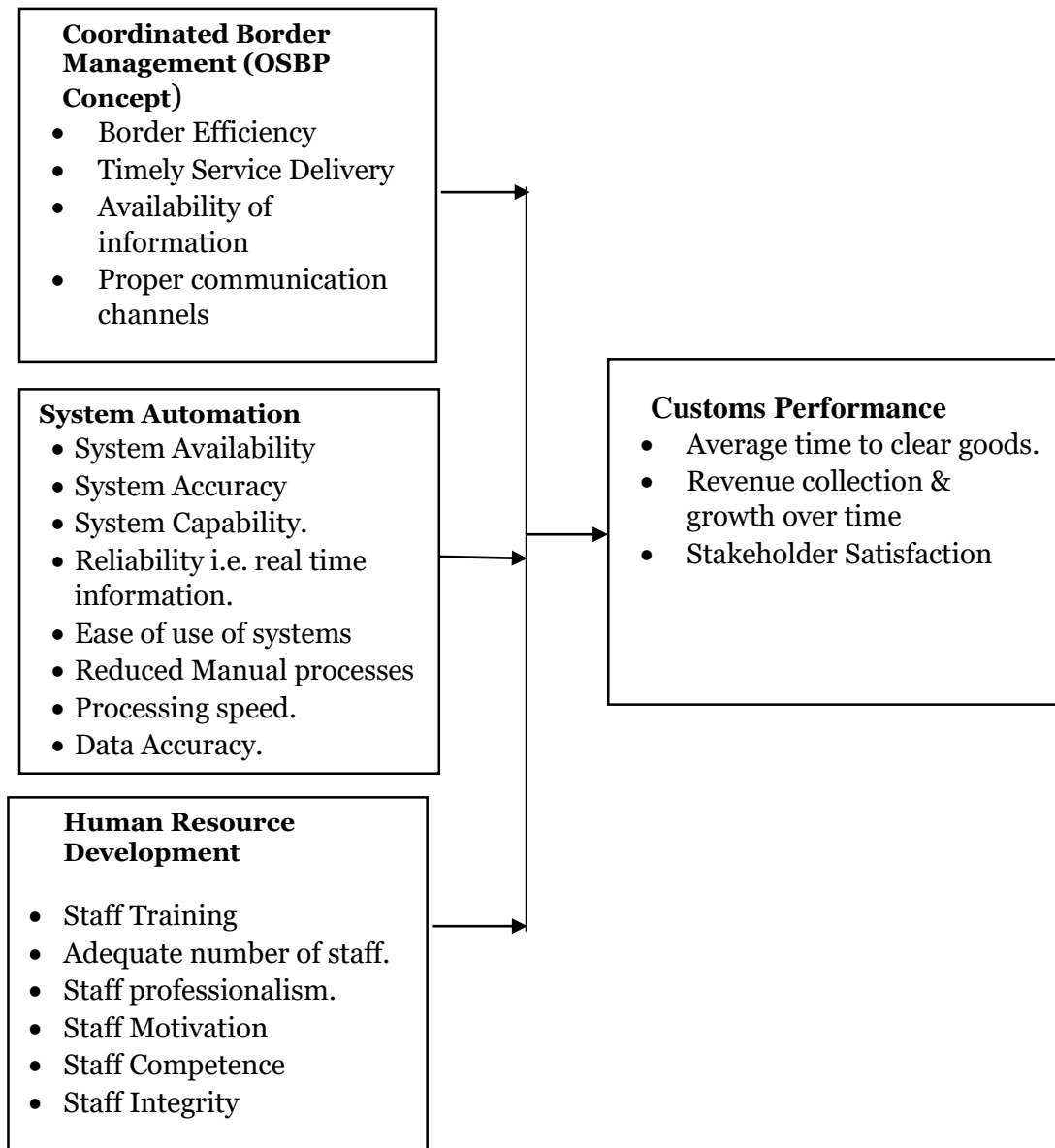
Similarly, research carried out so far has concentrated on the aspect of customs clearance as the major performance measure in customs administration thereby

overlooking revenue performance which is one of the main reason why modernization initiatives are carried out.

In Kenya, research carried out has focused mainly on Malaba and Busia with very little literature available on operations of other OSBP's such as Namanga and Lungalunga which are also the subjects of this study. Due to this, there has not been an in depth analysis of modernization in as far as customs performance is concerned across major OSBP's in Kenya, in a bid to determine how modernization initiatives have impacted the performance of customs across these OSBP's. It is thus against this background, that this study is proposed to assess the effect of customs modernization on the performance of key OSBP's in Kenya, and in so doing address the noted research gap.

## **2.7 Conceptual Framework**

The study conceptualized that customs performance could be affected by three explanatory variables i.e. customs automation, border efficiency and Human Resource management. It demonstrated the link between the independent and dependent variables. This study's conceptual approach demonstrated how independent variables influence customs performance. The study's goal was to see how these variables affected customs performance in terms of border efficiency as assessed by cargo clearance time and collected revenue. The study's conceptual framework is presented in Figure 2.2 below.

**Independent Variables****Dependent Variables****Figure 2.5: Conceptual Framework**

Source (Researcher, 2021)

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter describes the methods used to provide answers to the research objectives of the study, as described in Chapter 1. The following aspects of the survey methodology are discussed: survey design, target population, sample frame, sampling procedures, data collection instruments, procedures data collection, operationalization of variables, data analysis, and finally ethical questions related to research.

#### **3.2 Research Design**

The research design addresses important issues related to the research project, such as research objectives, research location, type of research, level of research intervention, time horizon, and unit of analysis (Sekaran & Bougie, 2010). This is important because research is not just about gathering facts without a goal, or presenting information or data without interpretation (Walliman, 2005). Therefore, systematic research should be carried out. According to Saunders, Lewis & Thornhill (2009), data is collected and interpreted systematically and there is a clear objective that guides the research. Walliman (2017) identifies the importance of research design. It defines the methods and procedures for collecting and analyzing the required information.

According to Mugenda and Mugenda (2008), descriptive design is a method that allows researchers to summarize and organize data in an efficient and reasonable manner. Cooper and Schindler (2003) describe descriptive research as one that is concerned with discovering the what, where, and how of a phenomenon. According to Tewksbury (2009), descriptive design is suitable because it is cheaper and allows researchers to study data from a wider area in a short time. Best and Khan (2003) opine that descriptive

designs provide a qualitative or digital description of population trends, attitudes and perceptions by examining a sample of the population.

The study adopted the descriptive research design which attempted to examine the effect of customs modernization initiatives on customs performance across the selected Key OSBP's in Kenya. This was carried out in the form of a survey. This research strategy gives the researcher more control over the research process and by using a sample it is possible to produce results that are representative of the entire population (Shivani, 2019). Because the interest of this study is to determine the effect of the dependent variable on the independent variable without manipulating the variables, the descriptive design was considered appropriate.

### 3.3 Population

Sekaran & Bougie (2010), define a study population as the complete group of individuals or companies that the researcher wishes to investigate. Mugenda and Mugenda (2003) also refer to the population under study as a whole group of individuals or objects considered in each study area and have the same characteristics. The target audience of this research was 163 customs officers and clearing agents working at the border posts.

**Table 3.1: Population Table**

<b>Station</b>	<b>Customs Staff</b>	<b>Clearing Agents</b>	<b>Total</b>
<b>Malaba</b>	46	12	58
<b>Busia</b>	34	7	41
<b>Lungalunga</b>	13	9	22
<b>Namanga</b>	33	9	42
<b>Total</b>	<b>126</b>	<b>37</b>	<b>163</b>

### **3.4 Sampling Design**

The approaches of the procedure that the researcher would use in selecting items for the sample are referred to as sampling design. Mugenda (2012) defines sampling design as the procedure by which the researcher selects a particular sample from a population. According to Heeringa & O’Muircheartaigh (2010), an optimal sample design is one that maximizes the amount of information obtained within the allotted time and meets the specified level of precision. Purposive sampling enables the researcher to select samples that possess certain required attributes from the entire population. The researcher is hence able to use cases that have the required information with respect to the objectives, while maximizing the allotted time and obtaining the richest information. The research adopted purposive sampling, which is a non-probability sampling technique, as the design for the study.

#### **3.4.1 Sampling frame**

Turner, (2003) defines sampling frame as set of source materials from which the sample is selected. Sampling frames therefore significant since they allow for the selection of specific members of the target population to be interviewed in a survey. According to Kabir (2018), a sampling frame is a list of objects from which the sample will be selected. With this understanding the sample frame of the study was the key OSBP’s i.e. Malaba, Busia, Lungalunga and Namanga which were the subject of the study, from where the customs staff and clearing agents were drawn for interview.

#### **3.4.2 Sampling Technique**

The target sample size for this study was determined using the stratified random sampling method. Stratified random sampling involves a separation process, followed by a random selection of subjects from each stratum. It is the most effective of all



probability sampling techniques because it ensures that all groups are sampled. (Kothari, 2004). The stratified random sample also ensures that the sample contains approximately the same proportion of the specified criteria as in the study population (Omar, 2014).

According to Cooper and Schindler (2006), when using proportional sampling, each strata is correctly represented because it provides a self-weighted sample; the share of the population can be estimated simply by calculating the share of all samples. Using this technique, strata was formed based on the customs officers and clearing agents station of operation. A sample was then taken from each stratum proportionately to the population. The study used customs officers and clearing agents station of operation as strata and then randomly selected the final subjects proportionally from the different strata.

### **3.4.3 Sample Size**

The sample should be of the required size to have the required accuracy of results and to identify significant differences/associations that may exist in the study population. (Israel, 2009). Factors to consider in determining the required sample size include the size of the study population (from which a sample should be selected), the level of confidence (usually set at a 95% confidence level), the expected spread or variance of the main target variable examined and the required margin of error that is acceptable for the research (Kadam & Bhalerao, 2010). Due to the fact that the population of this study is heterogeneous in terms of experience and years of service of the staff, the responses may be different and thus this necessitated the use of a statistical approach in determining the sample size. The study adopted a significance level of 95% and a level of precision otherwise known as sampling error/ margin of error of 5%. The sample

size of the study was thus determined using the Slovin formula ( $n = N / (1 + Ne^2)$ ). The sample size (n), consisting of 116 participants, was calculated as given below:

$n = N / (1 + Ne^2)$  Where:

n = ideal sample size

N = Population, 163

E = margin of error, 0.05

Therefore,  $n = 163 / \{1 + 163(0.05^2)\}$  n = 116

**Table 3.2: Sample Matrix**

Customs Station	Population of Customs Staff	Proportion of Customs Staff	Sample Staff	Population of Clearing Agents	Proportion of Clearing Agents	Sample Clearing Agents	Total
<b>Malaba</b>	46	28%	<b>33</b>	12	7%	<b>9</b>	42
<b>Busia</b>	34	21%	<b>24</b>	7	4%	<b>5</b>	29
<b>Lungalunga</b>	13	8%	<b>9</b>	9	6%	<b>6</b>	15
<b>Namanga</b>	33	20%	<b>24</b>	9	6%	<b>6</b>	30
<b>Total</b>	<b>126</b>	<b>77%</b>	<b>90</b>	<b>37</b>	<b>23%</b>	<b>26</b>	<b>116</b>

### 3.5 Data Collection

Data collection is a procedure of gathering information from all the relevant sources by responding to the questions through writing, interview, observations or content analysis (Daniel and Harland, 2017). The study relied on primary data. Primary data was obtained through a self-administered questionnaire which was availed to the respondents. The questionnaire is a research tool consisting of a series of questions to collect respondents' answers in a standardized manner (Bhattacharjee, 2012). The questionnaire was structured to ensure standardization and followed an ordinal Likert scale. Respondents expressed their opinion about their level of agreement with the statements provided on a 5-point Likert scale. The scales ranking contained the

following points i.e. (1) strongly disagree: (2) disagree (3) neutral, (4) agree: (5) strongly agree. The questionnaire was designed to address the research objectives and hypothesis. The questionnaire apart from being an effective tool for gathering primary data, was also chosen by the researcher due to the need to uphold the privacy of the respondents which would facilitate obtaining of accurate responses.

### **3.6 Pilot Testing**

A pilot study is a preliminary mock study that precedes the actual study (Gatheru, 2015). The mock study is important because it enables the researcher to gauge if the instruments of data collection are working correctly as anticipated. According to Saunders et al. (2007) questionnaires need to be experimented on a limited population, to assess the difficulties that might be encountered in answering the questionnaire and while recording data. Therefore, to check the validity and reliability of the questionnaires in gathering the data required for purposes of the study, a pilot study was carried out.

Cooper & Schindler (2006) suggest that participants in trials should not be statistically selected when testing instrument validity and reliability. According to Mugenda and Mugenda (2003), a relatively small sample of 10% of respondents is sufficient for a pilot study. Thus the pilot test was conducted on 12 customs officers using a questionnaire. These respondents were randomly selected from among staff at the Malaba OSBP, and were not included in the final study as a way of controlling response bias.

#### **3.6.1 Reliability**

Reliability refers to a measurement that gives consistent results with the same value (Blumberg, Cooper & Schindler, 2005). This is the degree to which a measurement is

free from random error and therefore gives consistent results. It thus indicates the internal consistency of the measuring instrument. (Khalid, Hillman & Kumar, 2012). According to Mugenda and Mugenda (2003), reliability refers to a measure of the extent to which research instruments provide consistent results. The most commonly used method to assess reliability is Cronbach Alpha. Khalid, et al. al, (2012), point out that it is important to calculate Cronbach's alpha if the researcher chooses to use this scale, because many research tools use a Likert scale.

**Table 3.3: Cronbach's alpha internal consistency**

<b>Cronbach's alpha</b>	<b>Internal consistency</b>
$0.9 \leq \alpha$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

Alpha values above 0.7 are generally considered acceptable and satisfactory, above 0.8 as generally good enough, and above 0.9 as an expression of outstanding internal consistency (Cronbach, 1951). As a general rule, the higher the score, the more reliable the scale. With this in mind, Cronbach's Alpha was used to test the reliability of the research tool.

### **3.6.2 Validity**

Validity is the extent to which an instrument measures what it asserts to measure (Blumberg, Cooper & Schindler, 2015). According to Robson (2011), validity of a research instrument assesses the extent to which the instrument measures what it is designed to measure. Validity thus refers to the accuracy of a measuring instrument and the ability of the measuring scale to measure that which it is intended to measure. In this study both content validity and construct validity were adopted. Content validity

refers to the extent to which questions about the tool and the results of these questions represent all kinds of questions that can be asked. (Creswell, 2005). Sekaran, (2003) states that content validity can be guaranteed with the approval of experts. Therefore, expert advice was sought to clarify the representativeness and suitability of the questions in the questionnaire, as well as suggestions for correcting the structure of the research instrument. This helped increase the content validity of the data collected.

Construct validity, on the other hand, is the extent to which a research instrument can provide theory-based evidence (Cooper & Schindler, 2006). Saunders et al. (2007) define the validity of a construct as the extent to which the measurement question actually measures the existence of the construct that the researcher wants to measure, such as tests of attitudes, abilities, and personality. To ensure design validity, the questionnaire was divided into several sections, with each section evaluating information about a specific objective and relating it to the conceptual framework of the study. Construct validity was also measured using Kaiser-Meyer - Olkin (KMO), where KMO above 0.5 was considered valid.

### **3.7 Data Analysis and Presentation**

#### **3.7.1 Data Analysis**

Data analysis is the processing of collected data to turn it into meaningful information. defines data analysis as a mechanism for breaking down and organizing data to produce results that require interpretation by the researcher. Data analysis refers to the process of manipulating and reducing accumulated data to a manageable size, making summaries, searching for models, and applying statistical techniques (Cooper & Schindler, 2006). According to Sekeran (2006), data analysis involves the reduction and organization of data to produce results which will be interpreted by the researcher.

Thus, data analysis aims at processing the collected data to make sense out of it. The data collected via the use of the questionnaires was validated, coded, entered and cleaned, using the Statistical Package for the Social Sciences (SPSS) software.

Then thereafter, the researcher ensured that the information captured was accurate, consistent and uniformly entered. Both descriptive and inferential statistics were used by the study. Descriptive statistics was analyzed in form of the frequency, percentages, mean, and standard deviation. Inferential statistics was analyzed based on the coefficient of correlation, coefficient of determination  $R^2$  for model goodness of fit i.e. how much variation in Y is explained by X, analysis of variance (ANOVA) for model significance using the **F-test** at a confidence level of 95%, and regression model. SPSS software was utilized as the data analysis tool to accomplish efficiency and effectiveness in analysis. The regression estimation model of the relationship between Customs Performance and the independent variables was expected to be:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e \text{ where;}$$

Y = Customs Performance

$\beta_0$  = Value of the constant

$X_1$  = Coordinated Border Management

$X_2$  = Systems Automation

$X_3$  = Human Resource Development

e = Error Term

$\beta_1, \beta_2$  and  $\beta_3$  = Regression Coefficients of  $X_1, X_2$  and  $X_3$  respectively

The following assumptions of the multiple regression analysis were addressed.

- i. Homoscedasticity: the variance of the error term was constant.

$$\text{Var}(e_i) = E[e_i - E(e_i)]^2 = E(e_i)^2 = \sigma^2$$

- ii. Normality: the error term followed a normal distribution with a mean of zero and a variance of  $\sigma^2$ ,  $e_i \sim N(0, \sigma^2)$
- iii. Linearity: linear relationship between the dependent variable and the independent variables:  $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + u$
- iv. Zero multicollinearity:  $\text{corr}(X_1, X_2) = 0$ : no correlations among the independent variables ( $X_1, X_2, X_3$ ).
- v. Zero correlation between the independent variable and the error term;  $\text{Cov}(X_i, e_i) = 0$
- vi. Zero autocorrelation: The error term in period ( $i$ ) and the error term in period ( $j$ ) not corrected.  $\text{Cov}(e_i, e_j) = E[(e_i)(e_j)] = 0$ . For all  $i \neq j$
- vii. No outliers in the data.
- viii. The expected value or the mean of the error term was zero

$$E(e_i) = \frac{\sum e_i}{n} = 0$$

Where  $n$  is the sample size,  $\sum e_i$  is the sum of residual

### 3.7.2 Data Presentation

For simplicity of interpretation and presentation, the results of the study were presented using visualization tools in the form of summarized tables and graphs. These presentation techniques were favourable due to their simplicity and relative ease of

comprehension. Lee and Junyong (2017), allude to the usefulness of tables and graphs in data presentation. They show that tables are best for presenting individual information and contain both quantitative and qualitative information. On the other hand, they explain that graphs are a very effective visual tool because they can display data at a glance, make comparisons easier, and show trends and relationships in the data, such as changes over time and frequency distributions.

### **3.8 Diagnostic Tests**

Diagnostic testing was conducted to establish the fitness of variables for inferential statistical analysis and to ensure that the assumptions of multiple regression analysis are not violated. The data was subjected to normality, linearity, multicollinearity, heteroscedasticity and homogeneity tests as follows.

#### **3.8.1 Normality Test**

The Shapiro-Wilk test was used to show the normality of the data based on the p-value. The null hypothesis is rejected if the p-value  $< 0.05$ , which indicates that the data are not normally distributed (Shapiro and Wilk, 1965; 48 Razali and Wah, 2011). On the other hand, the null hypothesis is accepted if the p-value  $> 0.05$ , which means the data is normally distributed.

#### **3.8.2 Linearity Test**

Linearity test measures the strength or degree of linear association between correlated variables represented by a straight line. A scatter plot that illustrates a linear relationship between the predictor and the response variables was used to confirm that the assumption of linearity has not been violated.



### **3.8.3 Multicollinearity Test**

Multicollinearity occurs when independent variables are correlated. This is a violation of the Simple Least Square (OLS) assumption. The following two tests were conducted to test multicollinearity, namely the coefficient of variance inflation (VIF) and the tolerance value. According to Pallant (2011) there is no multicollinearity with VIF values between 1-10, whereas with  $VIF > 10$  multicollinearity occurs. For the value of tolerance test any Tolerance value  $< 0.1$  indicates that there is multicollinearity.

### **3.8.4 Heteroscedasticity and Homogeneity Test**

Heteroscedasticity occurs when the variance of the error term is not constant. It is a violation of the Ordinary Least Square (OLS) assumption of homoscedasticity. Heteroscedasticity was tested using the scatter diagram. The diagram showed a visual representation of the distribution of the error term thereby determine if the assumption of heteroscedasticity is violated or not.

### **3.8.5 Autocorrelation Test**

The Durbin-Watson statistical test tests that the residues of the simple least square regression model are not automatically correlated. The Durbin-Watson statistic ranges from 0 to 4. A value greater than 2 indicates non-autocorrelation; values up to 0 indicate positive autocorrelation, while values up to 4 indicate negative autocorrelation. The Durbin-Watson test was used in this study because residual independence is one of the main hypotheses of regression analysis.

## **3.9 Test of Hypothesis**

Hypothesis testing assesses if a certain premise is actually true for your data set or population. (Begum & Ahmed, 2015). The study utilized inferential statistics in testing the hypothesis. Triola (2008), asserts that one of the objectives of inferential statistics

is to test hypotheses or a claim about a population parameter. Specifically, the study utilized coefficient of regression as the hypothesis testing tool of choice. The study adopted the use of the Regression Coefficients  $p$  value as the model for testing the hypothesis. The conclusion on the null hypothesis was made based on the outcome of the computed  $p$ -value. If the  $p$ -value is less than 0.05 ( $p < 0.05$ ), then the conclusion is that the null hypothesis is rejected, while if the  $p$ -value is more than 0.05 ( $p > 0.05$ ) the null hypothesis is accepted.

### **3.10 Operationalization of Variables**

Bhattacharjee (2012), defines operationalization as the process of designing precise measures for abstract theoretical constructs. Operationalization of variables seeks to identify the variables of the study and show how these variables will be measured. It involves taking a conceptual definition and making it more precise by linking it to one or more specific indicators or operational definitions. The operationalization of the variables is as shown in Table 2.2.

**Table 3.4: Operationalization of Variables**

<b>Objective</b>	<b>Type of Variable</b>	<b>Indicators</b>	<b>Unit of Measurement</b>	<b>Scale</b>	<b>Tools of Analysis</b>	<b>Type of Analysis</b>
To establish the effect of Coordinated border management on customs performance at Key OSBP's in Kenya.	Independent Coordinated Border Management	<ul style="list-style-type: none"> <li>• Border efficiency</li> <li>• Proper communication channels</li> <li>• Availability of information</li> <li>• Timely service delivery</li> </ul>	Five Point Likert Scale	Ordinal	<ul style="list-style-type: none"> <li>• Mean</li> <li>• Standard Deviation</li> <li>• Percentage</li> </ul>	<ul style="list-style-type: none"> <li>• Descriptive Statistics</li> </ul>
					<ul style="list-style-type: none"> <li>• ANOVA</li> <li>• Correlation Analysis</li> <li>• Regression Analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Inferential Statistics</li> </ul>
To determine the effect of Systems automation on customs performance at Key OSBP's in Kenya.	Independent Systems Automation	<ul style="list-style-type: none"> <li>• Volume of goods cleared</li> <li>• Increased transaction capacity</li> <li>• Reduced manual processes</li> <li>• Increased revenue collection</li> <li>• Data Accuracy</li> <li>• System Availability &amp; Reliability</li> <li>• System ease of use</li> <li>• Processing speed</li> </ul>	Five Point Likert Scale	Ordinal	<ul style="list-style-type: none"> <li>• Mean</li> <li>• Standard Deviation</li> <li>• Percentage</li> </ul>	<ul style="list-style-type: none"> <li>• Descriptive Statistics</li> </ul>
					<ul style="list-style-type: none"> <li>• ANOVA</li> <li>• Correlation Analysis</li> <li>• Regression Analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Inferential Statistics</li> </ul>
To examine the effect of Human Resource Development on customs performance at Key OSBP's in Kenya	Independent Human Resource Development	<ul style="list-style-type: none"> <li>• Staff Training</li> <li>• Adequate staff numbers</li> <li>• Staff Motivation</li> <li>• Staff Competence</li> <li>• Integrity</li> <li>• Professionalism</li> </ul>	Five Point Likert Scale	Ordinal	<ul style="list-style-type: none"> <li>• Mean</li> <li>• Standard Deviation</li> <li>• Percentage</li> </ul>	<ul style="list-style-type: none"> <li>• Descriptive Statistics</li> </ul>
					<ul style="list-style-type: none"> <li>• ANOVA</li> <li>• Correlation Analysis</li> <li>• Regression Analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Inferential Statistics</li> </ul>
To assess the effect of Customs Modernization initiatives on customs performance at Key OSBP's in Kenya.	Dependent Performance	<ul style="list-style-type: none"> <li>• Average time to clear goods.</li> <li>• Revenue collected</li> <li>• Stakeholder Satisfaction</li> </ul>	Five Point Likert Scale	Ordinal	<ul style="list-style-type: none"> <li>• ANOVA</li> <li>• Correlation Analysis</li> <li>• Regression Analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Inferential Statistics</li> </ul>

### **3.11 Ethical Issues**

Ethics refers to the adherence to laid down code of conduct. The Webster's English dictionary defines ethics as the principles of conduct governing an individual or group. Given the sensitive nature of the information that was obtained, confidentiality of the data was observed. The study appreciates the privilege of being in possession of information that was obtained from the Kenya Revenue Authority, and for that reason, the information was strictly used for purposes of the study.

The respondents of the study were also protected by ensuring they remain anonymous, their identity is not disclosed and they participate voluntarily as respondents to the study. Anonymity ensured that it is not possible to link findings to any specific respondent in the study. The researcher maintained high levels of confidentiality and integrity during the duration of the research both in the field while collecting the data and afterwards during analysis and reporting.

Similarly, due to the fact that this was an academic research to be conducted in a Customs area of operation, official clearance was sought from the Kenya Revenue Authority to enable the researcher access the OSBP's for purpose of conducting the research. An official introduction letter was obtained from the Kenya School of Revenue Administration, introducing the researcher as a research student undertaking research.

Additionally, official clearance was obtained from the National Commission for Science, Technology and Innovation (NACOSTI), in the form of a research license authorizing the researcher to conduct the research.

## CHAPTER FOUR

### RESEARCH FINDINGS AND DISCUSSIONS

#### 4.1 Introduction

This chapter presents the study findings and discussions. The chapter starts by providing results on response rate and pilot study. Further, the findings on demographic information of the respondents are provided. Descriptive analysis results are then provided followed by diagnostic tests, correlation results and finally regression results are presented. The outcomes are also discussed with reference to reviewed empirical literature.

#### 4.2 Response Rate

The study administered 116 questionnaires to customs staff and clearing agents operating at the border posts. Table 4.1 shows the response rate.

**Table 4.1: Response Rate**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Returned	88	75.9%
Unreturned	28	24.1%
<b>Total</b>	<b>116</b>	<b>100%</b>

**Source: Research Data (2021)**

Of the 116 attached questionnaires, 88 were successfully completed and returned, which corresponds to a 75.9% response rate. The remaining 28 questionnaires were not returned or were incorrectly filled out. According to Saunders et al. (2009) a response rate of more than 50% was considered appropriate for the analysis. Similarly, according to Mugenda and Mugenda (2003), a 50% response rate is considered to be adequate, 60% to be good, while a 70% and above rate is considered to be very good. The

response rate obtained of 75.9% from this study is thus considered to be very good and a good representation of the views of the total population.

### 4.3 Pilot Results

Pilot study was conducted by issuing questionnaires to 12 customs officers. The data was then used to check for reliability and validity of the research instrument.

#### 4.3.1 Reliability Testing

The Cronbach Alpha was calculated in a bid to measure the reliability of the questionnaire. The results are presented in Table 4.2.

**Table 4.2: Reliability Results**

Variable	Cronbach's Alpha	Number of Items	Comment
Coordinated border management	0.786	8	Reliable
System automation	0.729	10	Reliable
Human resource development	0.766	8	Reliable
Customs performance	0.751	10	Reliable
Overall Reliability	0.869	36	Reliable

**Source: Research Data (2021)**

The results in Table 4.2 indicate that coordinated border management had a coefficient of 0.786, system automation 0.729, human resource development 0.766, and customs performance 0.751. The overall alpha coefficient was 0.869. All the variables had coefficients greater than 0.7. This implied that the items measuring the study variables were reliable. They were all used in the subsequent analyses.

#### 4.3.2 Validity Testing

The validity test for the study was done using Kaiser-Meyer - Olkin (KMO). The findings are shown in Table 4.3.

**Table 4.3: Factorial test results for Validity**

Variable	KMO Bartlett's Test of Sphericity			Sig.	Validity
		Approx. Chi-Square	df		
Coordinated Border Management	.564	134.005	28	.000	Valid
Systems Automation	.679	175.668	45	.000	Valid
Human Resource Development	.665	83.976	28	.000	Valid
Customs Performance	.695	185.696	45	.000	Valid

**Source: Research Data (2021)**

The study findings above showed that all the variables had a KMO above 0.5 and thus all the variables were valid.

#### **4.4 Demographic Information**

This section provides results on background information relating to the study respondents. These are; gender, area of operation, designation, current station of operation, number of years in service, and highest education level.

**Table 4.4: Demographic Information of the respondents**

<b>Variable</b>	<b>Category</b>	<b>Frequency</b>	<b>Percent</b>
Gender	F	28	31.8
	M	60	68.2
	Total	88	100
Area of operation	Clearing Agent	23	26.1
	KRA Customs Officer	65	73.9
	Total	88	100
Designation	Clearing Clerk	6	6.8
	Clerk	6	6.8
	Manager	2	2.3
	Officer	50	56.8
	Others(Please Specify)	9	10.2
	Supervisor	15	17
	Total	88	100
Current station of operation	Busia	22	25
	Lungalunga	24	27.3
	Malaba	33	37.5
	Namanga	9	10.2
	Total	88	100
Number of years in service	0-5	42	47.7
	10-20	16	18.2
	20-25	3	3.4
	5-10	21	23.9
	Over 25	6	6.8
	Total	88	100.0
Highest education level	Diploma	28	31.8
	Postgraduate	24	27.3
	Undergraduate	36	40.9
	Total	88	100

**Source: Research Data (2021)**

The study findings in Table 4.4 indicate that majority of the respondents (68.2%) were male, 73.9% operated in KRA Customs Office, 56.8% were officers. 37.5% of the respondents were stationed at Malaba, while 27.3% worked at Lungalunga. Further, 47.7% had worked for 0-5 years and 23.9% indicated 5-10 years. Finally, 40.9% had attained undergraduate level of education.



## 4.5 Descriptive Analysis

This section provides descriptive statistic findings in terms of percentages, mean and standard deviation. The results are presented in line with the study variables. The Likert Scale applied was as follows: (1- strongly disagree, 2-disagree, 3-neutral, 4- agree, and 5- strongly agree).

### 4.5.1 Coordinated Border Management

The respondents stated the extent to which they agreed or disagreed with statements on coordinated border management. The results are shown in Table 4.5.

**Table 4.5: Descriptive Statistics; Coordinated Border Management**

	SD	D	N	SA	SA	M	Std. Dev
Coordinated Border Management has resulted to Border Efficiency in terms of clearance of goods by customs.	0.0%	4.5%	4.5%	52.3%	38.6%	4.3	0.7
Coordinated Border Management has resulted to improved communication between different agencies and stakeholders present at the border and customs.	1.1%	1.1%	3.4%	53.4%	40.9%	4.3	0.7
Coordinated Border Management has resulted to Timely service delivery by customs.	1.1%	2.3%	13.6%	47.7%	35.2%	4.1	0.8
Coordinated Border Management has resulted to availability of information from other agencies critical for clearance of goods by customs.	0.0%	5.7%	17.0%	45.5%	31.8%	4.0	0.9
There is increased cooperation between customs and other border agencies due to coordinated approach to border management.	1.1%	4.5%	8.0%	51.1%	35.2%	4.2	0.8
Coordinated border management has led to a reduction in transit time for transit cargo.	2.3%	5.7%	19.3%	46.6%	26.1%	3.9	0.9
There is a reduction in duplication of activities i.e. physical verification due to Coordinated border management.	4.5%	9.1%	18.2%	44.3%	23.9%	3.7	1.1
Coordinated Border Management as a customs modernization initiative has led to an overall improvement of customs performance at the border.	0.0%	5.7%	9.1%	53.4%	31.8%	4.1	0.8
<b>Aggregate mean</b>						<b>4.1</b>	<b>0.8</b>

**Source: Research Data (2021)**

The study findings indicate that majority of the respondents (90.9%) agreed that coordinated border management has resulted to border efficiency in terms of clearance of goods by customs, improved communication between different agencies and stakeholders present at the border and customs (94.3%), timely service delivery by customs (82.9%), and availability of information from other agencies critical for clearance of goods by customs (77.3%). Further, coordinated border management has increased cooperation between customs and other border agencies (86.3%), reduced in transit time for transit cargo (72.7%), reduced in duplication of activities (68.2%) and overall improvement of customs performance at the border (85.2%)

The aggregate mean of 4.1 indicated that most of the respondents agreed with the statements on coordinated border management. This means that most custom officers and clearing agents appreciate the importance of coordinated border management. Additionally, the overall standard deviation of 0.8 implied that most of the respondents' shared similar view regarding to coordinated border management.

#### **4.5.2 Systems Automation**

The respondents stated the extent to which they agreed or disagreed with statements on systems automation. The results are shown in Table 4.6.

**Table 4.6: Descriptive Statistics; Systems Automation**

	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	<b>M</b>	<b>Std. Dev</b>
Systems automation in customs has resulted to an increase in the Volume of goods cleared through the increased use of X-Ray scanners for cargo verification.	12.5%	12.5%	17.0%	31.8%	26.1%	3.5	1.3
Systems automation in customs has resulted to Increased transaction capacity for handling customs entries.	4.5%	6.8%	9.1%	54.5%	25.0%	3.9	1.0
Systems automation in customs has resulted to reduced manual processes in customs operations, thereby simplifying the clearing process	4.5%	3.4%	12.5%	44.3%	35.2%	4.0	1.0
There is reduced physical verification of cargo due to the deployment and use of Cargo Scanners at the OSBP's	19.3%	9.1%	19.3%	33.0%	19.3%	3.2	1.4
Systems automation in customs has resulted to Increased revenue collection through the integration of payment with online and mobile payment platforms	2.3%	10.2%	9.1%	46.6%	31.8%	4.0	1.0
The available Customs clearing system (SIMBA) is easy to use and reliable.	1.1%	6.8%	12.5%	45.5%	34.1%	4.1	0.9
The available Customs clearing system (SIMBA Systems) is accurate and has a high processing capability.	6.8%	8.0%	20.5%	48.9%	15.9%	3.6	1.1
Customs ICT Systems are integrated to those of other border agencies and there is seamless communication and information sharing.	8.0%	14.8%	18.2%	44.3%	14.8%	3.4	1.2
Systems automation in customs has resulted to a reduction in the clearance time of cargo	0.0%	8.0%	15.9%	45.5%	30.7%	4.0	0.9
Systems automation as a customs modernization initiative has led to an overall improvement of customs performance.	1.1%	5.7%	10.2%	50.0%	33.0%	4.1	0.9
<b>Aggregate mean</b>						<b>3.8</b>	<b>1.1</b>

**Source: Research Data (2021)**

The study findings indicate that majority of the respondents (57.9%) agreed that systems automation in customs has resulted to an increase in the volume of goods cleared through the increased use of X-Ray scanners for cargo verification, has

increased transaction capacity for handling customs entries (79.5%), has reduced manual processes in customs operations, thereby simplifying the clearing process (79.5%), has reduced physical verification of cargo (52.3%), has increased revenue collection through the integration of payment with online and mobile payment platforms (78.4%), and available Customs clearing system (SIMBA) is easy to use and reliable (79.6%). Further, 64.8% noted that the available Customs clearing system (SIMBA Systems) is accurate and has a high processing capability, customs ICT Systems are integrated to those of other border agencies and there is seamless communication and information sharing (59.1%), systems automation has resulted to a reduction in the clearance time of cargo (76.2%), and has led to an overall improvement of customs performance (83%).

The aggregate mean of 3.8 indicated that most of the respondents agreed with the statements on systems automation. This means that most custom officers and clearing agents appreciate the importance of systems automation. Additionally, the overall standard deviation of 1.1 implied that most of the respondents' shared similar view regarding to systems automation.

#### **4.5.3 Human Resource Development**

The respondents stated the extent to which they agreed or disagreed with statements on human resource development. The results are shown in Table 4.7.

**Table 4.7: Descriptive Statistics; Human Resource Development**

	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	<b>M</b>	<b>Std. Dev</b>
Customs staff are periodically trained in technical aspects of customs work i.e. EACMA, Common External Tariff and emerging trends in World customs administration.	13.6%	8.0%	13.6%	39.8%	25.0%	3.6	1.3
There is adequate staff capacity in customs to enable handling of customs related border operations i.e. physical verification.	15.9%	22.7%	23.9%	25.0%	12.5%	3.0	1.3
A high level of professionalism is shown by customs officers in the course of carrying out their duties.	2.3%	5.7%	15.9%	43.2%	33.0%	4.0	1.0
Customs officers are responsive to the needs of the importers and clearing agents.	1.1%	6.8%	11.4%	51.1%	29.5%	4.0	0.9
Customs staff are highly motivated and carry out their duties with enthusiasm.	17.0%	15.9%	21.6%	34.1%	11.4%	3.1	1.3
Customs staff demonstrates high levels of integrity in the course of discharging their duties.	0.0%	9.1%	12.5%	40.9%	37.5%	4.1	0.9
Customs staff are technically competent and well versed with customs procedures, laws and regulations.	0.0%	4.5%	14.8%	52.3%	28.4%	4.1	0.8
Human Resource Development as a Customs Modernization initiative has led to an overall improvement of customs performance.	6.8%	8.0%	19.3%	53.4%	12.5%	3.6	1.1
<b>Aggregate mean</b>						<b>3.7</b>	<b>1.1</b>

**Source: Research Data (2021)**

The study findings indicate that majority of the respondents (64.8%) agreed that customs staff are periodically trained in technical aspects of customs work, a high level of professionalism is shown by customs officers in the course of carrying out their duties (76.2%), customs officers are responsive to the needs of the importers and clearing agents (80.6%), customs staff demonstrates high levels of integrity in the course of discharging their duties (78.4%), customs staff are technically competent and well versed with customs procedures, laws and regulations (80.7%), and human

resource development as a customs modernization initiative has led to an overall improvement of customs performance (65.9%).

The aggregate mean of 3.7 indicated that most of the respondents agreed with the statements on human resource development. This means that most custom officers and clearing agents appreciate the importance of human resource development and its role in supporting customs performance. Additionally, the overall standard deviation of 1.1 implied that most of the respondents' shared similar view regarding to human resource development.

#### **4.5.4 Customs Performance**

The respondents stated the extent to which they agreed or disagreed with statements on customs performance. The results are shown in Table 4.8.

**Table 4.8: Descriptive Statistics; Customs Performance**

	SD	D	N	A	SA	M	Std. Dev
There is increased efficiency in the collection of customs duties through flexible payment methods, leading to growth in revenue collection.	0.0%	8.0%	10.2%	47.7%	34.1%	4.1	0.9
Cargo clearance time (from entry lodgement to release of goods) has significantly reduced at the OSBP due the modernization initiatives put in place by customs.	1.1%	4.5%	11.4%	58.0%	25.0%	4.0	0.8
Customs is able to clear huge volume of transit cargo with minimum intrusive procedures.	1.1%	6.8%	8.0%	61.4%	22.7%	4.0	0.8
There is efficiency in the cargo clearing procedures at the OSBP's which is characterized by a simplified clearing process.	0.0%	3.4%	11.4%	63.6%	21.6%	4.0	0.7
Tariff rulings are issued expeditiously by customs in the event of tariff disagreement.	4.5%	14.8%	27.3%	42.0%	11.4%	3.4	1.0
Stakeholder engagement is an ongoing process with stakeholders frequently briefed on developments in customs procedures and operations.	0.0%	1.1%	5.7%	62.5%	30.7%	4.2	0.6
The concerns of key stakeholders i.e. clearing agents and importers are addressed within reasonable time.	1.1%	6.8%	14.8%	52.3%	25.0%	3.9	0.9
There is transparency and clarity on the overall customs procedures at the OSBP's.	0.0%	6.8%	14.8%	52.3%	26.1%	4.0	0.8
There is a positive public perception on the reputation of customs in light of modernization initiatives put in place.	4.5%	10.2%	14.8%	52.3%	18.2%	3.7	1.0
Customs Duties charged are based on a fair assessment of the customs value of the imported goods and not arbitrary values.	2.3%	4.5%	13.6%	50.0%	29.5%	4.0	0.9
<b>Aggregate mean</b>						<b>3.9</b>	<b>0.8</b>

**Source: Research Data (2021)**

The study findings indicate that majority of the respondents (81.8%) agreed that there is increased efficiency in the collection of customs duties through flexible payment methods, leading to growth in revenue collection, cargo clearance time has significantly reduced (83%), customs is able to clear huge volume of transit cargo with minimum intrusive procedures (84.1%), there is efficiency in the cargo clearing

procedures (85.2%) and tariff rulings are issued expeditiously by customs in the event of tariff disagreement (53.4%).

Further, 93.2% noted that stakeholder engagement is an ongoing process with stakeholders frequently briefed on developments in customs procedures and operations, concerns of key stakeholders are addressed within reasonable time (77.3%), there is transparency and clarity on the overall customs procedures at the OSBP (58.4%), there is a positive public perception on the reputation of customs in light of modernization initiatives put in place (70.5%), and customs duties charged are based on a fair assessment of the customs value of the imported goods and not arbitrary values (79.5%).

The aggregate mean of 3.9 indicated that most of the respondents agreed with the statements on customs performance. This means that most custom officers and clearing agents recognise improvement in customs performance as a result of the modernization initiatives put in place by the Kenya Revenue Authority's customs department. Furthermore, the total standard deviation of 0.8 indicated that the majority of respondents held similar views on customs performance.

#### **4.6 Diagnostic Tests**

Several diagnostic tests were performed prior to performing regression analysis. This was done to ensure that the variable data was not skewed, which would lead to inaccurate estimations. The tests also validated that the multiple regression analysis assumptions were not broken. The tests included: normality, linearity, multicollinearity, heteroscedasticity, and auto-correlation.



#### 4.6.1 Normality Test

The normality of the data was tested using the Shapiro-Wilk test. The criterion is to reject the null hypothesis of a normal distribution if the p-value  $< 0.05$ , which indicates that the data is not normally distributed (Shapiro & Wilk, 1965). On the other hand, the null hypothesis is accepted if the p-value  $> 0.05$  which indicates that the data is normally distributed. Results are shown in Table 4.9.

**Table 4.9: Test for Normality**

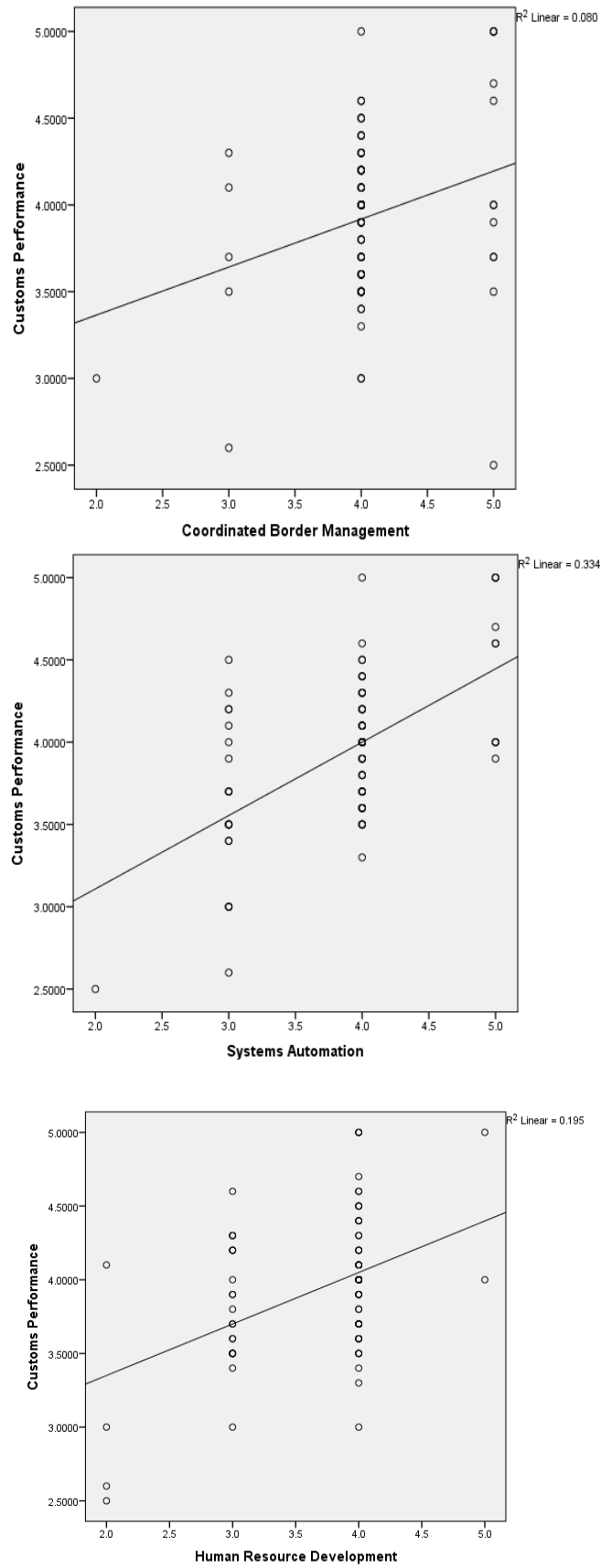
Tests of Normality	Shapiro-Wilk		
	Statistic	df	Sig.
Coordinated Border Management	.968	88	.112
Systems Automation	.616	88	.061
Human Resource Development	.778	88	.073
Customs Performance	.704	88	.057

**Source: Research Data (2021)**

The findings indicated that all the data variables had significant (Sig) values greater than 0.05 implying that the variables data was normally distributed. The null hypothesis of normal distribution was therefore not rejected.

#### 4.6.2 Linearity Test

Linearity was tested using scatterplots. Linearity test measures the strength or degree of linear association between correlated variables represented by a straight line (Jain, Agarwal, Thinakaran & Parekhji, 2017). It was expected that the relationship between the variables would be fairly linear before the regression models was applied.



**Figure 4.1: Linearity test using Scatter Plots**

**Source: Research Data (2021)**

The scatter plots in Figure 4.1 reveal existence of linear dependence between the independent variables (coordinated border management, systems automation & human resource development) and the dependent variable (customs performance). This is demonstrated by the line of fit.

#### 4.6.3 Multicollinearity Test

The study tested multicollinearity the between independent variables using the Variance Inflation Factor (VIF). According to (Field, 2009), multi-collinearity is said to exist if there is a strong correlation between two or more independent variables in a model. According to Pallant (2011), if the VIF value lies between 1-10, then there is no multicollinearity whereas if the VIF is  $> 10$ , then there is multicollinearity. For the value of tolerance test any Tolerance value  $< 0.1$  indicates that there is multicollinearity. The results are shown in Table 4.10.

**Table 4.10: VIF test of Multicollinearity**

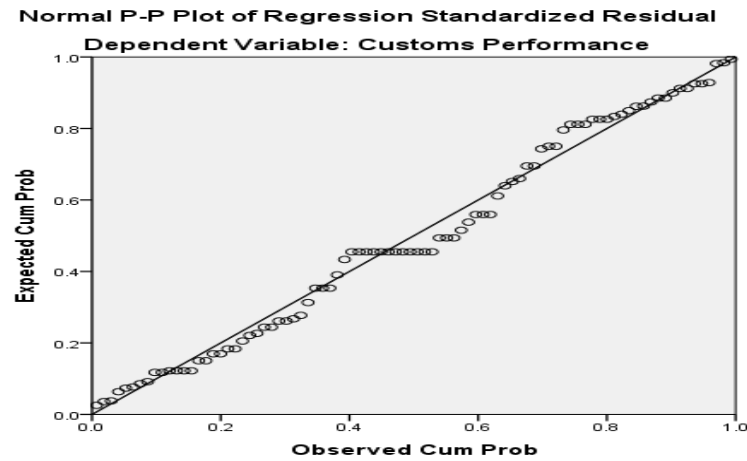
<b>Variable</b>	<b>Tolerance</b>	<b>VIF</b>
Coordinated Border Management	0.841	1.189
Systems Automation	0.778	1.285
Human Resource Development	0.776	1.289

**Source: Research Data (2021)**

The results show that the variables have VIF values less than 10 and tolerance levels more than 0.1, meaning that the independent variables did not have multicollinearity.

#### 4.6.4 Heteroscedasticity Test

Heteroscedasticity was tested using P-P plot of regression standardized residual. The criterion is that the points should be about the same distance from the straight line for null hypothesis of constant variance of error term to be accepted. Figure 4.2 demonstrates the results.



**Figure 4.2: Heteroscedasticity Test**

**Source: Research Data (2021)**

The results indicate that the points are about the same distance from the line. Therefore, the data has no heteroscedasticity. This denotes that the regression model chosen between customs modernization initiatives and customs performance was appropriate.

#### 4.6.5 Autocorrelation Test

The test of auto-correlation was done using the Durbin-Watson test. This was done to check that the residuals of the model are not correlated since independence of the residuals is one of the basic hypotheses of regression analysis. The results are shown in Table 4.11.

**Table 4.11: Durbin-Watson test of Auto-correlation**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.619a	0.383	0.361	0.380462	1.726

a Predictors: (Constant), Human Resource Development, Coordinated Border Management, Systems Automation b) Dependent Variable: Customs Performance

**Source: Research Data (2021)**

The results indicate a Durbin-Watson value of 1.726 implying that the null hypothesis of no autocorrelation was not rejected and thus residuals were not auto-correlated.

#### 4.7 Correlation Analysis

Pearson Bivariate correlation coefficient was used to compute the correlation between the dependent variable (customs performance) and the independent variables (co-ordinated border management, systems automation, and human resource development).

Table 4.12 shows the results.

**Table 4.12: Correlation Matrix**

		Customs Performance	Coordinated Border Management	Systems Automation	Human Resource Development
Customs Performance	Pearson Correlation Sig. (2-tailed)	1.000			
Coordinated Border Management	Pearson Correlation Sig. (2-tailed)	.284** 0.007	1.000		
Systems Automation	Pearson Correlation Sig. (2-tailed)	.578** .000	.334** 0.001	1.000	
Human Resource Development	Pearson Correlation Sig. (2-tailed)	.442** .000	.339** 0.001	.425** .000	1.000

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

**Source: Research Data (2021)**

According to Sekaran (2008), when the correlation coefficient ranges from -1.0 (perfect negative correlation) to +1.0 (perfect positive correlation), the relationship is believed to be linear (perfect positive relationship). The findings indicate that coordinated border management had a positive, weak and insignificant association with customs performance ( $r = 0.284$ ,  $p = 0.007 < 0.05$ ).

The results also indicate that systems automation had a strong, positive and significant relationship with customs performance ( $r = 0.578$ ,  $p = 0.000 < 0.05$ ). This implies that

improvement in systems automation by I unit is accompanied by improvement in customs performance by 0.578 units. Human resource development was also found to have a favourable and substantial link with customs performance ( $r = 0.442$ ,  $p = 0.0000.05$ ). This means that a one-unit increase in human resource development is accompanied by a 0.442-unit increase in customs performance.

#### 4.8 Regression Analysis

A multiple linear regression analysis was carried out to establish the relationship between variables. The independent variables were regressed against the dependent variable. The findings are shown in Table 4.13, Table 4.14 and Table 4.15.

**Table 4.13: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.619a	0.383	0.361	0.380462

a Predictors: (Constant), Human Resource Development, Coordinated Border Management, Systems Automation  
b Dependent Variable: Customs Performance

#### Source: Research Data (2021)

The model summary results indicate that all the independent variables jointly explain 38.3% ( $R^2 = 0.383$ ) of the total variations in customs performance, as indicated by an R Square of 0.383. The balance of 0.617, thus represents other variables, not included in the model, that may help explain 61.7% of the variations in customs performance.

**Table 4.14: ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.539	3	2.513	17.36	.000b
	Residual	12.159	84	0.145		
	Total	19.698	87			

a Dependent Variable: Customs Performance

b Predictors: (Constant), Human Resource Development, Coordinated Border Management, Systems Automation

**Source: Research Data (2021)**

The ANOVA results reveal an F statistic of 17.36 and reported p value of 0.000. The  $p$  value being less than the alpha value ( $p=0.000 < 0.05$ ), denoted that the proposed model was statistically significant (good fit) in predicting the dependent variable. Additionally, the calculated F value (the F statistic) was found to be more than the F critical ( $F = 17.36 > 2.71$ ) at (3,84) degrees of freedom, an indication of statistical significance of the model. These results imply that systems automation and human resource development were statistically significant in explaining performance at key OSBP's in Kenya.

**Table 4.15: Regression Coefficient Results**

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	1.691	0.385		4.39	0.000
Coordinated Border Management	0.051	0.091	0.052	0.556	0.579
Systems Automation	0.358	0.075	0.464	4.774	0.000
Human Resource Development	0.179	0.077	0.227	2.329	0.022

a Dependent Variable: Customs Performance

**Source: Research Data (2021)**

The regression of coefficient results indicates that systems automation ( $\beta = 0.358$ ,  $p = 0.000 < 0.05$ ); and human resource development ( $\beta = 0.179$ ,  $p = 0.022 < 0.05$ ) had a positive and significant effect on customs performance. This implied that an improvement in systems automation and human resource development by 1 unit would lead to improvement in customs performance by 0.358 and 0.179 units respectively. On the other hand, coordinated border management did not have a significant effect on customs performance ( $p = 0.579 > 0.05$ ).

From the hypothesized model ( $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$ ), the estimated model becomes;

$$Y = 1.691 + 0.358X_2 + 0.179X_3 + e$$

Where:

$Y$  = Customs Performance

$\beta_0$  = Value of the constant (value of  $Y$  when all the independent variables are held constant)

$\beta_1$ ,  $\beta_2$  and  $\beta_3$  = Regression Coefficients of  $X_1$ ,  $X_2$  and  $X_3$  respectively

$X_2$  = Systems Automation

$X_3$  = Human Resource Development

$e$  = Error term

#### **4.9 Test of Hypotheses**

Hypothesis testing was based on regression of coefficients results (Table 4.15). The criterion was to reject the null hypothesis if the  $p$  value was  $< 0.05$ . Otherwise, if the  $p$  value was  $> 0.05$ , the null hypothesis would not be rejected.



The first null hypothesis ( $H_{01}$ ) predicted that there was no statistically significant relationship between coordinated border management and customs performance at key OSBP's in Kenya. Based on the  $p$ -value (Table 4.15) of  $0.579 > 0.05$ , the null hypothesis was not rejected. This implies that there is no statistically significant relationship between coordinated border management and customs performance at key OSBP's in Kenya.

The second null hypothesis ( $H_{02}$ ) predicted that there was no statistically significant relationship between systems automation and customs performance at key OSBP's in Kenya. Based on the  $p$ -value (Table 4.15) of  $0.000 < 0.05$ , the null hypothesis was rejected. This implies that there is a statistically significant relationship between systems automation and customs performance at key OSBP's in Kenya.

The third null hypothesis ( $H_{03}$ ) predicted that there was no statistically significant relationship between human resource development and customs performance at key OSBP's in Kenya. Based on the  $p$ -value (Table 4.15) of  $0.022 < 0.05$ , the null hypothesis was rejected. This implies that there is a statistically significant relationship between human resource development and customs performance at key OSBP's in Kenya.

**Table 4.16: Summary of hypotheses Test Results**

		P-Values	Decision
$H_{01}$	There is no statistically significant relationship between coordinated border management and customs performance at key OSBP's in Kenya.	0.579	Accepted (Not rejected)
$H_{02}$	There is no statistically significant relationship between Systems automation and customs performance at key OSBP's in Kenya.	0.000	Rejected
$H_{03}$	There is no statistically significant relationship between Human resource development and customs performance at key OSBP's in Kenya.	0.022	Rejected

#### 4.10 Discussion of Findings

The first objective of the study was to establish the effect of coordinated border management on customs performance at Key OSBP's in Kenya. Majority of the respondents noted that coordinated border management improved border efficiency, communication, timely service delivery, availability of information, cooperation and decline in duplication of activities. The findings indicated that coordinated border management did not have a significant effect on customs performance ( $p = 0.579 > 0.05$ ). The finding contradicted Hummel's and Shuar (2013) observation that reducing transit time by one day can have the effect of boosting trade. The study results further disagreed with Djankov, Freund, and Pham (2006) establishment that, on average, each additional day a product is delayed prior to being shipped reduces trade.

The second objective of the study was to establish the effect of systems automation on customs performance at Key OSBP's in Kenya. Majority of the respondents highlighted that systems automation had resulted to increased volume of goods cleared, increased transaction capacity for handling customs entries, reduced manual processes in customs operations, reduced physical verification of cargo, increased revenue collection and reduction in the clearance time of cargo. The findings indicated that systems automation ( $\beta = 0.358$ ,  $p = 0.000 < 0.05$ ) had a positive and significant effect on customs performance. This means that an increase in systems automation by 1 unit will increase customs performance by 0.358 units.

The finding was consistent with the work of Mwati (2014) who found that computerized systems contributed positively to the performance of customs department. Similarly, Gidisu (2012) found that system automation was significantly related with customs clearance time and had a positive impact on the effectiveness of revenue collection.

Nkote and Luwugge's (2010) study, similarly concluded that there was a positive relationship between customs automation and the effectiveness of revenue collection.

The third objective of the study was to establish the effect of human resource development on performance at Key OSBP's in Kenya. Majority of the respondents noted that customs staff are trained in technical aspects of customs work, they are responsive to the needs of the importers and clearing agents, demonstrates high levels of integrity, and are technically competent and well versed with customs procedures, laws and regulations. The findings indicated that human resource development ( $\beta=0.179$ ,  $p=0.022<0.05$ ) had a positive and significant effect on customs performance. This means that an increase in human resource development will increase customs performance by 0.179 units. The findings mirrored those of Bhero and Hoffman (2014) who alluded to the importance of monitoring human conduct to foster accountability and efficiency at the OSBP.

## CHAPTER FIVE

### SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

#### 5.1 Introduction

This chapter presents summary of the findings, conclusion and recommendations. This is done in line with the objectives of the study.

#### 5.2 Summary of Findings

##### 5.2.1 Coordinated Border Management and Customs Performance

The respondents noted that coordinated border management improved border efficiency and communication leading to timely service delivery, availability of information, inter-agency cooperation and reduction in duplication of activities. However, the findings indicated that coordinated border management did not have a significant effect on customs performance. The finding contradicted Hummel's and Shuar (2013) observation that reducing transit time by one day can have the effect of boosting trade. The study results further disagreed with Djankov, Freund, and Pham (2006) establishment that, on average, each additional day a product is delayed prior to being shipped reduces trade. From the regressions results, the null hypothesis that there was no statistically significant relationship between coordinated border management and performance at key OSBP's in Kenya was not rejected.

##### 5.2.2 Systems Automation and Customs Performance

The respondents highlighted that systems automation had resulted to, increased transaction capacity for handling customs entries, reduced manual processes in customs operations, increased revenue collection and reduction in the clearance time of cargo. The findings indicated that systems automation had a positive and significant effect on customs performance. The finding concurred with Nkote and Luwugge's (2010)

conclusion that there was a positive relationship between customs automation and the effectiveness of revenue collection. Similarly, Sigey (2010) found that the Simba system not only increased departmental efficiency, but also improved staff skills, reduced departmental administrative costs and increased accountability in the customs department. From the regressions results, the null hypothesis that there was no statistically significant relationship between systems automation and performance at key OSBP's in Kenya was rejected.

### **5.2.3 Human Resource Development and Customs Performance**

The respondents noted that customs staff are trained in technical aspects of customs work, they are responsive to the needs of the importers and clearing agents, demonstrates high levels of integrity, and are technically competent and well versed with customs procedures, laws and regulations. The findings indicated that human resource development had a positive and significant effect on customs performance. The finding was similar to that of Cantens, Raballand, and Bilangna (2010) who outlined the importance of people as important resources within an organization set up. Lushchak and Bospalyuk (2013) also acknowledged the importance of employee involvement in change management, and indicated that organizations don't change, but it is the people who change, and in turn change the organization. From the regressions results, the null hypothesis that there was no statistically significant relationship between human resource development and performance at key OSBP's in Kenya was rejected.

### **5.3 Conclusion**

From the study findings, the study concluded that systems automation had a positive and significant effect on performance at Key OSBP's in Kenya. In particular, the study

identified transaction capacity, reduction in manual processes in customs operations, revenue collection, ease of use and reliability of the SIMBA system and clearance time of cargo as key aspects of customs operations on which systems automation has had an impact. The implication is that improvement of systems automation will significantly enhance customs performance.

The study also established that human resource development had a positive and significant effect on performance at Key OSBP's in Kenya. In particular, technical competence, knowledge of customs procedures and laws, integrity, professionalism and responsiveness to stakeholders needs, were identified as key aspects of customs operations that had been positively impacted by human resource development. This implies that improvement of human resource development will significantly enhance customs performance.

The study further concluded that coordinated border management did not significantly determine customs performance at Key OSBP's in Kenya. Thus the results indicate, there is a positive but insignificant relationship between customs performance at the OSBP's and coordinated border management.

## **5.4 Recommendations**

### **5.4.1 Coordinated Border Management**

From the findings, the study established that Coordinated Border Management did not have a significant effect on customs performance at Key OSBP's in Kenya. The study recommends that KRA should establish closer ties with other agencies present at the OSBP's in order to achieve greater cooperation with the agencies. KRA should put in place mechanisms of ensuring there is cooperation with the other border agencies. Such measures may include inter-agency sensitization, joint inter-agency trainings and inter-

agency transfer programs. This will help in ensuring there is inter-agency cooperation, reduction in duplication and elimination of suspicion by fostering trust through sharing of information. Greater cooperation will enhance better service delivery and ensure trade facilitation across the borders.

#### **5.4.2 Systems Automation**

From the findings, the study established that systems automation had a positive and significant effect on performance at Key OSBP's in Kenya. The study recommends that KRA should explore the technology field of Artificial Intelligence (AI) as part of its strategic focus towards further automating customs processes at the border points. AI will not only enhance cargo classification by using the correct HS code, but has the advantage of being accurate, saving time and reducing mistakes associated with manual cargo classification and interpretation of the HS code. Additionally, AI will be a game changer in risk management as it will provide advanced capability for identifying, monitoring and targeting suspicious cargo. This will help to reduce physical verification of all goods, a task which will only be reserved for cargo identified as suspicious. Reduced cargo verification will in turn result to smooth flow of cargo at the border points and further reduce cargo clearance time. Other potential benefits of AI include sealing of revenue leakage loopholes, real-time data synthesis and high data handling and processing capacity. Such an investment will not only boost performance at the borders, but will give the Customs Department a competitive edge in the region.

The study also recommends that KRA should enhance integration between its systems and those of other agencies at the border posts. This will ensure real time availability of information and enhance customs performance. The integration if achieved, will

provide an avenue for utilizing data analytics as part of risk management and performance evaluation.

#### **5.4.3 Human Resource Development**

The study also established that human resource development had a positive and significant effect on performance at Key OSBP's in Kenya. The study recommends that KRA should strengthen human resource development especially as regards staff motivation and staffing at the border posts. It is recommended that KRA should develop a progressive system of career growth, employee reward and motivation for the customs staff. This will boost the morale of the staff and encourage a high performance oriented culture, as well as contribute towards retaining of qualified staff. It is also recommended that there should be further enhancing of the staff establishment at the borders to boost service delivery. As the Authority continually automates its processes and introduces new technology, it is additionally recommended that there should be continuous re-orientation of the workforce through re-tooling and re-skilling to ensure staff are up to date with the changes.

#### **5.5 Contribution of the Study to customs administration**

This study makes a significant contribution to the field of customs administration by providing empirical evidence on the role of customs modernization initiatives in determining customs performance at the OSBP's. From the study findings, it is evident that customs modernization initiatives, particularly, systems automation and human resource development play a key role in influencing customs performance. Therefore, KRA should develop appropriate customs modernization initiatives and strengthen the ones already in existence. Notably, KRA's management should strengthen systems



automation and human resource development initiatives. The coordinated border management initiative should be re-evaluated to find out the possible problem.

### **5.6 Areas for Further Studies**

The study assessed the effect of customs modernization initiatives on performance at Key OSBP's in Kenya. The study focused on three customs modernization initiatives, which accounted for only 38% of changes in customs performance. Future studies could consider other emerging customs modernization initiatives that could explain the remaining 62% of change in customs performance. Such factors include government trade policy, bilateral trade relations with neighboring countries, risk management initiatives, Customs legal framework and simplification of customs clearing procedures.

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## APPENDICES

### Appendix 1: Research Questionnaire

Please respond to the questions below by ticking the appropriate option in the brackets provided.

#### PART A: BACKGROUND INFORMATION

1. Gender of the respondent

Male  Female

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2. Area of Operation:

KRA Customs Officer  Clearing Agent

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3. Designation:

Manager   
Assistant Manager   
Supervisor   
Officer   
Others (Please Specify)

---

4. Current Station of Operation

Malaba   
Busia   
Namanga   
Lungalunga

---

5. Number of Years in Service

0-5   
5-10   
10-20   
20-25   
Over 25

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6. Highest Education Level Attained:

a) Postgraduate   
b) Undergraduate   
c) Diploma

## SECTION A: Coordinated Border Management and Customs Performance

With regards to **Coordinated Border Management on Customs Performance**, kindly indicate by ticking the appropriate option, the extent to which you agree with the following statements based on the following scale:

**1-Strongly disagree, 2-Disagree, 3-Neutral, 4-Agree and 5- Strongly agree**

Please (√) as appropriate

	<b>Coordinated Border Management</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
		<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
1.	Coordinated Border Management has resulted to Border Efficiency in terms of clearance of goods by customs.					
2.	Coordinated Border Management has resulted to improved communication between different agencies and stakeholders present at the border and customs.					
3.	Coordinated Border Management has resulted to Timely service delivery by customs.					
4.	Coordinated Border Management has resulted to availability of information from other agencies critical for clearance of goods by customs.					
5.	There is increased cooperation between customs and other border agencies due to coordinated approach to border management.					
6.	Coordinated border management has led to a reduction in transit time for transit cargo.					
7.	There is a reduction in duplication of activities i.e. physical verification due to Coordinated border management.					
8.	Coordinated Border Management as a customs modernization initiative has led to an overall improvement of customs performance at the border.					

## SECTION B: Systems Automation and Customs Performance

With regards to **Systems Automation on Customs Performance**, kindly indicate by ticking the appropriate option, the extent to which you agree with the following statements based on the following scale:

**1-Strongly disagree, 2-Disagree, 3-Neutral, 4-Agree and 5- Strongly agree**

Please (√) as appropriate

<b>Systems Automation</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
		<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
1.	Systems automation in customs has resulted to an increase in the Volume of goods cleared through the increased use of X-Ray scanners for cargo verification.					
2.	Systems automation in customs has resulted to Increased transaction capacity for handling customs entries .					
3.	Systems automation in customs has resulted to reduced manual processes in customs operations, thereby simplifying the clearing process.					
4.	There is reduced physical verification of cargo due to the deployment and use of Cargo Scanners at the OSBP's					
5.	Systems automation in customs has resulted to Increased revenue collection through the integration of payment with online and mobile payment platforms.					
6.	The available Customs clearing system (SIMBA) is easy to use and reliable.					
7.	The available Customs clearing system (SIMBA Systems) is accurate and has a high processing capability.					
8.	Customs ICT Systems are integrated to those of other border agencies and there is seamless communication and information sharing.					
9.	Systems automation in customs has resulted to a reduction in the clearance time of cargo.					
10.	Systems automation as a customs modernization initiative has led to an overall improvement of customs performance.					

### SECTION C: Human Resource Development and Customs Performance

With regards to **Human Resource Development on Customs Performance**, kindly indicate by ticking the appropriate option, the extent to which you agree with the following statements based on the following scale:

**1-Strongly disagree, 2-Disagree, 3-Neutral, 4-Agree and 5- Strongly agree**

Please (√) as appropriate.

<b>Human Resource Development</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
		<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
1.	Customs staff are periodically trained in technical aspects of customs work i.e. EACMA, Common External Tariff and emerging trends in World Customs administration					
2.	There is adequate staff capacity in customs to enable handling of customs related border operations i.e. physical verification					
3.	A high level of professionalism is shown by customs officers in the course of carrying out their duties.					
4.	Customs officers are responsive to the needs of the importers and clearing agents.					
5.	Customs staff are highly motivated and carry out their duties with enthusiasm.					
6.	Customs staff demonstrate high levels of integrity in the course of discharging their duties.					
7.	Customs staff are technically competent and well versed with customs procedures, laws and regulations.					
8.	Human Resource Development as a Customs Modernization initiative has led to an overall improvement of customs performance.					

### SECTION D: Customs Performance

With regards to **Customs Performance**, kindly indicate by ticking the appropriate option, the extent to which you agree with the following statements based on the following scale:

**1-Strongly disagree, 2-Disagree, 3-Neutral, 4-Agree and 5- Strongly agree**

Please (√) as appropriate.

Customs Performance		1	2	3	4	5
		Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
1.	There is increased efficiency in the collection of customs duties through flexible payment methods, leading to growth in revenue collection compared to set targets.					
2.	Cargo clearance time (from entry lodgement to release of goods) has significantly reduced at the OSBP due the modernization initiatives put in place by customs.					
3.	Customs is able to clear huge volume of transit cargo with minimum intrusive procedures.					
4.	There is efficiency in the cargo clearing procedures at the OSBP's which is characterised by a simplified clearing process.					
5.	Tariff rulings are issued expeditiously by customs in the event of tariff disagreement.					
6.	Stakeholder engagement is an ongoing process with stakeholders frequently briefed on developments in customs procedures and operations.					
7.	The concerns of key stakeholders i.e. clearing agents and importers are addressed within reasonable time.					
8.	There is transparency and clarity on the overall customs procedures at the OSBP's.					
9.	There is a positive public perception on the reputation of customs in light of modernization initiatives put in place.					
10.	Customs Duties charged are based on a fair assessment of the customs value of the imported goods and not arbitrary values.					

*Thank you for your time and participation in this Survey!!!*





**Appendix 3: Kenya Revenue Authority Clearance**

**Ref: 9360**

**16<sup>th</sup> June 2020**

King Oyieke  
P.O. Box 48240-00100  
**NAIROBI**

Dear King,

**RE: REQUEST TO CONDUCT RESEARCH AT KRA**

Reference is made to your letter dated **1<sup>st</sup> July 2019** on the above subject.

We are pleased to inform you that approval has been granted for you to conduct research at KRA towards your thesis on the *'Effects of Customs Modernization on Performance of Key One Stop Border Posts in Kenya.'*

Please note that the data collected should be for academic purposes only and should be treated with utmost confidentiality.

Kindly share your findings with the Authority on completion of the study.

Sincerely,

**Hilda Mwangi**  
**For: Deputy Commissioner – HR**




***Tulipe Ushuru, Tujitegemeel***


Times Tower Building - Haile Selassie Avenue - P.O. Box 48240-00100 GPO, Nairobi, Kenya, Tel: 020-281 0000



## Appendix 4: KESRA Introduction Letter



Kenya School of Revenue  
Administration



**KENYA REVENUE  
AUTHORITY**  
ISO 9001:2015 CERTIFIED

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REF: KESRA/NBI/036

25<sup>th</sup> November, 2020

**TO WHOM IT MAY CONCERN**


**RE: REQUEST FOR RESEARCH PERMIT:**  
**KING OYIEKE- REG. NO. KESRA/105/0070/2017**

This is to confirm that the above named is a student at Kenya School of Revenue Administration (KESRA) Nairobi Campus pursuing Masters in Tax & Customs Administration.


The named student is undertaking Research on **“Effects of Customs modernization initiatives on performance at key one stop border posts in Kenya.”**

The purpose of this letter is to request your good office to assist the above student with the information to enable him work on his project.

Thank you.




**Dr. Marion Nekesa PHD,**  
**Head Academic Research**  
**KESRA**




**P. O. Box 48240 – 00100, Nairobi**

**Email: [kesratraining@kra.go.ke](mailto:kesratraining@kra.go.ke)**

**Tel: +254715877535/9**



***Tulipe Ushuru Tujitegeme!***



## Appendix 5: Plagiarism Report

### EFFECT OF CUSTOMS MODERNIZATION INITIATIVES ON CUSTOMS PERFORMANCE AT KEY ONE STOP BORDER POSTS IN KENYA

#### ORIGINALITY REPORT

<b>19%</b>	<b>19%</b>	<b>3%</b>	<b>9%</b>
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

#### PRIMARY SOURCES

<b>1</b>	<b>ir-library.ku.ac.ke</b> Internet Source	<b>2%</b>
<b>2</b>	<b>erepository.uonbi.ac.ke</b> Internet Source	<b>1%</b>
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<b>5</b>	<b>www.iajournals.org</b> Internet Source	<b>1%</b>
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<b>7</b>	<b>Submitted to Mount Kenya University</b> Student Paper	<b>1%</b>
<b>8</b>	<b>Submitted to KCA University</b> Student Paper	<b>&lt;1%</b>

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